REVISED DRAFT FINAL

SAMPLING AND ANALYSIS PLAN REPORT FOR A SEDIMENT CHARACTERIZATION STUDY TO SUPPORT PROPOSED DREDGING AT THE MOLE PIER FLOATING DRY DOCK AT NAVAL BASE SAN DIEGO

SAN DIEGO, CALIFORNIA

Submitted to:
U.S. Army Corps of Engineers
Carlsbad Field Office
5900 La Place Ct., Suite 1100
Carlsbad, California 92008

and

U.S. Environmental Protection Agency
Region 9 Water Division
75 Hawthorne Street
San Francisco, California 94105

Submitted by:

U.S. Department of the Navy
Naval Facilities Engineering Systems Command Southwest
750 Pacific Highway
12th Floor
San Diego, California 92132

December 16, 2022
REVISED July 6, 2023

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

EXECUTIVE SUMMARY

Naval Facilities Engineering Systems Command Southwest (NAVFAC Southwest) is proposing to install a floating dry and conduct associated dredging (Project) at Naval Base San Diego (NBSD). The Navy deemed the dry dock installation project necessary to address an existing and projected shortfall of dry dock space for maintenance of the Pacific Fleet. The proposed Project activities required an Environmental Assessment (EA) under the National Environmental Policy Act, National Marine Fisheries Service consultation documentation, and sediment testing of the proposed dredge sediments to support the permitting for the installation of the new Floating Dry Dock (FDD), which is to be located on the southside of the NBSD Mole Pier. The proposed Project would include the following components: partial demolition of the existing Mole Pier Wharf, pile installation, construction of a new wharf area and vehicle access ramp, and associated dredging to ready the Project site for the new remotely fabricated FDD. Dredging within the proposed Project footprint would be needed to (1) accommodate the required operational depth for the FDD and (2) establish the depth needed for safe transit of vessels into and out of the FDD.

In support of the proposed FDD installation Project, this Sampling Analysis Plan (SAP) Report addresses the dredged material characterization component of the FDD dredged material characterization study (Study). This SAP Report outlines the federally approved procedures that were employed to assess suitable disposal options and results for the proposed dredged materials. The Study used a tiered approach to characterize the physical, chemical, toxicological, and bioaccumulation characteristics of the proposed dredged materials and to assess their suitability for placement at identified disposal locations.

The dredging component to support the proposed FDD installation involves dredging and removal of approximately 110,960 cubic yards (cy) of material (this volume estimate includes the dredged material removed to the project design depth plus a 2-ft overdredge [OD] allowance) across three dredging areas with varying design depths. These areas include: 1) the turning basin to be dredged to a depth of -35-ft mean lower low water (MLLW); 2) the approach channel to be dredged to a depth of -37-ft MLLW; and 3) the FDD Sump footprint to be dredged to a depth of -56-ft MLLW. All three of these areas were evaluated to the proposed depths plus a 2-ft (OD) allowance (to -37, -39, and -58-ft MLLW, respectively) (Table ES-1). In total, the dredge area encompasses approximately 9.98-acres. Based on the required Project dredging depths, it was assumed that a significant amount of the sediments to be dredged are native formational materials (NFM). Because of the two distinct types of sediment found within the dredging footprint (unconsolidated and NFM), this dredged material characterization study (Study) employed multiple approaches to characterize the sediment.

DRAFT FINAL

Table ES-1. Mole Pier Floating Dry Dock Proposed Dredging Volumes (July 2023)

Location	Min Project Dredge Depth (feet MLLW)	Over-Dredge Depth (feet MLLW)	Project Depth Volume (cy)	Over-Dredge Depth Volume (cy)	Total Volume (cy)
Turning Basin	-35	-37	3,796	7,219	11,015
Approach Channel	-37	-39	7,705	8,273	15,978
FDD Basin	-56	-58	60,174	23,793	83,967
Totals			71,675	39,285	110,960

Notes: % = percent; MLLW = mean lower low water; cy = cubic yards; FDD = Floating Dry Dock

ES.1 Project Background

The preliminary draft of the Study SAP was initially presented to and approved by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA) on 23 May 2019 and 5 June 2019, respectively; however, following the approval of the Final SAP (NAVFAC Southwest 2019), the Navy determined it was necessary to place the Project on hold while the Project was re-designed to accommodate for additional mission needs. The SAP was revised and resubmitted on 12 May 2021. The re-designed scope of work was presented to the USACE and USEPA for re-approval during a conference call on 19 May 2021. The revised SAP was approved by the USACE and USEPA on 27 May 2021. Following agency approval, field collection activities commenced on 1 June 2021 and were completed on 8 June 2021.

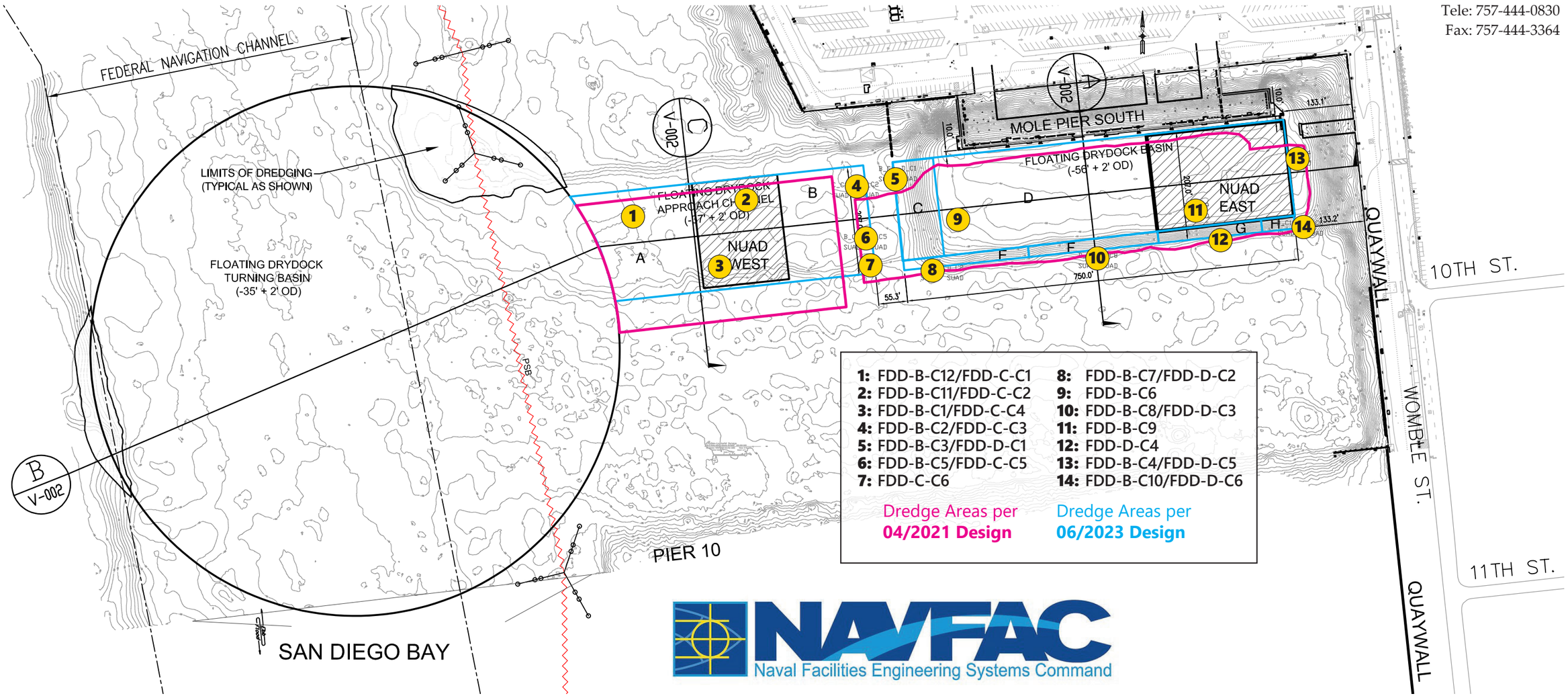
The Final SAP submitted in May 2021 was designed and approved by the USACE and USEPA to characterize an 8.28-acre footprint with a dredging volume of up to 121,247 cy of sediments within four composite areas, three dredging areas, and three design depths identified in Table ES-1 and Figure ES-1 (NAVFAC Southwest 2021). The proposed dredged materials were collected and evaluated for three potential disposal placement options, including:

(1) Offsite unconfined aquatic disposal at the LA-5 Ocean Dredged Material Disposal Site (ODMDS),
(2) Nearshore unconfined aquatic disposal at the Navy's Silver Strand nearshore beneficial reuse site, and/or
(3) Disposal at an appropriately permitted upland landfill.

Each of these options was chosen based on their potential compatibility with the proposed dredged materials, their availability, and their feasibility. These alternatives were chosen to fulfill the requirements of an alternatives analysis under Clean Water Act (CWA) Section 404(b)(1) and CWA Section 401.

DRAFT FINAL

MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364



MOLE PIER P-508 FLOATING DRY DOCK DREDGING
PLAN - DREDGE AREAS
DATE: 06-11-23
DRWG. BY: JAMES S. GEORGO

Dredge Areas

Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

FIGURE
ES-1

This page intentionally left blank.

DRAFT FINAL

ES.2 Sample Collection and Analysis

Vibracore samples within the proposed dredging footprint were collected from 19 sampling locations in four composite areas to evaluate their potential placement at one of the three proposed options listed in Section Executive Summary (ES).1. In addition, three geotechnical borings were collected by TerraCosta Consulting Group (TerraCosta) on 29 June through 1 July 2021. The geotechnical borings were horizontally composited by age and analyzed for physical and chemical characteristics. Sample collection activities performed 1 through 8 June 2021 followed the approved SAP with a few deviations outlined in Section 3.5 of the SAP Report and successfully identified the transition from unconsolidated to NFM within the proposed dredging footprint. To characterize the full extent of the NFM, the Study SAP was also complemented with the results of the geotechnical study.

Disposal site suitability was assessed following the USACE and USEPA dredged material evaluation protocols as well as the Project-specific procedures outline in the approved SAP. Because unconfined aquatic disposal was the preferred disposal option, the Study used the *Evaluation of Dredged Material Proposed for Ocean Disposal,* USEPA 503/8-91/001, 1991 (Green Book) (USEPA/USACE, 1991) and *USEPA Region 9 General Recommendations for Sediment Testing of Dredged Material Proposed for Ocean Dumping* (USEPA, 1991), the *Evaluation of Dredged Materials Proposed for Discharge in Waters of the United States,* USEPA-823-B-98-004 (Inland Testing Manual [ITM]) (USEPA/USACE, 1998), and the Sand Compatibility and Opportunistic Use Program (SCOUP) guidelines for nearshore placement and beneficial reuse (San Diego Association of Governments, 2006).

ES.3 Initial Agency Consultation Summary

Following sediment collection and sediment chemistry analysis, a teleconference with the agencies was held on 30 June 2021 and approval was granted for the horizontal and vertical compositing scheme for Tier III testing, and modified Tier I/Tier II exemptions from additional testing. In addition, two areas of the footprint were identified as no unconfined aquatic disposal based on sediment chemistry results (Figure ES-1). These approvals were based on individual core and geotechnical composite chemistry results.

After Study planning, sediment sample collection and analysis, and agency approval of sediment compositing based on the physical and chemical results of the vibracore samples, NAVFAC Southwest further refined the FDD Project dredging design plans in 2022. Because of this modification, the NFM from Composite C, which were initially granted a modified Tier I/Tier II exemption, were no longer within the initially identified dredging footprint and will not be dredged. For consistency with the Final SAP (NAVFAC Southwest 2021), Composite C results were still provided within the Draft SAP Report (NAVFAC Southwest 2022); however, the total dredged material volume was recalculated to exclude the originally proposed volume from Composite C (resulting in a reduction in the total volume to be dredged to 97,214 cy).

All results of the Study were presented to the USACE and USEPA on 3 November 2022. Following the presentation of the characterization results, the agencies provided an early SUAD determination for the dredged materials within the footprint that were not already determined to

DRAFT FINAL

be no unconfined aquatic disposal (NUAD). Sediments considered as NUAD are to be placed at an appropriately permitted upland landfill in the state of California.

Additional comments were received from the USACE on 25 November 2022 regarding the placement suitability of the remainder of the dredged materials. Based on these comments, the Navy revised the Draft SAP Report and provided an updated Draft Final SAP Report to the USACE for final reviews and approval on 19 December 2022.

Following additional review, the USACE and USEPA provided responses on 11 January 2023 that concurred that the SUAD and NUAD determinations and areas overlapped with those presented in the June 2019 SAP; however, the proposed alternatives to ocean disposal, which included nearshore placement at the Silver Strand, were not approved. Sediments, particularly consolidated NFM and fine sediments from Composite Area B, were not recommended for nearshore placement because their physical characteristics were not considered compatible with the Silver Strand placement site. Furthermore, the USEPA required that additional processing of consolidated NFM be performed before placement at the LA-5 ODMDS. These requirements included screening sediments with a 12-inch grizzly, grinding them down to a 4-inch size fraction, and distributing them over a larger grid area during placement at the LA-5 ODMDS (Figure ES-2).

ES.4 Additional Agency Consultation

Following the initial SUAD provided by the agencies on 11 January 2023, the proposed Mole Pier FDD design and dredging volumes and EA were again refined by NAVFAC Southwest in February and March of 2023. This design update included a revised dredging plan for the Project with new dredging areas and volumes that were re-calculated using the current FDD design and 2022 bathymetric survey data.[1]

Table ES-2 shows the current proposed dredging design volumes and agency suitability determinations. These volumes include a contingency that was calculated using the estimated sedimentation rate observed within the currently proposed FDD dredging footprint using 2019 and 2022 bathymetry plus approximately 10 percent as a contingency factor. The estimated additional volume attributed to sedimentation (plus the 10 percent contingency factor) predicted to occur between the preparation of the 18 April 2023 SAP Report and the proposed Project dredging was added to the 2022 total dredging volumes. This was done to determine the total dredged material volume estimated to be removed when the Project dredging would occur in late 2023/early 2024. The updated dredging design and volumes were sent to the USACE and USEPA for consideration on 18 April 2023, and were presented and discussed with these agencies on 9 May 2023. The current total dredge volume for permitting purposes is 110,960 cy (93,248 cy of SUAD material and 17,712 cy of NUAD material). Of the total volume of SUAD material in the dredge footprint (93,248 cy), approximately 71,044 cy is composed of unconsolidated sediments, while 22,204 cy is composed of NFM. Figure ES-3 shows the estimated cut depths to NFM with the proposed dredging areas.

[1] Prior designs used 2019 bathymetry.

DRAFT FINAL

Figure ES-1 shows the previous (April 2021) and current (June 2023) dredging designs. The figure includes proposed and current footprints, composite areas, and actual sampling locations. Based on the alternatives analysis performed in accordance with the SAP and CWA Section 404(b)(1) and CWA Section 401 requirements that were presented to and approved or denied by the agencies to date, final placement approval locations now only include 1) unconfined aquatic disposal at the LA-5 ODMDS and 2) upland at an appropriately permitted California landfill. Agency review and suitability determinations based on the Study results that were provided to NAVFAC Southwest on 11 January 2023 concluded that alternative 3) beneficial reuse in nearshore placement areas at the Silver Strand is no longer a feasible option for the proposed dredged materials based on the results of the Study and is no longer being proposed.

Table ES-2. Mole Pier Floating Dry Dock Proposed Volumes of Dredged Materials Suitable for Various Placement Options (July 2023)

Dredge Area	Dredged Material Type	Dredging Depth (2-foot OD) (ft MLLW)	Project Volume to Design (cy)	2-ft OD Volume (cy)	Total Volume (cy)	Total Placement Location Volume (cy)
Turning Basin	Unconsolidated SUAD	-37	3,796	7,219	11,015	93,248
Approach	Unconsolidated SUAD	-39	7,705	8,273	15,978	
Dry Dock Sump[1]	Unconsolidated SUAD	-43	29,899	14,152	44,051	
	Consolidated SUAD	*-58*	*19,885*	*2,319*	*22,204*	
	Unconsolidated NUAD West	-58	2,888	2,538	5,426	17,712
	Unconsolidated NUAD East	-58	8,530	3,756	12,286	
Total	All	Various	72,703	38,257	110,960	110,960

Notes: MLLW = mean lower low water; cy = cubic yards; OD = overdredge; blue shading = approved for ocean disposal at the LA-5 ODMDS; orange shading = upland disposal at an appropriately permitted landfill; italicized values = approximate volume of consolidated sediments to be placed at the LA-5 ODMDS.

ES.5 Proposed Project Schedule

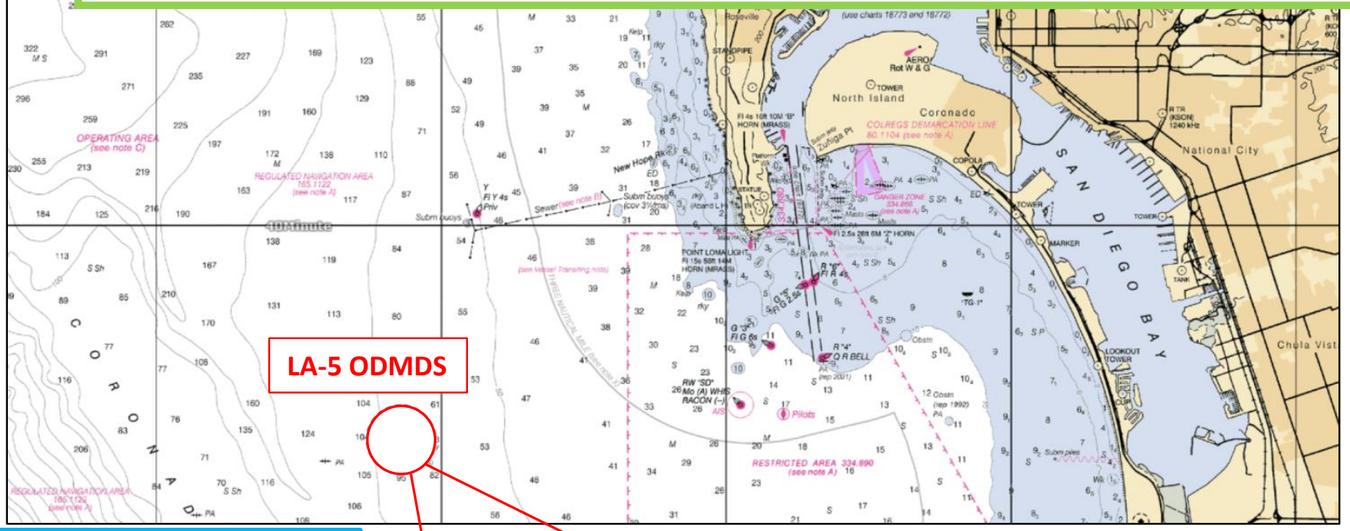
The Navy is proposing to perform dredging during the in-water work window of 1 September 2023 through 31 March 2024. Prior to dredging, the Navy is required to submit all required permit applications, finalize agency consultations, and obtain all necessary permits. To obtain these approvals, the Navy requests a SUAD determination for the currently proposed Project dredging footprint, area, depths, and volumes as presented in this Executive Summary (Table ES-1 and Figure ES-1 and ES-3) and Section 7.0 of the SAP Report.

DRAFT

This page intentionally left blank.

DRAFT FINAL

Special Conditions for Disposal of Native Formation Sediments

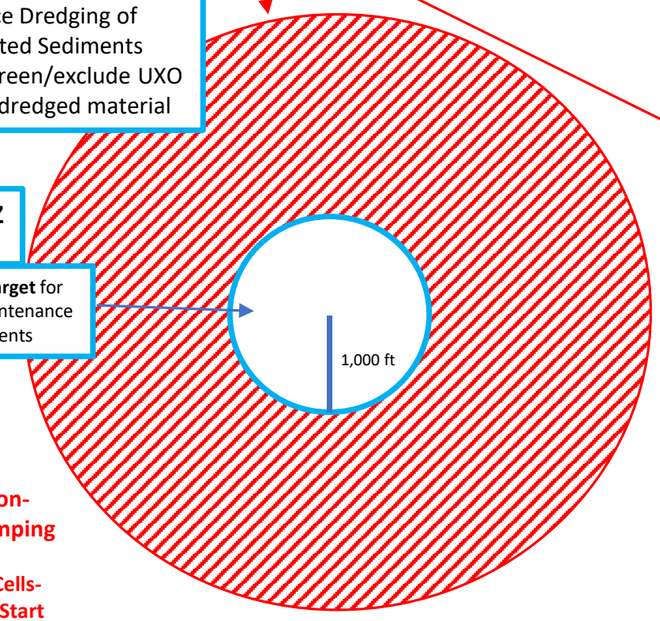


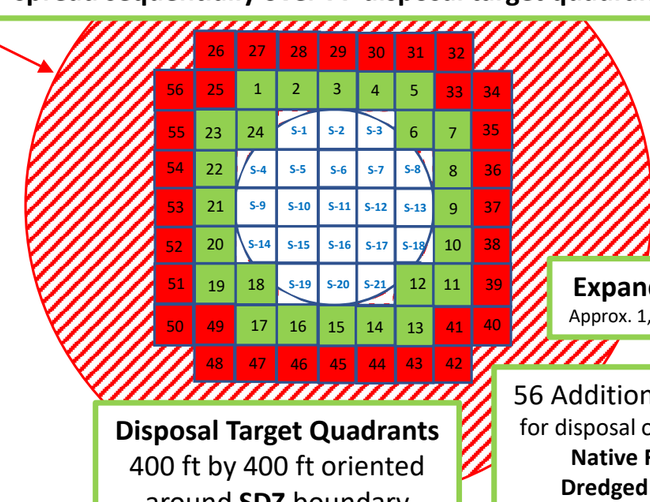
Maintenance Dredging of Unconsolidated Sediments
-use grizzly to screen/exclude UXO and other non-dredged material

Crush/break consolidated sediments to approx. 4-inch size (photo documentation of each scow load) - spread sequentially over 77 disposal target quadrants

Standard SDZ
1,000 ft radius

Central Disposal Target for Unconsolidated Maintenance Dredged Sediments





Expanded SDZ
Approx. 1,800 ft radius

Disposal Target Quadrants
400 ft by 400 ft oriented around **SDZ** boundary

56 Additional Quadrants for disposal of **Consolidated Native Formation Dredged Sediments**

Exclusion- No Dumping

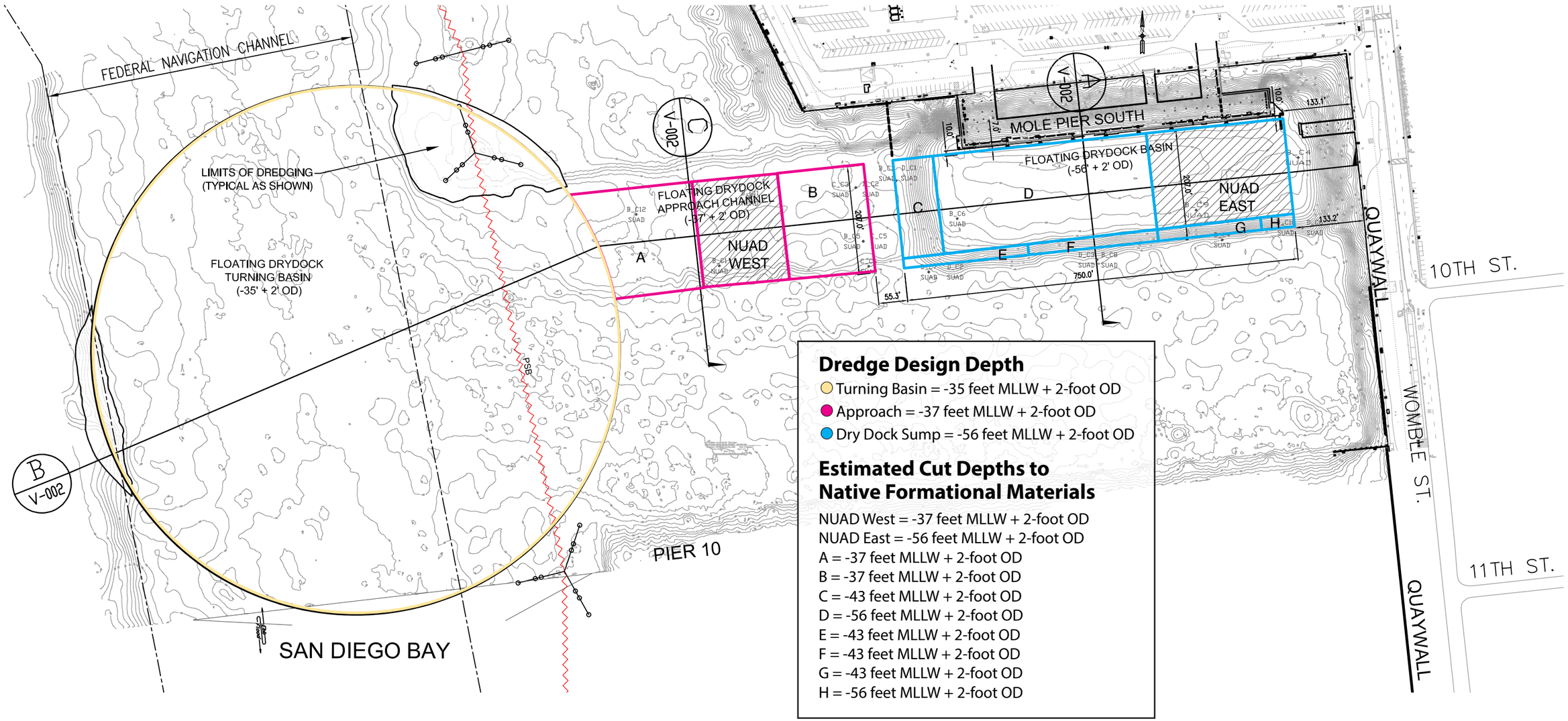
Buffer Cells- Do Not Start Dumps Here

LA-5 ODMDS Surface Disposal Zones for Native Formational Materials

FIGURE
ES-2

This page intentionally left blank.

DRAFT FINAL



Estimated Dredging Areas and Cut Depths to Native Formational Materials

NBSD Mole Pier Floating Dry Dock Sediment Characterization Study Naval Base San Diego

FIGURE
ES-3

This page intentionally left blank.

DRAFT FINAL

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY i
ES.1 Project Background ii
ES.2 Sample Collection and Analysis v
ES.3 Initial Agency Consultation Summary v
ES.4 Additional Agency Consultation vi
ES.5 Proposed Project Schedule vii
1.0 INTRODUCTION 1-1
1.1 Project Summary 1-2
1.1.1 Purpose and Objectives 1-2
1.1.2 Proposed and Alternative Placement Options 1-3
1.1.3 Disposal Suitability Determination Protocol 1-3
1.2 Site Description 1-13
1.3 Roles and Responsibilities 1-13
1.3.1 Scope of Work 1-13
1.3.2 Document Outline 1-14
1.3.3 2023 Study Summary 1-15
2.0 SITE HISTORY 2-1
3.0 METHODS 3-1
3.1 Dredge Design 3-1
3.2 Sampling Design – Proposed Collection Locations 3-1
3.2.1 Sediment Collection and Compositing 3-21
3.2.2 Beneficial Reuse Consideration 3-22
3.2.3 Sample Locations and Depth 3-22
3.2.4 Collection of Reference and Control Sediments 3-22
3.2.5 Native Sediment Characterization/Abbreviated Tier II Analysis 3-25
3.2.6 Sample Preparation 3-25
3.2.7 Sample Documentation 3-26
3.3 Sample Testing 3-27
3.3.1 Physical and Chemical Analyses 3-28
3.4 Toxicity and Bioaccumulation Exposure Testing 3-28
3.5 Deviations from the Sampling and Analysis Plan 3-31
4.0 RESULTS 4-1
4.1 Physical Analyses 4-1
4.1.1 Dredged Material 4-1
4.1.2 LA-5 ODMDS Reference Sediment 4-5
4.1.3 Comparison to Nearshore Beneficial Reuse Site 4-5
4.2 Bulk Sediment Chemistry Analysis 4-6
4.2.1 Sediment Quality Guidelines 4-29
4.2.2 Composite A – Turning Basin 4-29
4.2.3 Composite B – Approach and Sump Recent Bay Deposits 4-30
4.2.4 Composite C – Approach and Sump Native Formational Materials 4-32
4.2.5 Composite D – Sump Native Formational Materials 4-32
4.2.6 Geotechnical Composites 4-33
4.3 STFATE Modeling for Composite Area C Sediments 4-33
4.3.1 STFATE Model Parameters 4-34

DRAFT FINAL

TABLE OF CONTENTS (CONTINUED)

Page
4.3.2 STFATE Model Results 4-36
4.4 Toxicity and Bioaccumulation Evaluation Results 4-37
4.4.1 Suspended Particulate Phase Test 4-37
4.4.2 Solid Phase Test 4-38
4.4.3 Bioaccumulation Phase Survival Results 4-39
4.5 Quality Assurance/Quality Control....4-53
4.5.1 Sediment Chemistry 4-54
4.5.2 Tissue Chemistry....4-54
4.5.3 Bioassay Testing 4-55
5.0 CONCLUSIONS AND RECOMMENDATIONS 5-1
5.1 Physical Testing Results 5-1
5.2 Chemical Testing Results....5-2
5.3 Toxicity Evaluation Results....5-2
5.4 Bioaccumulation Evaluation Results 5-2
5.5 Disposal Suitability Recommendations 5-3
6.0 DISPOSAL SUITABILTY DETERMINATION....6-1
7.0 UPDATED MOLE PIER FLOATING DRY DOCK DESIGN AND DREDGING VOLUMES 7-1
8.0 REFERENCES....8-1

LIST OF TABLES

Table ES-1. Mole Pier Floating Dry Dock Proposed Dredging Volumes (July 2023) ii
Table ES-2. Mole Pier Floating Dry Dock Proposed Volumes of Dredged Materials Suitable for Various Placement Options (July 2023)....vii
Table 1-1. Naval Base San Diego Floating Dry Dock Dredging Study Proposed Dredging Volumes....1-1
Table 1-2. Key Project Personnel....1-14
Table 1-3. Mole Pier Floating Dry Dock Proposed Volumes of Dredged Materials Suitable for Various Placement Options (July 2023)....1-16
Table 3-1. Naval Base San Diego Floating Dry Dock Dredging Study Proposed Dredging Locations, Design Depths, and Volumes....3-1
Table 3-2. NBSD Mole Pier Floating Dry Dock Vibracore Log 3-15
Table 3-3. Chemical Analyses of Sediment and Tissue Samples 3-29
Table 3-4. Test Species....3-30
Table 4-1. Sediment Grain Size Results 4-3
Table 4-2a. Sediment Chemistry Results – Composite A Turning Basin 4-7
Table 4-2b. Sediment Chemistry Results – Composite B Approach and Sump Recent Bay Deposits 4-11
Table 4-2c. Sediment Chemistry Results – Composite C Approach and Sump Native Formational Materials....4-17
Table 4-2d. Sediment Chemistry Results – Composite D Sump Native Formational Materials....4-21
Table 4-2e. Sediment Chemistry Results – Geotechnical Composites 4-25
Table 4-3. Sediment and Leachate Wet Weight Chemistry Results – FDD-B-C1 4-31

DRAFT FINAL

LIST OF TABLES (CONTINUED)

Page

Table 4-4. Model Input Parameters and Results Silver Strand Beach Nearshore Placement–Site - 2,500 cy Barge 4-35
Table 4-5. STFATE Model Input Parameters: Site Description – Silver Strand Nearshore Placement Site 4-35
Table 4-6. STFATE Model Input Parameters: Current Velocity Data – Silver Strand Nearshore Placement Site 4-36
Table 4-7. STFATE Model Input Parameters: Material Data – Silver Strand Nearshore Placement Site 4-36
Table 4-8. STFATE Model Input Parameters: Output Options – Silver Strand Nearshore Placement Site 4-36
Table 4-9. STFATE Model Input Parameters: Disposal Operation Data – Silver Strand Nearshore Placement Site 4-36
Table 4-10. Suspended Particulate Phase Toxicity Test Results 4-37
Table 4-11. Solid Phase Toxicity Test Results 4-38
Table 4-12. Bioaccumulation Phase Survival Test Results 4-39
Table 4-13. Summary of Bioaccumulation Tissue Chemistry Results for Significantly Elevated Tissue Residues 4-43
Table 4-14. Comparison of Test Tissue Concentrations to FDA 4-45
Table 4-15. Summary of ERED Entries of Significantly Elevated Chemicals in Clam and Worm Tissue Residues 4-49
Table 5-1. Proposed Placement Locations and Estimated Dredging Volumes Mole Pier Floating Dry Dock 5-3
Table 7-1. Mole Pier Floating Dry Dock Proposed Dredging Volumes (July 2023) 7-1

LIST OF FIGURES

Figure ES-1. Dredge Areas iii
Figure ES-2. LA-5 ODMDS Surface Disposal Zones for Native Formational Materials ix
Figure ES-3. Estimated Dredging Areas and Cut Depths to Native Formational Materials xi
Figure 1-1a. Project Vicinity 1-5
Figure 1-1b. Project Location 1-7
Figure 1-1c. Location of LA-5 Ocean Dredged Material Disposal Site 1-9
Figure 1-1d. Potential Beneficial Reuse Location 1-11
Figure 1-2. Proposed Dredging Footprint – SAP (April 2021) and Revised Draft Final SAP Report (July 2023) 1-17
Figure 3-1. Floating Dry Dock-South Mole Pier Sediment Collection Locations 3-3
Figure 3-1a. Actual Sampling Locations – Composite Area A 3-5
Figure 3-1b. Actual Sampling Locations – Composite Area B 3-7
Figure 3-1c. Actual Sampling Locations – Composite Area C and D 3-9
Figure 3-2a. Representative Cross-Sections of Proposed Dredging Footprint – Plan View 3-11
Figure 3-2b. Representative Cross-Sections of Proposed Dredging Footprint 3-13
Figure 3-2c. Compositing Scheme for Mole Pier Floating Dry Dock Sediment Characterization Study at Naval Base San Diego 3-19
Figure 3-3. Location of LA-5 Ocean Dredge Material Reference Sediment Collection Site 3-23
Figure 4-1. Silver Strand Boat Lanes Grain Size Envelope vs. Composite Samples and Individual Core Samples 4-6
Figure 5-1. Proposed NUAD and SUAD Volumes NBSD Mole Pier Floating Dry Dock 5-5

DRAFT FINAL

TABLE OF FIGURES (CONTINUED)

Page

Figure 7-1a. Mole Pier Floating Dry Dock Revised Design – Plan View 7-3
Figure 7-1b. Mole Pier Floating Dry Dock Revised Design – Cross Section 7-5
Figure 7-2. Estimated Dredging Areas and Cut Depths to Native Formational Materials..... 7-7
Figure 7-3. LA-5 ODMDS Surface Disposal Zone (Extended Grid)..... 7-9

LIST OF APPENDICES

APPENDIX A DRY DOCK FEASIBILITY STUDY (INCLUDED ON CD)
APPENDIX B1 VIBRACORE LOGS AND GEOTECHNICAL REPORT
APPENDIX B2 VIBRACORE PHOTOGRAPH LOGS
APPENDIX C1 ANALYTICAL LABORATORY REPORTS – SEDIMENT CHEMISTRY
APPENDIX C2 BIOASSAY LABORATORY REPORT – TOXICITY AND BIOACCUMULATION TESTING RESULTS
APPENDIX C2A ADDAMS STFATE MODEL RESULTS
APPENDIX C3 ANALYTICAL LABORATORY REPORT – TISSUE CHEMISTRY
APPENDIX C4 TISSUE CHEMISTRY STATISTICAL SUMMARY
APPENDIX D1 AGENCY CORRESPONDENCE – SEDIMENT COMPOSITING APPROVAL
APPENDIX D2 AGENCY CORRESPONDENCE – TISSUE ANALYSIS APPROVAL
APPENDIX D3 AGENCY CORRESPONDENCE – PRELIMINARY SUAD DETERMINATION

DRAFT FINAL

ACRONYMS AND ABBREVIATIONS

%	percent
%REC	percent recovery
(M)	modified
±	plus or minus
≥	greater than or equal to
°C	degrees Celsius
µg/kg	micrograms per kilogram
ADDAMS	Automated Dredging and Disposal Alternatives Management System
APP	Accident Prevention Plan
ASTM	ASTM International
BOD	basis of design
BP	bioaccumulation-phase
CA	California
Calscience	Eurofins Calscience Environmental Laboratories, Inc.
CDF	confined disposal facility
CETIS	Comprehensive Environmental Toxicity Information System
CFR	Code of Federal Regulations
cm	centimeter(s)
COC	chain-of-custody
CPR	cardiopulmonary resuscitation
CWA	Clean Water Act
cy	cubic yard(s)
dd°/ddd°mm.mmm'	degrees decimal minutes
DGPS	Differential Global Positioning System
DO	dissolved oxygen
DoD-ELAP	U.S. Department of Defense Environmental Laboratory Accreditation Program
EA	Environmental Assessment
EcoAnalysts	EcoAnalysts Toxicity Testing Laboratory
ED50	effects dose 50
EDD	electronic data deliverable
ELAP	Environmental Laboratory Accreditation Program
ERED	Environmental Residue-Effects Database
ERL	effects range-low
ERM	effects range-median
FDA	United States Food and Drug Administration
FDD	floating dry dock
ft	foot/feet
g	gram(s)
GC	gas chromatography
Green Book	*Evaluation of Dredged Material Proposed for Ocean Disposal*, USEPA 503/8-91/001
ID	identification
ITM	Inland Testing Manual
L	liter(s)

DRAFT FINAL

ACRONYMS AND ABBREVIATIONS (CONTINUED)

LC_{50}	median lethal concentration
LCSD	laboratory control sample duplicate
LOEC	lowest observed effects concentration
LOED	lowest-observed-effect dose
LPC	limiting permissible concentration
m	meter(s)
MB	method blank
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter(s)
MLLW	mean lower low water
MMEC Group	Multimedia Environmental Compliance Group
MQO	Measurement Quality Objectives
MS	matrix spike
MS/MS	tandem mass spectrometry
MSA	method of standard addition
MSD	matrix spike duplicate
N/A	not applicable/available
NAVFAC Southwest	Naval Facilities Engineering Command Southwest
Navy	United States Department of the Navy
NBSD	Naval Base San Diego
NFM	native formational materials
NOAA	National Oceanic and Atmospheric Administration
NOEC	no observed effects concentration
NOED	no-observed-effect dose
NUAD	not suitable for unconfined aquatic disposal
OD	overdredge
ODMDS	Ocean Dredged Material Disposal Site
OPR	ongoing precision and recovery
OSHA	Occupational Safety & Health Administration
oz	ounce (s)
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PM	Project Manager
ppt	parts per thousand
Project	Naval Facilities Engineering Systems Command Southwest Dredging Project at Mole Pier Floating Dry Dock
PSEP	Puget Sound Estuary Program
QA/QC	quality assurance and quality control
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
RSD	relative standard deviation
RSL	regional screening levels

DRAFT FINAL

ACRONYMS AND ABBREVIATIONS (CONTINUED)

SAP	Sampling and Analysis Plan
SAPr	Sampling and Analysis Plan Report
SCOUP	Sand Compatibility and Opportunistic Use Program
Seaventures	Seaventures, Inc.
SIM	selective ion monitoring
SixSci	Six Scientific Service
SM	Standard Method
SOP	standard operating procedure
SP	solid-phase
SPP	suspended particulate-phase
STFATE	Short Term Fate of Dredged Material Disposed in Open water for Predicting Deposition and Water Quality Affects model
STLC	soluble threshold limit concentration
Study	dredged material characterization study in support of the Naval Facilities Engineering Systems Command Southwest Dredging Project at Mole Pier Floating Dry Dock
SWI	Sediment-water interface
TCLP	toxicity characteristic leaching procedure
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRL	target reporting limit
TRPH	total recoverable petroleum hydrocarbons
TTLC	total threshold limit concentration
UXO	unexploded ordnance
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WGS84	World Geodetic System 1984

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

1.0 INTRODUCTION

Naval Facilities Engineering Systems Command Southwest (NAVFAC Southwest) is proposing to conduct a dredging project (Project) at Naval Base San Diego (NBSD; Figure 1-1a) to address a current and projected shortfall of dry dock space for maintenance of the Pacific Fleet. The proposed Project activities required an Environmental Assessment (EA), National Marine Fisheries Service consultation documentation, and sediment testing to support proposed permitting to perform construction necessary for the installation of the new NBSD Mole Pier Floating Dry Dock (FDD) to be located south of the NBSD Mole Pier (Figure 1-1b). The Project would include pile driving, partial demolition of the existing Mole Pier Wharf to create space for new concrete and steel mooring dolphins, and associated dredging to ready the Project footprint for a new remotely fabricated FDD. Within the FDD footprint, dredging would be performed to re-establish necessary berthing and transit depths, and deepening would be required for the FDD approach area (Figure 1-1b).

The currently proposed Project includes dredging and removal of approximately 97,214 cubic yards (cy) of material (including a 2-ft overdredge [OD] allowance) across three dredging areas with varying design depths. These areas include: 1) the turning basin to be dredged to a depth of -35 ft mean lower low water (MLLW); 2) the approach channel to be dredged to a depth of -37 ft MLLW; and 3) the FDD Sump footprint to be dredged to a depth of -56 ft MLLW. All three of these areas were evaluated to the proposed depths plus a 2-ft (OD) allowance (to -37, -39, and -58 ft MLLW, respectively) (Table 1-1). In total, the dredge area encompasses approximately 8.28 acres. Based on the required Project dredging depths, it was assumed that the majority of the sediments to be dredged are native formational materials. Because of the two distinct types of sediment found within the dredge footprint (unconsolidated and native), this dredged material characterization study (Study) employed multiple approaches to characterize the sediment.

Table 1-1. Naval Base San Diego Floating Dry Dock Dredging Study Proposed Dredging Volumes

Dredge Area	Project Depth (ft MLLW)	Approximate Area (acres)	Project Volume to Design (cy)	2-ft OD Volume (cy)	Total Volume (cy)
Turning Basin	-35	1.4	3,690	7,378	11,068
Approach	-37	2.7	5,791	5,640	11,431
Dry Dock Sump[1]	-56	5.8	60,274	14,441	74,715
Total	N/A	9.9	69,755	27,459	97,214

Notes: MLLW = mean lower low water; cy = cubic yards; N/A = Not applicable
[1] – Includes approximately 300 cubic yards of rip rap.

Samples of the unconsolidated materials proposed for dredging were collected and tested according to protocols for unconfined aquatic disposal as outlined in the Sampling and Analysis Plan (SAP) (NAVFAC Southwest, 2021). Consolidated native formational sediments found deeper in the dredge footprint and comprising the majority of the dredged material were also assessed with a geotechnical evaluation performed by TerraCosta Consulting Group (TerraCosta). Preliminary physical and chemical results for the unconsolidated and consolidated materials were sent to the agencies for review on 29 June 2022 for review and discussion. Based on these results, several areas were identified as no unconfined aquatic disposal (NUAD), while

DRAFT FINAL

other materials were approved to be composited for additional toxicity evaluations and bioaccumulation exposures. At this time, the Navy also requested that the agencies consider approval of proposed dredged materials within the consolidated native formational layers be approved for disposal using a modified Tier I/Tier II exemption for ocean disposal and nearshore placement. This request was granted by the USACE and USEPA for sediments proposed to be dredged in an area identified as “Composite C” as well as for consolidated native formational sediments that were unable to be collected below approximately -42 feet MLLW in Composite D on 30 June 2022. It should be noted, however, that due to a change in the Navy’s dredging design plans after sample collection and analysis, the material that was granted a modified Tier I/Tier II exemption in Composite C will no longer be dredged as described in the Project modification note included in Section 1.1.

1.1 Project Summary

The Project is described in the *Dry Dock Number 1 Modifications and Mole Pier Floating Dry Dock Studies* (NAVFAC Southwest, 2018). An excerpt from this document that pertains to the FDD is included as Appendix A. The Project consists of construction and dredging to support the placement of a remotely-fabricated all steel FDD at NBSD. Dredging activities would include maintenance dredging of the current berthing and transit areas of the turning basin and approach channel, and expansion and deepening of the existing FDD sump south of the Mole Pier. In addition to the emplacement of the new FDD, the Project would include partial demolition of the existing Mole Pier wharf to create space for mooring dolphins (installed using both concrete and steel piles) with a gripper system at each end of the berth.

The Project SAP was presented to the USACE and USEPA (agencies) on May 19, 2021, revised based on agency comments, and approved May 27, 2021. Following sediment collection (June 1 through June 8, 2021) and sediment chemistry analysis, a teleconference with the agencies was held on June 30, 2021, and approval was granted for the compositing scheme for Tier III testing, and modified Tier I/Tier II exemptions from additional testing. The approval was based on individual core and geotechnical composite chemistry results (Appendix D1).

Important Project modification note: After Study planning and sample collection and analysis, the dredging design plans were modified. Due to this modification the native formational materials from Composite C, which were initially granted a modified Tier I/Tier II exemption, is no longer within the proposed Project’s required dredge footprint and will not be dredged. For consistency with the SAP, Composite C results are still provided within this report; however, the total dredged material volume was recalculated to exclude the originally proposed volume from Composite C.

1.1.1 Purpose and Objectives

This document is the SAP Report for the Study and outlines the results and federally approved procedures that were employed to assess suitable disposal options for the proposed dredged materials which were sampled between June 1 and June 8, 2021. The Study used a tiered approach to assess the potential physical, chemical, toxicological, and bioaccumulation characteristics of the proposed dredged materials.

DRAFT FINAL

1.1.2 Proposed and Alternative Placement Options

The Project proposes the following dredged material placement options for screened sediment from the turning basin, approach channel and FDD sump: (1) offsite unconfined aquatic disposal at the LA-5 Ocean Dredged Material Disposal Site (ODMDS, Figure 1-1c) or the Navy's Silver Strand nearshore beneficial reuse site (Figure 1-1d), and/or (2) disposal at an appropriately permitted upland landfill.

1.1.3 Disposal Suitability Determination Protocol

Disposal site suitability is assessed under guidance from the United States Army Corps of Engineers (USACE) and United States Environmental Protection Agency (USEPA). Because unconfined aquatic disposal is the preferred disposal option, the Study used the following guidance from the USACE and USEPA:

- To assess ocean disposal suitability, the sediments within the proposed dredge footprint were characterized in accordance with the guidelines of the USEPA and the USACE outlined in *Evaluation of Dredged Material Proposed for Ocean Disposal,* USEPA 503/8-91/001, 1991 (Green Book) (USEPA/USACE, 1991) and *USEPA Region 9 General Recommendations for Sediment Testing of Dredged Material Proposed for Ocean Dumping* (USEPA, 1991).
- To evaluate the suitability of the dredged materials for beneficial reuse (e.g., nearshore beach nourishment), the sediments were characterized according to guidelines set forth by the USEPA/USACE in *Evaluation of Dredged Materials Proposed for Discharge in Waters of the United States,* USEPA-823-B-98-004 (Inland Testing Manual [ITM]) (USEPA/USACE, 1998). To determine a placement site, sediment grain sizes for the Study were compared to existing data collected from the potential receiver site.

The LA-5 ODMDS is located 5.4 nautical miles from Point Loma on the ridged slope of the continental shelf at approximately 100 fathoms (Figure 1-1c). Ocean disposal of dredged materials is regulated under Section 103 of the Marine Protection, Research, and Sanctuaries Act and Title 33 Code of Federal Regulations (CFR) 320-330 and 33 CFR 335-338. Environmental evaluations of dredged materials proposed for ocean disposal will comply with applicable criteria published in Title 40 CFR 220-228.

Alternatively, the Navy's nearshore replenishment site at the Naval Base Coronado Silver Strand Training Complex Boat Lanes could be utilized for the Project dredged materials. The Silver Strand Boat Lanes are approximately 3 miles from the Project Site (Figure 1-1d). Nearshore disposal of dredged material is primarily regulated under Section 404 of the Clean Water Act (CWA). USEPA and USACE each administer specific aspects of Section 404, which established a permit program and technical guidelines to regulate discharges of dredged or fill material. The evaluation of a Section 404 permit application involves determining whether the proposed project complies with 40 CFR 230 (Guidelines for Specification of Disposal Sites for Dredge or Fill Material) and USACE permit regulations (33 CFR 320-330).

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, ©

Path: Q:\3151_AquaticResources\SanDiegoMaintenanceDredging\MXD\ReportFigures\2018\NBSD_FloatingDryDock_3151187382\ProjectVicinity.mxd, aaron.johnson 4/29/2019

1 inch = 2 miles

0 1 2 Miles

FIGURE 1-1a

Project Vicinity
EA Preparation and Sediment Testing
Floating Dry Dock, Naval Base San Diego
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 1-1b - Project Location.mxd, stephane.descombes 12/16/2022

Turning Basin:
Design Depth -35 ft MLLW

Approach:
Design Depth -37 ft MLLW

Dry Dock Sump:
Design Depth -56 ft MLLW

Federal Navigation Channel (USACE)

1 inch = 1,250 feet

0 625 1,250 Feet

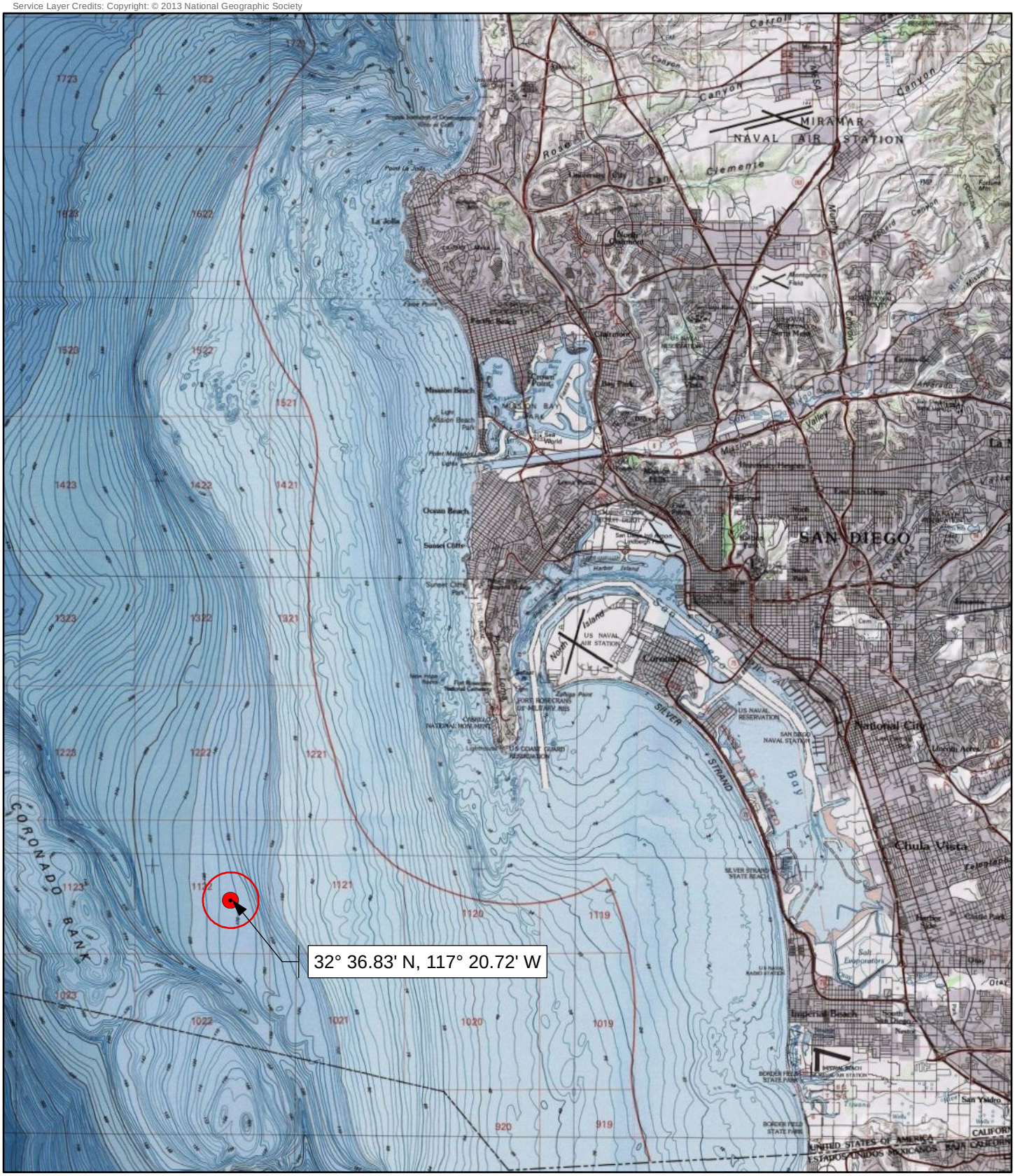
FIGURE 1-1b

Project Location
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Copyright: © 2013 National Geographic Society



Path: Q:\3151_AquaticResources\SanDiegoMaintenanceDredging\MXD\ReportFigures\2018\NBSD_FloatingDryDock_3151187382\LA-5.mxd, aaron.johnson 4/9/2019

1 inch = 3 miles

0 1.5 3 Miles

LA-5 Disposal Site

Buffer (1,000 Meters)

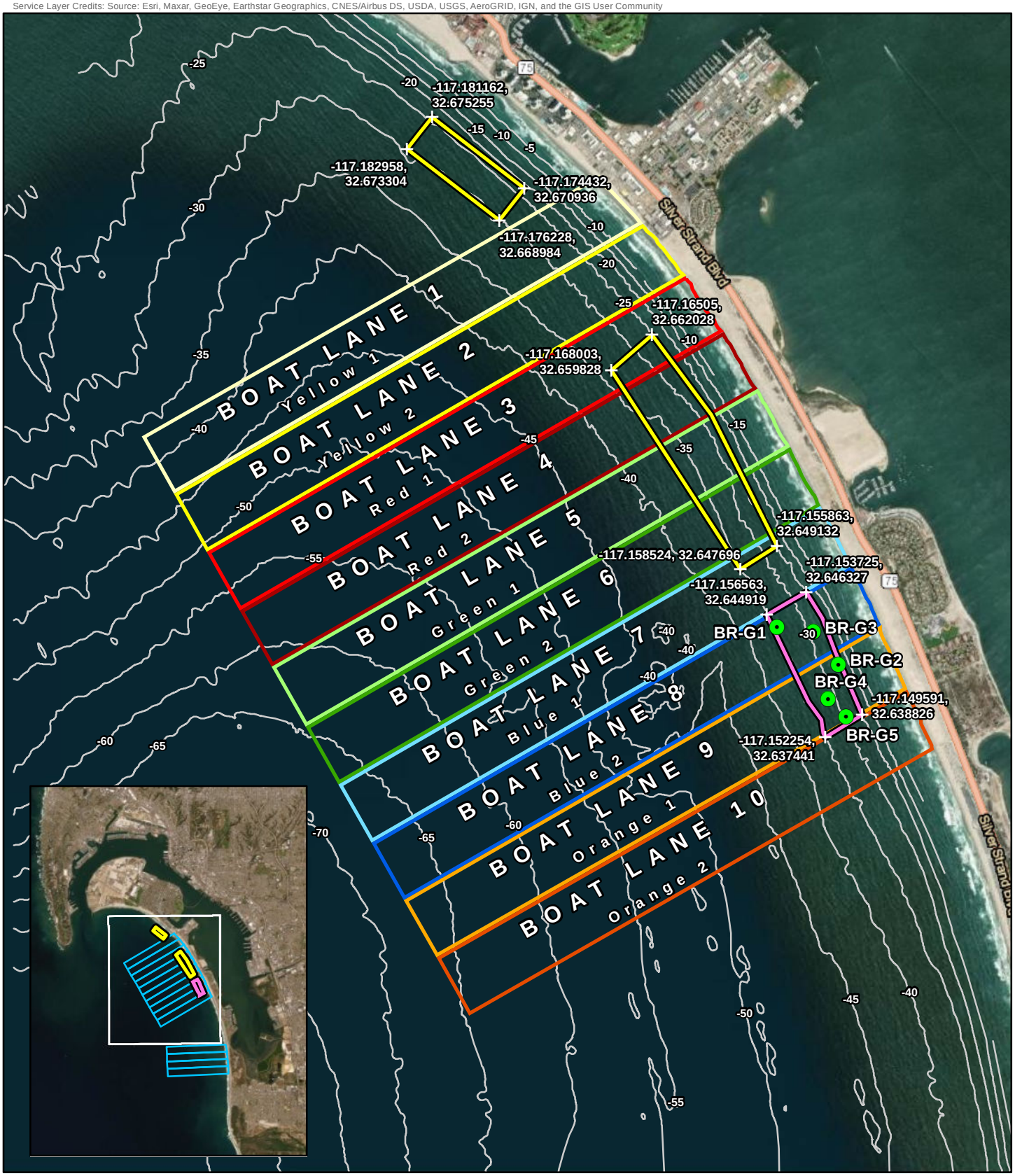
FIGURE 1-1c

Location of LA-5 Ocean Dredged Material Disposal Site
EA Preparation and Sediment Testing
Floating Dry Dock, Naval Base San Diego
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Path: \\sdg1-fs1\GIS\3151_AquaticResources\SanDiegoMaintenanceDredging\MXD\ReportFigures\2018\NBSD_FloatingDryDock_3151187382\Fig1_4d_SilverStrandActualSampling.mxd, aaron.johnson, 9/6/2022

Actual Sampling Location (2020)

Nearshore Nourishment Area (Sampled 2020)

Nearshore Nourishment Area (Sampled 2008)

1 inch = 3,000 feet

0 1,500 3,000 Feet

FIGURE 1-1d

Proposed Beneficial Reuse Site
EA Preparation and Sediment Testing
Floating Dry Dock, Naval Base San Diego
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

The disposal location for the Project will be determined by the USACE and USEPA based on the results of this Study, which used a tiered approach to sampling and analysis to streamline the disposal determination process.

1.2 Site Description

The FDD dredge site is located south of the Mole Pier at NBSD (Figure 1-1b). The center of the dredge footprint is located at approximately 117º07.3412 west, 32º40.0880 north. The Mole Pier is south of Pier 8 and north of Pier 10 at NBSD. The proposed dredge footprint is located immediately adjacent to the southern side of Mole Pier and just offshore of the western terminus of the pier area. The dry dock sump is located just northwest of the corner of 10th and Womble Streets at NBSD (Figure 1-1b). A portion of the land area northeast of the dredge footprint is currently the site of the NAVFAC Southwest confined disposal facility (CDF) for dredged materials approved for upland disposal at an appropriately permitted landfill.

1.3 Roles and Responsibilities

The United States Department of the Navy (Navy) is responsible for all Study elements and overall contract management with contract assistance from the Multimedia Environmental Compliance Group (MMEC Group), a joint-venture partnership between Wood Environment & Infrastructure Solutions (Wood) and KMEA.

Key project personnel and their contact information are listed in Table 1-2. Certain services were provided by the following subcontractors:

- Seaventures, Inc. (Seaventures)[2] – Vessel operation and station positioning services;
- Six Scientific Service (SixSci) – Vibracore equipment and operation;
- EcoAnalysts Toxicity Testing Laboratory (EcoAnalysts) – Toxicity and bioaccumulation testing; and
- Eurofins Calscience Environmental Laboratories, Inc. (Calscience)[3] – Physical, sediment chemistry, and tissue chemistry analyses.

1.3.1 Scope of Work

This SAP Report details the sediment collection and testing program for the FDD dredging Project at NBSD. The primary disposal options evaluated were ocean disposal at LA-5 ODMDS (Figure 1-1c) and beneficial reuse at a nearshore replenishment site (Figure 1-1d). Additionally, due to initial physical and chemical testing results, some of the proposed dredged materials were evaluated for disposal at an appropriately permitted upland landfill. Program elements include:

- Preparation of the SAP for agency review and approval.

[2] *Early Bird II* vessel specifications: 40-ft Vega, California (CA) Registration CF58397; call sign is WDC 3623; monitors channel 16. Skiff specifications: 14-ft Carolina, CA Registration: CF5342NX

[3] Calscience is a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP), the California Department of Public Health, and the U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP) (certificate No. L12-86-121).

DRAFT FINAL

Table 1-2. Key Project Personnel

Organization	Name	Title	Office Phone	Cellular Phone
NAVFAC Southwest	Lisa Seneca	Navy Project Manager	(619) 705-5674	(760) 473-0289
NAVFAC Southwest	Chris Eliff	Port Operations/Harbor Master	(619) 556-5880	(619) 571-4608
MMEC Group	Barry Snyder	MMEC Group Project Manager	(858) 300-4320	(858) 354-8340
MMEC Group	Matt Brookshire	MMEC Group QC Manager	(858) 633-2793	(858) 740-6268
MMEC Group	Kimbrie Gobbi	MMEC Group Field Manager	(858) 300-4326	(858) 869-9410
MMEC Group	Kellyn Baker	MMEC Group In-Office Sample Manager	619) 770-7142	(619) 980-8508
MMEC Group	Tyler Huff	MMEC Group Health and Safety Manager	(858) 300-4322	(858) 449-2334
Seaventures	Bob Lohrman	Vessel Captain	N/A	(949) 500-1615
SixSci	Christopher Clark	Vibracore Contractor	(760) 908-5753	N/A
EcoAnalysts	Brian Hester	EcoAnalysts Project Manager & QA/QC	(360) 297-6045	(360) 461-5784
Calscience	Carla Hollowell	Laboratory Project Manager	(714) 895-5494	(714) 895-5230

Notes: MMEC Group = Multimedia Environmental Compliance Group; N/A = not available; NAVFAC Southwest = Naval Facilities Engineering Command Southwest; QA/QC = quality assurance and quality control

- Adoption of an Accident Prevention Plan (APP), including all requirements outlined in Occupational Safety & Health Administration (OSHA) 29 CFR 1910 and the USACE Engineering Manual 385-1-1, Safety and Health Requirements Manual (USACE, 2014).
- Field mobilization and collection of sediment core samples to project depth plus a 2-ft (OD) allowance in accordance with the procedures outlined in the SAP.
- Collection of an ocean reference sediment sample at the agency-approved reference site.
- Submission of samples to accredited laboratories for physical, chemical, toxicological, and bioaccumulation analyses.
- Quality assurance and quality Control (QA/QC) review of data.
- Analysis of sediment chemistry, toxicity, and bioaccumulation results.
- Preparation of this detailed sampling and analysis plan report (SAP Report) for submission to the USACE and USEPA.
- Convening of a sediment disposal suitability meeting with the USACE and USEPA to present a detailed discussion of the test results.

1.3.2 Document Outline

This SAP Report was prepared under contract for NAVFAC Southwest to include the following elements:

- Introduction
- Site History
- Methods
    - Dredge Design
    - Sampling Design
    - Physical and Chemical Testing
    - Biological Testing

DRAFT FINAL

- Results
    - Descriptions of physical, chemical, toxicological, and bioaccumulation testing results
    - Quality assurance and quality control (QA/QC) procedures and data quality
- Conclusions and Recommendations
- Disposal Suitability Determination
- Updated Mole Pier Floating Dry Dock Design and Dredging Volumes

1.3.3 2023 Study Summary

Study results and requests for approval were presented to the agencies (USACE and USEPA) on 11 January 2023 and 9 May 2023. During the 11 January 2023 consultation, the agencies provided the following SUAD also summarized in Section 6 of this SAP Report:

- NUAD Area East and NUAD Area West (total 19,321 cy) are approved for screening and placement at an appropriately permitted landfill.
- The remainder of the dredged material (up to 77,893 cy) are SUAD for placement at the LA-5 ODMDS.
    - Consolidated native formational materials will be screened through a 12-inch grizzly and ground to a size of no larger than 4-inches prior to transport and disposal at the LA-5 ODMDS.
    - Dredged materials will not be placed solely in the LA-5 surface disposal zone, instead they will be managed over a larger grid (i.e., series of quadrants).
- Dredged materials from Composite Area B are too fine for placement nearshore at the Silver Strand.

This SUAD was granted by the USACE and USEPA with the understanding that the Navy was still re-defining final Project design and volumes (see correspondence in Appendix G). Notably, one of the placement alternatives reviewed by NAVFAC Southwest for the Project (nearshore placement at the Silver Strand) was removed as a suitable placement option for the proposed dredged materials at this time.

Following this meeting, the revised Project design and request for SUAD approvals were discussed with the agencies on 9 May 2023. During the 9 May 2023 consultation, the following volumes were requested for SUAD approval:

DRAFT FINAL

Table 1-3. Mole Pier Floating Dry Dock Proposed Volumes of Dredged Materials Suitable for Various Placement Options (July 2023)

Dredge Area	Dredged Material Type	Dredging Depth (2-foot OD) (ft MLLW)	Project Volume to Design (cy)	2-ft OD Volume (cy)	Total Volume (cy)	Total Placement Location Volume (cy)
Turning Basin	Unconsolidated SUAD	-37	3,796	7,219	11,015	93,248
Approach	Unconsolidated SUAD	-39	7,705	8,273	15,978	
Dry Dock Sump	Unconsolidated SUAD	-43	29,899	14,152	44,051	
	Consolidated SUAD	*-58*	*19,885*	*2,319*	*22,204*	
	Unconsolidated NUAD West	-58	2,888	2,538	5,426	17,712
	Unconsolidated NUAD East	-58	8,530	3,756	12,286	
Total	All	Various	72,703	38,257	110,960	110,960

Notes: % = percent; MLLW = mean lower low water; cy = cubic yards; FDD = Floating Dry Dock; SUAD = suitable for unconfined aquatic disposal; NUAD = no unconfined aquatic disposal; ODMDS = ocean dredged material disposal site; italicized values = approximate volume of consolidated sediments to be placed at the LA-5 ODMDS.

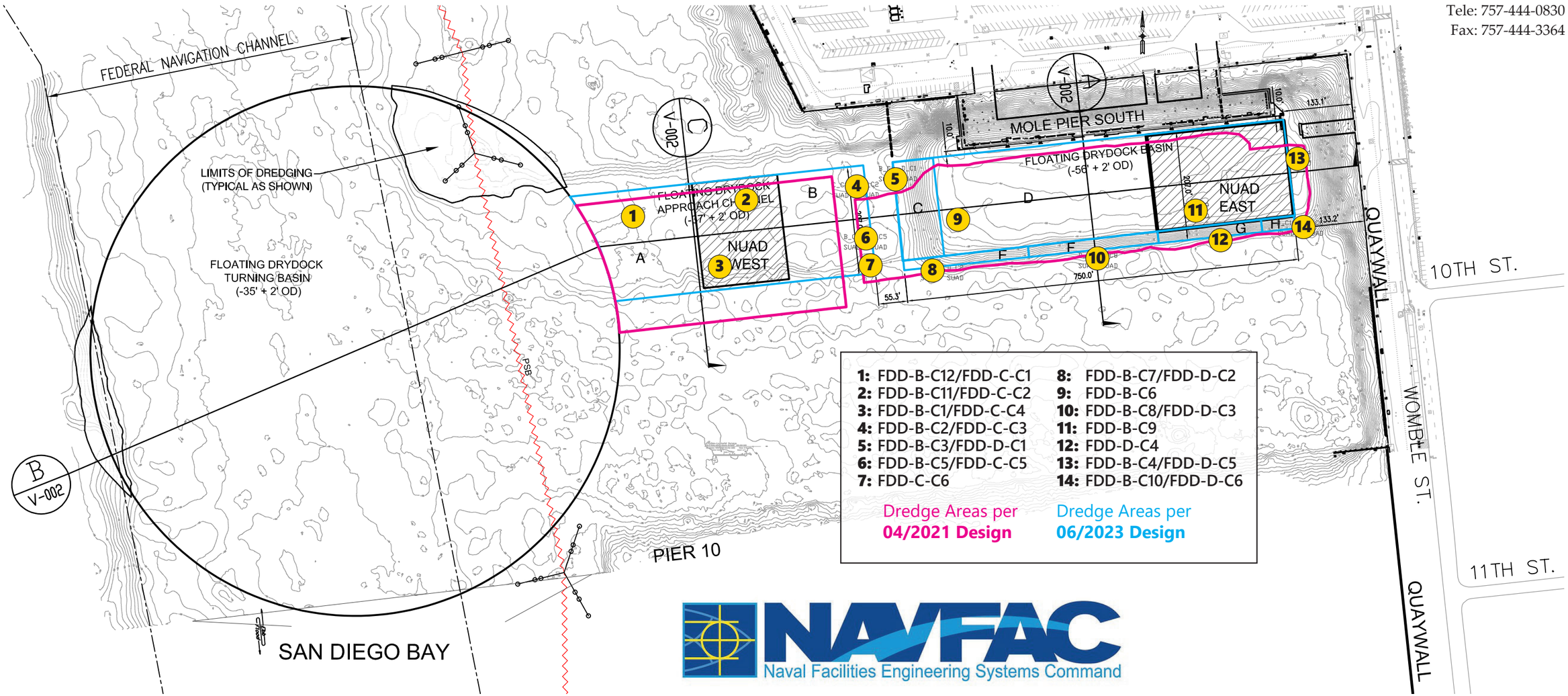
Upon review of the 9 May 2023 request for SUAD, the agencies requested updated calculations of the total native formational materials (NFM) found within the proposed dredged footprint and a figure that showed the overlap of the current Navy design footprint compared to the proposed SAP footprint that was sampled and tested for the Study (described in the *Final Sampling and Analysis Plan for a Sediment Characterization Study to Support Proposed Dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego, San Diego, California*. Revised 28 May 2021). Figure 1-2 shows the overlap of the approved SAP footprint used to design the Study, and the current dredging design provided by NAVFAC Southwest for SUAD approval. Of the total volume of SUAD material in the dredge footprint (93,248 cy), approximately 71,044 cy is composed of unconsolidated sediments, while 22,204 cy is composed of NFM.

This version of the SAP Report (dated 15 June 2023) presents all results as discussed and approved during the 11 January 2023 consultation with the additional information provided by NAVFAC Southwest for approval on 28 April 2023 (Section 6.0 and 7.0) as well as the information requested by the USACE and USEPA on 9 May 2023.

The Navy is proposing to perform dredging during the in-water work window of 1 September 2023 through 31 March 2024. Prior to dredging, the Navy is required to submit all required permit applications, finalize agency consultations, and obtain all necessary permits. To obtain these approvals, the Navy requests a SUAD determination for the currently proposed Project dredging footprint, area, and volumes as presented in the Executive Summary (Table 1-3 and Figure 1-2) and Section 7.0 of the SAP Report.

DRAFT

MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364



MOLE PIER P-508 FLOATING DRY DOCK DREDGING
PLAN - DREDGE AREAS
DATE: 06-11-23
DRWG. BY: JAMES S. GEORGO

Proposed Dredging Footprint - SAP (April 2021) and Revised Draft Final SAP Report (June 2023)

Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

FIGURE
1-2

This page intentionally left blank.

DRAFT FINAL

2.0 SITE HISTORY

The NBSD Mole Pier South berth was constructed in the early 1980s. It is currently composed of a pile-supported concrete wharf, access ramps, and a finger pier located on the quay wall just east of the wharf. The Mole Pier South berth was previously used to berth the floating dry dock AFDM 14 *Steadfast*. The *Steadfast* was relocated in 1998. Modifications were made to the Mole Pier South berth in 2002 that included construction of two mooring points to accommodate berthing and mooring of the *USS Curtiss*, a dolphin at the forward position of the vessel, and an extension of the wharf at the aft location. The *USS Curtiss* is currently stationed at the wharf.

Sediments on the north side of the Mole Pier were characterized in 2013 and 2016 for NBSD maintenance dredging studies, but sediments on the south side of the Mole Pier have not been characterized for many years. As part of the Project, the south Mole Pier berthing area will be dredged to restore the turning basin to its maintenance depth of -35 ft Mean Lower Low Water (MLLW), the approach channel to its maintenance depth of -37 ft MLLW, and the existing dry dock sump will be reconfigured to support the new FDD and dredged to the prior maintenance depth of -56 ft MLLW.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

3.0 METHODS

Sampling and analysis procedures for this Study were designed to satisfy the testing requirements outlined in the Green Book (USEPA/USACE, 1998) and ITM (USEPA/USACE, 1991). This section describes the locations and techniques used to collect and test sediments at 20 sampling locations in four Composite Areas at the NBSD Mole Pier turning basin, approach channel, and floating dry dock sump.

3.1 Dredge Design

The approximate area proposed for dredging is 8.28 acres. The proposed dredging location, design depth, and estimated dredging volumes are summarized in Table 3-1. It should be noted that these dredge volumes are approximated and actual sediment volumes may be slightly higher or lower than those presented in Table 3-1.

Table 3-1. Naval Base San Diego Floating Dry Dock Dredging Study Proposed Dredging Locations, Design Depths, and Volumes

Dredging Site	Composite Area	Design Depth (ft MLLW)	Estimated Dredge Volume to Design Depth (cy)	Estimated 2-ft OD Volume (cy)	Estimated Total Volume with 2-ft OD allowance (cy)
Turning Basin	A	-35	3,690	7,378	11,068
Recent Bay Deposits (Approach+Sump)[1,2]	B	2-ft below Mudline	44,498	17,786	62,284
Native Formational Material (Approach Side Slope + Sump)[3]	C	-37 & -56	0	0	0
Native Formational Material (Sump)[3]	D	-56	21,567	2,295	23,862
Total	All	NA	69,755	27,459	97,214

Notes:
[1] Recent Bay Deposits were estimated to be 2-ft of the proposed dredged material within the FDD Approach and Sump areas for planning purposes. The depth limit for the Recent Bay Deposits was adjusted based on field observations as shown in Table 3-2 and discussed in Section 3.2.1 of this SAP Report.
[2] Recent Bay Deposits include approximately 750 linear feet x 10 square feet (~300 cubic yards) of rip rap within the current dry dock sump.
[3] Native Formational Material was estimated to be between 2-ft below the mudline and the proposed design depth plus the 2-ft OD allowance for the Approach (-39 ft MLLW), and the Sump (-58 ft MLLW). The upper limit depth of the Native Formational Material was adjusted based on field observations as shown in Table 3-2 and discussed in Section 3.2.1 of this SAP Report. However, due to a change in the Navy's dredge design plans, the native formational material in Composite C will no longer a part of the project's dredge footprint and currently represents 0 cy of dredged material volume.
Cy = cubic yard(s); FDD = Floating Dry Dock; MLLW = mean lower low water; OD = overdredge; N/A = not applicable, Composite Area B sediments will only be collected between the mudline and 2-ft below the mudline.

3.2 Sampling Design – Proposed Collection Locations

Sample collection locations, mudline elevations, recovered core lengths, and core log notes for the Study are included in Table 3-2. Coring locations were positioned as close as possible to site features such as quay walls[4] and storm drain outlets (when applicable), and throughout the composite areas to obtain an adequate characterization of the material proposed for dredging.

Sample locations are shown in Figure 3-1 and related Figures 3-1a, b, and c. The water depth in the Floating Dry Dock (FDD) footprint ranges from approximately -19 ft MLLW to approximately -55.5 ft MLLW, and samples were collected from mudline depths ranging from -35.2 ft MLLW to -53.3 ft MLLW. To ensure adequate characterization of the material to be

[4] But beyond the engineering specifications provided by NAVFAC Southwest (i.e. > 50 ft from the quay wall [Sanchez, 2018]).

DRAFT FINAL

dredged in the side slope of the dry dock sump, a projected side slope of 3:1 was added to the Study design and target core lengths were based on the distance from the mudline to the base of the side slope plus a 2-ft OD allowance. The side slope is based on cross sections provided to NAVFAC Southwest by a dredged material contractor for the Project (Figures 3-2a and 3-2b).

The dredge area was tested as four composite areas with four samples collected for Composite Area A; twelve vibracore samples for Composite Area B, three samples for Composite Area C (no longer part of the dredging footprint)[5] and five samples for Composite Area D for a total of twenty samples collected for testing at 18 locations in the proposed dredge footprint. The Composite Areas were defined both horizontally (A, B, C, and D) and vertically (B, C, and D) as follows and as depicted in Figure 3-2c:

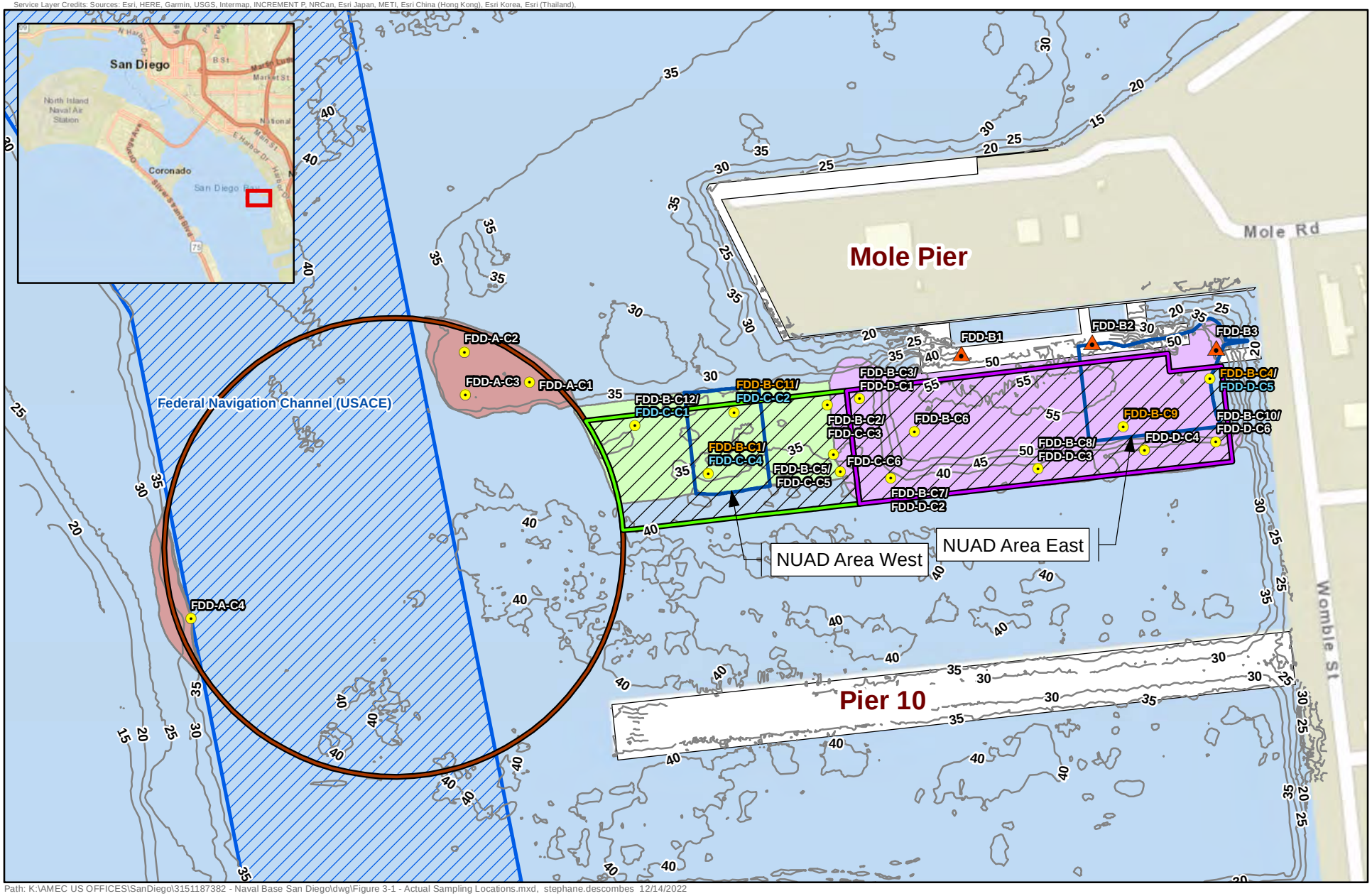
- Composite A: Turning Basin
- Composite B: Approach and Sump recent bay deposits (upper unconsolidated layer)
- Composite C: Approach and Sump native formational material (NFM, lower consolidated layer)[4]
- Composite D: Sump NFM (lower consolidated layer)

In addition to vibracore samples, three geotechnical borings were collected within the Project footprint to support the Navy's construction design. A reference sediment sample was also collected from the designated LA-5 ODMDS Reference sediment site. The reference sediment results were used for comparison purposes to assess the suitability of the test sediments for placement at the LA-5 ODMDS.

DRAFT FINAL

[5] As discussed in Section 1-1 and Table 3-1, the Navy modified its required Project footprint following the collection and testing of sediments. Consequently, the modified footprint for the Project indicates that no dredging is required in the Composite C area. However, for continuity purposes with the approved SAP, the testing results of the Composite C area will be presented in this report.

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 3-1 - Actual Sampling Locations.mxd, stephane.descombes 12/14/2022

Actual Geotechnical Borings
Actual Sampling Location *
Bathymetric Contour - Existing

Dredge Footprint - Design Depth
-35
-37
-56

No Unconfined Aquatic Disposal (NUAD) Areas

Composite Areas
Composite A: Turning Basin
Composite B: Recent Bay Deposits (Approach and Sump)
Composite C: Native Formational Material (Approach and Sump)
Composite D: Native Formational Material (Sump)

*Samples from locations in light blue text were unable to be collected in the field
*Samples from locations in orange text are considered no unconfined aquatic disposal (NUAD)

1 inch = 300 feet
0 150 300 Feet

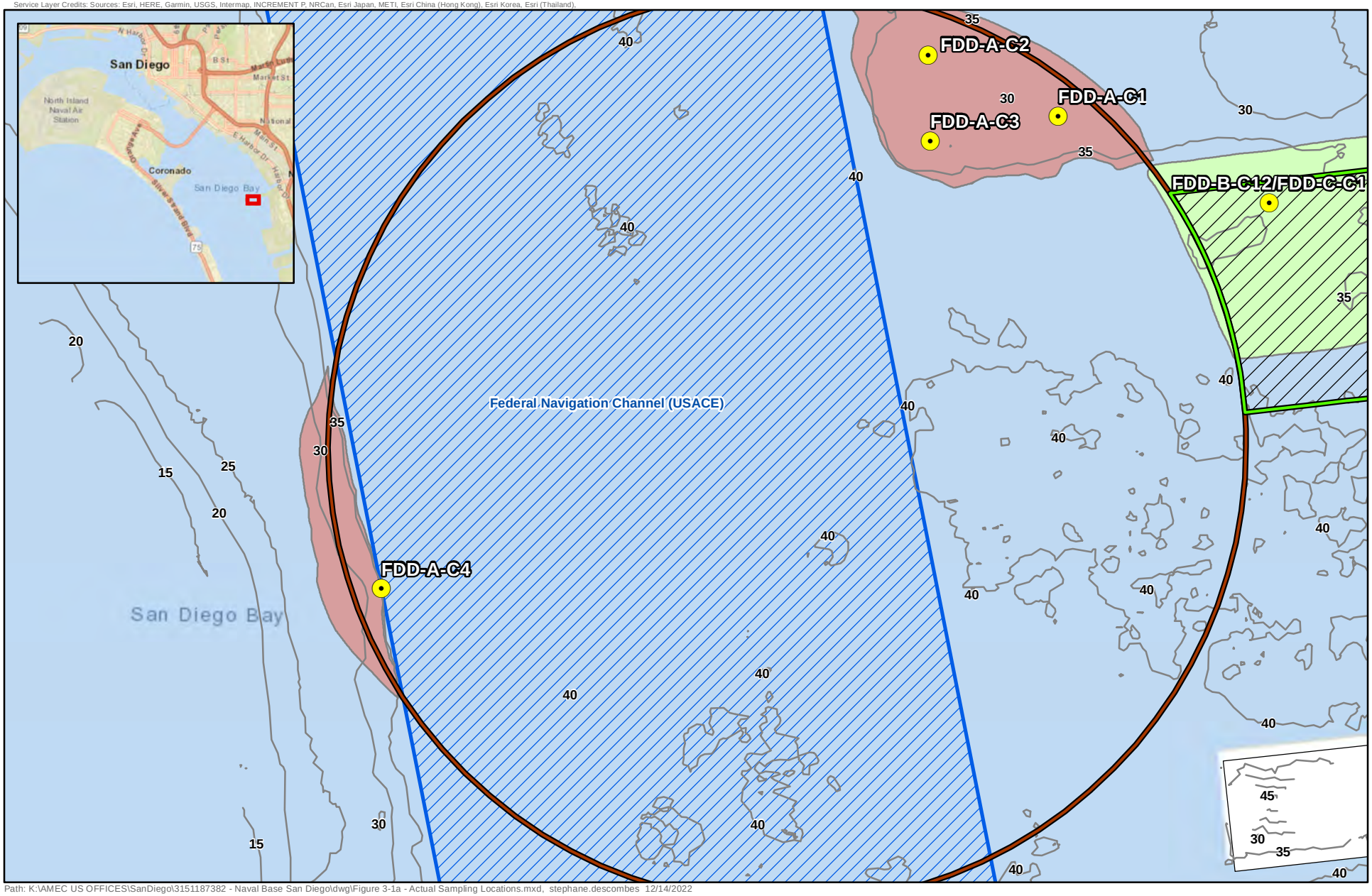
FIGURE 3-1

Actual Sampling Locations
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 3-1a - Actual Sampling Locations.mxd, stephane.descombes 12/14/2022

Actual Sampling Location

Bathymetric Contour - Existing

Dredge Footprint - Design Depth

-35

-37

Composite Areas

Composite A: Turning Basin

Composite B: Recent Bay Deposits (Approach and Sump)

Composite C: Native Formational Material (Approach and Sump)

1 inch = 150 feet

0 75 150 Feet

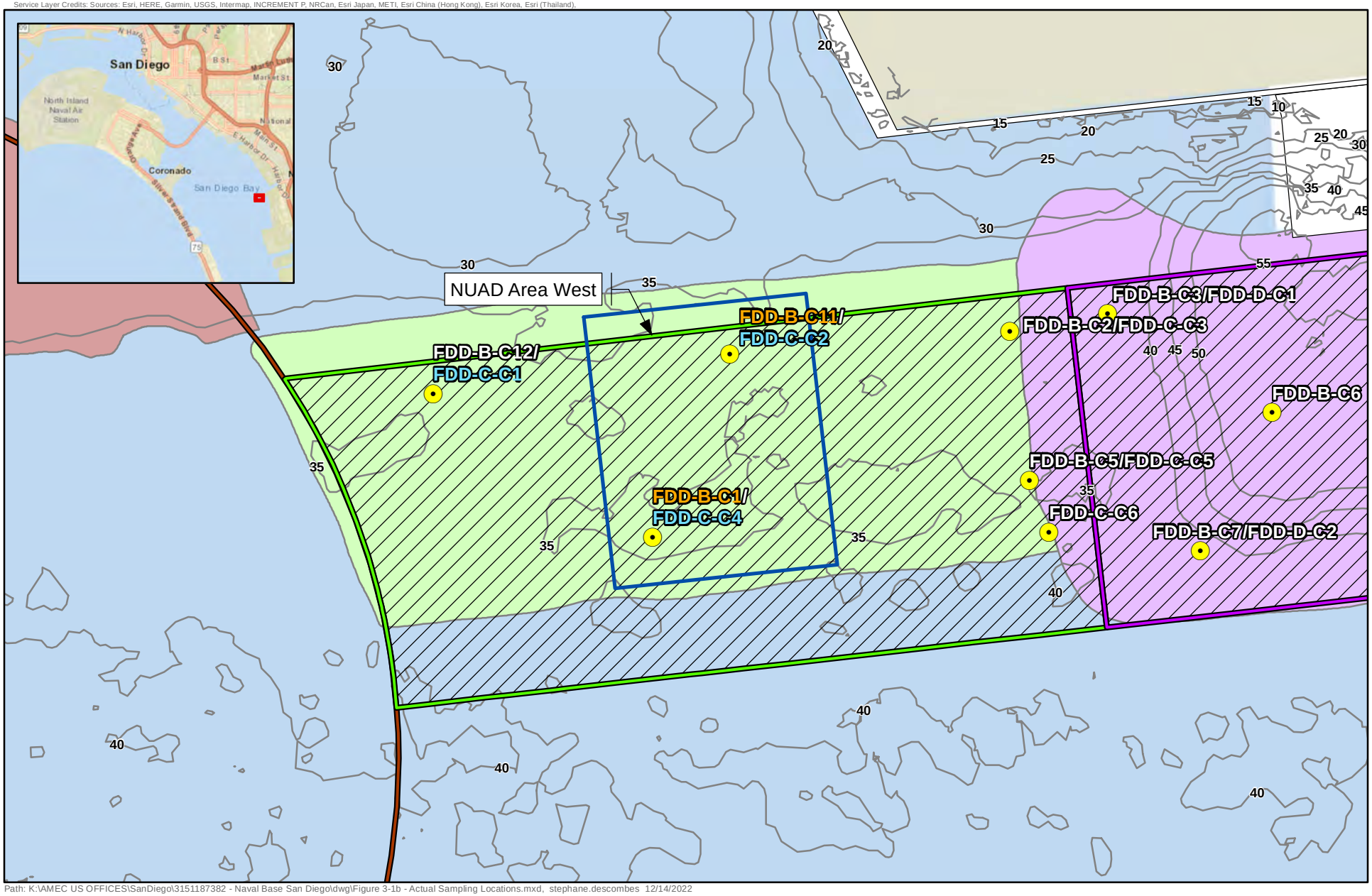
FIGURE 3-1a

Actual Sampling Locations
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 3-1b - Actual Sampling Locations.mxd, stephane.descombes 12/14/2022

Actual Sampling Location

Bathymetric Contour - Existing

Dredge Footprint - Design Depth

-35

-37

-56

No Unconfined Aquatic Disposal (NUAD)

Composite Areas

Composite A: Turning

Composite B: Recent Bay Deposits (Approach and Sump)

Composite C: Native Formational Material (Approach and Sump)

Composite D: Native Formational Material (Sump)

*Samples from locations in light blue text were not able to be collected in the field

*Samples from locations in orange text are considered no unconfined aquatic disposal (NUAD)

1 inch = 100 feet

0 50 100 Feet

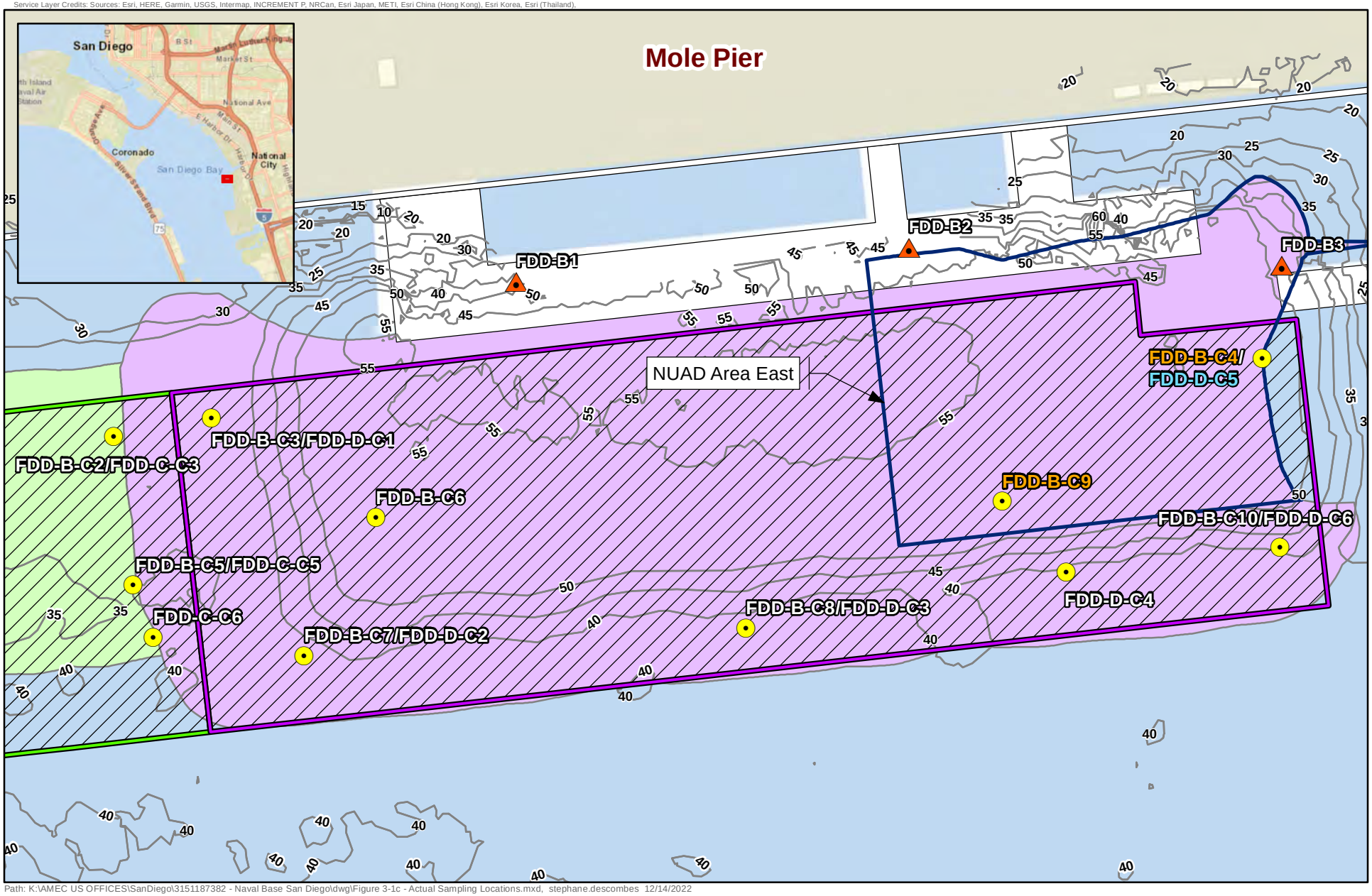
FIGURE 3-1b

Actual Sampling Locations
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 3-1c - Actual Sampling Locations.mxd, stephane.descombes 12/14/2022

Actual Geotechnical Borings

Actual Sampling Location*

Bathymetric Contour - Existing

Dredge Footprint - Design Depth

-37

-56

No Unconfined Aquatic Disposal (NUAD) Areas

Composite Areas

Composite B: Recent Bay Deposits (Approach and Sump)

Composite C: Native Formational Material (Approach and Sump)

Composite D: Native Formational Material (Sump)

*Samples from location in light blue text were unable to be collected in the field

*Samples from location in orange text are considered no unconfined aquatic disposal (NUAD)

1 inch = 100 feet

0 50 100 Feet

FIGURE 3-1c

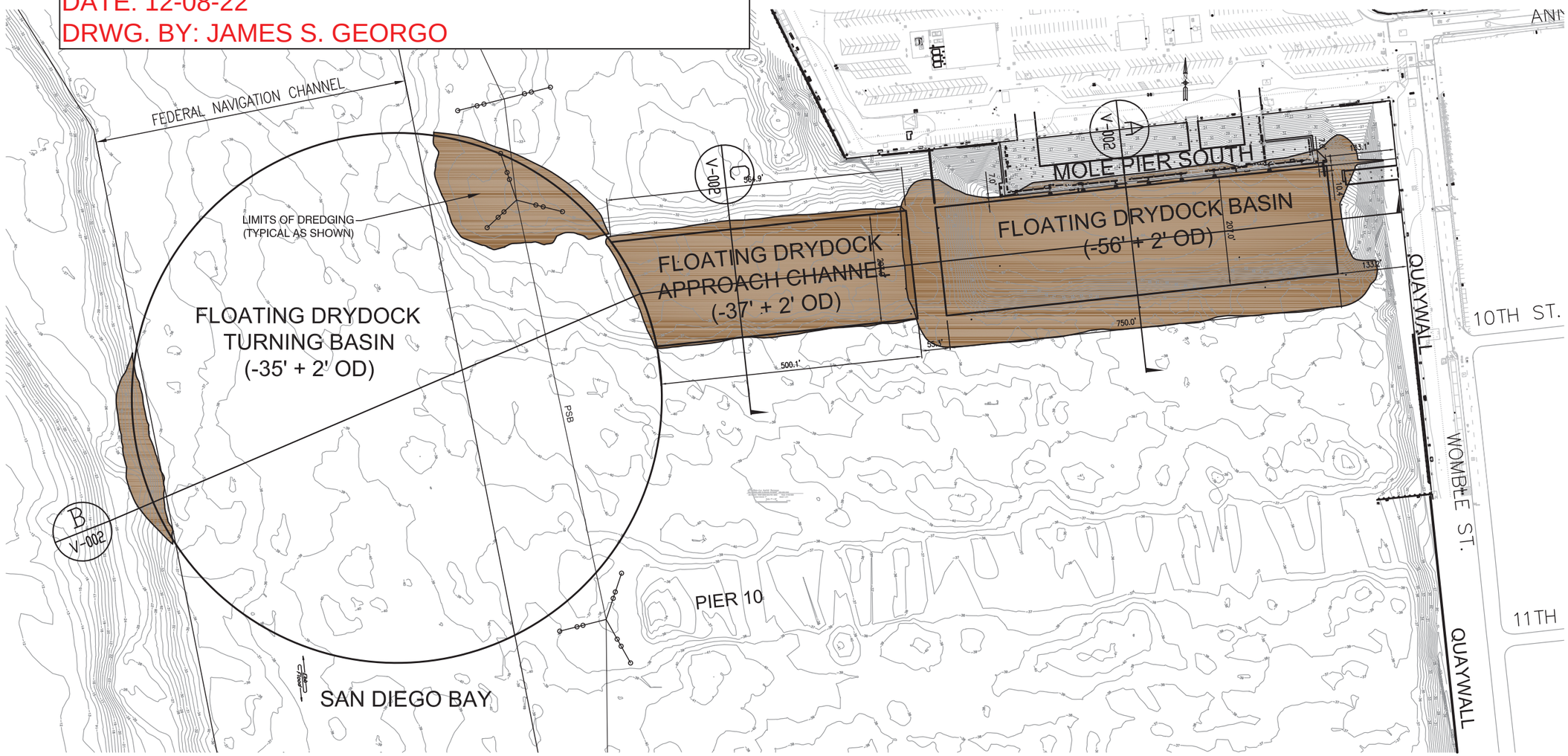
Actual Sampling Locations
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364

MOLE PIER P-508 FLOATING DRYDOCK PRELIMINARY DREDGING PLAN
DATE: 12-08-22
DRWG. BY: JAMES S. GEORGO



Representative Cross-Sections (Plan View) of Proposed Dredging Footprint

Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

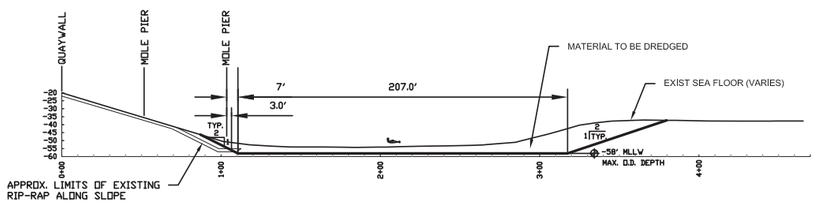
FIGURE
3-2a

This page intentionally left blank.

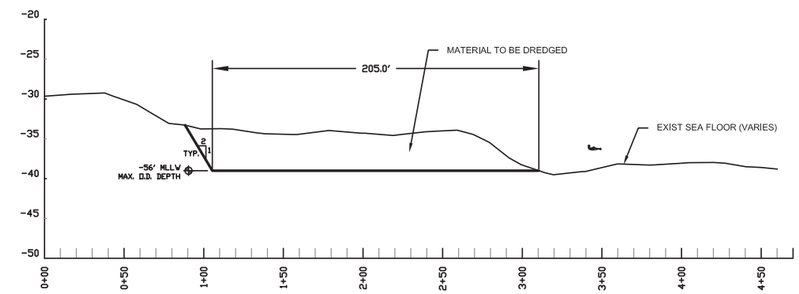
DRAFT FINAL

MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364

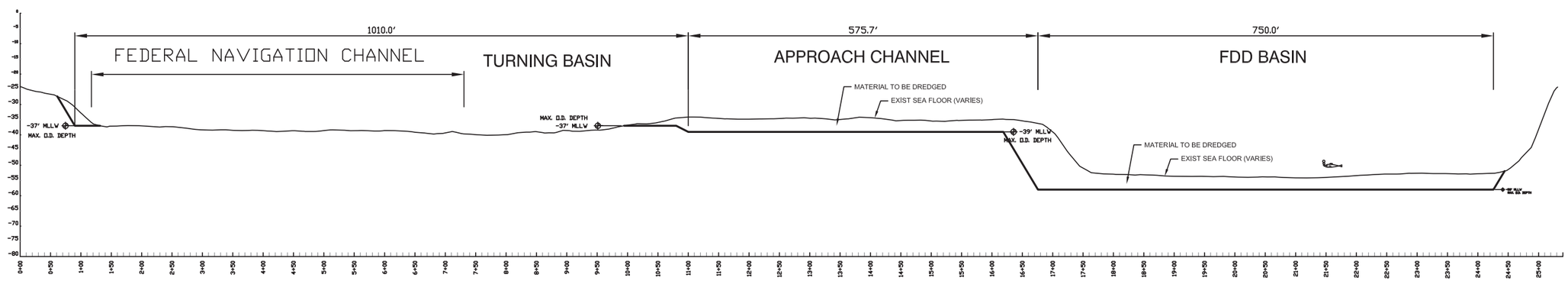
MOLE PIER P-508 FLOATING DRYDOCK PRELIMINARY DREDGING PLAN
DATE: 12-08-22
DRWG. BY: JAMES S. GEORGO



A V-002 TRANSVERSE SECTION THRU FDD BASIN
SCALE: HORIZ 1"= 50'
VERTICAL 1" = 50'



C V-002 TRANSVERSE SECTION THRU FDD APPROACH CHANNEL
SCALE: HORIZ 1"= 50'
VERTICAL 1" = 50'



B V-002 LONGITUDINAL SECTION THRU FDD BASIN
SCALE: HORIZ 1"= 100'
VERTICAL 1" = 20'

Representative Cross-Sections of Proposed Dredging Footprint

Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

FIGURE
3-2b

This page intentionally left blank.

DRAFT FINAL

Table 3-2. NBSD Mole Pier Floating Dry Dock Vibracore Log

Sample Identifier	Attempt	Latitude (dd.dddddd)	Longitude (ddd.dddddd)	Date	Time	Project Depth (DD plus 2 ft OD plus 1 ft Z-layer)	Mudline Elevation (ft MLLW)	Target Penetration (ft)	Actual Penetration (ft)	Recovered Core Length (ft)	Split Sample (Comp C or D) Start Depth		Additional Notes
											ft Below Mudline	ft MLLW	
FDD-A-C1	1	32.668453	-117.124745	6/8/2021	11:15	-39	-32.8	6.2	6.2	6.2	NA	NA	No plug. Refusal at 6.2'. Core barrel bent on retrieval. Core location shifted because boom obstructed proposed location. Core appears liquified because technician had to vibrate to extract. Deviation from SAP: Actual core loction for FDD-A-C1 and FDD-A-C4 were swapped compared to the proposed sampling locations because of field miscommunication.
FDD-A-C1	2	32.668452	-117.124735	6/8/2021	11:50	-39	-32.9	6.1	5.0	3.9	NA	NA	Hard refusal at 5.0'; No plug.
FDD-A-C1	3	32.668449	-117.124740	6/8/2021	12:15	-39	-32.9	6.1	5.1	5.1	NA	NA	Hard refusal at 5.1': Small plug (sand with silt and clay)
FDD-A-C1	4	32.668445	-117.124750	6/8/2021	12:40	-39	-33.0	6.0	5.0	4.5	NA	NA	Small clayey plug: Penetrated 5.0'; hard refusal End of core is very liquefied
FDD-A-C2	1	32.668628	-117.125205	6/4/2021	09:25	-39	-33.3	5.7	5.2	5.2	NA	NA	Penetration hard at 2.0'. No plug.
FDD-A-C2	2	32.668629	-117.125207	6/4/2021	09:45	-39	-33.4	5.6	5.6	5.6	NA	NA	No refusal. Plug in catcher.
FDD-A-C2	3	32.668626	-117.125209	6/4/2021	10:00	-39	-33.6	5.4	5.3	5.0	NA	NA	Sandy Plug. Refusal at 5.8'. There was wake during sampling so the measurements may be slightly off.
FDD-A-C2	4	32.668633	-117.125211	6/4/2021	10:25	-39	-33.7	5.3	5.3	5.3	NA	NA	Shifted 1 meter starboard.
FDD-A-C3	1	32.668373	-117.125196	6/4/2021	07:30	-39	-33.5	5.5	5.5	5.5	NA	NA	Hard at 4.5'; No refusal. Hard plug.
FDD-A-C3	2	32.668369	-117.125204	6/4/2021	08:00	-39	-33.6	5.4	5.5	5.5	NA	NA	No refusal. Felt hard at 4.5'; Hard plug.
FDD-A-C3	3	32.668367	-117.125192	6/4/2021	08:20	-39	-33.6	5.4	5.5	5.5	NA	NA	Shifted in towards port for attempt.
FDD-A-C3	4	32.668377	-117.125200	6/4/2021	08:35	-39	-33.7	5.3	5.3	5.3	NA	NA	Hard plug.
FDD-A-C4	1	32.666947	-117.127125	6/7/2021	10:00	-39	-35.5	3.5	4.7	4.2	NA	NA	Core went in straight. Plug fell out on removal. Deviation from SAP: Actual core loction for FDD-A-C1 and FDD-A-C4 were swapped compared to the proposed sampling locations because of field miscommunication.
FDD-A-C4	2	32.667001	-117.127159	6/7/2021	10:20	-39	-33.9	5.1	3.5	3.5	NA	NA	Shifted 3 meters back on starboard anchor to be closer to proposed point. Felt hard at 3.0'; Sand plug. Met refusal at 3.5'.
FDD-A-C4	3	32.667008	-117.127154	6/7/2021	10:40	-39	-34.0	5.0	3.0	3.0	NA	NA	Refusal at 3.0'. Core penetration felt hard and then began to tip over.
FDD-A-C4	4	32.667002	-117.127158	6/7/2021	11:00	-39	-34.2	4.8	4.5	4.5	NA	NA	Refusal at 4.5'. Tipping.
FDD-A-C4	5	32.667009	-117.127142	6/7/2021	11:15	-39	-34.4	4.6	4.5	4.5	NA	NA	Lots of chop/wake. Core entered 4.5' before refusal.
FDD-A-C4	6	32.666999	-117.127141	6/7/2021	11:40	-39	-34.7	4.3	4.5	4.5	NA	NA	Shifted approximately 1 meter starboard (Vessel facing south). Sandy plug. Attempt collected for "top" volume only.
FDD-B-C1/FDD-C-C4	1	32.667896	-117.123464	6/8/2021	07:30	-40	-34.5	5.5	6.0	5.4	NS	NS	Plug had chunks but was generally soft. Very mottled with clay lense at end.
FDD-B-C1/FDD-C-C4	2	32.667912	-117.123463	6/8/2021	07:45	-40	-34.5	5.6	5.5	5.3	NS	NS	Soft plug with minor chunks of native formational material. Core penetration soft to proposed depth. Plug is very mottled with clay lense at end.
FDD-B-C1/FDD-C-C4	3	32.667910	-117.123453	6/8/2021	08:00	-40	-34.3	5.7	5.0	5.0	NS	NS	Soft plug with minor shell hash.
FDD-B-C2/FDD-C-C3	1	32.668321	-117.122612	6/3/2021	11:15	-46	-35.6	10.4	10.2	9.3	3.2	-38.8	Sandy Plug.
FDD-B-C2/FDD-C-C3	2	32.668329	-117.122619	6/3/2021	11:45	-46	-35.6	10.4	10.2	5.5	2.5	-38.1	Sandy plug (half full). Refusal at 10.2': Probably entered some boring as last attempt (poor recovery)
FDD-B-C2/FDD-C-C3	3	32.668330	-117.122609	6/3/2021	12:05	-46	-36.5	9.5	10.0	9.3	5.0	-41.5	Shifted barrel approximately 1 meter toward the stern. Small sandy plug. Refusal at 10.0'.
FDD-B-C2/FDD-C-C3	4	32.668327	-117.122611	6/3/2021	13:25	-46	-36.3	9.7	7.0	6.5	2.6	-38.9	Only targeted 8.0' to retain upper layers (no native needed). No refusal. No plug.

Table 3-2. NBSD Mole Pier Floating Dry Dock Vibracore Log (Continued)

Sample Identifier	Attempt	Latitude (dd.dddddd)	Longitude (ddd.dddddd)	Date	Time	Project Depth (DD plus 2 ft OD plus 1 ft Z-layer)	Mudline Elevation (ft MLLW)	Target Penetration (ft)	Actual Penetration (ft)	Recovered Core Length (ft)	Split Sample (Comp C or D) Start Depth		Additional Notes
											ft Below Mudline	ft MLLW	
FDD-B-C3/FDD-D-C1	1	32.668378	-117.122403	6/1/2021	08:00	-59	-37.3	21.7	3.0	3.0	NS	NS	Soft plug. Core penetrated at 3.0', then started to tip over. Felt "soft" to this depth. No native formational "D" layer in sample.
FDD-B-C3/FDD-D-C1	2	32.668368	-117.122371	6/1/2021	08:35	-59	-37.1	21.9	8.9	8.4	3.5	-40.6	Shifted 2 meters towards quay wall. Soft penetration to 3.0'. Hard stop at 8.9'. No plug.
FDD-B-C3/FDD-D-C1	3	32.668354	-117.122377	6/1/2021	09:25	-59	-37.1	21.9	8.9	7.1	4.1	-41.2	Hard refusal at 8.9'. Some sample 10' lost on retrieval. No plug.
FDD-B-C3/FDD-D-C1	4	32.668369	-117.122384	6/1/2021	10:00	-59	-37.2	21.8	9.0	6.2	1.8	-39.0	Hard refusal at 9.0'. Soft penetration around 3.0'. Felt harder/more compact at approximately 5.5' to 6.0'. No plug. May have lost some sediment on top during retrieval, core not compacted.
FDD-B-C3/FDD-D-C1	5	32.668364	-117.122362	6/1/2021	10:20	-59	-37.3	21.7	6.5	6.3	2.6	-39.9	No "D" sample because none needed. No plug.
FDD-B-C4/FDD-D-C5	1	32.668504	-117.119889	6/2/2021	09:15	-59	-52.6	6.4	6.9	6.7	NS	NS	Hard refusal at 6.9'. Overpenetrated to ensure core retrieval. Soft plug. Fell out when pulled at deck. Composed entirely of recent deposits. No native layer retrieved.
FDD-B-C4/FDD-D-C5	2	32.668504	-117.119867	6/2/2021	09:55	-59	-52.4	6.6	9.0	8.2	NS	NS	Attempted to find native at this site. Soft plug, fell out on retrieval. No native formational material to 9.0' below SWI.
FDD-B-C5/FDD-C-C5	1	32.668027	-117.122563	6/3/2021	09:35	-47	-34.9	12.1	9.8	9.1	5.1	-40.0	Refusal at 9.8'. No plug
FDD-B-C5/FDD-C-C5	2	32.668028	-117.122564	6/3/2021	10:05	-47	-35.5	11.5	9.5	7.3	3.3	-38.8	Hard refusal at 9.5'. No plug. Possibly entered first attempt boring (missing 2' of recovery).
FDD-B-C5/FDD-C-C5	3	32.668045	-117.122562	6/3/2021	10:20	-47	-35.1	11.9	9.5	8.4	3.5	-38.6	Shifted 1 meter starboard. Core felt harder to penetrate after 4'. Hard refusal at 9.5'. No plug.
FDD-B-C6	1	32.668166	-117.121993	6/3/2021	07:45	-59	-53.1	5.9	6.9	6.9	NA	NA	Penetration felt hard at about 5.9'. Overpenetrated to achieve core plug/determine depth of native layer at this site.
FDD-B-C6	2	32.668169	-117.121987	6/3/2021	08:40	-59	-53.4	5.6	6.0	5.4	NA	NA	Had to reset stern anchor for site (came loose). Overpenetrated to get plug. Plug lost on retrieval. No refusal.
FDD-B-C6	3	32.668168	-117.121980	6/3/2021	09:00	-59	-53.3	5.7	6.1	5.4	NA	NA	No plug. Overpenetrated at approximately 0.4'. No refusal.
FDD-B-C7/FDD-D-C2	1	32.667888	-117.122153	6/1/2021	11:05	-59	-38.1	20.9	9.0	8.1	3.5	-41.6	No plug. Hard refusal at 9.0'.
FDD-B-C7/FDD-D-C2	2	32.667891	-117.122160	6/1/2021	11:40	-59	-38.4	20.6	7.0	6.3	3.5	-41.9	Hard plug. Refusal at 7.0'.
FDD-B-C7/FDD-D-C2	3	32.667886	-117.122153	6/1/2021	12:45	-59	-38.1	20.9	8.0	4.8	2.8	-40.9	Hard Plug. Hard refusal at 8.0'.
FDD-B-C7/FDD-D-C2	4	32.667887	-117.122154	6/1/2021	13:15	-59	-38.3	20.7	6.9	6.9	3.8	-42.1	No-FDD-D-C2 (not needed). Sandy plug.
FDD-B-C8/FDD-D-C3	1	32.667946	-117.121102	6/1/2021	14:00	-59	-38.6	20.4	8.0	6.3	3.8	-42.4	Hard refusal at 8.0'. Hard plug.
FDD-B-C8/FDD-D-C3	2	32.667942	-117.121094	6/1/2021	14:30	-59	-38.5	20.5	7.0	4.5	1.9	-40.4	Small sandy plug. Slow at 5.0', refusal at 7.0'. No recovery below 4.5'.
FDD-B-C8/FDD-D-C3	3	32.667956	-117.121096	6/1/2021	14:45	-59	-38.9	20.1	7.0	5.2	2.1	-41.0	Refusal at 7.0' (hard). No plug.
FDD-B-C8/FDD-D-C3	4	32.667955	-117.121116	6/1/2021	15:20	-59	-38.9	20.1	9.0	8.7	0.7	-39.6	Went to top of core barrel; no refusal. Likely entered same hole. Core nearly all native formational sediments.
FDD-B-C8/FDD-D-C3	5	32.667958	-117.121111	6/1/2021	15:45	-59	-39.4	19.6	5.0	4.6	2.5	-41.9	Shifted 1 meter towards pier. Slowed down and stopped, did not wait for refusal because no more FDD-D-C3 needed.
FDD-B-C9	1	32.668201	-117.120495	6/2/2021	13:45	-59	-52.5	6.5	9.0	8.8	NA	NA	Shell hash plug. Core started to slow but did not stop.
FDD-B-C9	2	32.668209	-117.120491	6/2/2021	14:05	-59	-52.4	6.6	6.6	5.9	NA	NA	No refusal, small plug.
FDD-B-C9	3	32.668224	-117.120498	6/2/2021	14:30	-59	-52.5	6.5	6.5	6.3	NA	NA	No refusal.
FDD-B-C10/FDD-D-C6	1	32.66811	-117.119827	6/2/2021	10:35	-59	-42.6	16.4	8.5	9.0	4.7	-47.3	Refusal at 9.0'. No plug. Slow penetration to refusal.
FDD-B-C10/FDD-D-C6	2	32.668113	-117.119834	6/1/2021	11:15	-59	-42.2	16.8	9.0	5.3	NS	NS	Hit refusal but no plug. Core appears to be all unconsolidated material. Likely went in the same hole. Retained core for "B-C10" sample. No transition. No "D-sample". Moving vessel for next attempt.
FDD-B-C10/FDD-D-C6	3	32.668131	-117.119829	6/2/2021	11:35	-59	-44.1	14.9	9.0	7.4	4.6	-48.7	Moved approximately 1 meter North towards pier. Refusal at 9.0'.
FDD-B-C10/FDD-D-C6	4	32.668137	-117.119837	6/2/2021	12:00	-59	-44.1	14.3	9.3	7.4	4.8	-48.9	"Easy" penetration to last foot before refusal at 9.3'.

Table 3-2. NBSD Mole Pier Floating Dry Dock Vibracore Log (Continued)

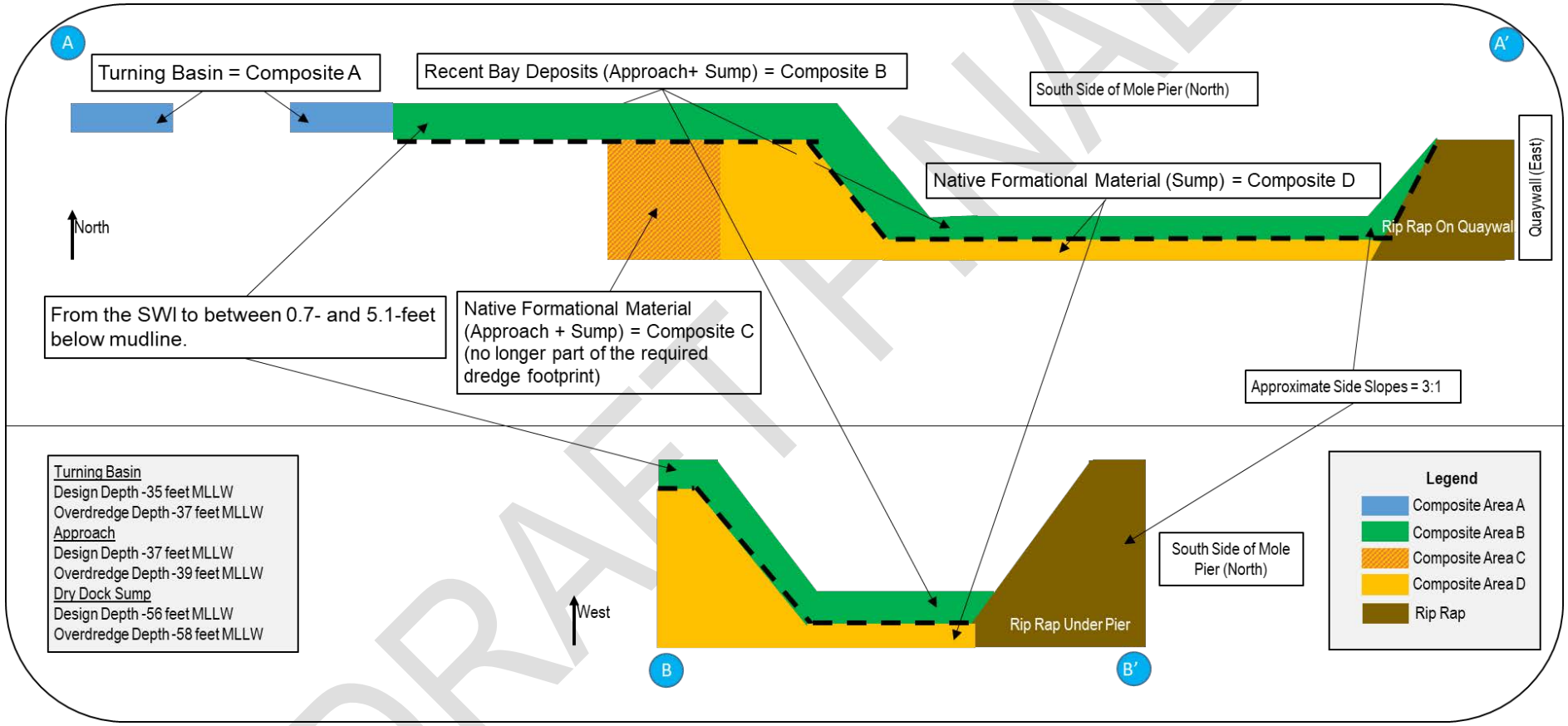
Sample Identifier	Attempt	Latitude (dd.dddddd)	Longitude (ddd.dddddd)	Date	Time	Project Depth (DD plus 2 ft OD plus 1 ft Z-	Mudline Elevation (ft MLLW)	Target Penetration (ft)	Actual Penetratio n (ft)	Recovered Core Length (ft)	Split Sample (Comp C or D) Start Depth		Additional Notes
											ft Below Mudline	ft MLLW	
FDD-B-C11/FDD-C-C2	1	32.668279	-117.123329	6/4/2021	11:45	-40	-35.8	4.2	4.7	4.7	NS	NS	Sandy Plug. See log FDD-C-C2 attempt 1 for notes. Photos say FDD-C-C2 attempt 1 changed to FDD-B-C1 because core is all "unconsolidated"/recent deposits. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.
FDD-B-C11/FDD-C-C2	2	32.668284	-117.12329	6/4/2021	13:00	-40	-35.9	4.1	4.1	4.1	2.9	-38.8	Sandy plug. Overpenetrated to get native. Sample collected is not a true "native" C-layer as it appeared very mixed with unconsolidated surface (B) sediments. Renamed FDD-B-C11. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations. "FDD-C-C2" sample collected was not tested for chemistry or toxicity; not considered "native/formational." Archive only.
FDD-B-C11/FDD-C-C2	3	32.668275	-117.123294	6/4/2021	13:45	-40	-35.7	4.3	4.3	4.3	NS	NS	Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.
FDD-B-C11/FDD-C-C2	4	32.668286	-117.123279	6/4/2021	14:05	-40	-35.8	4.2	4.2	4.2	2.8	-38.6	Sample is very mixed with surface layers. Not a "clean" native formational layer. retained some of unconsiolidated material (FDD-B-C11). Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations. "FDD-C-C2" sample collected was not tested for chemistry or toxicity; not considered "native/formational." Archive only.
FDD-B-C11/FDD-C-C2	5	32.668285	-117.123269	6/4/2021	14:25	-40	-35.8	4.2	4.2	3.6	NS	NS	Soft plug. Lost on retrieval. Likely entered same hole as lost. Not true native formational/Z-layer. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.
FDD-B-C11/FDD-C-C2	6	32.668267	-117.123268	6/4/2021	14:35	-40	-35.9	4.1	4.2	4.2	NS	NS	Shifted approximately 1 meter. No plug. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.
FDD-B-C12/FDD-C-C1	1	32.668201	-117.123992	6/7/2021	13:45	-40	-35.1	4.9	5.5	5.5	NS	NS	Felt hard at end. Soft plug.
FDD-B-C12/FDD-C-C1	2	32.668209	-117.124001	6/7/2021	14:00	-40	-35.1	4.9	7.0	4.5	NS	NS	Overpenetrated to find native formational layer. Hit hard at 7.0'. No refusal. No recovery below 4.5'. Small hard plug but may have entered same hole.
FDD-B-C12/FDD-C-C1	3	32.668176	-117.123971	6/7/2021	14:30	-40	-35.3	4.3	6.5	6.0	NS	NS	Moved about 3 meters forward. No refusal. No plug.
FDD-B-C12/FDD-C-C1	4	32.668176	-117.123972	6/7/2021	14:50	-40	-35.3	4.7	5.5	5.4	NS	NS	Soft plug with some clay.
FDD-C-C6	1	32.667942	-117.122506	6/8/2021	08:45	-59	-37.6	21.4	7.2	6.3	NA	NA	Penetration was easy until around 6.0', tried to penetrate for about 5 minutes. Hit refusal at 7.2'. Core barrel bent on retrieval. No plug. Some sediment may have fell out on retrieval.
FDD-C-C6	2	32.667933	-117.122508	6/8/2021	09:25	-59	-37.4	21.6	7.0	5.4	NA	NA	Moved 3 meters toward port. Penetration slowed at around 6.0' below mudline. Refusal at 7.0'. Core barrel bent on extraction.
FDD-C-C6	3	32.667913	-117.122513	6/8/2021	09:55	-59	-38.5	20.5	7.0	7.0	NA	NA	Core penetrated slowly, but reached 7.0' before refusal. Plug is medium sand. Core barrel bent on retrieval.
FDD-C-C6	4	32.667914	-117.122527	6/8/2021	10:20	-59	-38.5	20.5	7.0	7.0	NA	NA	Plug fell out on retrieval. Refusal at 7.0'. Core barrel bent on retrieval.
FDD-D-C3 Redo	1	32.667943	-117.121102	6/7/2021	15:50	-59	-37.4	21.6	9.7	5.6	3.0	-40.4	Original sample FDD-D-C3 lost by FedEx (One bag). Re-sampled for volume. Just native formational materials retained; no unconsolidated layer. Core barrel bent and broke on extraction. No plug. Core liner is very abraded (stretched at the end).
FDD-D-C3 Redo	2	32.667863	-117.121097	6/7/2021	16:20	-59	-37.5	21.5	8.0	7.8	2.2	-39.7	Refusal at 8.0'.
FDD-D-C4	1	32.668070	-117.120345	6/2/2021	07:45	-59	-38.6	20.4	7.0	6.5	3.8	-42.4	Hard plug. Refusal at 7.0'.
FDD-D-C4	2	32.668068	-117.120336	6/2/2021	08:25	-59	-38.7	20.3	7.5	6.9	2.5	-41.2	Hard Plug. Refusal at 7.5'. Core refusal is a slow stop. Begins at about 5.0' and continues to full stop.

Notes: 1: After field sampling the project depth was changed to -35 ft, FDD = Floating Dry Dock; A = Composite A; B = Composite B; C = Composite C; D = Composite D; dd/ddd.dddddd = decimal degrees; ft = feet/foot; MLLW = mean lower low water; DD = design depth, OD = overdredge; NA = not applicable, no sample split; NS = no sample collected.

This page intentionally left blank.

DRAFT FINAL

Figure 3-2c. Compositing Scheme for Mole Pier Floating Dry Dock
Sediment Characterization Study at Naval Base San Diego



DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

3.2.1 Sediment Collection and Compositing

Samples were tested according to Ocean Testing Manual (Green Book) testing protocols USEPA and United States Army Corps of Engineers [USACE], 1991). Archives were retained from each core subsection and composite area and are preserved in a locked freezer in the San Diego office of the MMEC Group at -20 degrees Celsius (°C) for at least one year for future testing if requested by NAVFAC Southwest, USACE, or USEPA. Additional samples were also collected and archived for additional chemical analysis when unique strata are observed.

As discussed in Section 3.2, the Study area was comprised of four composite areas with varying design depths with 2-ft overdredge (OD) depths as follows:

- Composite Area A (turning basin) = samples FDD-A-C1 through FDD-A-C4; from the mudline to -35 ft MLLW (-37 ft MLLW with OD)
- Composite Area B = samples FDD-B-C1 through FDD-B-C12; from the mudline to the depth observed for recent bay deposits in the Approach Channel (-37 ft MLLW, -39 ft MLLW with OD) and the FDD Sump basin (-56 ft MLLW, -58 ft MLLW with OD)
- Composite Area C = samples FDD-C-C3, C5, and C6 (no samples were recovered at C1, C2, and C4); depth of the observed native formational layer to -37 ft MLLW (-39 ft MLLW with OD) and -56 ft MLLW (-58 ft MLLW with OD)[4]
- Composite Area D = samples FDD-D-C1 through FDD-D-C7 (no sample was recovered from C5); depth of the observed native formational layer to -56 ft MLLW (-58 ft MLLW with OD)

The sample compositing scheme is illustrated on Figure 3-2c. To maximize ocean disposal and/or beneficial reuse of sediments NAVFAC Southwest evaluated the dredged material by compositing sediments vertically based on the stratigraphic change between the unconsolidated recent bay deposits and the lower native formational layer (average 3.9-ft below mudline).

In addition to the vibracore samples proposed for the Study, three geotechnical borings were collected and logged by TerraCosta (Figure 3-1 and 3-1c, Appendix B1). Chemical analysis results for the geotechnical borings were used to provide supplemental chemical and physical data for consolidated sediments collected within the proposed dredging area below the depth of refusal. These geotechnical borings were used to create three vertical composite samples based on stratigraphic splits in the cores using the Unified Soil Classification System which includes color, moisture, and consistency. These three composite samples include the following:

- FDD-Bay Deposits: material from the three geotechnical borings representing depths from -46 to -51 ft MLLW and composed of silty clay.
- FDD-Younger Paralic Deposits: material from the three geotechnical borings representing depths from -53 to -61 ft MLLW and composed of silty clay to fine silty sand.
- FDD-Older Paralic Deposits: material from the three geotechnical borings representing depths from -58 to -68 ft MLLW and composed of sandy silt to silty sand.

DRAFT FINAL

3.2.2 Beneficial Reuse Consideration

No samples were collected from the receiver sites for beneficial reuse comparison during this sample collection effort. Beneficial reuse comparison was made using existing grain-size data from potential Navy nearshore placement areas at the Silver Strand Boat Lanes. To evaluate applicability for disposal, test sediment grain size must be greater than or equal to (≥) 80% sand or contain a proportion of fines (defined as percent passing through the #200 sieve) that is within 10% of the fines collected from the receiver site, when applicable.

3.2.3 Sample Locations and Depth

Sample collection locations were located using a Differential Global Positioning System (DGPS) with real-time monitoring of the most recent shape files aboard the survey vessel *M/V Early Bird II*. This device had an accuracy of approximately plus or minus (±) 3 meters (m). The position of the *M/V Early Bird II* was adjusted on a fine scale until the position coordinates in Table 3-2 were reached. The vessel was secured over the collection location using the bow anchor and at least one stern line. Once a location was secured and confirmed, the location coordinates and water depth (measured with a weighted fiberglass tape) were recorded in the Study field log. The water depth was corrected to MLLW using National Oceanic and Atmospheric Administration (NOAA) tide tables and compared with the bathymetric data provided by the Navy to verify proper sampling locations.

Vibracore penetration accuracy was ±0.5 ft, and the target penetration to the project design depth was corrected for the tidal elevation at each coring location. The penetration depth was determined using a measuring tape attached to the vibracore head, and the distance from where the tape is attached to the vibracore head will be added to the length from that point to the core cutter at the bottom of the vibracore barrel. Following the collection of each core, the actual length of the sediment in the tube was determined to assess the amount of recovery and potential sediment compaction that occurred during collection.

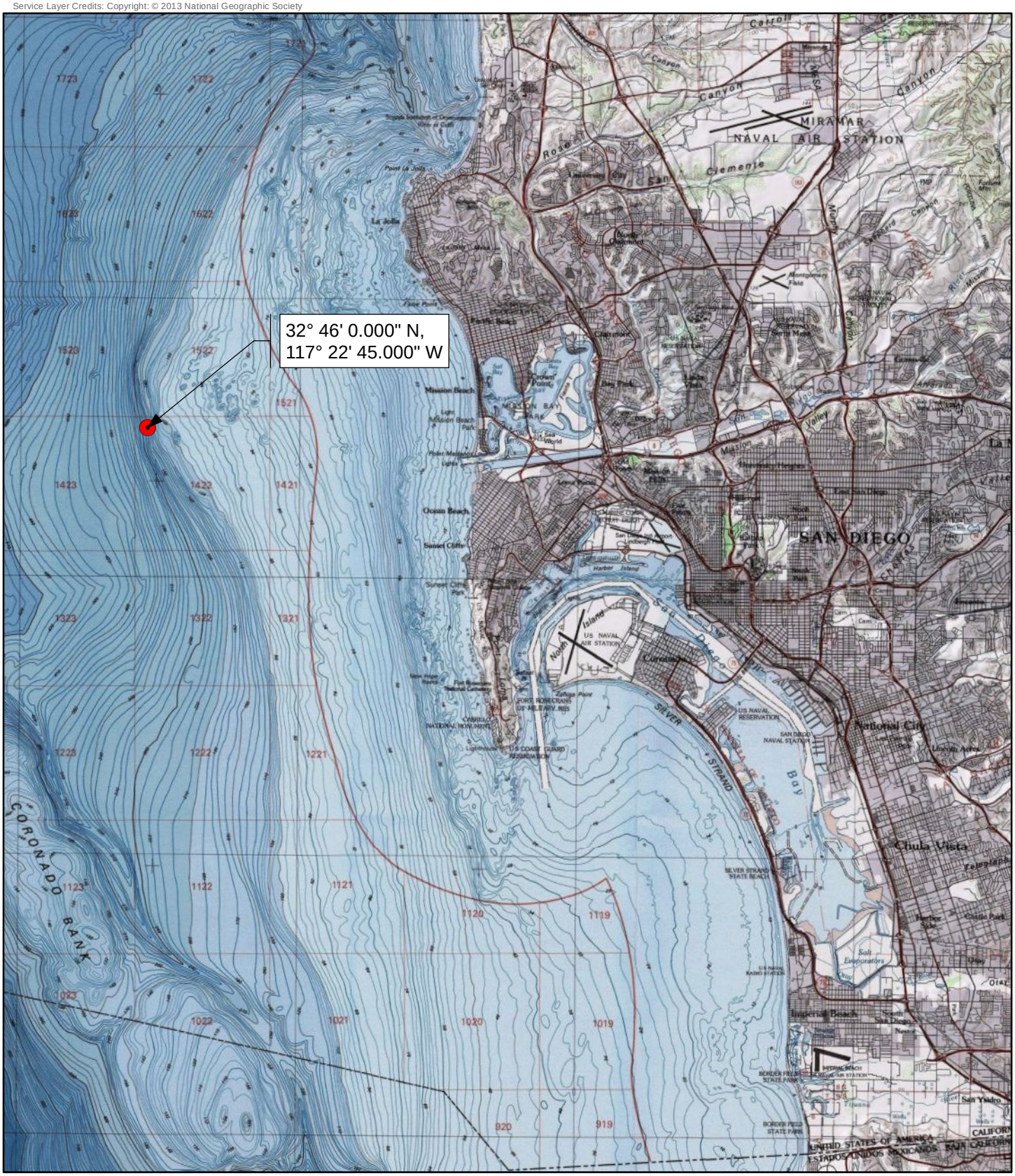
3.2.4 Collection of Reference and Control Sediments

Reference sediment was collected at the designated LA-5 ODMDS reference sediment collection Site (latitude 32°46.00’, longitude -117°22.75’) on May 31, 2021. This site has been used for numerous dredged material bioassays and has a sediment quality that is acceptable to the USEPA and USACE (Figure 3-3). The reference sediment was collected by Seaventures using a pipe dredge and is representative of the top 3 to 18 inches of sediment from the ocean bottom.

The pipe-dredge samples were collected from the LA-5 ODMDS reference sediment collection location by attaching a large stainless-steel bucket to a line over the A-frame of the *M/V Early Bird II*. The vessel was positioned at its starting location by the *M/V Early Bird II* and then pulled along the sediment surface by the vessel for approximately 50 feet. The sediment collected in the pipe-dredge represents the top 6 to 18 inches of sediment along the ocean bottom.

DRAFT FINAL

Service Layer Credits: Copyright: © 2013 National Geographic Society



Path: Q:\3151_AquaticResources\SanDiegoMaintenanceDredging\MXD\ReportFigures\2018\NBSD_FloatingDryDock_3151187382\ReferenceSedimentCollection.mxd, aaron.johnson 3/27/2019

1 inch = 3 miles

0 1.5 3 Miles

Reference Sediment Collection Location

FIGURE 3-3

Location of LA-5 Ocean Dredged Material Reference Sediment Collection Site
EA Preparation and Sediment Testing
Floating Dry Dock, Naval Base San Diego
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

Negative control sediments were used for both the SP toxicity tests and the bioaccumulation phase (BP) test to determine the health of test organisms during the laboratory exposure period. For the tests to be considered valid, organism performance must meet specific control criteria: greater than 90% mean survival in the SP tests and greater than 70% mean survival in the BP tests. The negative control ("home") sediments were collected simultaneously with the test organisms by the test organism supplier and were sent to EcoAnalysts, along with each batch of test organisms.

3.2.5 Native Sediment Characterization/Abbreviated Tier II Analysis

The depth and dimensions required for the proposed dry dock are considerably deeper and larger within portions of the footprint than has previously been dredged. Most of the dredged materials are therefore consolidated NFM, which could not be recovered using a vibracore as they are deeper than the depth of refusal; therefore, a full Green Book analysis of the majority of these sediments was not possible.

Sediment below previous dredge depths were characterized during a geotechnical investigation performed by TerraCosta. The primary purpose of the geotechnical investigation was to create engineering and design plans for the Project. However, to aid the sediment characterization study, TerraCosta:

1. Collected grain size samples and chemistry samples below the vibracore depth of refusal to aid the sediment characterization effort;
2. Photographed cores where samples were collected; and
3. Created detailed boring logs.

The grain size and chemistry sample results provided supplemental information to help characterize the consolidated native sediment depth and classification within the Project footprint.

TerraCosta scientists collected three exploratory borings to depths ranging from -5 ft to -25 ft MLLW for the geotechnical investigation (Appendix B1). The exploratory boring locations are plotted on Figure 3-1 and 3-1c. TerraCosta collected sediment samples for the sediment characterization study at all depths where distinct changes in sediment type are noted as well as at sampled intervals between the mudline and -25 ft MLLW. To collect usable data for the modified Tier I/Tier II investigation of the native sediments (samples collected for chemical and physical analysis only), the contractor photographed each sediment transition, noted the location and depth where the sample was collected, and collected a grain size and (wherever possible) chemistry sample. The sediment samples were submitted to the MMEC Group for archiving and analysis.

3.2.6 Sample Preparation

On the survey vessel, the 20 sediment samples collected from 18 vibracore sampling locations were first homogenized separately in a clean, non-contaminating, stainless-steel mixing vessel, and then subsampled for chemical analyses and archiving. Remaining sediment from each core was placed into laboratory grade plastic bags and sent to the toxicity testing laboratory for storage

DRAFT FINAL

until initial chemistry results were received. Based on the initial chemistry results, individual core samples were composited as follows:

- Composite A – Turning Basin
  - Full Tier III analysis: FDD-A-C1, FDD-A-C2, FDD-A-C3, FDD-A-C4
- Composite B – Approach and Sump recent bay deposits
  - Full Tier III analysis: FDD-B-C2, FDD-B-C3, FDD-B-C5, FDD-B-C6, FDD-B-C7, FDD-B-C8, FDD-B-C10, and FDD-B-C12
  - Not suitable for unconfined aquatic disposal (NUAD): FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11
- Composite C – Approach and Sump NFMs
  - Modified Tier I/Tier II Exemption for Ocean Disposal and/or Nearshore Placement: FDD-C-C3, FDD-C-C5, and FDD-C-C6[4]
- Composite D – Sump NFMs
  - Full Tier III analysis: FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, and FDD-D-C6

Sample composites were prepared by EcoAnalysts in their laboratory in Port Gamble, Washington, by combining each sediment sample collected at each of the individual core sampling locations within a composite area, thoroughly homogenizing the composite, and then subsampling the final composite for physical and chemical analyses as well as for archiving. A labeled grain-size sample, a 16-ounce jar, and an 8-ounce jar of each sample composite was sent to the MMEC Group from EcoAnalysts which was then submitted via courier to Eurofins Calscience Environmental Laboratories, Inc. (Calscience) for the chemical and physical analyses described in Section 3.3.

3.2.6.1 Sediment Archiving

The MMEC Group retained archived subsamples from each of the 20 individual samples collected as well as archives from the composite samples, Z-layer samples, and samples of the transition between the recent bay deposits and NFM for each location. Archived samples will be retained at the MMEC Group's San Diego office in a locked freezer at -20 ºC for at least one year after their collection.

3.2.7 Sample Documentation

Recordkeeping and chain-of-custody (COC) procedures were implemented to allow samples to be traced from collection to their final destination. After collection of sediment, documentation was required to adequately identify and catalog information regarding sample location and characteristics. Field log entries were completed when the observations were made.

3.2.7.1 Field Data Collection

The Field Manager maintained a complete record of field activities, including the following information:

DRAFT FINAL

- Date and time of collection
- Sample identification (ID) code
- Sampling location (latitude and longitude to within a 3 m accuracy)
- Water depth (±0.1 ft)
- Mudline elevation
- Tidal stage and currents
- Weather conditions
- Sampling method and any problems encountered (e.g., debris)
- Sampler penetration
- Sample length
- Sample depth below mudline
- Description of the material type obtained in the samples
- Description of any vertical stratification in each core
- Description of sediment subsampling methods
- Photograph of each core.

3.2.7.2 Sample Handling and Chain-of-Custody Procedures

Proper completion of all COC documentation was the responsibility of the MMEC Group Field Manager and In-Office Sample Manager. COC forms were completed and signed before the end of each sampling day and before the samples were removed from the vessel or passed from the control of the Field Manager. COC forms were signed at each additional point of transfer for samples following departure from the field.

Sample container information was recorded on the COC form, including the sampling organization, point of contact, sample ID, collection date and time, type of sample, and project name. The form served as a sample analysis request form. Samples were sent via courier to Calscience and via FedEx to EcoAnalysts along with a COC form specifying the sample identification and the analyses to be conducted by referencing a list of specific analyses or the statement of work for the laboratory. These forms were prepared in duplicate; the MMEC Group Field Manager retained one copy, and the other copy always accompanied the samples.

3.3 Sample Testing

The MMEC Group coordinated the sediment analysis portion of this Study using an iterative approach. The first step included sediment chemistry and grain-size analysis on the individual vibracore samples, geotechnical boring composites, and the reference sediment. Based on the initial testing results and comparison to effects range-low (ERL) and effects range-median (ERM) (Buchman, 2008), and USACE and USEPA consultation, samples were composited and tested as outlined in Section 3.2.7. The next testing tier included toxicity evaluations and bioaccumulation exposures for Composite A, part of Composite B, and Composite D, while a modified Tier I/Tier II exemption was pursued for Composite C.[4] The final tier of analysis included tissue analysis of organisms used for bioaccumulation exposure tests.

Due to elevated chemistry in four of the twelve samples from Composite Area B (FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11), no additional toxicity or bioaccumulation testing was

DRAFT FINAL

conducted. Instead, sediment chemistry data was compared to soluble threshold limit concentration (STLC) and toxicity characteristic leaching procedure (TCLP) values to determine if chemical concentrations in the sediments are above regulatory trigger levels.

3.3.1 Physical and Chemical Analyses

Calscience conducted all physical and analytical chemistry analyses on sediment and tissue samples and analyzed the samples according to USEPA and USACE approved methods for the constituents listed in Table 3-3. Grain-size analysis was performed on all individual cores and composite samples, the reference sediments, and all control sediments. The grain-size analyses were performed following a laser technique (ASTM International D4464). Percent gravel, sand, silt, and clay were reported to 0.1 percent, along with the corresponding millimeter and phi sizes, and a cumulative grain-size distribution diagram.

3.4 Toxicity and Bioaccumulation Exposure Testing

Toxicity evaluations were conducted for SPP tests using an aqueous elutriate prepared from the applicable composite area sediment samples. SP toxicity and BP exposure tests were also conducted for the composite area samples in addition to the LA-5 ODMDS reference sample. Tissues of the organisms exposed to the sediments were analyzed for contaminants of concern in all samples. Toxicity testing methods followed USACE- and USEPA-approved methods, as outlined in the Study SAP.

All toxicity and bioaccumulation exposures were conducted at EcoAnalysts. Control sediment used for the SP toxicity and BP tests consisted of native sediment collected at the same sites where test organisms were collected (i.e., amphipods and clams). Clean seawater (zero percent elutriate) was used as the control in the SPP tests. The 2021 dates of each test, test species used, and endpoints assessed were:

- SPP tests:
  - Mysid shrimp (*Americamysis bahia*) 96-hour survival; July 20 – July 24
  - Inland silverside fish (*Menidia beryllina*) 96-hour survival; July 20 – July 24
  - Mussel larvae (*Mytilus galloprovincialis*) 48-hour survival and development; July 21 – July 23
- SP tests:
  - Amphipods (*Eohaustorius estuaries* [Composite A and D], *Ampelisca abdita* [Composite B]) 10-day survival: July 13 – July 23
  - Marine polychaete worm (*Neanthes arenaceodentata*) 10-day survival; July 13 – July 23
- BP test:
  - Marine polychaete worm (*Alitta virens*[6]) 28-day bioaccumulation potential test; July 23 – August 20
  - Bivalve (*Macoma nasuta*) 28-day bioaccumulation potential test; July 23 – August 20

[6] *Alitta virens* was previously referred to as *Nereis virens*

DRAFT FINAL

Table 3-3. Chemical Analyses of Sediment and Tissue Samples

Analyte[l]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.1%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.1%	0.100%
Total Organic Carbon (TOC)	USEPA 9060A	0.1%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 1664A	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.1 %
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 1664A	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1.0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM CON[d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1.0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al. [h]	3.0 µg/kg	3.0 µg/kg

Notes:

[a] Sediment minimum detection limits are on a dry-weight basis; tissue minimum levels are on a wet weight basis.

[b] Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

[c] *Standard Methods for the Examination of Water and Wastewater*, 19th Edition, American Public Health Association et al., 1995.

[d] USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, *Physical/Chemical Methods*, 3rd Edition.

[e] Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzolpyrene, perthane, perylene, and biphenyl

[f] Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

[g] Polychlorinated biphenyls (PCBs) (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

[h] Krone, C.A., D.W. Brown, D.G. Burrows, R.G. Bogar, S.L. Chan, and U. Varanasi, 1989. A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound. *Marine Environmental Research* 27: 1–18.

[i] National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, *Comprehensive Descriptions of Trace Organic Analytical Methods,* July.

j. Includes: allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda-cyhalothrin

[k] Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

[l] TCLP, TTLC, and STLC analyses will be run if composite area chemistry exceed Resource Conservation and Recovery Act (RCRA) guideline trigger levels.

% = percent; µg/kg = micrograms per kilogram (parts per billion); ASTM = ASTM International; GC = gas chromatography; (M) = modified; RL = reporting limit; mg/kg = milligrams per kilogram; MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration; SIM = selective ion monitoring; SM = Standard Method; STLC = soluble threshold limit concentration; TOC = total organic carbon; TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration; USEPA = United States Environmental Protection Agency;

DRAFT

The SP organisms selected for this Study met the Green Book requirement that at least two of the benthic species tested be from filter-feeding, deposit-feeding, or burrowing species[7]. The SPP, SP, and BP tests were conducted on the FDD-A-Composite, FDD-B-Composite (excluding FDD-B-C1, C4, C9, and C11), and FDD-D-Composite. Additionally, the SP and BP tests included a reference sediment toxicity test. All tests included one or more negative control samples for determining test acceptability criteria as defined by the individual test methods. The USEPA-approved test species for the sediment characterization study are listed in Table 3-4.

In Section 4.4, bioassay results for Project sediments are evaluated to determine the potential impact of dredging and disposal activities on the food web (BP exposures), on organisms that live in the water column (SPP exposures), and organism that live in the benthic sediment (SP exposures). Statistical analyses used to evaluate all bioassays follows the guidelines in the Green Book. In cases where the average survival in the test treatments equals or exceeds that of the reference (for SP and BP tests) or control (for SPP tests), no statistical analyses were necessary. If SP or BP organism survival in test sediments was lower than reference survival, a student's t-test was used to determine whether the difference in survival is statistically significant ($p \leq 0.05$). Dunnett's multiple comparison test was used for SPP data to assess significant reductions in survival or normality (bivalve larvae) in elutriate test concentrations, compared with control survival or normality. Results are analyzed using the Comprehensive Environmental Toxicity Information System (CETIS) program (Tidepool Scientific Software, 2000–2016).

The bioaccumulation test tissue chemistry results were evaluated in three separate ways:

1. The test tissue results were compared statistically with the reference sediment exposure results using one-tailed t-tests.
2. The test tissue concentration levels were compared with published Food and Drug Administration (FDA) action levels for deleterious substances in fish and shellfish.
3. The test tissue concentration levels were compared with the Environmental Residue-Effects Database (ERED) compiled by the USACE/USEPA.

Table 3-4. Test Species

Test Organism	Taxon	SPP	SP	BP
Bivalve Larvae	*Mytilus galloprovincialis*	X	-	-
Silverside Fish	*Menidia beryllina*	X	-	-
Mysid Shrimp	*Americamysis bahia*	X	-	-
Polychaetes	*Neanthes arenaceodentata*	-	X	-
Amphipods[1]	*Ampelisca abdita and Eohaustorius estuarius*	-	X	-
Polychaetes	*Alitta virens*	-	-	X
Bivalve	*Macoma nasuta*	-	-	X

Note

5 [1] Based upon previous characterization studies at the San Diego Naval Bases, a brief memorandum regarding the health of the amphipod species to be used for the Study will be prepared by the toxicity lab prior to evaluating SP toxicity.

BP = bioaccumulation-phase test; SP = solid-phase toxicity test; SPP = suspended particulate-phase toxicity test

[7] *E. estuarius* is a burrowing filter feeder; *N. arenaceodentata* is a burrowing deposit feeder.

DRAFT FINAL

3.5 Deviations from the Sampling and Analysis Plan

Some deviations from the SAP were required to accommodate sample collection and analysis for the Study. None of these deviations caused substantial impacts to the project objectives, and samples that are representative of the proposed dredge footprint were collected from the proposed sample locations. Details of the deviations are discussed below.

- Core samples were not collected from proposed sample locations FDD-C-C1, FDD-C-C2, and FDD-C-C4 in Composite Area C, as NFM was not encountered at these locations during sample collection. Instead, at core locations FDD-C-C1 and FDD-C-C2, two additional unconsolidated recent bay deposit samples (FDD-B-C11 and FDD-B-C12) were collected and analyzed.
- After project planning and sample collection and analysis, the Navy modified their dredge design plans. Due to this change, the consolidated NFMs from Composite C, which was granted a modified Tier I/Tier II exemption from Tier III testing is no longer part of the required dredge footprint for the proposed Project.
- No sample for FDD-D-C5 was collected, as NFM was not encountered at that that location.
- The core locations FDD-A-C1 and FDD-A-C4 were switched in the field compared the sample locations proposed in the SAP. Tables and figures were updated accordingly for this report.
- The Navy revised and updated the proposed project footprint. As a result of this change, there is no longer sediment to be dredged from the originally proposed Composite Area C.
- The proposed dredging footprints have been updated slightly based on updated design plans for the new floating dry dock. The proposed footprints in this plan represent the Navy's current dredging design as of December 8, 2022.

Analytical laboratory related QA/QC review and deviations from the SAP are discussed in Section 4.5.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

4.0 RESULTS

Tests performed for this study were evaluated to determine the potential of chemical contaminants in the sediment to cause adverse effects during dredging or disposal.

Analytical laboratory results for physical and chemical analyses are included in the Calscience reports in Appendix C1, and toxicological evaluation results are provided in the report prepared by EcoAnalysts in Appendix C2. Tissue chemistry results from Calscience are provided in Appendix C3.

4.1 Physical Analyses

Physical characteristics of the sediment, including mean grain size, percent clay, silt, sand, and gravel, are summarized in Table 4-1. Grain size analysis was performed on all individual cores and composite area samples.

4.1.1 Dredged Material

The physical composition of individual core samples was generally consistent within composite areas but varied between composite areas. All four cores from Composite A (Turning Basin) were classified as medium sand (49.19 percent [%] to 74.83% sand). Ten of the twelve samples collected for Composite B (unconsolidated recent bay deposits in the approach and sump) were classified as silt (10.40% to 36.20% sand), and the remaining two samples were classified as very fine sand and fine sand. All three core samples collected for Composite C (NFMs in the approach and sump) were classified as coarse sand (82.38% to 88.94% sand)[4], and Composite D (NFMs in the sump) core samples were classified as medium sand to very coarse sand (72.79% to 90.48% sand).

Grain size analysis was also conducted on the four composite samples created by EcoAnalysts. The FDD-A-Composite sample was categorized as coarse sand, and contained 13.44% gravel, 62.16% sand, and 24.41% fines. The FDD-B-Composite sample was categorized as silt, and contained 31.96% sand, and 68.03% fines. the FDD-C-Composite sample was categorized as coarse sand, and contained 88.75% sand, and 4.99% fines. The FDD-D-Composite sample was categorized as coarse sand, and contained 10.40% gravel, 78.97% sand, and 10.64% fines.

Geotechnical boring samples were also collected and analyzed. These samples were collected under the existing pier and were technically outside of, but directly adjacent to, the proposed dredge footprint, and are representative of material within the dredge footprint including material below the depth of vibracore refusal. The FDD-Bay Deposits sample included material from -46 to -51 ft MLLW and was categorized as medium sand. The FDD-Younger Paralic Deposits sample included material from -53 to -61 ft MLLW and was categorized as very fine sand. The FDD-Older Paralic Deposits sample included material from -58 to -68 MLLW and was categorized as coarse sand (Appendix B1).

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Table 4-1. Sediment Grain Size Results

Location	Total Gravel (%)	Total Sand (%)	Silt (%)	Clay (%)	Total Silt & Clay (%)	Mean Grain Size (mm)	Plumb (1981) Grain Size Classification
LA-5 Reference Sediment							
LA-5 ODMDS Reference	0.00	43.90	49.47	6.63	56.10	0.058	Silt
Beneficial Reuse – Silver Strand Boat Lanes1							
BR-G1	0.2	86.5	8.0	5.2	13.3	NP	Silty Sand (SM)
BR-G2	0.9	56.0	39.9	3.2	43.1	NP	Silty Sand (SM)
BR-G3	0.0	71.3	23.4	4.6	28.7	NP	Silty Sand (SM)
BR-G4	0.6	82.3	11.8	5.2	17.1	NP	Silty Sand (SM)
BR-G5	0.0	54.2	18.7	26.9	45.8	NP	Clayey Sand (SC)
Control Sediment							
Ampelisca sp. Control	0.00	9.28	63.15	27.57	90.72	0.022	Silt
Eohastorius sp. and Neanthes sp. Control	0.00	100.0	0.00	0.00	0.00	0.270	Medium Sand
Macoma control	0.00	98.37	1.13	0.51	1.64	0.238	Fine Sand
A virens sp. Control	0.00	59.23	35.70	5.08	40.78	0.125	Fine Sand
NBSD Mole Pier FDD Proposed Dredged Material Sediment							
Composite A							
FDD-A-C1	6.10	55.33	32.35	6.22	38.58	0.282	Medium Sand
FDD-A-C2	10.41	56.84	26.15	6.61	32.75	0.443	Medium Sand
FDD-A-C3	6.22	74.83	14.75	4.19	18.94	0.421	Medium Sand
FDD-A-C4	8.07	49.19	32.82	9.92	42.74	0.333	Medium Sand
FDD-A-Composite	13.44	62.16	19.43	4.98	24.41	0.584	Coarse Sand
Composite B							
FDD-B-C1	0.00	19.11	59.31	21.57	80.89	0.032	Silt
FDD-B-C2	0.00	30.81	52.47	16.72	69.19	0.046	Silt
FDD-B-C3	0.00	25.80	56.54	17.66	74.20	0.044	Silt
FDD-B-C4	0.00	10.40	68.96	20.64	89.60	0.023	Silt
FDD-B-C5	0.00	27.83	54.20	17.97	72.17	0.046	Silt
FDD-B-C6	1.80	27.33	53.22	17.65	70.88	0.099	Very Fine Sand
FDD-B-C7	0.00	36.20	49.30	14.50	63.80	0.061	Silt
FDD-B-C8	1.47	59.31	30.75	8.47	39.22	0.163	Fine Sand
FDD-B-C9	0.00	17.68	62.83	19.49	82.32	0.031	Silt
FDD-B-C10	0.00	23.67	59.62	16.71	76.33	0.041	Silt
FDD-B-C11	0.00	21.34	58.86	19.80	78.66	0.037	Silt
FDD-B-C12	0.00	26.05	54.63	19.31	73.94	0.044	Silt
FDD-B-Composite	0.00	31.96	49.73	18.30	68.03	0.051	Silt
Composite C							
FDD-C-C1	NS	NS	NS	NS	NS	NS	NS
FDD-C-C2	NS	NS	NS	NS	NS	NS	NS
FDD-C-C3	10.52	82.38	6.05	1.04	7.09	0.760	Coarse Sand
FDD-C-C4	NS	NS	NS	NS	NS	NS	NS
FDD-C-C5	5.16	88.94	4.89	1.01	5.89	0.619	Coarse Sand
FDD-C-C6	7.86	88.49	2.87	0.77	3.64	0.728	Coarse Sand
FDD-C-Composite	6.26	88.75	3.90	1.09	4.99	0.742	Coarse Sand
Composite D							
FDD-D-C1	3.59	90.48	4.97	0.96	5.93	0.490	Medium Sand
FDD-D-C2	8.42	85.25	5.35	0.98	6.33	0.709	Coarse Sand
FDD-D-C3	11.32	84.50	3.43	0.75	4.18	1.026	Very Coarse Sand
FDD-D-C4	8.09	80.61	9.85	1.45	11.31	0.481	Medium Sand
FDD-D-C5	NS	NS	NS	NS	NS	NS	NS
FDD-D-C6	5.10	72.79	18.61	3.50	22.11	0.359	Medium Sand
FDD-D-Composite	10.40	78.97	9.36	1.28	10.64	0.715	Coarse Sand
Geotechnical Composites*							
FDD-Bay Deposits	11.38	37.72	36.80	14.10	50.90	0.426	Medium Sand
FDD-Younger Paralic Deposits	0.00	31.85	52.13	16.01	68.15	0.065	Very Fine Sand
FDD-Older Paralic Deposits	4.49	91.62	2.83	1.07	3.90	0.620	Coarse Sand

Notes
1. USCS grain size classification (not Plumb 1981)
*Samples contained less mass than recommended by method guidelines
% = percent
mm = millimeter
NP = data not provided by laboratory

This page intentionally left blank.

DRAFT FINAL

4.1.2 LA-5 ODMDS Reference Sediment

The mean grain size of the LA-5 ODMDS reference sediment was 0.058 millimeters (mm), was comprised of 43.90% sand, 56.10% silt and clay, and was classified as silt. Overall, samples collected in Composite A, C, and D were coarser than LA-5 ODMDS reference sediment while samples collected in Composite B were finer.

4.1.3 Comparison to Nearshore Beneficial Reuse Site

In addition to physical analysis of the dredged material and the LA-5 ODMDS Reference sediment, grain size data was also compared to available data from the Silver Strand Boat Lanes nearshore beneficial reuse site. Individual grabs from the nearshore receiver site consisted of between 13.3 to 45.8% fines (defined as sediment passing through the #200 sieve or <0.074 millimeters) with an average of 29.6% fines for all five samples. The sand content from the potential receiver site samples ranged from 54.2% to 86.5% with an average of 70.1% for all five samples (Table 4-1).

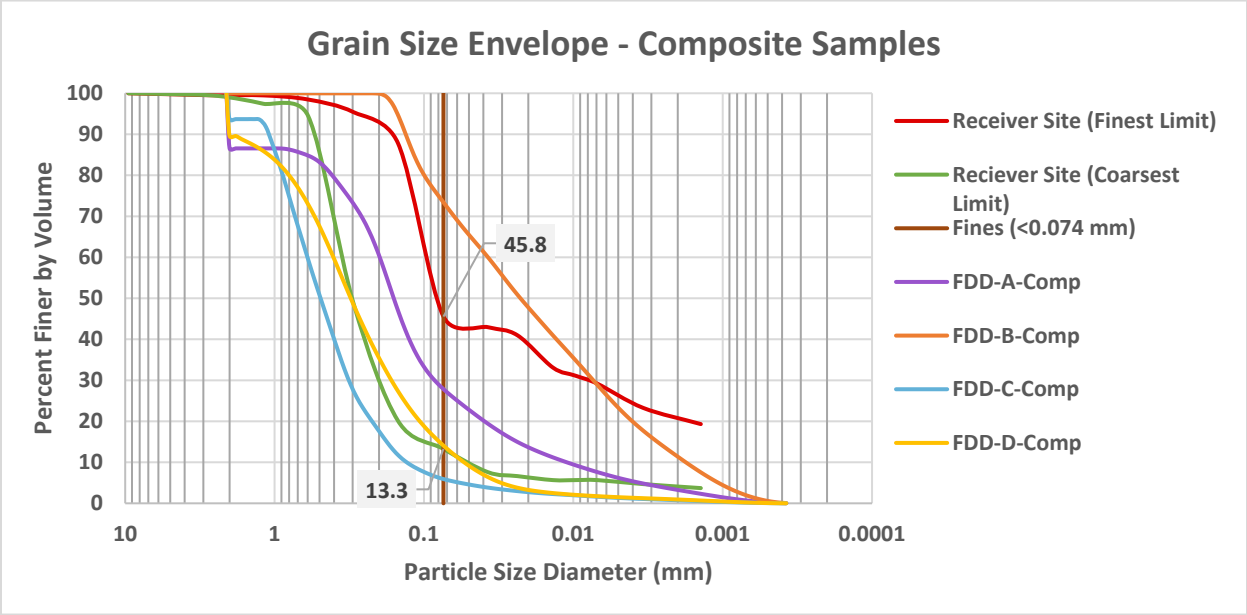
Based on the Sand Compatibility and Opportunistic Use Program (SCOUP) guidelines for nearshore placement and beneficial reuse, the dredged material should predominantly fall within the grain size envelope of the receiver site, and the percent fines should be within 10% of the finest graduation curve of the existing nearshore sediment samples. In addition, the guidelines specify that the dredged sediment can be greater than the coarsest limit of the grain size envelope as long as the aesthetic quality of the dredged sediment in this range is acceptable. Based on these criteria, the proposed Mole Pier dredged material needed to be composed of less than 55.8 % fines and fall within the graduation curve envelope of the finest and coarsest limit samples from the nearshore beneficial reuse site to be considered compatible for placement in the nearshore zone (Figure 4-1).

In addition, samples collected by Diaz Yourman and Kinnetics Lab in 2008 of the South and North Nearshore Beach areas at the Silver Strand that were used by USACE for grain size compatibility for placement for the San Diego Bay channel maintenance dredging performed in 2020 showed that the maximum allowable percentage fines for the South site was approximately 36%, while the maximum allowable percent fines at the North site was calculated at approximately 40% (USACE 2019).

Composite samples FDD-A-Composite, FDD-C-Composite, and FDD-D-Composite met these criteria with total fines content of 24.41%, 4.99%, 10.64%, respectively. With 68.04% fines, the B composite area was the only area that does not meet the grain size criteria for nearshore placement at Silver Strand Boat Lanes in either the North or South beach areas. In addition, samples collected in the FDD-C-Composite and FDD-D-Composite were generally comprised of approximately 80 percent or more sand and meet the criteria for beach placement.

DRAFT FINAL

Figure 4-1. Silver Strand Boat Lanes Grain Size Envelope vs. Composite Samples and Individual Core Samples



4.2 Bulk Sediment Chemistry Analysis

All individual core samples, composite samples, geotechnical composite samples, and the LA-5 ODMDS reference sediment sample were analyzed for the full suite of chemical analytes listed in Table 3-3. The composites (FDD-A-Composite, FDD-B-Composite, FDD-C-Composite, and FDD-D-Composite) were created by EcoAnalysts (as outlined in Section 3.2.6), and subsamples were sent to Calscience for analysis. Analytical chemistry results are summarized in Tables 4-2a through 4-2e.

.

DRAFT

Table 4-2a. Sediment Chemistry Results – Composite A Turning Basin

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-A-C1		FDD-A-C2		FDD-A-C3		FDD-A-C4		FDD-A Composite	
Moisture	Percent Solids	General Chemistry	%	·	·		64.5		68.6		68.4		73.1		61.5		70.2	
EPA 9060A	Carbon, Total Organic	General Chemistry	%	·	·		0.782		0.157		0.997		0.283		0.590		0.361	
SM 4500-NH_3 B/C (M)	Ammonia (as N)	General Chemistry	mg/kg	·	·		3.21		15.1		4.95		2.64		3.87		2.57	
EPA 376.2M	Total Sulfide	General Chemistry	mg/kg	·	·		6.31		13.8		12.0		9.30		30.6		0.771	H
EPA 376.2M	Sulfide, Dissolved	General Chemistry	mg/kg	·	·		ND<0.0840		ND<0.0838		ND<0.0842		ND<0.0838		ND<0.0840		ND<0.0837	H
EPA 1664A (M)	HEM: Oil and Grease	General Chemistry	mg/kg				20.6		63.1		219		214		140		165	
Metals																		
EPA 6020	Antimony	Metals	mg/kg	·	·		ND<0.426		ND<0.393		ND<0.410		ND<0.373		ND<0.456		ND<0.414	
EPA 6020	Arsenic	Metals	mg/kg	8.2	70	*0.68*	*2.49*		*1.51*		*2.94*		*2.28*		*6.71*		*3.57*	
EPA 6020	Barium	Metals	mg/kg	·	·		269		121	F1	22.0		24.1		109		105	
EPA 6020	Beryllium	Metals	mg/kg	·	·		ND<0.316		0.291	J	ND<0.304		ND<0.276		0.567	J	0.365	J
EPA 6020	Cadmium	Metals	mg/kg	1.2	9.6	*7.1*	ND<0.688		ND<0.634		ND<0.661		ND<0.601		1.30	J	ND<0.668	
EPA 6020	Chromium	Metals	mg/kg	81	370		7.40		15.2		11.2		7.0		55.5		15.0	
EPA 7199	Chromium, Hexavalent	Metals	µg/kg	·	·		ND<320		ND<300		420	J	300	J	ND<340		390	J
7199 CR3	Chromium, Trivalent	Metals	mg/kg	·	·		7.40		15.2		10.8		6.65		55.5		15.0	
EPA 6020	Cobalt	Metals	mg/kg	·	·		2.55		8.54		2.68		3.96		9.64		6.04	
EPA 6020	Copper	Metals	mg/kg	34	270	*310*	8.11		24.8		41.6		22.1		173		21.9	
EPA 6020	Lead	Metals	mg/kg	46.7	218	*400*	1.95		5.78		15.1		7.62		53.1		11.4	
EPA 7471A	Mercury	Metals	mg/kg	0.15	0.71	*1.1*	0.0254	J	0.122	J	0.0357	J	ND<0.0176		0.611		0.0252	J
EPA 6020	Molybdenum	Metals	mg/kg	·	·		ND<0.471		ND<0.434	F1	ND<0.453		ND<0.411		0.678	J	1.18	J
EPA 6020	Nickel	Metals	mg/kg	20.9	51.6	*150*	5.19		7.37		3.12		3.34		13.7		28.3	
EPA 6020	Selenium	Metals	mg/kg	·	·	*39*	ND<0.888		ND<0.818		ND<0.854		ND<0.776		1.03	J	ND<0.863	
EPA 6020	Silver	Metals	mg/kg	1.0	3.7	*39*	ND<0.506		ND<0.466	F1	ND<0.486		ND<0.442		ND<0.540		ND<0.492	
EPA 6020	Thallium	Metals	mg/kg	·	·		ND<0.335		ND<0.308		ND<0.322		ND<0.292		0.381	J	ND<0.325	
EPA 6020	Vanadium	Metals	mg/kg	·	·		26.0		39.3		17.8		18.6		60.8		19.6	
EPA 6020	Zinc	Metals	mg/kg	150	410	*2300*	30.7		51.5		59.2		31.5		248		74.3	
Total Petroleum Hydrocarbons																		
EPA 8015B(M)	C6 as C6	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C7 as C7	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C8 as C8	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C9-C10	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C11-C12	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C13-C14	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C15-C16	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C17-C18	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C19-C20	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C21-C22	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C23-C24	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C25-C28	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C29-C32	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C33-C36	TPH	mg/kg	·	·		ND<5.9		ND<5.4		ND<5.6		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C37-C40	TPH	mg/kg	·	·		ND<5.9		ND<5.4		7.5		ND<5.5		ND<6.3		ND<5.3	
EPA 8015B(M)	C41-C44	TPH	mg/kg	·	·		ND<5.9		ND<5.4		11		7.7		ND<6.3		ND<5.3	
EPA 8015B(M)	C6-C44 Total	TPH	mg/kg	·	·		ND<5.9		ND<5.4		39		20		11		ND<5.3	
EPA 1664A (M)	TRPH (SGT-HEM)	TRPH	mg/kg	·	·		ND<12.5		38.9		107		105		75.6		123	
Polycyclic Aromatic Hydrocarbons																		
EPA 8270C SIM	1,6,7-Trimethylnaphthalene	LMW PAH	µg/kg	·	·		ND<2.8		ND<2.6		ND<2.6		ND<2.6		ND<2.9		ND<2.5	
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	µg/kg	·	·	*18000*	ND<1.7	F2	ND<1.6		ND<1.6		ND<1.5		ND<1.8		ND<1.5	
EPA 8270C SIM	1-Methylphenanthrene	HMW PAH	µg/kg	·	·		ND<3.1		ND<2.9		ND<2.9		ND<2.7		ND<3.2		ND<2.8	
EPA 8270C SIM	2,6-Dimethylnaphthalene	LMW PAH	µg/kg	·	·		8.6	J	ND<3.0		ND<3.1		ND<2.9		13	J	ND<3.0	
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	µg/kg	70	670	*24000*	ND<2.5	F2	ND<2.3		ND<2.3		ND<2.2		ND<2.6		ND<2.3	
EPA 8270C SIM	Acenaphthene	LMW PAH	µg/kg	16	500	*36000*	ND<2.3	F2	ND<2.2		ND<2.2		ND<2.0		6.3	J	ND<2.1	
EPA 8270C SIM	Acenaphthylene	LMW PAH	µg/kg	44	640		ND<2.6	F2	3.8	J	9.4	J	3.9	J	16		5.8	J
EPA 8270C SIM	Anthracene	LMW PAH	µg/kg	85.3	1100	*1800000*	ND<2.9		3.2	J	9.1	J	3.2	J	21		7.2	J
EPA 8270C SIM	Benzo (a) anthracene	HMW PAH	µg/kg	261	1600	*1100*	ND<2.2		7.3	J	13	J	5.1	J	40		8.5	J
EPA 8270C SIM	Benzo (a) pyrene	HMW PAH	µg/kg	430	1600	*110*	6.0	J F2	23		66		26		87		36	
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	µg/kg	·	·	*1100*	5.4	J F2	24		69		28		88		40	
EPA 8270C SIM	Benzo (e) Pyrene	HMW PAH	µg/kg	·	·		ND<2.6		10	J	29		8.7	J	60		19	
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	µg/kg	·	·		4.5	J	13	J	39		16		64		26	
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	µg/kg	·	·	*11000*	ND<2.3	F2	23.0		61		22.0		80		35	
EPA 8270C SIM	Biphenyl	HMW PAH	µg/kg	·	·	*4700*	ND<2.9		ND<2.8		ND<2.8		ND<2.6		ND<3.1		ND<2.7	
EPA 8270C SIM	Chrysene	HMW PAH	µg/kg	384	2800	*110000*	4.0	J	7.9	J	19		5.8	J	47		11	J
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	µg/kg	63.4	260	*110*	ND<2.2		ND<2.0		12	J	4.8	J	16		8.5	J
EPA 8270C SIM	Fluoranthene	HMW PAH	µg/kg	600	5100	*240000*	4.9	J *1	8.6	J	17		5.5	J	74		7.8	J
EPA 8270C SIM	Fluorene	LMW PAH	µg/kg	19	540	*240000*	ND<2.5	F1 F2	ND<2.3		ND<2.3		ND<2.2		4.9	J	ND<2.3	
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/kg	·	·	*1100*	3.4	J	13	J	38		15		57		24	
EPA 8270C SIM	Naphthalene	LMW PAH	µg/kg	160	2100	*3800*	ND<2.3	F2	ND<2.2		ND<2.2		ND<2.0		ND<2.4		ND<2.1	
EPA 8270C SIM	Phenanthrene	LMW PAH	µg/kg	240	1500		ND<2.6		ND<2.5		ND<2.5		ND<2.3		38		ND<2.4	
EPA 8270C SIM	Pyrene	HMW PAH	µg/kg	665	2600	*180000*	5.2	J	11	J	21		6.8	J	74		13	J
EPA 8270C SIM	Total Detectable PAHs	PAH	µg/kg	4022	44792		42	J	148	J	403	J	151	J	786	J	242	J
Phenols																		
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenol	µg/kg	·	·	*630000*	ND<1.9	F2	ND<1.7		ND<1.7		ND<1.6		ND<1.9		ND<1.7	
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenol	µg/kg	·	·	*6300*	ND<2.0	F2	ND<1.9		ND<1.9		ND<1.8		ND<2.1		ND<1.8	
EPA 8270C SIM	2,4-Dichlorophenol	Phenol	µg/kg	·	·	*19000*	ND<3.2	F2	ND<3.0		ND<3.1		ND<2.9		ND<3.4		ND<3.0	
EPA 8270C SIM	2,4-Dimethylphenol	Phenol	µg/kg	·	·	*130000*	ND<4.0	*1 F2	ND<3.8		ND<3.8		ND<3.5		ND<4.2		ND<3.7	
EPA 8270C SIM	2,4-Dinitrophenol	Phenol	µg/kg	·	·	*13000*	ND<92		ND<87		ND<87		ND<82		ND<97		ND<84	*-
EPA 8270C SIM	2-Chlorophenol	Phenol	µg/kg	·	·	*39000*	ND<2.9	F1 F2	ND<2.8		ND<2.8		ND<2.6		ND<3.1		ND<2.7	
EPA 8270C SIM	2-Methylphenol	Phenol	µg/kg	·	·	*320000*	ND<3.1	*1 F2	ND<2.9		ND<2.9		ND<2.7		ND<3.2		ND<2.8	
EPA 8270C SIM	2-Nitrophenol	Phenol	µg/kg	·	·		ND<2.6	*1 F2	ND<2.5		ND<2.5		ND<2.3		ND<2.8		ND<2.4	
EPA 8270C SIM	3/4-Methylphenol	Phenol	µg/kg	·	·		ND<5.6	*1	ND<5.2		ND<5.2		ND<4.9		ND<5.8		ND<5.1	
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenol	µg/kg	·	·		ND<100		ND<96		ND<96		ND<90		ND<110		ND<93	*- *1
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenol	µg/kg	·	·		ND<3.2		ND<3.0		ND<3.1		ND<2.9		ND<3.4		ND<3.0	
EPA 8270C SIM	Pentachlorophenol	Phenol	µg/kg	·	·	*1000*	31	J	ND<1.9		ND<1.9		ND<1.8		ND<2.1		ND<1.8	*-
EPA 8270C SIM	2,6-Dichlorophenol	Phenol	µg/kg	·	·		ND<3.2	F2	ND<3.0		ND<3.1		ND<2.9		ND<3.4		ND<3.0	
EPA 8270C SIM	4-Nitrophenol	Phenol	µg/kg	·	·		ND<130		ND<120		ND<120		ND<110		ND<130		ND<110	*- *1
EPA 8270C SIM	2,3,4,6-Tetrachlorophenol	Phenol	µg/kg	·	·	*190000*	ND<6.0	F2	ND<5.6		ND<5.7		ND<5.3		ND<6.3		ND<5.5	
Phthalates																		
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalate	µg/kg	·	·	*3900*	29	J B	21	J B	45	JB	24	JB	73	J B	51	J B
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalate	µg/kg	·	·	*290000*	8.3	J B	18	J	22	J	15	J	16	J	26	J B
EPA 8270C SIM	Diethyl Phthalate	Phthalate	µg/kg	·	·	*5100000*	3.5	J B F2	5.8	J B	4.1	JB	4.5	JB	4.2	J B	3.9	J
EPA 8270C SIM	Dimethyl Phthalate	Phthalate	µg/kg	·	·	*780000*	ND<3.1	F2	ND<2.9		ND<2.9		ND<2.7		ND<3.2		ND<2.8	
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalate	µg/kg	·	·	*630000*	10	J B *1	67	J B	10	JB	31	JB	36	J B	22	J B
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalate	µg/kg	·	·	*63000*	40	J	ND<2.8		ND<2.8		ND<2.6		ND<3.1		ND<2.7	

Table 4-2a. Sediment Chemistry Results - Composite A Turning Basin (Continued)

Chlorinated Pesticides																			
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.093		ND<0.093		ND<0.087		ND<0.10		ND<0.091		
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	µg/kg	·	·		ND<0.15		ND<0.14		ND<0.14		ND<0.13		ND<0.16		ND<0.14		
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	µg/kg	·	·		ND<0.14		ND<0.13		ND<0.13		ND<0.13		ND<0.15		ND<0.13		
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	µg/kg	2.0	20	*190*	ND<0.77		ND<0.72		ND<0.72		ND<0.68		ND<0.80		ND<0.71		
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	µg/kg	2.2	27	*2000*	1.5		ND<0.10		0.28	J p	ND<0.097		0.53	J p	0.17	J p	
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	µg/kg	1.0	7.0	*1900*	ND<0.27		ND<0.26		ND<0.26		ND<0.24		ND<0.28		ND<0.25		
	Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.58	46.1		1.5		ND<0.72		0.28	Jp	ND<0.68		0.53	Jp	0.17	Jp	
EPA 8081A	Aldrin	Chlorinated Pesticides	µg/kg	·	·	*39*	ND<0.11	*1	ND<0.10		ND<0.10		ND<0.098		ND<0.12		ND<0.10		
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	µg/kg	·	·	*86*	ND<0.12		ND<0.12		ND<0.12		ND<0.11		ND<0.13		ND<0.11		
EPA 8081A	Beta-BHC	Chlorinated Pesticides	µg/kg	·	·	*300*	ND<0.14		ND<0.13		ND<0.13		ND<0.12		ND<0.15	*+	ND<0.13		
EPA 8081A	Delta-BHC	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.093		ND<0.093		ND<0.087		ND<0.10		ND<0.092		
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	µg/kg	·	·	*570*	ND<0.16		ND<0.15	*+ *1	ND<0.15		ND<0.14		ND<0.17		ND<0.15		
EPA 8081A	Chlordane (Total)	Chlorinated Pesticides	µg/kg	0.5	6.0	*1700*	ND<0.54		ND<0.51		ND<0.51		ND<0.48		ND<0.56		ND<0.50		
EPA 8081A	Dieldrin	Chlorinated Pesticides	µg/kg	0.02	8.0	*34*	ND<0.10		ND<0.096		ND<0.096		ND<0.090		ND<0.11		ND<0.094		
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.058		ND<0.054		ND<0.054		ND<0.051		ND<0.060		ND<0.053		
EPA 8081A	Endosulfan I	Chlorinated Pesticides	µg/kg	·	·	*47000*	ND<0.075		ND<0.070	*+	ND<0.070		ND<0.066		ND<0.078		ND<0.069		
EPA 8081A	Endosulfan II	Chlorinated Pesticides	µg/kg	·	·		ND<0.35		ND<0.33		ND<0.33		ND<0.31		ND<0.36		ND<0.32		
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	µg/kg	·	·		ND<0.17		ND<0.16		ND<0.16		ND<0.15		ND<0.17		ND<0.15		
EPA 8081A	Endrin	Chlorinated Pesticides	µg/kg	·	·	*1900*	ND<0.13	*1	ND<0.13		ND<0.13		ND<0.12		ND<0.14		ND<0.12		
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	µg/kg	·	·		ND<0.75		ND<0.71		ND<0.71		ND<0.66		ND<0.79		ND<0.69		
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	µg/kg	·	·		ND<0.29		ND<0.28		ND<0.28		ND<0.26		ND<0.31		ND<0.27		
EPA 8081A	Heptachlor	Chlorinated Pesticides	µg/kg	·	·	*130*	ND<0.092		ND<0.086		ND<0.086		ND<0.081		ND<0.096		ND<0.085		
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	µg/kg	·	·	*70*	ND<0.13		ND<0.12		ND<0.12		ND<0.12		ND<0.14		ND<0.12		
EPA 8081A	Methoxychlor	Chlorinated Pesticides	µg/kg	·	·	*32000*	ND<0.25	*1	ND<0.24		ND<0.24		ND<0.22		ND<0.26		ND<0.23		
EPA 8081A	Toxaphene	Chlorinated Pesticides	µg/kg	·	·	*490*	ND<1.5		ND<1.4		ND<1.4		ND<1.4		ND<1.6		ND<1.4		
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.071		ND<0.067		ND<0.067		ND<0.063		ND<0.074		ND<0.066		
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.54		ND<0.51		ND<0.51		ND<0.48		ND<0.56		ND<0.50		
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.073		ND<0.069		ND<0.068		ND<0.064		ND<0.076		ND<0.067		
EPA 8081A	Oxychlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.23		ND<0.22		ND<0.22		ND<0.20		ND<0.24		ND<0.21		
Polychlorinated Biphenyls																			
USEPA 8270C SIM CON	PCB-18	PCB Congeners	µg/kg	·	·		ND<0.10		ND<0.094		ND<0.094		ND<0.088		ND<0.10		ND<0.092		
USEPA 8270C SIM CON	PCB-28	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.10		ND<0.10		ND<0.094		ND<0.11		ND<0.098		
USEPA 8270C SIM CON	PCB-37	PCB Congeners	µg/kg	·	·		ND<0.094		ND<0.088		ND<0.088		ND<0.082		ND<0.097		ND<0.086		
USEPA 8270C SIM CON	PCB-44	PCB Congeners	µg/kg	·	·		ND<0.24		ND<0.22		ND<0.22		ND<0.21		ND<0.24		ND<0.22		
USEPA 8270C SIM CON	PCB-49	PCB Congeners	µg/kg	·	·		ND<0.077		ND<0.072		ND<0.072		ND<0.067		ND<0.080		ND<0.070		
USEPA 8270C SIM CON	PCB-52	PCB Congeners	µg/kg	·	·		ND<0.29		ND<0.28		ND<0.28		ND<0.26		ND<0.31		ND<0.27		
USEPA 8270C SIM CON	PCB-66	PCB Congeners	µg/kg	·	·		ND<0.19		ND<0.18		ND<0.18		ND<0.17		ND<0.20		ND<0.17		
USEPA 8270C SIM CON	PCB-70	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.10		ND<0.10		ND<0.097		ND<0.12		ND<0.10		
USEPA 8270C SIM CON	PCB-74	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.13		ND<0.13		ND<0.12		ND<0.14		ND<0.13		
USEPA 8270C SIM CON	PCB-77	PCB Congeners	µg/kg	·	·	*38*	ND<0.18		ND<0.17		ND<0.17		ND<0.16		ND<0.19		ND<0.16		
USEPA 8270C SIM CON	PCB-81	PCB Congeners	µg/kg	·	·	*12*	ND<0.14		ND<0.13		ND<0.13		ND<0.12		ND<0.15		ND<0.13		
USEPA 8270C SIM CON	PCB-87	PCB Congeners	µg/kg	·	·		ND<0.17		ND<0.16		ND<0.16		ND<0.15		ND<0.18		ND<0.16		
USEPA 8270C SIM CON	PCB-99	PCB Congeners	µg/kg	·	·		ND<0.073		0.81		1.8		0.74		2.3		1.1		
USEPA 8270C SIM CON	PCB-101	PCB Congeners	µg/kg	·	·		ND<0.069		1.0		2.3		1.2		2.8		1.3		
USEPA 8270C SIM CON	PCB-105	PCB Congeners	µg/kg	·	·	*120*	ND<0.083		ND<0.078		ND<0.078		ND<0.073		ND<0.086		ND<0.076		
USEPA 8270C SIM CON	PCB-110	PCB Congeners	µg/kg	·	·		ND<0.052		1.2		1.9		1.1		2.0		1.5		
USEPA 8270C SIM CON	PCB-114	PCB Congeners	µg/kg	·	·	*120*	ND<0.11		ND<0.11		ND<0.11		ND<0.10		ND<0.12		ND<0.10		
USEPA 8270C SIM CON	PCB-118	PCB Congeners	µg/kg	·	·	*120*	ND<0.054		1.2		2.4		0.82		2.4		1.4		
USEPA 8270C SIM CON	PCB-119	PCB Congeners	µg/kg	·	·		ND<0.097		ND<0.091		ND<0.091		ND<0.085		ND<0.10		ND<0.088		
USEPA 8270C SIM CON	PCB-123	PCB Congeners	µg/kg	·	·	*120*	ND<0.11		ND<0.11		ND<0.11		ND<0.099		ND<0.12		ND<0.10		
USEPA 8270C SIM CON	PCB-126	PCB Congeners	µg/kg	·	·	*0.036*	ND<0.085		ND<0.080		ND<0.080		ND<0.075		ND<0.088		ND<0.078		
USEPA 8270C SIM CON	PCB-128	PCB Congeners	µg/kg	·	·		ND<0.19		ND<0.17		ND<0.17		ND<0.16		ND<0.19		ND<0.17		
USEPA 8270C SIM CON	PCB-132/153	PCB Congeners	µg/kg	·	·		ND<0.25		2.2		4.6		1.9		5.3		2.8		
USEPA 8270C SIM CON	PCB-138/158	PCB Congeners	µg/kg	·	·		ND<0.55		2.0		3.9		2.1		5.1		2.6		
USEPA 8270C SIM CON	PCB-149	PCB Congeners	µg/kg	·	·		ND<0.18		1.4		2.7		1.3		3.5		1.7		
USEPA 8270C SIM CON	PCB-151	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.13		ND<0.13		ND<0.12		ND<0.14		ND<0.12		
USEPA 8270C SIM CON	PCB-156	PCB Congeners	µg/kg	·	·	*120*	ND<0.12		ND<0.11		ND<0.11		ND<0.11		ND<0.12		ND<0.11		
USEPA 8270C SIM CON	PCB-157	PCB Congeners	µg/kg	·	·	*120*	ND<0.13		ND<0.12		ND<0.12		ND<0.12		ND<0.14		ND<0.12		
USEPA 8270C SIM CON	PCB-167	PCB Congeners	µg/kg	·	·	*120*	ND<0.21		ND<0.19		ND<0.19		ND<0.18		ND<0.21		ND<0.19		
USEPA 8270C SIM CON	PCB-168	PCB Congeners	µg/kg	·	·		ND<0.22		ND<0.21		ND<0.21		ND<0.19		ND<0.23		ND<0.20		
USEPA 8270C SIM CON	PCB-169	PCB Congeners	µg/kg	·	·	*0.12*	ND<0.10		ND<0.095		ND<0.094		ND<0.089		ND<0.10		ND<0.092		
USEPA 8270C SIM CON	PCB-170	PCB Congeners	µg/kg	·	·		ND<0.17		ND<0.16		ND<0.16		ND<0.15		ND<0.18		ND<0.16		
USEPA 8270C SIM CON	PCB-177	PCB Congeners	µg/kg	·	·		ND<0.18		ND<0.17		ND<0.17		ND<0.16		ND<0.19		ND<0.17		
USEPA 8270C SIM CON	PCB-180	PCB Congeners	µg/kg	·	·		ND<0.14		1.1		2.3		0.96		2.6		ND<0.13		
USEPA 8270C SIM CON	PCB-183	PCB Congeners	µg/kg	·	·		ND<0.14		0.26	J	0.61		ND<0.13		0.76		ND<0.13		
USEPA 8270C SIM CON	PCB-187	PCB Congeners	µg/kg	·	·		ND<0.16		0.82		1.8		0.76		2.3		ND<0.14		
USEPA 8270C SIM CON	PCB-189	PCB Congeners	µg/kg	·	·	*130*	ND<0.099		ND<0.093		ND<0.093		ND<0.087		ND<0.10		ND<0.091		
USEPA 8270C SIM CON	PCB-194	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.11		ND<0.11		ND<0.10		ND<0.12		ND<0.10		
USEPA 8270C SIM CON	PCB-201	PCB Congeners	µg/kg	·	·		ND<0.053		ND<0.049		ND<0.049		ND<0.046		ND<0.055		ND<0.048		
USEPA 8270C SIM CON	PCB-206	PCB Congeners	µg/kg	·	·		ND<0.18		ND<0.17		ND<0.17		ND<0.16		ND<0.19		ND<0.16		
	Total PCB Congeners	PCB Congeners	µg/kg	22.7	180	*230*	ND<0.55		12		25		12		30		13		
USEPA 8082A ECD	Aroclor-1016	PCB Aroclors	µg/kg	·	·		ND<8.5		ND<8.0		ND<8.0		ND<7.5		ND<8.9		ND<7.9		
USEPA 8082A ECD	Aroclor-1221	PCB Aroclors	µg/kg	·	·		ND<8.5		ND<8.0		ND<8.0		ND<7.5		ND<8.9		ND<7.9		
USEPA 8082A ECD	Aroclor-1232	PCB Aroclors	µg/kg	·	·		ND<8.5		ND<8.0		ND<8.0		ND<7.5		ND<8.9		ND<7.9		
USEPA 8082A ECD	Aroclor-1242	PCB Aroclors	µg/kg	·	·		ND<8.5		ND<8.0		ND<8.0		ND<7.5		ND<8.9		ND<7.9		
USEPA 8082A ECD	Aroclor-1248	PCB Aroclors	µg/kg	·	·		ND<8.5		11	J	ND<8.0		ND<7.5		ND<8.9		ND<7.9		
USEPA 8082A ECD	Aroclor-1254	PCB Aroclors	µg/kg	·	·		ND<7.7		9.8	J	24		10	J	24		15		
USEPA 8082A ECD	Aroclor-1260	PCB Aroclors	µg/kg	·	·		ND<7.7		10	J	24		15		23		13	J	
USEPA 8082A ECD	Aroclor-1262	PCB Aroclors	µg/kg	·	·		ND<7.7		ND<7.2		ND<7.2		ND<6.8		ND<8.0		ND<7.1		
USEPA 8082A ECD	Aroclor-1268	PCB Aroclors	µg/kg	·	·		ND<7.7		ND<7.2		ND<7.2		ND<6.8		ND<8.0		ND<7.1		

DRAFT

Table 4-2a. Sediment Chemistry Results - Composite A Turning Basin (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-A-C1		FDD-A-C2		FDD-A-C3		FDD-A-C4		FDD-A Composite	
Pyrethroid Pesticides																	
EPA 8270D (M)/TQ/EI	Allethrin	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.67		ND<0.67		ND<0.63		ND<0.74		ND<0.66	
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.29	ND<0.27		ND<0.27		ND<0.25		ND<0.30		ND<0.27	
EPA 8270D (M)/TQ/EI	Cyfluthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.35	ND<0.33		ND<0.33		ND<0.31		ND<0.36		ND<0.32	
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.23		ND<0.23		ND<0.22		ND<0.26		ND<0.23	
EPA 8270D (M)/TQ/EI	Deltamethrin/Tralomethrin	Pyrethroids	µg/kg	·	·	*47000*	ND<0.40	ND<0.38		ND<0.38		ND<0.35		ND<0.42		ND<0.37	
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	µg/kg	·	·		ND<0.28	ND<0.26		ND<0.26		ND<0.25		ND<0.29		ND<0.26	
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.24		ND<0.24		ND<0.22		ND<0.26		ND<0.23	
EPA 8270D (M)/TQ/EI	Permethrin - (cis/trans)	Pyrethroids	µg/kg	·	·	*320000*	ND<0.25	ND<0.23		ND<0.23		ND<0.22		ND<0.26		ND<0.23	
EPA 8270D (M)/TQ/EI	Phenothrin	Pyrethroids	µg/kg	·	·		ND<0.30	ND<0.28		ND<0.28		ND<0.27		ND<0.32		ND<0.28	
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	µg/kg	·	·	*190000*	ND<0.35	ND<0.33		ND<0.33		ND<0.31		ND<0.36		ND<0.32	
EPA 8270D (M)/TQ/EI	Lambda Cyhalothrin	Pyrethroids	µg/kg	·	·	*6300*	ND<0.50	ND<0.47		ND<0.47		ND<0.44		ND<0.53		ND<0.46	
EPA 8270D (M)/TQ/EI	Fenpropathrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.27	ND<0.25		ND<0.25		ND<0.24		ND<0.28		ND<0.25	
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	µg/kg	·	·		ND<0.16	ND<0.15		ND<0.15		ND<0.14		ND<0.16		ND<0.14	
EPA 8270D (M)/TQ/EI	Total Pyrethroids	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.67		ND<0.67		ND<0.63		ND<0.74		ND<0.66	
Organotins																	
Organotins By Krone et al.	Dibutyltin	Organotins	µg/kg	·	·	*1900*	ND<1.1	2.1	J *1	5.2	*1	3.3	J*1 F1	4.6	J *1	8.1	
Organotins By Krone et al.	Monobutyltin	Organotins	µg/kg	·	·		ND<2.1	ND<2.0	*-*1	ND<2.2	*-*1	ND<1.9	*-*1F1	ND<2.2	*- *1	ND<2.0	*-
Organotins By Krone et al.	Tetrabutyltin	Organotins	µg/kg	·	·		ND<1.1	ND<1.1		ND<1.1		ND<1.0		ND<1.2		ND<1.1	
Organotins By Krone et al.	Tributyltin	Organotins	µg/kg	·	·	*1900*	ND<2.3	ND<2.1		ND<2.2		ND<2.0		ND<2.4		ND<2.1	
	Total Organotins	Organotins	µg/kg	·	·		ND<2.3	2.1		5.2		3.3		4.6		8.1	

Notes

All values reported in Dry Weight.
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = MS/MSD RPD exceeds control limits
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B = Compound was found in the blank and sample.
*1 = LCS/LCSD RPD exceeds control limits.
*+ LCS and/or LCSD is outside acceptance limits, high bias
*- LCS and/or LCSD is outside acceptance limits, low bias
me LCS recovery is within marginal exceedance (ME) control limit range (+/- 4 SD from the mean)
S1+ Surrogate recovery exceeds control limits, high biased
H sample was preped or analyzed outside of the specified holding time
p = The % RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Analytes are reported to the method detection limit provided by Eurofins Calscience.
Totals for TPH and PCBs were provided by analytical laboratory. Totals for PAHs, DDTs, pyrethroid pesticides, and organotins were hand calculated.
Total Chlordane is calculated as the sum of: Chlordane-alpha, Chlordane-gamma, cis-Nonachlor, trans-Nonachlor,Oxychlordane
Analyte list follows project SAP and guidance from USACE and EPA Region 9 Sampling and Analysis Plan/Results Guidelines document (August 11, 2017)

RSL = Regional Screening Level
ERL = Effects range-low
ERM = Effects range-median
BOLD = value detected is above ERL
BOLD = value detected is above ERM
mg - milligram
kg - kilogram
µg - microgram
ND - Non Detect < MDL
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total Petroleum Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

DRAFT FI

This page intentionally left blank.

DRAFT FINAL

Table 4-2b. Sediment Chemistry Results – Composite B Approach and Sump Recent Bay Deposits

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-B-C1	FDD-B-C2	FDD-B-C3	FDD-B-C4	FDD-B-C5	FDD-B-C6	FDD-B-C7	FDD-B-C8	FDD-B-C9	FDD-B-C10	FDD-B-C11	FDD-B-C12	FDD-B Composite
Moisture	Percent Solids	General Chemistry	%	·	·		64.5	55.4	61.6	44.9	46.4	52.4	55.7	51.8	60.2	48.1	49.9	53.3	54.0	55.4
EPA 9060A	Carbon, Total Organic	General Chemistry	%	·	·		0.782	1.34	0.682	1.38	1.62	1.23	0.954	1.05	0.852	1.35	1.30	1.14	1.19	0.983
SM 4500-NH_3 B/C (M)	Ammonia (as N)	General Chemistry	mg/kg	·	·		3.21	11.6	3.50	6.74	10.9	6.20	11.9	7.08	7.81	7.22	10.2	11.1	9.95	6.39
EPA 376.2M	Total Sulfide	General Chemistry	mg/kg	·	·		6.31	77.0	2.95	435	706	19.9	20.7	45.3	56.0	310	214	39.1	52.8	23.6 H
EPA 376.2M	Sulfide, Dissolved	General Chemistry	mg/kg	·	·		ND<0.0840	ND<0.0841	ND<0.0838	ND<0.0842	ND<0.0841	ND<0.0839	ND<0.0840	ND<0.0842	ND<0.0841	ND<0.0840	ND<0.0840	ND<0.0842	ND<0.0841	ND<0.0838 H
EPA 1664A (M)	HEM: Oil and Grease	General Chemistry	mg/kg				20.6	114	237	59.1	387	292	244	64.2	66.4	444	347	131	123	143
Metals																				
EPA 6020	Antimony	Metals	mg/kg	·	·		ND<0.426	ND<0.517	ND<0.455	ND<0.607	ND<0.617	ND<0.546	ND<0.521	ND<0.539	ND<0.461	ND<0.583	ND<0.553	ND<0.548	ND<0.527	ND<0.530
EPA 6020	Arsenic	Metals	mg/kg	8.2	70	*0.68*	*2.49*	*8.73*	*4.41*	*8.26*	*8.42*	*7.42*	*6.46*	*7.53*	*5.78*	*9.21*	*9.04*	*9.08*	*6.18*	*4.61*
EPA 6020	Barium	Metals	mg/kg	·	·		269	102	83.3	108	88.9 F1	94.5	128	109	75.2	93.9	92.6	146	89.9	132
EPA 6020	Beryllium	Metals	mg/kg	·	·		ND<0.316	0.555 J	0.351 J	0.482 J	0.530 J	0.501 J	0.526 J	0.432 J	0.347 J	0.538 J	0.517 J	0.769 J	0.464 J	0.397 J
EPA 6020	Cadmium	Metals	mg/kg	1.2	9.6	*7.1*	ND<0.688	1.35 J	ND<0.735	ND<0.979	ND<0.995	ND<0.881	ND<0.841	ND<0.869	ND<0.744	ND<0.941	ND<0.893	1.36 J	ND<0.850	ND<0.855
EPA 6020	Chromium	Metals	mg/kg	81	370		7.40	62.2	30.3	44.8	45.5	46.7	42.0	44.5	32.5	46.3	47.5	70.1	42.6	17.7
EPA 7199	Chromium, Hexavalent	Metals	µg/kg	·	·		ND<320	ND<370	400 J	ND<460	ND<440	ND<400	420 J	460 J	470 J	ND<420	460 J	ND<390	460 J	ND<370
7199 CR3	Chromium, Trivalent	Metals	mg/kg	·	·		7.40	62.2	29.9	44.8	45.5	46.7	41.6	44	32.0	46.3	47.0	70.1	42.1	17.7
EPA 6020	Cobalt	Metals	mg/kg	·	·		2.55	8.42	7.73	8.84	8.61	8.48	10.7	9.06	6.36	8.98	8.69	11.7	7.5	6.76
EPA 6020	Copper	Metals	mg/kg	34	270	*310*	8.11	235	105	215	243	194	162	212	155	246	252	226	139	27.3
EPA 6020	Lead	Metals	mg/kg	46.7	218	*400*	1.95	101	27.2	49.5	52.4	51.3	38.9	45.8	36.1	54.3	53.5	72.4	42.1	13.2
EPA 7471A	Mercury	Metals	mg/kg	0.15	0.71	*1.1*	0.0254 J	1.02	0.268	0.545	0.760 F2	0.569	0.665	0.719	0.467	0.768	0.854	1.06	0.689	0.0329 J
EPA 6020	Molybdenum	Metals	mg/kg	·	·		ND<0.471	0.934 J	0.568 J	0.841 J	0.691 J F1	0.798 J	0.627 J	0.864 J	0.627 J	0.827 J	0.902 J	0.820 J	ND<0.582	1.90
EPA 6020	Nickel	Metals	mg/kg	20.9	51.6	*150*	5.19	13.0	8.15	11.9	11.6	11.5	12.5 J	11.7	8.90	12.1	11.9	17.4	10.2	33.6
EPA 6020	Selenium	Metals	mg/kg	·	·	*39*	ND<0.888	ND<1.08	ND<0.948	ND<1.26	ND<1.28	ND<1.14	1.31 J	1.28 J	ND<0.960	ND<1.21	1.26 J	1.25 J	ND<1.10	ND<1.10
EPA 6020	Silver	Metals	mg/kg	1.0	3.7	*39*	ND<0.506	1.26 J	0.632 J	1.26 J	1.13 J F1	1.37 J	0.971 J	1.14 J	0.883 J	1.32 J	1.19 J	0.826 J	0.806 J	ND<0.629
EPA 6020	Thallium	Metals	mg/kg	·	·		ND<0.335	ND<0.406	ND<0.358	ND<0.476	ND<0.484	ND<0.429	ND<0.409	ND<0.423	ND<0.362	ND<0.458	ND<0.434	0.458 J	ND<0.413	ND<0.416
EPA 6020	Vanadium	Metals	mg/kg	·	·		26.0	56.5	43.8	59.5	56.7	53.3	68.0	60.0	42.4	60.2	62.5	76.1	48.2	23.2
EPA 6020	Zinc	Metals	mg/kg	150	410	*2300*	30.7	309	150	244	271	237	202	233	174	285	278	314	201	108
Total Petroleum Hydrocarbons																				
EPA 8015B(M)	C6 as C6	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C7 as C7	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C8 as C8	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C9-C10	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C11-C12	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C13-C14	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	ND<7.1	ND<6.7	ND<6.7
EPA 8015B(M)	C15-C16	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	15	ND<6.7	ND<6.7
EPA 8015B(M)	C17-C18	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	20	ND<6.7	ND<6.7
EPA 8015B(M)	C19-C20	TPH	mg/kg	·	·		ND<5.9	ND<6.7	8.4	ND<9.1	ND<8.5	ND<7.5	7.7 J	ND<7.0	ND<6.1	ND<7.5	ND<8.0	38	ND<6.7	ND<6.7
EPA 8015B(M)	C21-C22	TPH	mg/kg	·	·		ND<5.9	ND<6.7	9.9	ND<9.1	ND<8.5	7.9 J	9.3	ND<7.0	ND<6.1	ND<7.5	ND<8.0	39	8.4 J	ND<6.7
EPA 8015B(M)	C23-C24	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	31	ND<6.7	ND<6.7
EPA 8015B(M)	C25-C28	TPH	mg/kg	·	·		ND<5.9	ND<6.7	7.5 J	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	78	ND<6.7	ND<6.7
EPA 8015B(M)	C29-C32	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	77	ND<6.7	ND<6.7
EPA 8015B(M)	C33-C36	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	55	ND<6.7	ND<6.7
EPA 8015B(M)	C37-C40	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	38	ND<6.7	ND<6.7
EPA 8015B(M)	C41-C44	TPH	mg/kg	·	·		ND<5.9	ND<6.7	ND<6.2	ND<9.1	ND<8.5	ND<7.5	ND<7.0	ND<7.0	ND<6.1	ND<7.5	ND<8.0	26	ND<6.7	ND<6.7
EPA 8015B(M)	C6-C44 Total	TPH	mg/kg	·	·		ND<5.9	12	43	ND<9.1	ND<8.5	36	38	ND<7.0	ND<6.1	ND<7.5	ND<8.0	430	38	7.4
EPA 1664A (M)	TRPH (SGT-HEM)	TRPH	mg/kg	·	·		ND<12.5	60.2	124	36.9	201	146	125	38.5	38.7	222	180	62.5	55.5	95.6

DRAFT

Table 4-2b. Sediment Chemistry Results - Composite B Approach and Sump Recent Bay Deposits (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-B-C1		FDD-B-C2		FDD-B-C3		FDD-B-C4		FDD-B-C5		FDD-B-C6		FDD-B-C7		FDD-B-C8		FDD-B-C9		FDD-B-C10		FDD-B-C11		FDD-B-C12		FDD-B Composite	
Polycyclic Aromatic Hydrocarbons																																		
EPA 8270C SIM	1,6,7-Trimethylnaphthalene	LMW PAH	µg/kg	·	·		ND<2.8		ND<3.2		ND<2.9		ND<4.0		ND<3.9		3.6	J	ND<3.2		ND<3.4		ND<3.0		ND<3.7		ND<3.6		ND<3.4		ND<16		ND<3.2	
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	µg/kg	·	·	18000	ND<1.7	F2	ND<2.0		ND<1.8		ND<2.4		ND<2.4		ND<2.1		ND<1.9		ND<2.1		ND<1.8		13	J	ND<2.2		ND<2.1		ND<10		ND<2.0	
EPA 8270C SIM	1-Methylphenanthrene	HMW PAH	µg/kg	·	·		ND<3.1		ND<3.6		ND<3.2		ND<4.4		ND<4.3		26		ND<3.5		ND<3.8		ND<3.3		ND<4.1		ND<4.0		ND<3.7		ND<18		ND<3.6	
EPA 8270C SIM	2,6-Dimethylnaphthalene	LMW PAH	µg/kg	·	·		8.6	J	23		ND<3.4		29		48		20		ND<3.7		19		14	J	43		34		20		ND<19		ND<3.7	
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	µg/kg	70	670	24000	ND<2.5	F2	ND<2.9		ND<2.6		5.9	J	4.9	J	ND<3.0		ND<2.8		ND<3.1		ND<2.6		13	J	4.9	J	4.1	J	ND<15		ND<2.9	
EPA 8270C SIM	Acenaphthene	LMW PAH	µg/kg	16	500	36000	ND<2.3	F2	ND<2.7		ND<2.4		5.1	J	6.2	J	4.5	J	ND<2.7		4.1	J	ND<2.5		7.2	J	8.5	J	4.6	J	ND<14		3.9	J
EPA 8270C SIM	Acenaphthylene	LMW PAH	µg/kg	44	640		ND<2.6	F2	63		51		130		160		110		63		93		65		120		240		83		48	J	82	
EPA 8270C SIM	Anthracene	LMW PAH	µg/kg	85.3	1100	1800000	ND<2.9		54		41		120		150		98		49		83		63		130		240		74		38	J	88	
EPA 8270C SIM	Benzo (a) anthracene	HMW PAH	µg/kg	261	1600	1100	ND<2.2		66		55		110		130		120		55		100		72		130		160		100		59	J	71.0	
EPA 8270C SIM	Benzo (a) pyrene	HMW PAH	µg/kg	430	1600	110	6.0	J F2	500		360		730		800		720		400		640		500		880		1300		610		320		430	
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	µg/kg	·	·	1100	5.4	J F2	500		360		730		920		710		420		620		500		880		1400		600		330		480	
EPA 8270C SIM	Benzo (e) Pyrene	HMW PAH	µg/kg	·	·		ND<2.6		280		190		490		640		380		240		390		250		460		750		330		170		240	
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	µg/kg	·	·		4.5	J	270		160		290		270		310		150		280		200		330		480		260		160		200	
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	µg/kg	·	·	11000	ND<2.3	F2	500		330		680		710		660		400		620		490		780		1100		560		300		400	
EPA 8270C SIM	Biphenyl	HMW PAH	µg/kg	·	·	4700	ND<2.9		ND<3.4		ND<3.1		ND<4.2		ND<4.1		ND<3.6		ND<3.4		ND<3.6		ND<3.1		ND<3.9		ND<3.8		ND<3.5		ND<17		ND<3.4	
EPA 8270C SIM	Chrysene	HMW PAH	µg/kg	384	2800	110000	4.0	J	110		87		210		230		180		98		240		110		200		280		150		78	J	110	
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	µg/kg	63.4	260	110	ND<2.2		80		50		110		130		110		62		100		78		130		200		90		56	J	92	
EPA 8270C SIM	Fluoranthene	HMW PAH	µg/kg	600	5100	240000	4.9	J *1	68		84		100		110		160		46		150		86		120		110		110		60	J	69	
EPA 8270C SIM	Fluorene	LMW PAH	µg/kg	19	540	240000	ND<2.5	F1 F2	ND<2.9		ND<2.6		ND<3.5		ND<3.4		5.2	J	ND<2.8		ND<3.1		ND<2.6		ND<3.3		ND<3.2		4.6	J	ND<15		7.6	J
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/kg	·	·	1100	3.4	J	250		160		330		340		320		170		290		220		370		540		270		160		210	
EPA 8270C SIM	Naphthalene	LMW PAH	µg/kg	160	2100	3800	ND<2.3	F2	5.7	J	ND<2.4		6.8	J	6.5	J	4.2	J	ND<2.7		5.3	J	3.8	J	7.6	J	ND<3.0		6.0	J	ND<14		3.7	J
EPA 8270C SIM	Phenanthrene	LMW PAH	µg/kg	240	1500		ND<2.6		15	J	18		29		31		39		8.6	J	17	J	21		38		34		21		ND<16		17	J
EPA 8270C SIM	Pyrene	HMW PAH	µg/kg	665	2600	180000	5.2	J	150		85		140		150		190		55		250		91		150		140		130		83	J	95	
EPA 8270C SIM	Total Detectable PAHs	PAH	µg/kg	4022	44792		42.0		2935		2031		4246		4837		4171		2217		3901		2764	J	4802	J	7021	J	3427	J	1862	J	2599	J
Phenols																																		
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenol	µg/kg	·	·	630000	ND<1.9	F2	ND<2.1		ND<1.9		4.7	J	ND<2.6		ND<2.3		ND<2.1		ND<2.3		ND<2.0		ND<2.5		ND<2.4		ND<2.2		ND<11		ND<2.1	
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenol	µg/kg	·	·	6300	ND<2.0	F2	ND<2.3		ND<2.1		ND<2.9		ND<2.8		ND<2.5		ND<2.3		ND<2.5		ND<2.1		ND<2.7		ND<2.6		ND<2.4		ND<12		ND<2.3	
EPA 8270C SIM	2,4-Dichlorophenol	Phenol	µg/kg	·	·	19000	ND<3.2	F2	ND<3.7		ND<3.4		ND<4.6		ND<4.5		ND<4.0		ND<3.7		ND<4.0		ND<3.4		ND<4.4		ND<4.2		ND<3.9		ND<19		ND<3.7	
EPA 8270C SIM	2,4-Dimethylphenol	Phenol	µg/kg	·	·	130000	ND<4.0	*1 F2	ND<4.6		ND<4.2		ND<5.8		ND<5.6		ND<4.9		ND<4.6		ND<5.0		ND<4.3		ND<5.4		ND<5.2		ND<4.8		ND<24		ND<4.6	
EPA 8270C SIM	2,4-Dinitrophenol	Phenol	µg/kg	·	·	13000	ND<92		ND<110		ND<97		ND<130		ND<130		ND<110		ND<110		ND<110		ND<98		ND<120		ND<120		ND<110		ND<550		ND<110	*-
EPA 8270C SIM	2-Chlorophenol	Phenol	µg/kg	·	·	39000	ND<2.9	F1 F2	ND<3.4		ND<3.1		ND<4.2		ND<4.1		ND<3.6		ND<3.4		ND<3.6		ND<3.1		ND<3.9		ND<3.8		ND<3.5		ND<17		ND<3.4	
EPA 8270C SIM	2-Methylphenol	Phenol	µg/kg	·	·	320000	ND<3.1	*1 F2	ND<3.6		ND<3.2		ND<4.4		ND<4.3		ND<3.8		ND<3.5		ND<3.8		ND<3.3		ND<4.1		ND<4.0		ND<3.7		ND<18		ND<3.6	
EPA 8270C SIM	2-Nitrophenol	Phenol	µg/kg	·	·		ND<2.6	*1 F2	ND<3.0		ND<2.7		ND<3.8		ND<3.6		ND<3.2		ND<3.0		ND<3.2		ND<2.8		ND<3.5		ND<3.4		ND<3.2		ND<16		ND<3.0	
EPA 8270C SIM	3/4-Methylphenol	Phenol	µg/kg	·	·		ND<5.6	*1	ND<6.4		ND<5.8		ND<8.0		ND<7.7		ND<6.8		ND<6.4		ND<6.9		ND<5.9		ND<7.5		ND<7.2		ND<6.7		ND<33		ND<6.4	
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenol	µg/kg	·	·		ND<100		ND<120		ND<110		ND<150		ND<140		ND<130		ND<120		ND<130		ND<110		ND<140		ND<130		ND<120		ND<600		ND<120	*- *1
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenol	µg/kg	·	·		ND<3.2		ND<3.7		ND<3.4		ND<4.6		ND<4.5		ND<4.0		ND<3.7		ND<4.0		ND<3.4		ND<4.4		ND<4.2		ND<3.9		ND<19		ND<3.7	
EPA 8270C SIM	Pentachlorophenol	Phenol	µg/kg	·	·	1000	31	J	ND<2.3		ND<2.1		ND<2.9		ND<2.8		37	J	ND<2.3		ND<2.5		ND<2.1		ND<2.7		ND<2.6		ND<2.4		ND<12		ND<2.3	*-
EPA 8270C SIM	2,6-Dichlorophenol	Phenol	µg/kg	·	·		ND<3.2	F2	ND<3.7		ND<3.4		ND<4.6		ND<4.5		ND<4.0		ND<3.7		ND<4.0		ND<3.4		ND<4.4		ND<4.2		ND<3.9		ND<19		ND<3.7	
EPA 8270C SIM	4-Nitrophenol	Phenol	µg/kg	·	·		ND<130		ND<150		ND<130		ND<180		ND<170		ND<150		ND<140		ND<160		ND<130		ND<170		ND<160		ND<150		ND<740		ND<150	*- *1
EPA 8270C SIM	2,3,4,6-Tetrachlorophenol	Phenol	µg/kg	·	·	190000	ND<6.0	F2	ND<7.0		ND<6.3		19	J B	ND<8.4		12	J	ND<6.9		ND<7.4		ND<6.4		ND<8.1		ND<7.8		ND<7.3		ND<36		ND<7.0	

DRAFT

Table 4-2b. Sediment Chemistry Results - Composite B Approach and Sump Recent Bay Deposits (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-B-C1		FDD-B-C2		FDD-B-C3		FDD-B-C4		FDD-B-C5		FDD-B-C6		FDD-B-C7		FDD-B-C8		FDD-B-C9		FDD-B-C10		FDD-B-C11		FDD-B-C12		FDD-B Composite	
Phthalates																																		
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalate	µg/kg	·	·	3900	29	J B	300	B	940	B	280	B	220	B	1300	B	140	B	160	B	120	B	260	B	380	B	350	B	320	J B	200	B
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalate	µg/kg	·	·	290000	8.3	J B	54	J	41	J	53	J	ND<4.3		50	J	31	J	42	J	ND<3.3		ND<4.1		ND<4.0		48	J	60	J	89	B
EPA 8270C SIM	Diethyl Phthalate	Phthalate	µg/kg	·	·	5100000	3.5	J B F2	11	J B	7.6	J B	11	J B	10	J B	10	J B	7.1	J B	6.5	J B	6.2	J B	ND<3.3		ND<3.2		11	J B	ND<15		11	J
EPA 8270C SIM	Dimethyl Phthalate	Phthalate	µg/kg	·	·	780000	ND<3.1	F2	ND<3.6		ND<3.2		7.2	J	ND<4.3		6.8	J	ND<3.5		ND<3.8		ND<3.3		6.9	J	6.5	J	5.8	J	ND<18		5.5	J
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalate	µg/kg	·	·	630000	10	J B *1	44	J B	40	J B	47	J B	42	J B	38	J B	27	J B	35	J B	12	J B	42	J B	47	J B	61	J B	49	J B	41	J B
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalate	µg/kg	·	·	63000	40	J	ND<3.4		ND<3.1		ND<4.2		ND<4.1		55	J	ND<3.4		ND<3.6		ND<3.1		ND<3.9		ND<3.8		ND<3.5		ND<17		ND<3.4	
Chlorinated Pesticides																																		
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.12		ND<0.10		ND<0.14		ND<0.14		ND<0.12		ND<0.11		ND<0.12		ND<0.11		ND<0.13		ND<0.13		ND<0.12		ND<0.12		ND<0.12	
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	µg/kg	·	·		ND<0.15		ND<0.17		ND<0.16		ND<0.21		ND<0.21		ND<0.18		ND<0.17		ND<0.19		ND<0.16		ND<0.20		ND<0.19		ND<0.18		ND<0.18		ND<0.17	
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	µg/kg	·	·		ND<0.14		ND<0.17		ND<0.15		ND<0.30		ND<0.20		ND<0.17		ND<0.16		ND<0.18		ND<0.15		ND<0.19		ND<0.18		ND<0.17		ND<0.17		ND<0.17	
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	µg/kg	2.0	20	190	ND<0.77		ND<0.90		ND<0.81		ND<1.1		ND<1.1		ND<0.95		ND<0.89		ND<0.96		ND<0.83		ND<1.0		ND<1.0		ND<0.93		ND<0.91		ND<0.90	
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	µg/kg	2.2	27	2000	1.5		4.0	p	0.43	J p	1.1	J p	1.2	J p	1.4	J p	0.57	J p	0.69	J p	0.34	J p	0.91	J p	2.0		1.8	J p	1.8	p	0.73	J p
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	µg/kg	1.0	7.0	1900	ND<0.27		ND<0.32		ND<0.29		ND<0.39		ND<0.38		ND<0.34		ND<0.31		ND<0.34		ND<0.29		ND<0.37		ND<0.35		ND<0.33		ND<0.32		ND<0.32	
	Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.58	46.1		1.5		4.0		0.43		1.1		1.2		1.4		0.57		0.69		0.34	Jp	0.91	Jp	2.0		1.8	Jp	1.8	p	0.73	J p
EPA 8081A	Aldrin	Chlorinated Pesticides	µg/kg	·	·	39	ND<0.11	*1	ND<0.13		ND<0.12		ND<0.16		ND<0.15		ND<0.14		ND<0.13		ND<0.14		ND<0.12		ND<0.15		ND<0.14		ND<0.13		ND<0.13		ND<0.13	
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	µg/kg	·	·	86	ND<0.12		ND<0.14		ND<0.13		ND<0.18		ND<0.17		ND<0.15		ND<0.14		ND<0.15		ND<0.13		ND<0.17		ND<0.16		ND<0.15		ND<0.15		ND<0.14	
EPA 8081A	Beta-BHC	Chlorinated Pesticides	µg/kg	·	·	300	ND<0.14		ND<0.16		ND<0.15	*+	ND<0.20		ND<0.19		ND<0.17	*+	ND<0.16	*+	ND<0.17		ND<0.15		ND<0.19		ND<0.18		ND<0.17		ND<0.17		ND<0.16	
EPA 8081A	Delta-BHC	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.12		ND<0.10		ND<0.14		ND<0.14		ND<0.12		ND<0.11		ND<0.12		ND<0.11		ND<0.13		ND<0.13		ND<0.12		ND<0.12		ND<0.12	
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	µg/kg	·	·	570	ND<0.16		ND<0.19	*+ *1	ND<0.17		ND<0.23		ND<0.23		ND<0.20		ND<0.19		ND<0.20		ND<0.17		ND<0.22		ND<0.21		ND<0.20	*+ *1	ND<0.19	*+ *1	ND<0.19	
EPA 8081A	Chlordane (Total)	Chlorinated Pesticides	µg/kg	0.5	6.0	1700	ND<0.54		ND<0.59		ND<0.53		ND<0.72		ND<0.69		ND<0.62		ND<0.58		ND<0.67		ND<0.58	*1	ND<0.72		ND<0.70		ND<0.65		ND<0.64		ND<0.63	
EPA 8081A	Dieldrin	Chlorinated Pesticides	µg/kg	0.02	8.0	34	ND<0.10		ND<0.12		ND<0.11		ND<0.15		ND<0.14		ND<0.13		ND<0.12		ND<0.13		ND<0.11		ND<0.14		ND<0.13		ND<0.12		ND<0.12		ND<0.12	
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.058		ND<0.067		ND<0.060		ND<0.083		ND<0.080		ND<0.071		ND<0.066		ND<0.072		ND<0.062		ND<0.077		ND<0.075		ND<0.069		ND<0.068		ND<0.067	
EPA 8081A	Endosulfan I	Chlorinated Pesticides	µg/kg	·	·	47000	ND<0.075		ND<0.088	*+	ND<0.078		ND<0.11		ND<0.10		ND<0.092		ND<0.086		ND<0.093		ND<0.080		ND<0.10		ND<0.097		ND<0.090	*+	ND<0.088	*+	ND<0.087	
EPA 8081A	Endosulfan II	Chlorinated Pesticides	µg/kg	·	·		ND<0.35		ND<0.41		ND<0.37		ND<0.50		ND<0.48		ND<0.43		ND<0.40		ND<0.43		ND<0.38		ND<0.47		ND<0.45		ND<0.42		ND<0.41		ND<0.41	
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	µg/kg	·	·		ND<0.17		ND<0.20		ND<0.17		ND<0.24	*+	ND<0.23		ND<0.21		ND<0.19		ND<0.21		ND<0.18	*+	ND<0.22		ND<0.22	*+	ND<0.20		ND<0.20		ND<0.20	
EPA 8081A	Endrin	Chlorinated Pesticides	µg/kg	·	·	1900	ND<0.13	*1	ND<0.16		ND<0.14		ND<0.19		ND<0.19		ND<0.17		ND<0.16		ND<0.17		ND<0.14		ND<0.18		ND<0.17		ND<0.16		ND<0.16		ND<0.16	
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	µg/kg	·	·		ND<0.75		ND<0.88		ND<0.79		ND<1.1		ND<1.0		ND<0.92		ND<0.87		ND<0.94		ND<0.81		ND<1.0		ND<0.97		ND<0.91		ND<0.89		ND<0.88	
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	µg/kg	·	·		ND<0.29		ND<0.34		ND<0.31		ND<0.42		ND<0.41		ND<0.36		ND<0.34		ND<0.37		ND<0.32		ND<0.40		ND<0.38		ND<0.35		ND<0.35		ND<0.34	
EPA 8081A	Heptachlor	Chlorinated Pesticides	µg/kg	·	·	130	ND<0.092		ND<0.11		ND<0.096		ND<0.13		ND<0.13		ND<0.11		ND<0.11		ND<0.11		ND<0.098		ND<0.12		ND<0.12		ND<0.11		ND<0.11		ND<0.11	
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	µg/kg	·	·	70	ND<0.13		ND<0.15		ND<0.14		ND<0.19		ND<0.18		ND<0.16		1.5	J	ND<0.16		ND<0.14		ND<0.18		ND<0.17		ND<0.16		ND<0.16		ND<0.15	
EPA 8081A	Methoxychlor	Chlorinated Pesticides	µg/kg	·	·	32000	ND<0.25	*1	ND<0.30		ND<0.26		ND<0.36		ND<0.35		ND<0.31		ND<0.29		ND<0.31		ND<0.27		ND<0.34		ND<0.33		ND<0.30		ND<0.30		ND<0.30	
EPA 8081A	Toxaphene	Chlorinated Pesticides	µg/kg	·	·	490	ND<1.5		ND<1.8		ND<1.6		ND<2.2		ND<2.1		ND<1.9		ND<1.8		ND<1.9		ND<1.6		ND<2.1		ND<2.0		ND<1.9		ND<1.8		ND<1.8	
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.071		ND<0.083		ND<0.074		ND<0.10		ND<0.098		ND<0.087		ND<0.082		ND<0.088		ND<0.076		ND<2.1		ND<0.092		ND<0.086		ND<0.084		ND<0.083	
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.54		ND<0.63		ND<0.56		ND<0.78	*1	ND<0.75		ND<0.66		ND<0.62		ND<0.67		ND<0.58	*1	ND<0.72		ND<0.70		ND<0.65		ND<0.64		ND<0.63	
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.073		ND<0.085		ND<0.076		ND<0.10		ND<0.10		ND<0.090		ND<0.084		ND<0.091		ND<0.078		ND<0.098		ND<0.094		ND<0.088		ND<0.086		ND<0.085	
EPA 8081A	Oxychlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.23		ND<0.27		ND<0.24		ND<0.33		ND<0.32		ND<0.28		ND<0.27		ND<0.29		ND<0.25		ND<0.31		ND<0.30		ND<0.28		ND<0.27		ND<0.27	

DRAFT

Table 4-2b. Sediment Chemistry Results - Composite B Approach and Sump Recent Bay Deposits (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-B-C1	FDD-B-C2	FDD-B-C3	FDD-B-C4	FDD-B-C5	FDD-B-C6	FDD-B-C7	FDD-B-C8	FDD-B-C9	FDD-B-C10	FDD-B-C11	FDD-B-C12	FDD-B Composite
Polychlorinated Biphenyls																				
USEPA 8270C SIM CON	PCB-18	PCB Congeners	µg/kg	·	·		ND<0.10	ND<0.12	ND<0.10	ND<0.14	ND<0.14	ND<0.12	ND<0.12	ND<0.12	ND<0.11	ND<0.13	ND<0.13	ND<0.12	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-28	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.12	ND<0.11	ND<0.15	ND<0.15	ND<0.13	ND<0.12	ND<0.13	ND<0.11	ND<0.14	ND<0.14	ND<0.13	ND<0.13	ND<0.12
USEPA 8270C SIM CON	PCB-37	PCB Congeners	µg/kg	·	·		ND<0.094	ND<0.11	ND<0.097	ND<0.13	ND<0.13	ND<0.12	ND<0.11	ND<0.12	ND<0.099	ND<0.13	ND<0.12	ND<0.11	ND<0.11	ND<0.11
USEPA 8270C SIM CON	PCB-44	PCB Congeners	µg/kg	·	·		ND<0.24	ND<0.27	ND<0.24	ND<0.34	ND<0.33	ND<0.29	ND<0.27	ND<0.29	ND<0.25	ND<0.32	ND<0.30	ND<0.28	ND<0.28	ND<0.27
USEPA 8270C SIM CON	PCB-49	PCB Congeners	µg/kg	·	·		ND<0.077	ND<0.089	ND<0.080	2.7	ND<0.11	ND<0.094	ND<0.088	3.7	ND<0.081	6.2	ND<0.099	ND<0.092	ND<0.091	ND<0.089
USEPA 8270C SIM CON	PCB-52	PCB Congeners	µg/kg	·	·		ND<0.29	ND<0.34	ND<0.31	5.4	ND<0.41	ND<0.36	ND<0.34	5.2	ND<0.31	5.3	ND<0.38	ND<0.35	ND<0.35	ND<0.34
USEPA 8270C SIM CON	PCB-66	PCB Congeners	µg/kg	·	·		ND<0.19	6.4	ND<0.20	4.7	4.4	4.0	ND<0.22	3.6	3.0	5.2	ND<0.25	5.1	3.6	2.9
USEPA 8270C SIM CON	PCB-70	PCB Congeners	µg/kg	·	·		ND<0.11	3.6	ND<0.12	2.4	ND<0.15	ND<0.14	ND<0.13	2.0	ND<0.12	ND<0.15	ND<0.14	2.9	1.9	ND<0.13
USEPA 8270C SIM CON	PCB-74	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.16	ND<0.14	ND<0.20	ND<0.19	ND<0.17	ND<0.16	ND<0.17	ND<0.15	ND<0.19	ND<0.18	ND<0.17	ND<0.17	ND<0.16
USEPA 8270C SIM CON	PCB-77	PCB Congeners	µg/kg	·	·	*38*	ND<0.18	ND<0.21	ND<0.19	ND<0.26	ND<0.25	ND<0.22	ND<0.21	ND<0.22	ND<0.19	ND<0.24	ND<0.23	ND<0.21	ND<0.21	ND<0.21
USEPA 8270C SIM CON	PCB-81	PCB Congeners	µg/kg	·	·	*12*	ND<0.14	ND<0.16	ND<0.15	ND<0.20	ND<0.19	ND<0.17	ND<0.16	ND<0.17	ND<0.15	ND<0.19	ND<0.18	ND<0.17	ND<0.17	ND<0.16
USEPA 8270C SIM CON	PCB-87	PCB Congeners	µg/kg	·	·		ND<0.17	5.8	ND<0.18	ND<0.25	ND<0.24	ND<0.21	ND<0.20	ND<0.21	ND<0.18	ND<0.23	ND<0.22	ND<0.21	ND<0.21	ND<0.20
USEPA 8270C SIM CON	PCB-99	PCB Congeners	µg/kg	·	·		ND<0.073	12	3.9	8.2	8.5	8.0	4.9	6.7	5.2	60	5.8	10	7.4	5.2
USEPA 8270C SIM CON	PCB-101	PCB Congeners	µg/kg	·	·		ND<0.069	21	5.8	10	11	13	7.6	8.6	8.9	32	11	16	12	8
USEPA 8270C SIM CON	PCB-105	PCB Congeners	µg/kg	·	·	*120*	ND<0.083	7.6	ND<0.086	ND<0.12	ND<0.11	ND<0.10	ND<0.095	ND<0.10	ND<0.088	ND<0.11	ND<0.11	6.1	ND<0.098	ND<0.095
USEPA 8270C SIM CON	PCB-110	PCB Congeners	µg/kg	·	·		ND<0.052	17	4.9	8.7	7.1	10	6.4	9.9	8.6	15	7.6	15	11	5.6
USEPA 8270C SIM CON	PCB-114	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.13	ND<0.12	ND<0.17	ND<0.16	ND<0.14	ND<0.13	ND<0.14	ND<0.12	ND<0.15	ND<0.15	ND<0.14	ND<0.14	ND<0.13
USEPA 8270C SIM CON	PCB-118	PCB Congeners	µg/kg	·	·	*120*	ND<0.054	17	4.4	7.3	7.4	11	19	15	6.7	34	7.3	16	9.3	5.4
USEPA 8270C SIM CON	PCB-119	PCB Congeners	µg/kg	·	·		ND<0.097	ND<0.11	ND<0.10	ND<0.14	ND<0.13	ND<0.12	ND<0.11	ND<0.12	ND<0.10	ND<0.13	ND<0.13	ND<0.12	ND<0.11	ND<0.11
USEPA 8270C SIM CON	PCB-123	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.13	ND<0.12	ND<0.16	ND<0.16	ND<0.14	ND<0.13	ND<0.14	ND<0.12	ND<0.15	ND<0.15	ND<0.14	ND<0.13	ND<0.13
USEPA 8270C SIM CON	PCB-126	PCB Congeners	µg/kg	·	·	*0.036*	ND<0.085	ND<0.099	ND<0.088	ND<0.12	ND<0.12	ND<0.10	ND<0.098	ND<0.11	ND<0.090	ND<0.11	ND<0.11	ND<0.10	ND<0.10	ND<0.098
USEPA 8270C SIM CON	PCB-128	PCB Congeners	µg/kg	·	·		ND<0.19	ND<0.22	ND<0.19	ND<0.27	ND<0.26	ND<0.23	ND<0.21	ND<0.23	ND<0.20	ND<0.25	ND<0.24	ND<0.22	ND<0.22	ND<0.21
USEPA 8270C SIM CON	PCB-132/153	PCB Congeners	µg/kg	·	·		ND<0.25	35	11	21	20	26	14	15	15	150	20	28	23	14
USEPA 8270C SIM CON	PCB-138/158	PCB Congeners	µg/kg	·	·		ND<0.55	35	11	18	19	25	13	12	13	62	20	31	23	14
USEPA 8270C SIM CON	PCB-149	PCB Congeners	µg/kg	·	·		ND<0.18	26	7.4	15	12	17	9.2	10	10	140	14	20	15	11
USEPA 8270C SIM CON	PCB-151	PCB Congeners	µg/kg	·	·		ND<0.14	8.8	ND<0.14	5.1	ND<0.19	7.3	ND<0.16	ND<0.17	ND<0.14	42	ND<0.18	7.9	5.9	3.8
USEPA 8270C SIM CON	PCB-156	PCB Congeners	µg/kg	·	·	*120*	ND<0.12	ND<0.14	ND<0.12	ND<0.17	ND<0.17	ND<0.15	ND<0.14	ND<0.15	ND<0.13	ND<0.16	ND<0.15	ND<0.14	ND<0.14	ND<0.14
USEPA 8270C SIM CON	PCB-157	PCB Congeners	µg/kg	·	·	*120*	ND<0.13	ND<0.15	ND<0.14	ND<0.19	ND<0.18	ND<0.16	ND<0.15	ND<0.16	ND<0.14	ND<0.18	ND<0.17	ND<0.16	ND<0.16	ND<0.15
USEPA 8270C SIM CON	PCB-167	PCB Congeners	µg/kg	·	·	*120*	ND<0.21	ND<0.24	ND<0.21	ND<0.30	ND<0.28	ND<0.25	ND<0.24	ND<0.25	ND<0.22	ND<0.28	ND<0.27	ND<0.25	ND<0.24	ND<0.24
USEPA 8270C SIM CON	PCB-168	PCB Congeners	µg/kg	·	·		ND<0.22	ND<0.26	ND<0.23	ND<0.32	ND<0.31	ND<0.27	ND<0.25	ND<0.27	ND<0.23	ND<0.30	ND<0.29	ND<0.26	ND<0.26	ND<0.25
USEPA 8270C SIM CON	PCB-169	PCB Congeners	µg/kg	·	·	*0.12*	ND<0.10	ND<0.12	ND<0.10	ND<0.14	ND<0.14	ND<0.12	ND<0.12	ND<0.12	ND<0.11	ND<0.13	ND<0.13	ND<0.12	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-170	PCB Congeners	µg/kg	·	·		ND<0.17	14	3.1	ND<0.25	ND<0.24	8.2	ND<0.20	ND<0.21	ND<0.18	24	ND<0.22	7.9	6.9	4
USEPA 8270C SIM CON	PCB-177	PCB Congeners	µg/kg	·	·		ND<0.18	5.0	1.4	3.4	2.9	4.1	ND<0.21	2.1	1.7	8.5	3.0	ND<0.22	ND<0.22	2.2
USEPA 8270C SIM CON	PCB-180	PCB Congeners	µg/kg	·	·		ND<0.14	23	6.1	11	11	15	7.8	8.3	7.3	63	12	17	15	8.3
USEPA 8270C SIM CON	PCB-183	PCB Congeners	µg/kg	·	·		ND<0.14	5.5	1.6	2.5	2.7	ND<0.18	2.0	2.2	2.0	17	2.9	3.9	3.5	2.3
USEPA 8270C SIM CON	PCB-187	PCB Congeners	µg/kg	·	·		ND<0.16	15	4.2	9.0	9.2	10	6.2	5.9	4.8	94	8.3	12	8.5	5.5
USEPA 8270C SIM CON	PCB-189	PCB Congeners	µg/kg	·	·	*130*	ND<0.099	ND<0.12	ND<0.10	ND<0.14	ND<0.14	ND<0.12	ND<0.11	ND<0.12	ND<0.11	ND<0.13	ND<0.13	ND<0.12	ND<0.12	ND<0.11
USEPA 8270C SIM CON	PCB-194	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.13	ND<0.12	3.0	ND<0.16	4.2	ND<0.13	ND<0.14	ND<0.12	24	ND<0.15	4.7	ND<0.14	ND<0.13
USEPA 8270C SIM CON	PCB-201	PCB Congeners	µg/kg	·	·		ND<0.053	ND<0.061	ND<0.055	ND<0.076	ND<0.073	ND<0.065	ND<0.060	ND<0.065	ND<0.056	4.3	ND<0.068	ND<0.063	ND<0.063	ND<0.061
USEPA 8270C SIM CON	PCB-206	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.21	1.4	ND<0.26	ND<0.25	ND<0.22	ND<0.21	ND<0.22	ND<0.19	9.1	ND<0.23	5.6	ND<0.21	ND<0.21
	Total PCB Congeners	PCB Congeners	µg/kg	22.7	180	*230*	ND<0.55	*300*	73	150	130	190	96	120	97	*910*	120	*230*	160	98.0
USEPA 8082A ECD	Aroclor-1016	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<10	ND<8.9	ND<12	ND<12	ND<10	ND<9.8	ND<11	ND<9.1	ND<11	ND<11	ND<10	ND<10	ND<10
USEPA 8082A ECD	Aroclor-1221	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<10	ND<8.9	ND<12	ND<12	ND<10	ND<9.8	ND<11	ND<9.1	ND<11	ND<11	ND<10	ND<10	ND<10
USEPA 8082A ECD	Aroclor-1232	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<10	ND<8.9	ND<12	ND<12	ND<10	ND<9.8	ND<11	ND<9.1	ND<11	ND<11	ND<10	ND<10	ND<10
USEPA 8082A ECD	Aroclor-1242	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<10	ND<8.9	ND<12	ND<12	ND<10	ND<9.8	ND<11	ND<9.1	ND<11	ND<11	ND<10	ND<10	ND<10
USEPA 8082A ECD	Aroclor-1248	PCB Aroclors	µg/kg	·	·		ND<8.5	52	11 J	37	39	27	19	52	31	42	34	42	40	20
USEPA 8082A ECD	Aroclor-1254	PCB Aroclors	µg/kg	·	·		ND<7.7	98	48	110	100	89	52	92	71	110	98	130	90	65
USEPA 8082A ECD	Aroclor-1260	PCB Aroclors	µg/kg	·	·		ND<7.7	130	49	110	120	95	62	93	73	130	130	140	100	71
USEPA 8082A ECD	Aroclor-1262	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<9.0	ND<8.0	ND<11	ND<11	ND<9.4	ND<8.8	ND<9.5	ND<8.2	ND<10	ND<9.9	ND<9.3	ND<9.1	ND<9.0
USEPA 8082A ECD	Aroclor-1268	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<9.0	ND < 8.0	ND<11	ND<11	ND<9.4	ND<8.8	ND<9.5	ND<8.2	ND<10	ND<9.9	ND<9.3	ND<9.1	ND<9.0

DRAFT

Table 4-2b. Sediment Chemistry Results - Composite B Approach and Sump Recent Bay Deposits (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-B-C1	FDD-B-C2	FDD-B-C3	FDD-B-C4	FDD-B-C5	FDD-B-C6	FDD-B-C7	FDD-B-C8	FDD-B-C9	FDD-B-C10	FDD-B-C11	FDD-B-C12	FDD-B Composite
Pyrethroid Pesticides																				
EPA 8270D (M)/TQ/EI	Allethrin	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.83	ND<0.74	ND<1.0	ND<0.98	ND<0.87	ND<0.82	ND<0.89	ND<0.76	ND<0.96	ND<0.92	ND<0.86	ND<0.85	ND<0.83
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.29	ND<0.34	ND<0.30	ND<0.41	ND<0.40	ND<0.35	ND<0.33	ND<0.36	ND<0.31	ND<0.39	ND<0.37	ND<0.35	ND<0.34	ND<0.33
EPA 8270D (M)/TQ/EI	Cyfluthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.35	ND<0.41	ND<0.36	ND<0.50	ND<0.48	ND<0.43	ND<0.40	ND<0.43	ND<0.37	ND<0.47	ND<0.45	ND<0.42	ND<0.41	ND<0.40
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.29	ND<0.26	ND<0.35	ND<0.34	ND<0.31	ND<0.29	ND<0.31	ND<0.27	ND<0.33	ND<0.32	ND<0.30	ND<0.30	ND<0.29
EPA 8270D (M)/TQ/EI	Deltamethrin/Tralomethrin	Pyrethroids	µg/kg	·	·	*47000*	ND<0.40	ND<0.47	ND<0.42	ND<0.57	ND<0.55	ND<0.49	ND<0.46	ND<0.50	ND<0.43	ND<0.54	ND<0.52	ND<0.48	ND<0.48	ND<0.47
EPA 8270D (M)/TQ/EI	Fenpropathrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.27	ND<0.31	ND<0.28	ND<0.38	ND<0.37	ND<0.33	ND<0.31	ND<0.33	ND<0.29	ND<0.36	ND<0.35	ND<0.32	ND<0.32	ND<0.31
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	µg/kg	·	·		ND<0.28	ND<0.33	ND<0.29	ND<0.40	ND<0.39	ND<0.35	ND<0.32	ND<0.35	ND<0.30	ND<0.38	ND<0.36	ND<0.34	ND<0.33	ND<0.33
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.30	ND<0.26	ND<0.36	ND<0.35	ND<0.31	ND<0.29	ND<0.32	ND<0.27	ND<0.34	ND<0.33	ND<0.31	ND<0.30	ND<0.29
EPA 8270D (M)/TQ/EI	Permethrin - (cis/trans)	Pyrethroids	µg/kg	·	·	*320000*	ND<0.25	ND<0.29	ND<0.26	ND<0.35	0.43 J	ND<0.30	ND<0.28	ND<0.31	ND<0.26	ND<0.33	ND<0.32	ND<0.30	ND<0.29	ND<0.29
EPA 8270D (M)/TQ/EI	Phenothrin	Pyrethroids	µg/kg	·	·		ND<0.30	ND<0.35	ND<0.32	ND<0.43	ND<0.42	ND<0.37	ND<0.35	ND<0.38	ND<0.33	ND<0.41	ND<0.39	ND<0.37	ND<0.36	ND<0.35
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	µg/kg	·	·	*190000*	ND<0.35	ND<0.41	ND<0.36	ND<0.50	ND<0.48	ND<0.43	ND<0.40	ND<0.43	ND<0.37	ND<0.47	ND<0.45	ND<0.42	ND<0.41	ND<0.40
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	µg/kg	·	·		ND<0.16	ND<0.18	ND<0.16	ND<0.22	ND<0.21	ND<0.19	ND<0.18	ND<0.20	ND<0.17	ND<0.21	ND<0.20	ND<0.19	ND<0.19	ND<0.18
EPA 8270D (M)/TQ/EI	Lambda Cyhalothrin	Pyrethroids	µg/kg	·	·	*6300*	ND<0.50	ND<0.59	ND<0.53	ND<0.72	ND<0.69	ND<0.62	ND<0.58	ND<0.63	ND<0.54	ND<0.68	ND<0.65	ND<0.61	ND<0.60	ND<0.59
EPA 8270D (M)/TQ/EI	Total Pyrethroids	Pyrethroids	µg/kg	·	·		0.0	0.0	0.0	0.0	0.43	0.0	0.0	ND<0.89	ND<0.76	ND<0.96	ND<0.92	ND<0.86	ND<0.85	ND<0.83
Organotins																				
Organotins By Krone et al.	Dibutyltin	Organotins	µg/kg	·	·	*1900*	ND<1.1	21 *1	21	16	18	25	16	11	16	29	40	32 *1	17 *1	48
Organotins By Krone et al.	Monobutyltin	Organotins	µg/kg	·	·		ND<2.1	ND<2.5 *-*1	ND<2.2	ND<3.0	ND<3.0	ND<2.6	ND<2.4	ND<2.6	ND<2.2	ND<2.8	ND<2.8	ND<2.5 *- *1	ND<2.5 *- *1	ND<2.4 *-
Organotins By Krone et al.	Tetrabutyltin	Organotins	µg/kg	·	·		ND<1.1	ND<1.3	ND<1.2	ND<1.6	ND<1.6	ND<1.4	ND<1.3	ND<1.4	ND<1.2	ND<1.5	ND<1.5	ND<1.4	ND<1.4	ND<1.3
Organotins By Krone et al.	Tributyltin	Organotins	µg/kg	·	·	*1900*	ND<2.3	ND<2.7	ND<2.4	ND<3.3	ND<3.2	ND<2.8	ND<2.6	ND<2.8	ND<2.4	ND<3.0	ND<3.0	ND<2.7	ND<2.7	ND<2.6
	Total Organotins	Organotins	µg/kg	·	·		ND<2.3	21.0	21	16	18	25	16	11	16	29	40	32	17	48

Notes

All values reported in Dry Weight.
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = MS/MSD RPD exceeds control limits
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B = Compound was found in the blank and sample.
*1 = LCS/LCSD RPD exceeds control limits. me LCS recovery is within marginal exceedance (ME) control limit range (+/- 4 SD from the mean)
*+ LCS and/or LCSD is outside acceptance limits, high bias S1+ Surrogate recovery exceeds control limits, high biased
*- LCS and/or LCSD is outside acceptance limits, low bias H sample was preped or analyzed outside of the specified holding time
p = The % RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Analytes are reported to the method detection limit provided by Eurofins Calscience.
Totals for TPH and PCBs were provided by analytical laboratory. Totals for PAHs, DDTs, pyrethroid pesticides, and organotins were hand calculated.
Total Chlordane is calculated as the sum of: Chlordane-alpha, Chlordane-gamma, cis-Nonachlor, trans-Nonachlor,Oxychlordane
Analyte list follows project SAP and guidance from USACE and EPA Region 9 Sampling and Analysis Plan/Results Guidelines document (August 11, 2017)
Core samples FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11 have been determined not suitable for unconfined aquatic disposal and will be disposed of at an upland landfill.

RSL = Regional Screening Level
ERL = Effects range-low
ERM = Effects range-median
BOLD = value detected is above ERL
BOLD = value detected is above ERM
mg - milligram
kg - kilogram
µg - microgram
ND - Non Detect < MDL
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total Petroleum Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

This page intentionally left blank.

DRAFT FINAL

Table 4-2c. Sediment Chemistry Results – Composite C Approach and Sump Native Formational Materials

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-C-C3		FDD-C-C5		FDD-C-C6		FDD-C Composite	
Moisture	Percent Solids	General Chemistry	%	·	·		64.5		86.6		81.1		84.9		88.7	
EPA 9060A	Carbon, Total Organic	General Chemistry	%	·	·		0.782		0.0231	J	0.0222	J	ND<0.0205		ND<0.0196	
SM 4500-NH_3 B/C (M)	Ammonia (as N)	General Chemistry	mg/kg	·	·		3.21		3.59		4.14		7.19		0.932	
EPA 376.2M	Total Sulfide	General Chemistry	mg/kg	·	·		6.31		ND<0.0965		ND<0.102		0.884		0.489	H
EPA 376.2M	Sulfide, Dissolved	General Chemistry	mg/kg	·	·		ND<0.0840		ND<0.0838		ND<0.0841		ND<0.0842		ND<0.0841	H
EPA 1664A (M)	HEM: Oil and Grease	General Chemistry	mg/kg				20.6		177		201		50.9		85.2	
Metals																
EPA 6020	Antimony	Metals	mg/kg	·	·		ND<0.426		ND<0.339		ND<0.346		ND<0.337		ND<0.316	
EPA 6020	Arsenic	Metals	mg/kg	8.2	70	*0.68*	*2.49*		0.424	J	0.494	J	0.588	J	*0.681*	J
EPA 6020	Barium	Metals	mg/kg	·	·		269		22.1		39.0		25.0		47.5	
EPA 6020	Beryllium	Metals	mg/kg	·	·		ND<0.316		ND<0.252		ND<0.257		ND<0.250		ND<0.235	
EPA 6020	Cadmium	Metals	mg/kg	1.2	9.6	*7.1*	ND<0.688		ND<0.547		ND<0.558		ND<0.544		ND<0.510	
EPA 6020	Chromium	Metals	mg/kg	81	370		7.40		4.29		5.17		4.70		5.55	
EPA 7199	Chromium, Hexavalent	Metals	µg/kg	·	·		ND<320		ND<240		ND<260		ND<240		ND<230	
7199 CR3	Chromium, Trivalent	Metals	mg/kg	·	·		7.4		42.9		51.7		4.70		5.55	
EPA 6020	Cobalt	Metals	mg/kg	·	·		2.55		2.86		2.81		1.90		3.25	
EPA 6020	Copper	Metals	mg/kg	34	270	*310*	8.11		4.18		4.73		3.78		9.11	
EPA 6020	Lead	Metals	mg/kg	46.7	218	*400*	1.95		1.23		1.14	J	0.878	J	2.61	
EPA 7471A	Mercury	Metals	mg/kg	0.15	0.71	*1.1*	0.0254	J	ND<0.0156		ND<0.0161		ND<0.0159		0.0203	J
EPA 6020	Molybdenum	Metals	mg/kg	·	·		ND<0.471		ND<0.374		ND<0.382		ND<0.372		ND<0.349	
EPA 6020	Nickel	Metals	mg/kg	20.9	51.6	*150*	5.19		2.13		2.36		2.05		3.15	
EPA 6020	Selenium	Metals	mg/kg	·	·	*39*	ND<0.888		ND<0.706		ND<0.720		ND<0.702		ND<0.659	
EPA 6020	Silver	Metals	mg/kg	1.0	3.7	*39*	ND<0.506		ND<0.402		ND<0.410		ND<0.400		ND<0.375	
EPA 6020	Thallium	Metals	mg/kg	·	·		ND<0.335		ND<0.266		ND<0.271		ND<0.265		ND<0.248	
EPA 6020	Vanadium	Metals	mg/kg	·	·		26.0		16.5		18.7		16.5		17.4	
EPA 6020	Zinc	Metals	mg/kg	150	410	*2300*	30.7		11.2		12.6		11.6		18.4	
Total Petroleum Hydrocarbons																
EPA 8015B(M)	C6 as C6	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C7 as C7	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C8 as C8	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C9-C10	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C11-C12	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C13-C14	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C15-C16	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C17-C18	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C19-C20	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C21-C22	TPH	mg/kg	·	·		ND<5.9		5.1	J	ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C23-C24	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C25-C28	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C29-C32	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C33-C36	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C37-C40	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C41-C44	TPH	mg/kg	·	·		ND<5.9		ND<4.3		ND<4.8		ND<4.7		ND<4.2	
EPA 8015B(M)	C6-C44 Total	TPH	mg/kg	·	·		ND<5.9		19		ND<4.8		ND<4.7		ND<4.2	
EPA 1664A (M)	TRPH (SGT-HEM)	TRPH	mg/kg	·	·		ND<12.5		92.4		103		23.5		66.7	
Polycyclic Aromatic Hydrocarbons																
EPA 8270C SIM	1,6,7-Trimethylnaphthalene	LMW PAH	µg/kg	·	·		ND<2.8		ND<2.1		ND<2.2		ND<2.1		ND<2.0	
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	µg/kg	·	·	*18000*	ND<1.7	F2	ND<1.3	F2	ND<1.3		ND<1.3		ND<1.2	
EPA 8270C SIM	1-Methylphenanthrene	LMW PAH	µg/kg	·	·		ND<3.1		ND<2.3		ND<2.4		ND<2.3		ND<2.2	
EPA 8270C SIM	2,6-Dimethylnaphthalene	LMW PAH	µg/kg	·	·		8.6	J	ND<2.4		ND<2.5		ND<2.5		ND<2.3	
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	µg/kg	70	670	*24000*	ND<2.5	F2	ND<1.8	F1 F2	ND<1.9		ND<1.9		ND<1.8	
EPA 8270C SIM	Acenaphthene	LMW PAH	µg/kg	16	500	*36000*	ND<2.3	F2	ND<1.7	F2	ND<1.8		ND<1.8		ND<1.7	
EPA 8270C SIM	Acenaphthylene	LMW PAH	µg/kg	44	640		ND<2.6	F2	ND<2.0	F2	ND<2.1		ND<2.0		ND<1.9	
EPA 8270C SIM	Anthracene	LMW PAH	µg/kg	85.3	1100	*1800000*	ND<2.9		ND<2.2	F2	ND<2.3		ND<2.2		ND<2.1	
EPA 8270C SIM	Benzo (a) anthracene	HMW PAH	µg/kg	261	1600	*1100*	ND<2.2		ND<1.6	F2	ND<1.7		ND<1.6		ND<1.6	
EPA 8270C SIM	Benzo (a) pyrene	HMW PAH	µg/kg	430	1600	*110*	6.0	J F2	ND<1.6	F2	ND<1.7		ND<1.6		3.2	J
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	µg/kg	·	·	*1100*	5.4	J F2	ND<1.6	F2	ND<1.7		ND<1.6		3.3	J
EPA 8270C SIM	Benzo (e) Pyrene	HMW PAH	µg/kg	·	·		ND<2.6		ND<2.0		ND<2.1		ND<2.0		1.9	J
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	µg/kg	·	·		4.5	J	ND<1.7	F2	ND<1.8		ND<1.8		ND<1.7	
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	µg/kg	·	·	*11000*	ND<2.3	F2	ND<1.7	F2	ND<1.8		ND<1.8		2.9	J
EPA 8270C SIM	Biphenyl	HMW PAH	µg/kg	·	·	*4700*	ND<2.9		ND<2.2		ND<2.3		ND<2.2		ND<2.1	
EPA 8270C SIM	Chrysene	HMW PAH	µg/kg	384	2800	*110000*	4.0	J	ND<1.6	F2	ND<1.7		ND<1.6		ND<1.6	
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	µg/kg	63.4	260	*110*	ND<2.2		ND<1.6	F2	ND<1.7		ND<1.6		ND<1.6	
EPA 8270C SIM	Fluoranthene	HMW PAH	µg/kg	600	5100	*240000*	4.9	J *1	ND<2.1	F2	ND<2.2		ND<2.1		ND<2.0	
EPA 8270C SIM	Fluorene	LMW PAH	µg/kg	19	540	*240000*	ND<2.5	F1 F2	ND<1.8	F1 F2	ND<1.9		ND<1.9		ND<1.8	
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/kg	·	·	*1100*	3.4	J	ND<1.5	F2	ND<1.6		ND<1.5		ND<1.5	
EPA 8270C SIM	Naphthalene	LMW PAH	µg/kg	160	2100	*3800*	ND<2.3	F2	ND<1.7	F2	ND<1.8		ND<1.8		ND<1.7	
EPA 8270C SIM	Phenanthrene	LMW PAH	µg/kg	240	1500		ND<2.6		ND<2.0	F1 F2	ND<2.1		ND< 2.0		ND<1.9	
EPA 8270C SIM	Pyrene	HMW PAH	µg/kg	665	2600	*180000*	5.2	J	ND<1.8		ND<1.9		ND<1.9		ND<1.8	
EPA 8270C SIM	Total Detectable PAHs	PAH	µg/kg	4022	44792		42.0		ND<2.4	F1 F2	ND<2.5		ND<2.5		11.3	J
Phenols																
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenol	µg/kg	·	·	*630000*	ND<1.9	F2	ND<1.4	F2	ND<1.5		ND<1.4		ND<1.3	
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenol	µg/kg	·	·	*6300*	ND<2.0	F2	ND<1.5	F2	ND<1.6		ND<1.5		ND<1.5	
EPA 8270C SIM	2,4-Dichlorophenol	Phenol	µg/kg	·	·	*19000*	ND<3.2	F2	ND<2.4	F2	ND<2.5		ND<2.5		ND<2.3	
EPA 8270C SIM	2,4-Dimethylphenol	Phenol	µg/kg	·	·	*130000*	ND<4.0	*1 F2	ND<3.0	F2	ND<3.2		ND<3.0		ND<2.9	
EPA 8270C SIM	2,4-Dinitrophenol	Phenol	µg/kg	·	·	*13000*	ND<92		ND<69	F2	ND<73		ND<70	F2	ND<67	*-
EPA 8270C SIM	2-Chlorophenol	Phenol	µg/kg	·	·	*39000*	ND<2.9	F1 F2	ND<2.2	F2	ND<2.3		ND<2.2		ND<2.1	
EPA 8270C SIM	2-Methylphenol	Phenol	µg/kg	·	·	*320000*	ND<3.1	*1 F2	ND<2.3	F2	ND<2.4		ND<2.3		ND<2.2	
EPA 8270C SIM	2-Nitrophenol	Phenol	µg/kg	·	·		ND<2.6	*1 F2	ND<2.0	F2	ND<2.1		ND<2.0		ND<1.9	
EPA 8270C SIM	3/4-Methylphenol	Phenol	µg/kg	·	·		ND<5.6	*1	ND<4.1	F2	ND<4.4		ND<4.2		ND<4.0	
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenol	µg/kg	·	·		ND<100		ND<76	F2	ND<80		ND<78		ND<74	*- *1
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenol	µg/kg	·	·		ND<3.2		ND<2.4	F2	ND<2.5		ND<2.5		ND<2.3	
EPA 8270C SIM	Pentachlorophenol	Phenol	µg/kg	·	·	*1000*	31	J	ND<1.5	F2	ND<1.6		ND<2.3		ND<1.5	*-
EPA 8270C SIM	2,6-Dichlorophenol	Phenol	µg/kg	·	·		ND<3.2	F2	ND<2.4	F2	ND<2.5		ND<2.5		ND<2.3	
EPA 8270C SIM	4-Nitrophenol	Phenol	µg/kg	·	·		ND<130		ND<93	F2	ND<99		ND<95		ND<91	*- *1
EPA 8270C SIM	2,3,4,6-Tetrachlorophenol	Phenol	µg/kg	·	·	*190000*	ND<6.0	F2	ND<4.5	F2	ND<4.7		ND<4.6		ND<4.4	
Phthalates																
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalate	µg/kg	·	·	*3900*	29	J B	8.9	J B F2	10	J B	14	J B	25	J B
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalate	µg/kg	·	·	*290000*	8.3	J B	8.7	J F2	13	J	13	J	18	J B
EPA 8270C SIM	Diethyl Phthalate	Phthalate	µg/kg	·	·	*5100000*	3.5	J B F2	2.5	J B F2	3.2	J B	4.0	J B	2.9	J
EPA 8270C SIM	Dimethyl Phthalate	Phthalate	µg/kg	·	·	*780000*	ND<3.1	F2	ND<2.3	F2	ND<2.4		ND<2.3		ND<2.2	
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalate	µg/kg	·	·	*630000*	10	J B *1	5.9	J B F2	6.8	J B	23	J B	18	J B
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalate	µg/kg	·	·	*63000*	40	J	ND<2.2	F2	ND<2.3		ND<2.2		ND<2.1	

DRAFT

Table 4-2c. Sediment Chemistry Results - Composite C Approach and Sump Native Formational Materials (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-C-C3		FDD-C-C5		FDD-C-C6		FDD-C Composite	
Chlorinated Pesticides																
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.074		ND<0.078		ND<0.075		ND<0.071	
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	µg/kg	·	·		ND<0.15		ND<0.11		ND<0.12		ND<0.11		0.23	J
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	µg/kg	·	·		ND<0.14		ND<0.11		ND<0.11		ND<0.11		ND<0.10	
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	µg/kg	2.0	20	*190*	ND<0.77		ND<0.58		ND<0.61		ND<0.58		ND<0.56	
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	µg/kg	2.2	27	*2000*	1.5		ND<0.082		ND<0.086		ND<0.083		ND<0.079	
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	µg/kg	1.0	7.0	*1900*	ND<0.27		ND<0.20		ND<0.22		ND<0.21		ND<0.20	
	Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.58	46.1		1.5		ND<0.58		ND<0.61		ND<0.58		0.23	J
EPA 8081A	Aldrin	Chlorinated Pesticides	µg/kg	·	·	*39*	ND<0.11	*1	ND<0.083		ND<0.087		ND<0.084		ND<0.080	
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	µg/kg	·	·	*86*	ND<0.12		ND<0.092		ND<0.097		ND<0.094		ND<0.089	
EPA 8081A	Beta-BHC	Chlorinated Pesticides	µg/kg	·	·	*300*	ND<0.14		ND<0.10	*+	ND<0.11	*+	ND<0.11		ND<0.10	
EPA 8081A	Delta-BHC	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.074		ND<0.078		ND<0.075		ND<0.072	
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	µg/kg	·	·	*570*	ND<0.16		ND<0.12		ND<0.13		ND<0.12	*+ *1	ND<0.12	
EPA 8081A	Chlordane (Total)	Chlorinated Pesticides	µg/kg	0.5	6.0	*1700*	ND<0.54		ND<0.40		ND<0.43		ND<0.41		ND<0.39	
EPA 8081A	Dieldrin	Chlorinated Pesticides	µg/kg	0.02	8.0	*34*	ND<0.10		ND<0.076		ND<0.080		ND<0.077		ND<0.074	
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.058		ND<0.043		ND<0.045		ND<0.044		0.07	J p
EPA 8081A	Endosulfan I	Chlorinated Pesticides	µg/kg	·	·	*47000*	ND<0.075		ND<0.056		ND<0.059		ND<0.057	*+	ND<0.054	
EPA 8081A	Endosulfan II	Chlorinated Pesticides	µg/kg	·	·		ND<0.35		ND<0.26		ND<0.28		ND<0.26		ND<0.25	
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	µg/kg	·	·		ND<0.17		ND<0.12		ND<0.13		ND<0.13		ND<0.12	
EPA 8081A	Endrin	Chlorinated Pesticides	µg/kg	·	·	*1900*	ND<0.13	*1	ND<0.10		ND<0.11		ND<0.10		ND<0.097	
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	µg/kg	·	·		ND<0.75		ND<0.56		ND<0.59		ND<0.57		ND<0.54	
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	µg/kg	·	·		ND<0.29		ND<0.22		ND<0.23		ND<0.22		ND<0.21	
EPA 8081A	Heptachlor	Chlorinated Pesticides	µg/kg	·	·	*130*	ND<0.092		ND<0.069		ND<0.072		ND<0.070		ND<0.066	
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	µg/kg	·	·	*70*	ND<0.13		ND<0.98		ND<0.10		ND<0.10		ND<0.095	
EPA 8081A	Methoxychlor	Chlorinated Pesticides	µg/kg	·	·	*32000*	ND<0.25	*1	ND<0.19		ND<0.20		ND<0.19		ND<0.18	
EPA 8081A	Toxaphene	Chlorinated Pesticides	µg/kg	·	·	*490*	ND<1.5		ND<1.1		ND<1.2		ND<1.2		ND<1.1	
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.071		ND<0.053		ND<0.056		ND<0.054		ND<0.051	
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.54		ND<0.40		ND<0.43		ND<0.41		ND<0.39	
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.073		ND<0.055		ND<0.057		ND<0.055		ND<0.053	
EPA 8081A	Oxychlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.23		ND<0.17		ND<0.18		ND<0.17		ND<0.17	
Polychlorinated Biphenyls																
USEPA 8270C SIM CON	PCB-18	PCB Congeners	µg/kg	·	·		ND<0.10		ND<0.074		ND<0.079		ND<0.076		ND<0.072	
USEPA 8270C SIM CON	PCB-28	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.079		ND<0.085		ND<0.082		ND<0.077	
USEPA 8270C SIM CON	PCB-37	PCB Congeners	µg/kg	·	·		ND<0.094		ND<0.069		ND<0.074		ND<0.071		ND<0.068	
USEPA 8270C SIM CON	PCB-44	PCB Congeners	µg/kg	·	·		ND<0.24		ND<0.17		ND<0.19		ND<0.18		ND<0.17	
USEPA 8270C SIM CON	PCB-49	PCB Congeners	µg/kg	·	·		ND<0.077		ND<0.056		ND<0.061		ND<0.058		ND<0.055	
USEPA 8270C SIM CON	PCB-52	PCB Congeners	µg/kg	·	·		ND<0.29		ND<0.22		ND<0.23		ND<0.22		ND<0.21	
USEPA 8270C SIM CON	PCB-66	PCB Congeners	µg/kg	·	·		ND<0.19		ND<0.14		ND<0.15		ND<0.14		ND<0.14	
USEPA 8270C SIM CON	PCB-70	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.081		ND<0.087		ND<0.084		ND<0.080	
USEPA 8270C SIM CON	PCB-74	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.10		ND<0.11		ND<0.11		ND<0.10	
USEPA 8270C SIM CON	PCB-77	PCB Congeners	µg/kg	·	·	*38*	ND<0.18		ND<0.13		ND<0.14		ND<0.14		ND<0.13	
USEPA 8270C SIM CON	PCB-81	PCB Congeners	µg/kg	·	·	*12*	ND<0.14		ND<0.10		ND<0.11		ND<0.11		ND<0.10	
USEPA 8270C SIM CON	PCB-87	PCB Congeners	µg/kg	·	·		ND<0.17		ND<0.13		ND<0.14		ND<0.13		ND<0.12	
USEPA 8270C SIM CON	PCB-99	PCB Congeners	µg/kg	·	·		ND<0.073		ND<0.054		ND<0.058		ND<0.056		ND<0.053	
USEPA 8270C SIM CON	PCB-101	PCB Congeners	µg/kg	·	·		ND<0.069		ND<0.050		ND<0.054		ND<0.052		ND<0.049	
USEPA 8270C SIM CON	PCB-105	PCB Congeners	µg/kg	·	·	*120*	ND<0.083		ND<0.061		ND<0.065		ND<0.063		ND<0.060	
USEPA 8270C SIM CON	PCB-110	PCB Congeners	µg/kg	·	·		ND<0.052		ND<0.039		ND<0.041		ND<0.040		ND<0.038	
USEPA 8270C SIM CON	PCB-114	PCB Congeners	µg/kg	·	·	*120*	ND<0.11		ND<0.084		ND<0.091		ND<0.087		ND<0.083	
USEPA 8270C SIM CON	PCB-118	PCB Congeners	µg/kg	·	·	*120*	ND<0.054		ND<0.039		ND<0.042		ND<0.041		ND<0.039	
USEPA 8270C SIM CON	PCB-119	PCB Congeners	µg/kg	·	·		ND<0.097		ND<0.071		ND<0.076		ND<0.073		ND<0.070	
USEPA 8270C SIM CON	PCB-123	PCB Congeners	µg/kg	·	·	*120*	ND<0.11		ND<0.083		ND<0.089		ND<0.086		ND<0.081	
USEPA 8270C SIM CON	PCB-126	PCB Congeners	µg/kg	·	·	*0.036*	ND<0.085		ND<0.063		ND<0.067		ND<0.065		ND<0.061	
USEPA 8270C SIM CON	PCB-128	PCB Congeners	µg/kg	·	·		ND<0.19		ND<0.14		ND<0.15		ND<0.14		ND<0.13	
USEPA 8270C SIM CON	PCB-132/153	PCB Congeners	µg/kg	·	·		ND<0.25		ND<0.18		ND<0.20		ND<0.19		ND<0.18	
USEPA 8270C SIM CON	PCB-138/158	PCB Congeners	µg/kg	·	·		ND<0.55		ND<0.40		ND<0.43		ND<0.41		ND<0.39	
USEPA 8270C SIM CON	PCB-149	PCB Congeners	µg/kg	·	·		ND<0.18		ND<0.13		ND<0.14		ND<0.14		ND<0.13	
USEPA 8270C SIM CON	PCB-151	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.10		ND<0.11		ND<0.10		ND<0.098	
USEPA 8270C SIM CON	PCB-156	PCB Congeners	µg/kg	·	·	*120*	ND<0.12		ND<0.088		ND<0.094		ND<0.091		ND<0.086	
USEPA 8270C SIM CON	PCB-157	PCB Congeners	µg/kg	·	·	*120*	ND<0.13		ND<0.097		ND<0.10		ND<0.10		ND<0.095	
USEPA 8270C SIM CON	PCB-167	PCB Congeners	µg/kg	·	·	*120*	ND<0.21		ND<0.15		ND<0.16		ND<0.16		ND<0.15	
USEPA 8270C SIM CON	PCB-168	PCB Congeners	µg/kg	·	·		ND<0.22		ND<0.16		ND<0.17		ND<0.17		ND<0.16	
USEPA 8270C SIM CON	PCB-169	PCB Congeners	µg/kg	·	·	*0.12*	ND<0.10		ND<0.074		ND<0.080		ND<0.076		ND<0.073	
USEPA 8270C SIM CON	PCB-170	PCB Congeners	µg/kg	·	·		ND<0.17		ND<0.13		ND<0.14		ND<0.13		ND<0.12	
USEPA 8270C SIM CON	PCB-177	PCB Congeners	µg/kg	·	·		ND<0.18		ND<0.13		ND<0.14		ND<0.14		ND<0.13	
USEPA 8270C SIM CON	PCB-180	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.23		ND<0.11		ND<0.11		ND<0.10	
USEPA 8270C SIM CON	PCB-183	PCB Congeners	µg/kg	·	·		ND<0.14		ND<0.11		ND<0.11		ND<0.11		ND<0.10	
USEPA 8270C SIM CON	PCB-187	PCB Congeners	µg/kg	·	·		ND<0.16		ND<0.12		ND<0.13		ND<0.12		ND<0.11	
USEPA 8270C SIM CON	PCB-189	PCB Congeners	µg/kg	·	·	*130*	ND<0.099		ND<0.073		ND<0.078		ND<0.075		ND<0.072	
USEPA 8270C SIM CON	PCB-194	PCB Congeners	µg/kg	·	·		ND<0.11		ND<0.084		ND<0.090		ND<0.087		ND<0.082	
USEPA 8270C SIM CON	PCB-201	PCB Congeners	µg/kg	·	·		ND<0.053		ND<0.039		ND<0.042		ND<0.040		ND<0.038	
USEPA 8270C SIM CON	PCB-206	PCB Congeners	µg/kg	·	·		ND<0.18		ND<0.13		ND<0.14		ND<0.14		ND<0.13	
	Total PCB Congeners	PCB Congeners	µg/kg	22.7	180	*230*	ND<0.55		ND<0.40		ND<0.43		ND<0.41		ND<0.39	

DRAFT FINAL

Table 4-2c. Sediment Chemistry Resul–s - Composite C Approach and Sump Native Formational Materials (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-C-C3	FDD-C-C5	FDD-C-C6	FDD-C Composite
USEPA 8082A ECD	Aroclor-1016	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.4	ND<6.7	ND<6.4	ND<6.1
USEPA 8082A ECD	Aroclor-1221	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.4	ND<6.7	ND<6.4	ND<6.1
USEPA 8082A ECD	Aroclor-1232	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.4	ND<6.7	ND<6.4	ND<6.1
USEPA 8082A ECD	Aroclor-1242	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.4	ND<6.7	ND<6.4	ND<6.1
USEPA 8082A ECD	Aroclor-1248	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.4	ND<6.7	ND<6.4	ND<6.1
USEPA 8082A ECD	Aroclor-1254	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.7	ND<6.0	ND<5.8	ND<5.5
USEPA 8082A ECD	Aroclor-1260	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.7	ND<6.0	ND<5.8	ND<5.5
USEPA 8082A ECD	Aroclor-1262	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.7	ND<6.0	ND<5.8	ND<5.5
USEPA 8082A ECD	Aroclor-1268	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.7	ND<6.0	ND<5.8	ND<5.5
Pyrethroid Pesticides											
EPA 8270D (M)/TQ/EI	Allethrin	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.53	ND<0.57	ND<0.54	ND<0.52
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.29	ND<0.21	ND<0.23	ND<0.22	ND<0.21
EPA 8270D (M)/TQ/EI	Cyfluthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.35	ND<0.26	ND<0.28	ND<0.26	ND<0.25
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.18	ND<0.20	ND<0.19	ND<0.18
EPA 8270D (M)/TQ/EI	Deltamethrin/Tralomethrin	Pyrethroids	µg/kg	·	·	*47000*	ND<0.40	ND<0.30	ND<0.32	ND<0.30	ND<0.29
EPA 8270D (M)/TQ/EI	Fenpropathrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.27	ND<0.20	ND<0.21	ND<0.20	ND<0.19
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	µg/kg	·	·		ND<0.28	ND<0.21	ND<0.22	ND<0.21	ND<0.20
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.19 F1	ND<0.20	ND<0.19	ND<0.18
EPA 8270D (M)/TQ/EI	Permethrin - (cis/trans)	Pyrethroids	µg/kg	·	·	*320000*	ND<0.25	ND<0.18 F1	ND<0.20	ND<0.19	ND<0.18
EPA 8270D (M)/TQ/EI	Phenothrin	Pyrethroids	µg/kg	·	·		ND<0.30	ND<0.22	ND<0.24	ND<0.23	ND<0.22
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	µg/kg	·	·	*190000*	ND<0.35	ND<0.26	ND<0.28	ND<0.26	ND<0.25
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	µg/kg	·	·		ND<0.16	ND<0.12	ND<0.12	ND<0.12	ND<0.11
EPA 8270D (M)/TQ/EI	Lambda Cyhalothrin	Pyrethroids	µg/kg	·	·	*6300*	ND<0.50	ND<0.37	ND<0.40	ND<0.38	ND<0.37
EPA 8270D (M)/TQ/EI	Total Pyrethroids	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.53	ND<0.57	ND<0.54	ND<0.52
Organotins											
Organotins By Krone et al.	Dibutyltin	Organotins	µg/kg	·	·	*1900*	ND<1.1	ND<0.81	ND<0.89	ND<0.87 *1	ND<0.81
Organotins By Krone et al.	Monobutyltin	Organotins	µg/kg	·	·		ND<2.1	ND<1.5	ND<1.7	ND<1.6 *- *1	ND<1.5 *-
Organotins By Krone et al.	Tetrabutyltin	Organotins	µg/kg	·	·		ND<1.1	ND<0.83	ND<0.90	ND<0.87	ND<0.83
Organotins By Krone et al.	Tributyltin	Organotins	µg/kg	·	·	*1900*	ND<2.3	ND<1.7	ND<1.8	ND<1.7	ND<1.7
	Total Organotins	Organotins	µg/kg	·	·		ND<2.3	ND<1.7	ND<1.8	ND<1.7	ND<1.7

Notes

All values reported in Dry Weight.
NS = no sample; sample was not able to be recovered in the field (no native formational layer present in core)
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = MS/MSD RPD exceeds control limits
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B = Compound was found in the blank and sample.
*1 = LCS/LCSD RPD exceeds control limits. me LCS recovery is within marginal exceedance (ME) control limit range (+/- 4 SD from the mean)
*+ LCS and/or LCSD is outside acceptance limits, high bias S1+ Surrogate recovery exceeds control limits, high biased
*- LCS and/or LCSD is outside acceptance limits, low bias H sample was preped or analyzed outside of the specified holding time
p = The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Analytes are reported to the method detection limit provided by Eurofins Calscience.
Totals for TPH and PCBs were provided by analytical laboratory. Totals for PAHs, DDTs, pyrethroid pesticides, and organotins were hand calculated.
Total Chlordane is calculated as the sum of: Chlordane-alpha, Chlordane-gamma, cis-Nonachlor, trans-Nonachlor,Oxychlordane
Analyte list follows project SAP and guidance from USACE and EPA Region 9 Sampling and Analysis Plan/Results Guidelines document (August 11, 2017)

RSL = Regional Screening Level
ERL = Effects range-low
ERM = Effects range-median
BOLD = value detected is above ERL
BOLD = value detected is above ERM
mg - milligram
kg - kilogram
µg - microgram
ND - Non Detect < MDL
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total Petroleum Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

DRAFT

This page intentionally left blank.

DRAFT FINAL

Table 4-2d. Sediment Chemistry Results – Composite D Sump Native Formational Materials

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-D-C1		FDD-D-C2		FDD-D-C3		FDD-D-C4		FDD-D-C6		FDD-D Composite	
Moisture	Percent Solids	General Chemistry	%	·	·		64.5		84.0		85.7		84.6		82.7		70.5		77.7	
EPA 9060A	Carbon, Total Organic	General Chemistry	%	·	·		0.782		ND<0.0207		ND<0.0203		ND<0.0205		0.0460	J	0.165		0.0515	J F1
SM 4500-NH_3 B/C (M)	Ammonia (as N)	General Chemistry	mg/kg	·	·		3.21		1.23		10.8		5.86		2.30		6.08		1.68	
376.2 LL	Total Sulfide	General Chemistry	mg/kg	·	·		6.31		2.26		1.13		1.15		2.40		2.18		0.889	H
376.2 LL	Sulfide, Dissolved	General Chemistry	mg/kg	·	·		ND<0.0840		ND<0.0841		ND<0.0840		ND<0.0840		ND<0.0841		ND<0.0838		ND<0.0844	H
EPA 1664A (M)	HEM: Oil and Grease	General Chemistry	mg/kg				20.6		27.7		27.1		27.6		181		165		111	
Metals																				
EPA 6020	Antimony	Metals	mg/kg	·	·		ND<0.426		ND<0.321		ND<0.330		ND<0.338		ND<0.336		ND<0.390		ND<0.351	
EPA 6020	Arsenic	Metals	mg/kg	8.2	70	*0.68*	*2.49*		*4.17*		*4.57*		*4.40*		*5.05*		*5.62*		*0.796*	J
EPA 6020	Barium	Metals	mg/kg	·	·		269		57.7		64.5		57.7		68.3		76.6		58.1	
EPA 6020	Beryllium	Metals	mg/kg	·	·		ND<0.316		ND<0.238		0.256	J	ND<0.251		0.337	J	0.333	J	ND<0.260	
EPA 6020	Cadmium	Metals	mg/kg	1.2	9.6	*7.1*	ND<0.688		ND<0.518		ND<0.533		ND<0.545		ND<0.542		ND<0.629		ND<0.565	
EPA 6020	Chromium	Metals	mg/kg	81	370		7.40		26.0		25.9		23.4		28.2		30.9		7.76	
EPA 7199	Chromium, Hexavalent	Metals	µg/kg	·	·		ND<320		ND<240		ND<240		ND<240		ND<250		ND<290		ND<260	
7199 CR3	Chromium, Trivalent	Metals	mg/kg	·	·		7.4		26.0		25.9		23.4		28.2		30.9		7.76	
EPA 6020	Cobalt	Metals	mg/kg	·	·		2.55		4.85		5.32		4.74		5.79		6.08		4.61	
EPA 6020	Copper	Metals	mg/kg	34	270	*310*	8.11		106		120		111		133		148		11.7	
EPA 6020	Lead	Metals	mg/kg	46.7	218	*400*	1.95		25.4		27.5		25.4		31.4		34.5		2.75	
EPA 7471A	Mercury	Metals	mg/kg	0.15	0.71	*1.1*	0.0254	J	0.416		0.370		0.418		0.359		0.355		0.0322	J
EPA 6020	Molybdenum	Metals	mg/kg	·	·		ND<0.471		0.483	J	0.516	J	0.440	J	0.5	J	0.588	J	ND<0.387	
EPA 6020	Nickel	Metals	mg/kg	20.9	51.6	*150*	5.19		5.87		6.85		6.27		7.3		8.27		4.35	
EPA 6020	Selenium	Metals	mg/kg	·	·	*39*	ND<0.888		ND<0.668		0.776	J	ND<0.704		ND<0.699		ND<0.812		ND<0.730	
EPA 6020	Silver	Metals	mg/kg	1.0	3.7	*39*	ND<0.506		0.606	J	0.681	J	0.631	J	0.781	J	0.874	J	ND<0.416	F1
EPA 6020	Thallium	Metals	mg/kg	·	·		ND<0.335		ND<0.252		ND<0.259		ND<0.265		ND<0.264		ND<0.306		ND<0.275	
EPA 6020	Vanadium	Metals	mg/kg	·	·		26.0		33.4		35.0		31.0		37.5		41.4		24.2	
EPA 6020	Zinc	Metals	mg/kg	150	410	*2300*	30.7		131		138		150		151		162		22.5	
Total Petroleum Hydrocarbons																				
EPA 8015B(M)	C6 as C6	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C7 as C7	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C8 as C8	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C9-C10	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C11-C12	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C13-C14	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C15-C16	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C17-C18	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C19-C20	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C21-C22	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C23-C24	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C25-C28	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C29-C32	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C33-C36	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C37-C40	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C41-C44	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 8015B(M)	C6-C44 Total	TPH	mg/kg	·	·		ND<5.9		ND<4.8		ND<4.2		ND<4.7		ND<4.6		ND<5.5		ND<5.1	
EPA 1664A (M)	TRPH (SGT-HEM)	TRPH	mg/kg	·	·		ND<12.5		11.9		11.6		11.8		92.4		84.8		85.4	
Polycyclic Aromatic Hydrocarbons																				
EPA 8270C SIM	1,6,7-Trimethylnaphthalene	LMW PAH	µg/kg	·	·		ND<2.8		ND<2.1		ND<2.1		ND<2.1		ND<2.2		ND<2.5		ND<2.3	
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	µg/kg	·	·	*18000*	ND<1.7	F2	ND<1.3		ND<1.3		ND<1.3		ND<1.3		ND<1.6		ND<1.4	
EPA 8270C SIM	1-Methylphenanthrene	LMW PAH	µg/kg	·	·		ND<3.1		ND<2.4		ND<2.3		ND<2.3		ND<2.4		ND<2.8		ND<2.6	
EPA 8270C SIM	2,6-Dimethylnaphthalene	LMW PAH	µg/kg	·	·		8.6	J	ND<2.5		ND<2.4		ND<2.4		ND<2.5		ND<3.0		ND<2.7	
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	µg/kg	70	670	*24000*	ND<2.5	F2	ND<1.9		ND<1.9		ND<1.9		ND<1.9		ND<2.3		ND<2.0	
EPA 8270C SIM	Acenaphthene	LMW PAH	µg/kg	16	500	*36000*	ND<2.3	F2	ND<1.8		ND<1.7		ND<1.7		ND<1.8		ND<2.1		ND<1.9	
EPA 8270C SIM	Acenaphthylene	LMW PAH	µg/kg	44	640		ND<2.6	F2	ND<2.0		ND<2.0		ND<2.0		ND<2.0		ND<2.4		ND<2.2	
EPA 8270C SIM	Anthracene	LMW PAH	µg/kg	85.3	1100	*1800000*	ND<2.9		ND<2.3		ND<2.2		ND<2.2		ND<2.3		ND<2.7		ND<2.4	
EPA 8270C SIM	Benzo (a) anthracene	HMW PAH	µg/kg	261	1600	*1100*	ND<2.2		4.9	J	ND<1.6		ND<1.6		ND<1.7		ND<2.0		ND<1.8	
EPA 8270C SIM	Benzo (a) pyrene	HMW PAH	µg/kg	430	1600	*110*	6.0	J F2	14		4.4	J	2.4	J	2.8	J	18		7.7	J
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	µg/kg	·	·	*1100*	5.4	J F2	ND<1.7		ND<1.6		2.4	J	3.0	J	18		8.5	J
EPA 8270C SIM	Benzo (e) Pyrene	HMW PAH	µg/kg	·	·		ND<2.6		3.9	J	ND<2.0		ND<2.0		ND<2.0		ND<2.4		4.3	J
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	µg/kg	·	·		4.5	J	8.0	J	ND<1.7		ND<1.7		ND<1.8		6.6	J	4.5	J
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	µg/kg	·	·	*11000*	ND<2.3	F2	12		3.7	J	ND<1.7		2.5	J	17		6.9	J
EPA 8270C SIM	Biphenyl	HMW PAH	µg/kg	·	·	*4700*	ND<2.9		ND<2.3		ND<2.2		ND<2.2		ND<2.3		ND<2.7		ND<2.4	
EPA 8270C SIM	Chrysene	HMW PAH	µg/kg	384	2800	*110000*	4.0	J	ND<1.7		ND<1.6		ND<1.6		ND<1.7		3.8	J	ND<1.8	
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	µg/kg	63.4	260	*110*	ND<2.2		ND<1.7		ND<1.6		ND<1.6		ND<1.7		ND<2.0		ND<1.8	
EPA 8270C SIM	Fluoranthene	HMW PAH	µg/kg	600	5100	*240000*	4.9	J *1	7.1	J	ND<2.1		ND<2.1		ND<2.2		ND<2.5		ND<2.3	
EPA 8270C SIM	Fluorene	LMW PAH	µg/kg	19	540	*240000*	ND<2.5	F1 F2	ND<1.9		ND<1.9		ND<1.9		ND<1.9		ND<2.3		ND<2.0	
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/kg	·	·	*1100*	3.4	J	7.2	J	ND<1.5		ND<1.5		ND<1.6		7.4	J	3.9	J
EPA 8270C SIM	Naphthalene	LMW PAH	µg/kg	160	2100	*3800*	ND<2.3	F2	ND<1.8		ND<1.7		ND<1.7		ND<1.8		ND<2.1		ND<1.9	
EPA 8270C SIM	Phenanthrene	LMW PAH	µg/kg	240	1500		ND<2.6		ND<2.0		ND<2.0		ND<2.0		ND<2.0		ND<2.4		ND<2.2	
EPA 8270C SIM	Pyrene	HMW PAH	µg/kg	665	2600	*180000*	5.2	J	7.5	J	ND<1.9		ND<1.9		ND<1.9		ND<2.3		ND<2.0	
EPA 8270C SIM	Total Detectable PAHs	PAH	µg/kg	4022	44792		42.0	F1 F2	64.6	J	8.1	J	4.8	J	8.3	J	71	J	35.8	J
Phenols																				
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenol	µg/kg	·	·	*630000*	ND<1.9	F2	ND<1.4		ND<1.4		ND<1.4		ND<1.4		ND<1.7		ND<1.5	
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenol	µg/kg	·	·	*6300*	ND<2.0	F2	ND<1.5		ND<1.5		ND<1.5		ND<1.6		ND<1.8		ND<1.7	
EPA 8270C SIM	2,4-Dichlorophenol	Phenol	µg/kg	·	·	*19000*	ND<3.2	F2	ND<2.5		ND<2.4		ND<2.4		ND<2.5		ND<3.0		ND<2.7	
EPA 8270C SIM	2,4-Dimethylphenol	Phenol	µg/kg	·	·	*130000*	ND<4.0	*1 F2	ND<3.1		ND<3.0		ND<3.0		ND<3.1		ND<3.7		ND<3.3	F1
EPA 8270C SIM	2,4-Dinitrophenol	Phenol	µg/kg	·	·	*13000*	ND<92		140	J	140	J	ND<70		ND<72		ND<85		ND<77	*- F1
EPA 8270C SIM	2-Chlorophenol	Phenol	µg/kg	·	·	*39000*	ND<2.9	F1 F2	ND<2.3		ND<2.2		ND<2.2		ND<2.3		ND<2.7		ND<2.4	
EPA 8270C SIM	2-Methylphenol	Phenol	µg/kg	·	·	*320000*	ND<3.1	*1 F2	3.0	J	ND<2.3		ND<2.3		ND<2.4		ND<2.8		ND<2.6	
EPA 8270C SIM	2-Nitrophenol	Phenol	µg/kg	·	·		ND<2.6	*1 F2	ND<2.0		ND<2.0		ND<2.0		ND<2.0		ND<2.4		ND<2.2	
EPA 8270C SIM	3/4-Methylphenol	Phenol	µg/kg	·	·		ND<5.6	*1	ND<4.3		ND<4.2		ND<4.2		ND<4.3		ND<5.1		ND<4.6	
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenol	µg/kg	·	·		ND<100		ND<79		ND<77		ND<77		ND<79		ND<94		ND<85	*- *1
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenol	µg/kg	·	·		ND<3.2		ND<2.5		ND<2.4		ND<2.4		ND<2.5		ND<3.0		ND<2.7	
EPA 8270C SIM	Pentachlorophenol	Phenol	µg/kg	·	·	*1000*	31	J	24	J	23	J	ND<1.5		ND<1.6		ND<1.8		ND<1.7	*- F1
EPA 8270C SIM	2,6-Dichlorophenol	Phenol	µg/kg	·	·		ND<3.2	F2	ND<2.5		ND<2.4		ND<2.4		ND<2.5		ND<3.0		ND<2.7	
EPA 8270C SIM	4-Nitrophenol	Phenol	µg/kg	·	·		ND<130		ND<97		ND<95		ND<95		ND<97		ND<120		ND<100	*- F1 *
EPA 8270C SIM	2,3,4,6-Tetrachlorophenol	Phenol	µg/kg	·	·	*190000*	ND<6.0	F2	7.8	J B	8.2	J B	ND<4.5		ND<4.7		ND<5.5		ND<5.0	
Phthalates																				
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalate	µg/kg	·	·	*3900*	29	J B	26	J B	16	J B	16	J B	16	J B	22	J B	27	J B
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalate	µg/kg	·	·	*290000*	8.3	J B	13	J	10	J	12	J	4.8	J	6.9	J	22	J B
EPA 8270C SIM	Diethyl Phthalate	Phthalate	µg/kg	·	·	*5100000*	3.5	J B F2	ND<1.9		3.4	J B	3.3	J B	2.6	J B	ND<2.3		3.0	J
EPA 8270C SIM	Dimethyl Phthalate	Phthalate	µg/kg	·	·	*780000*	ND<3.1	F2	ND<2.4		ND<2.3		ND<2.3		ND<2.4		ND<2.8		ND<2.6	
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalate	µg/kg	·	·	*630000*	10	J B *1	5.9	J B	17	J B	22	J B	7.9	J B	21	J B	21	J B
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalate	µg/kg	·	·	*63000*	40	J	33	J	31	J	ND<2.2		ND<2.3		39	J	ND<2.4	

DRAFT

Table 4-2d. Sediment Chemistry Results - Composite D Approach and Sump Native Formational Materials (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-D-C1	FDD-D-C2	FDD-D-C3	FDD-D-C4	FDD-D-C6	FDD-D Composite
Chlorinated Pesticides													
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	µg/kg	·	·		ND<0.099	ND<0.076	ND<0.074	ND<0.075	ND<0.077	ND<0.090	ND<0.082
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	µg/kg	·	·		ND<0.15	ND<0.12 F1	ND<0.11	ND<0.11	ND<0.12	ND<0.14	ND<0.12
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	µg/kg	·	·		ND<0.14	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.13	ND<0.12
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	µg/kg	2.0	20	*190*	ND<0.77	ND<0.59	ND<0.58	ND<0.58	ND<0.60	ND<0.70	ND<0.64 F1
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	µg/kg	2.2	27	*2000*	1.5	ND<0.084	ND<0.082	ND<0.083	ND<0.086	ND<0.10	ND<0.091 F1
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	µg/kg	1.0	7.0	*1900*	ND<0.27	ND<0.21	ND<0.20	ND<0.21	ND<0.21	ND<0.25	ND<0.23 F1
	Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.58	46.1		1.5	ND<0.59 F1	ND<0.58	ND<0.58	ND<0.60	ND<0.70	ND<0.64 F1
EPA 8081A	Aldrin	Chlorinated Pesticides	µg/kg	·	·	*39*	ND<0.11 *1	ND<0.085	ND<0.083	ND<0.084	ND<0.087	ND<0.10	ND<0.092 F1
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	µg/kg	·	·	*86*	ND<0.12	ND<0.095	ND<0.093	ND<0.094	ND<0.097	ND<0.11	ND<0.10 F1
EPA 8081A	Beta-BHC	Chlorinated Pesticides	µg/kg	·	·	*300*	ND<0.14	ND<0.11	ND<0.10	ND<0.11	ND<0.11	ND<0.13	ND<0.12 F1
EPA 8081A	Delta-BHC	Chlorinated Pesticides	µg/kg	·	·		ND<0.099	ND<0.076	ND<0.075	ND<0.075	ND<0.078	ND<0.090	ND<0.083 F1
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	µg/kg	·	·	*570*	ND<0.16	ND<0.13	ND<0.12	ND<0.12	ND<0.13	ND<0.15	ND<0.14 F1
EPA 8081A	Chlordane (Total)	Chlorinated Pesticides	µg/kg	0.5	6.0	*1700*	ND<0.54	ND<0.41 F2 *1	ND<0.41 *1	ND<0.41 *1	ND<0.42 *1	ND<0.49 *1	ND<0.45 F1
EPA 8081A	Dieldrin	Chlorinated Pesticides	µg/kg	0.02	8.0	*34*	ND<0.10	ND<0.078	ND<0.077	ND<0.077	ND<0.080	ND<0.093	ND<0.085 F1
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.058	ND<0.044	ND<0.043	ND<0.044	ND<0.045	ND<0.052	0.15 J p
EPA 8081A	Endosulfan I	Chlorinated Pesticides	µg/kg	·	·	*47000*	ND<0.075	ND<0.058	ND<0.056	ND<0.057	ND<0.058	ND<0.068	ND<0.062 F1
EPA 8081A	Endosulfan II	Chlorinated Pesticides	µg/kg	·	·		ND<0.35	ND<0.27	ND<0.26	ND<0.27	ND<0.27	ND<0.32	ND<0.29 F1
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	µg/kg	·	·		ND<0.17	ND<0.13 *+	ND<0.13 *+	ND<0.13 *+	ND<0.13 *+	ND<0.15 *+	ND<0.14 F1
EPA 8081A	Endrin	Chlorinated Pesticides	µg/kg	·	·	*1900*	ND<0.13 *1	ND<0.10	ND<0.10	ND<0.10	ND<0.11	ND<0.12	ND<0.11 F1
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	µg/kg	·	·		ND<0.75	ND<0.58	ND<0.57	ND<0.57	ND<0.59	ND<0.69	ND<0.63 F1
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	µg/kg	·	·		ND<0.29	ND<0.23	ND<0.22	ND<0.22	ND<0.23	ND<0.27	ND<0.24 F1
EPA 8081A	Heptachlor	Chlorinated Pesticides	µg/kg	·	·	*130*	ND<0.092	ND<0.071	ND<0.069	ND<0.070	ND<0.072	ND<0.084	ND<0.076 F1
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	µg/kg	·	·	*70*	ND<0.13	ND<0.10	ND<0.099	ND<0.10	ND<0.10	ND<0.12	ND<0.11 F1
EPA 8081A	Methoxychlor	Chlorinated Pesticides	µg/kg	·	·	*32000*	ND<0.25 *1	ND<0.19	ND<0.19	ND<0.19	ND<0.20	ND<0.23	ND<0.21 F1
EPA 8081A	Toxaphene	Chlorinated Pesticides	µg/kg	·	·	*490*	ND<1.5	ND<1.2	ND<1.2	ND<1.2	ND<1.2	ND<1.4	ND<1.3
EPA 8081A	Alpha Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.071	ND<0.055	ND<0.053	ND<0.054	ND<0.056	ND<0.065	ND<0.059 F1
EPA 8081A	Gamma Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.54	ND<0.41 F2 *1	ND<0.41 *1	ND<0.41 *1	ND<0.42 *1	ND<0.49 *1	ND<0.45 F1
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.073	ND<0.056	ND<0.055	ND<0.055	ND<0.057	ND<0.066	ND<0.061
EPA 8081A	Oxychlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.23	ND<0.18	ND<0.17	ND<0.18	ND<0.18	ND<0.21	ND<0.19
Polychlorinated Biphenyls													
USEPA 8270C SIM CON	PCB-18	PCB Congeners	µg/kg	·	·		ND<0.10	ND<0.077	ND<0.075	ND<0.077	ND<0.078	ND<0.092	ND<0.083
USEPA 8270C SIM CON	PCB-28	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.082	ND<0.081	ND<0.082	ND<0.084	ND<0.098	ND<0.089
USEPA 8270C SIM CON	PCB-37	PCB Congeners	µg/kg	·	·		ND<0.094	ND<0.072	ND<0.070	ND<0.072	ND<0.073	ND<0.086	ND<0.078
USEPA 8270C SIM CON	PCB-44	PCB Congeners	µg/kg	·	·		ND<0.24	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.21	ND<0.19
USEPA 8270C SIM CON	PCB-49	PCB Congeners	µg/kg	·	·		ND<0.077	ND<0.059	ND<0.058	ND<0.059	ND<0.060	ND<0.070	ND<0.063
USEPA 8270C SIM CON	PCB-52	PCB Congeners	µg/kg	·	·		ND<0.29	ND<0.23	ND<0.22	ND<0.22	ND<0.23	ND<0.27	ND<0.24
USEPA 8270C SIM CON	PCB-66	PCB Congeners	µg/kg	·	·		ND<0.19	ND<0.15	ND<0.14	ND<0.15	ND<0.15	ND<0.17	ND<0.16
USEPA 8270C SIM CON	PCB-70	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.085	ND<0.083	ND<0.084	ND<0.086	ND<0.10	ND<0.092
USEPA 8270C SIM CON	PCB-74	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.11	ND<0.10	ND<0.11	ND<0.11	ND<0.13	ND<0.12
USEPA 8270C SIM CON	PCB-77	PCB Congeners	µg/kg	·	·	*38*	ND<0.18	ND<0.14	ND<0.13	ND<0.14	ND<0.14	ND<0.16	ND<0.15
USEPA 8270C SIM CON	PCB-81	PCB Congeners	µg/kg	·	·	*12*	ND<0.14	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.13	ND<0.12
USEPA 8270C SIM CON	PCB-87	PCB Congeners	µg/kg	·	·		ND<0.17	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.16	ND<0.14
USEPA 8270C SIM CON	PCB-99	PCB Congeners	µg/kg	·	·		ND<0.073	ND<0.056	ND<0.055	ND<0.056	ND<0.057	ND<0.067	ND<0.061
USEPA 8270C SIM CON	PCB-101	PCB Congeners	µg/kg	·	·		ND<0.069	ND<0.053	ND<0.051	ND<0.052	ND<0.053	ND<0.063	ND<0.057
USEPA 8270C SIM CON	PCB-105	PCB Congeners	µg/kg	·	·	*120*	ND<0.083	ND<0.063	ND<0.062	ND<0.063	ND<0.064	ND<0.075	ND<0.068
USEPA 8270C SIM CON	PCB-110	PCB Congeners	µg/kg	·	·		ND<0.052	ND<0.040	ND<0.039	ND<0.040	ND<0.041	ND<0.048	ND<0.043
USEPA 8270C SIM CON	PCB-114	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.088	ND<0.086	ND<0.087	ND<0.089	ND<0.10	ND<0.095
USEPA 8270C SIM CON	PCB-118	PCB Congeners	µg/kg	·	·	*120*	ND<0.054	ND<0.041	ND<0.040	ND<0.041	ND<0.042	ND<0.049	ND<0.044
USEPA 8270C SIM CON	PCB-119	PCB Congeners	µg/kg	·	·		ND<0.097	ND<0.074	ND<0.073	ND<0.074	ND<0.075	ND<0.088	ND<0.080
USEPA 8270C SIM CON	PCB-123	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.087	ND<0.085	ND<0.086	ND<0.088	ND<0.10	ND<0.093
USEPA 8270C SIM CON	PCB-126	PCB Congeners	µg/kg	·	·	*0.036*	ND<0.085	ND<0.065	ND<0.064	ND<0.065	ND<0.066	ND<0.078	ND<0.070
USEPA 8270C SIM CON	PCB-128	PCB Congeners	µg/kg	·	·		ND<0.19	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.17	ND<0.15
USEPA 8270C SIM CON	PCB-132/153	PCB Congeners	µg/kg	·	·		ND<0.25	ND<0.19	ND<0.19	ND<0.19	ND<0.20	ND<0.23	ND<0.21
USEPA 8270C SIM CON	PCB-138/158	PCB Congeners	µg/kg	·	·		ND<0.55	ND<0.42	ND<0.41	ND<0.42	ND<0.42	ND<0.50	ND<0.45
USEPA 8270C SIM CON	PCB-149	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.17	ND<0.15
USEPA 8270C SIM CON	PCB-151	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.10	ND<0.10	ND<0.10	ND<0.11	ND<0.12	ND<0.11
USEPA 8270C SIM CON	PCB-156	PCB Congeners	µg/kg	·	·	*120*	ND<0.12	ND<0.092	ND<0.090	ND<0.091	ND<0.093	ND<0.11	ND<0.099
USEPA 8270C SIM CON	PCB-157	PCB Congeners	µg/kg	·	·	*120*	ND<0.13	ND<0.10	ND<0.099	ND<0.10	ND<0.10	ND<0.12	ND<0.11
USEPA 8270C SIM CON	PCB-167	PCB Congeners	µg/kg	·	·	*120*	ND<0.21	ND<0.16	ND<0.15	ND<0.16	ND<0.16	ND<0.19	ND<0.17
USEPA 8270C SIM CON	PCB-168	PCB Congeners	µg/kg	·	·		ND<0.22	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.20	ND<0.18
USEPA 8270C SIM CON	PCB-169	PCB Congeners	µg/kg	·	·	*0.12*	ND<0.10	ND<0.077	ND<0.076	ND<0.077	ND<0.078	ND<0.092	ND<0.083
USEPA 8270C SIM CON	PCB-170	PCB Congeners	µg/kg	·	·		ND<0.17	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.16	ND<0.14
USEPA 8270C SIM CON	PCB-177	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.17	ND<0.15
USEPA 8270C SIM CON	PCB-180	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.13	ND<0.12
USEPA 8270C SIM CON	PCB-183	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.13	ND<0.12
USEPA 8270C SIM CON	PCB-187	PCB Congeners	µg/kg	·	·		ND<0.16	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.14	ND<0.13
USEPA 8270C SIM CON	PCB-189	PCB Congeners	µg/kg	·	·	*130*	ND<0.099	ND<0.076	ND<0.075	ND<0.076	ND<0.077	ND<0.091	ND<0.082
USEPA 8270C SIM CON	PCB-194	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.088	ND<0.086	ND<0.087	ND<0.089	ND<0.10	ND<0.095
USEPA 8270C SIM CON	PCB-201	PCB Congeners	µg/kg	·	·		ND<0.053	ND<0.040	ND<0.040	ND<0.040	ND<0.041	ND<0.048	ND<0.044
USEPA 8270C SIM CON	PCB-206	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.14	ND<0.13	ND<0.14	ND<0.14	ND<0.16	ND<0.15
	Total PCB Congeners	PCB Congeners	µg/kg	22.7	180	*230*	ND<0.55	ND<0.42	ND<0.41	ND<0.42	ND<0.42	ND<0.50	ND<0.45
USEPA 8082A ECD	Aroclor-1016	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.5 F1	ND<6.4	ND<6.5	ND<6.7	ND<7.8	ND<7.1
USEPA 8082A ECD	Aroclor-1221	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.5	ND<6.4	ND<6.5	ND<6.7	ND<7.8	ND<7.1
USEPA 8082A ECD	Aroclor-1232	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.5	ND<6.4	ND<6.5	ND<6.7	ND<7.8	ND<7.1
USEPA 8082A ECD	Aroclor-1242	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.5	ND<6.4	ND<6.5	ND<6.7	ND<7.8	ND<7.1
USEPA 8082A ECD	Aroclor-1248	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<6.5	7.8 J	ND<6.5	ND<6.7	ND<7.8	ND<7.1
USEPA 8082A ECD	Aroclor-1254	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.9	6.6 J	ND<5.8	ND<6.0	ND<7.0	ND<6.4
USEPA 8082A ECD	Aroclor-1260	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.9	ND<5.8	ND<5.8	ND<6.0	7.1 J	ND<6.4
USEPA 8082A ECD	Aroclor-1262	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.9	ND<5.8	ND<5.8	ND<6.0	ND<7.0	ND<6.4
USEPA 8082A ECD	Aroclor-1268	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<5.9	ND<5.8	ND<5.8	ND<6.0	ND<7.0	ND<6.4

FINAL

Table 4-2d. Sediment Chemistry Results - Composite D Approach and Sump Native Formational Materials (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-D-C1	FDD-D-C2	FDD-D-C3	FDD-D-C4	FDD-D-C6	FDD-D Composite
Pyrethroid Pesticides													
EPA 8270D (M)/TQ/EI	Allethrin	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.54	ND<0.54	ND<0.54	ND<0.55	ND<0.65	ND<0.59
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.29	ND<0.22	ND<0.22	ND<0.22	ND<0.22	ND<0.26	ND<0.24
EPA 8270D (M)/TQ/EI	Cyfluthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.35	ND<0.27	ND<0.26	ND<0.26	ND<0.27	ND<0.32	ND<0.29
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.23	ND<0.21
EPA 8270D (M)/TQ/EI	Deltamethrin/Tralomethrin	Pyrethroids	µg/kg	·	·	*47000*	ND<0.40	ND<0.31	ND<0.30	ND<0.30	ND<0.31	ND<0.37	ND<0.33
EPA 8270D (M)/TQ/EI	Fenpropathrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.27	ND<0.20	ND<0.20	ND<0.20	ND<0.21	ND<0.24	ND<0.22
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	µg/kg	·	·		ND<0.28	ND<0.21	ND<0.21	ND<0.21	ND<0.22	ND<0.26	ND<0.23
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	µg/kg	·	·		ND<0.25	ND<0.19	ND<0.19	ND<0.19	ND<0.20	ND<0.23	ND<0.21
EPA 8270D (M)/TQ/EI	Permethrin - (cis/trans)	Pyrethroids	µg/kg	·	·	*320000*	ND<0.25	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.22	ND<0.20 F1
EPA 8270D (M)/TQ/EI	Phenothrin	Pyrethroids	µg/kg	·	·		ND<0.30	ND<0.23	ND<0.23	ND<0.23	ND<0.24	ND<0.28	ND<0.25
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	µg/kg	·	·	*190000*	ND<0.35	ND<0.27	ND<0.26	ND<0.26	ND<0.27	ND<0.32	ND<0.29
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	µg/kg	·	·		ND<0.16	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.14	ND<0.13
EPA 8270D (M)/TQ/EI	Lambda Cyhalothrin	Pyrethroids	µg/kg	·	·	*6300*	ND<0.50	ND<0.38	ND<0.38	ND<0.38	ND<0.39	ND<0.46	ND<0.42
EPA 8270D (M)/TQ/EI	Total Pyrethroids	Pyrethroids	µg/kg	·	·		ND<0.71	ND<0.54	ND<0.54	ND<0.54	ND<0.55	ND<0.65	ND<0.59
Organotins													
Organotins By Krone et al.	Dibutyltin	Organotins	µg/kg	·	·	*1900*	ND<1.1	1.1 J	ND<0.85	ND<0.85	ND<0.87	3.1 J	ND<0.93
Organotins By Krone et al.	Monobutyltin	Organotins	µg/kg	·	·		ND<2.1	ND<1.6	ND<1.6	ND<1.6 F1	ND<1.7	ND<1.9	ND<1.8 F2 *-
Organotins By Krone et al.	Tetrabutyltin	Organotins	µg/kg	·	·		ND<1.1	ND<0.88	ND<0.86	ND<0.87	ND<0.89	ND<1.0	ND<0.95
Organotins By Krone et al.	Tributyltin	Organotins	µg/kg	·	·	*1900*	ND<2.3	ND<1.8	ND<1.7	ND<1.7	ND<1.8	ND<2.1	ND<1.9
	Total Organotins	Organotins	µg/kg	·	·		ND<2.3	1.1	ND<1.7	ND<1.7	ND<1.8	3.1	ND<1.9

Notes

All values reported in Dry Weight.
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = MS/MSD RPD exceeds control limits
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B = Compound was found in the blank and sample.
*1 = LCS/LCSD RPD exceeds control limits. me LCS recovery is within marginal exceedance (ME) control limit range (+/- 4 SD from the mean)
*+ LCS and/or LCSD is outside acceptance limits, high bias S1+ Surrogate recovery exceeds control limits, high biased
*- LCS and/or LCSD is outside acceptance limits, low bias H sample was preped or analyzed outside of the specified holding time
p = The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Analytes are reported to the method detection limit provided by Eurofins Calscience.
Totals for TPH and PCBs were provided by analytical laboratory. Totals for PAHs, DDTs, pyrethroid pesticides, and organotins were hand calculated.
Total Chlordane is calculated as the sum of: Chlordane-alpha, Chlordane-gamma, cis-Nonachlor, trans-Nonachlor,Oxychlordane
Analyte list follows project SAP and guidance from USACE and EPA Region 9 Sampling and Analysis Plan/Results Guidelines document (August 11, 2017)
NS = no sample; sample was not able to be recovered in the field (no native formational layer present in core)

RSL = Regional Screening Level
ERL = Effects range-low
ERM = Effects range-median
BOLD = value detected is above ERL
BOLD = value detected is above ERM
mg - milligram
kg - kilogram
µg - microgram
ND - Non Detect < MDL
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total Petroleum Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

DRAFT FIN

This page intentionally left blank.

DRAFT FINAL

Table 4-2e. Sediment Chemistry Results – Geotechnical Composites

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-Bay Deposits (-46 to -51 ft)		FDD-Younger Paralic Deposits (-53 to -61 ft)		FDD-Older Paralic Deposits (-58 to -68 ft)	
Moisture	Percent Solids	General Chemistry	%	·	·		64.5		56.4		78.1		76.4	
EPA 9060A	Carbon, Total Organic	General Chemistry	%	·	·		0.782		0.758		0.116		0.174	
SM 4500-NH_3 B/C (M)	Ammonia (as N)	General Chemistry	mg/kg	·	·		3.21		14.6		3.92		2.02	
EPA 376.2M	Total Sulfide	General Chemistry	mg/kg	·	·		6.31		3.6		1.8		1.99	
EPA 376.2M	Sulfide, Dissolved	General Chemistry	mg/kg	·	·		ND<0.0840		ND<0.0836		ND<0.0843		ND<0.0840	
EPA 1664A (M)	HEM: Oil and Grease	General Chemistry	mg/kg				20.6		191.0		153		118	
Metals														
EPA 6020	Antimony	Metals	mg/kg	·	·		ND<0.426		ND<0.510		ND<0.371		ND<0.359	
EPA 6020	Arsenic	Metals	mg/kg	8.2	70	*0.68*	*2.49*		*3.71*		*0.752*	J	*3.91*	
EPA 6020	Barium	Metals	mg/kg	·	·		269		109		53.2		121	
EPA 6020	Beryllium	Metals	mg/kg	·	·		ND<0.316		ND<0.379		ND<0.275		0.403	J
EPA 6020	Cadmium	Metals	mg/kg	1.2	9.6	*7.1*	ND<0.688		ND<0.823		ND<0.598		ND<0.579	
EPA 6020	Chromium	Metals	mg/kg	81	370		7.40		15.3		6.47		16.9	
EPA 7199	Chromium, Hexavalent	Metals	µg/kg	·	·		ND<320		ND<370		ND<270		ND<260	
7199 CR3	Chromium, Trivalent	Metals	mg/kg	·	·		7.40		15.3		6.47		16.9	
EPA 6020	Cobalt	Metals	mg/kg	·	·		2.55		6.16		3.63		6.76	
EPA 6020	Copper	Metals	mg/kg	34	270	*310*	8.11		22.2		11.1		23.9	
EPA 6020	Lead	Metals	mg/kg	46.7	218	*400*	1.95		12.3		2.78		12.4	
EPA 7471A	Mercury	Metals	mg/kg	0.15	0.71	*1.1*	0.0254	J	0.0319	J	0.0228	J	ND<0.0170	
EPA 6020	Molybdenum	Metals	mg/kg	·	·		ND<0.471		1.3	J	ND<0.409		1.46	
EPA 6020	Nickel	Metals	mg/kg	20.9	51.6	*150*	5.19		29		3.74		31.5	
EPA 6020	Selenium	Metals	mg/kg	·	·	*39*	ND<0.888		ND<1.06		ND<0.772		0.785	J
EPA 6020	Silver	Metals	mg/kg	1.0	3.7	*39*	ND<0.506		ND<0.605		ND<0.440		ND<0.426	
EPA 6020	Thallium	Metals	mg/kg	·	·		ND<0.335		ND<0.401		ND<0.291		ND<0.282	
EPA 6020	Vanadium	Metals	mg/kg	·	·		26.0		20.2		19.3		22.1	
EPA 6020	Zinc	Metals	mg/kg	150	410	*2300*	30.7		73.9		20.8		80.8	
Total Petroleum Hydrocarbons														
EPA 8015B(M)	C6 as C6	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C7 as C7	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C8 as C8	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C9-C10	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C11-C12	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C13-C14	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C15-C16	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C17-C18	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C19-C20	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C21-C22	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C23-C24	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C25-C28	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C29-C32	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C33-C36	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C37-C40	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C41-C44	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 8015B(M)	C6-C44 Total	TPH	mg/kg	·	·		ND<5.9		ND<17		ND<5.2		ND<4.7	
EPA 1664A (M)	TRPH (SGT-HEM)	TRPH	mg/kg	·	·		ND<12.5		139		69.8		93.3	
Polycyclic Aromatic Hydrocarbons														
EPA 8270C SIM	1,6,7-Trimethylnaphthalene	LMW PAH	µg/kg	·	·		ND<2.8		ND<3.2		ND<2.3		ND<2.4	
EPA 8270C SIM	1-Methylnaphthalene	LMW PAH	µg/kg	·	·	*18000*	ND<1.7	F2	ND<1.9		ND<1.4		ND<1.4	
EPA 8270C SIM	1-Methylphenanthrene	HMW PAH	µg/kg	·	·		ND<3.1		ND<3.5		ND<2.5		ND<2.6	
EPA 8270C SIM	2,6-Dimethylnaphthalene	LMW PAH	µg/kg	·	·		8.6	J	ND<3.7		ND<2.7		ND<2.7	
EPA 8270C SIM	2-Methylnaphthalene	LMW PAH	µg/kg	70	670	*24000*	ND<2.5	F2	ND<2.8		ND<2.0		ND<2.1	
EPA 8270C SIM	Acenaphthene	LMW PAH	µg/kg	16	500	*36000*	ND<2.3	F2	ND<2.6		ND<1.9		ND<2.0	
EPA 8270C SIM	Acenaphthylene	LMW PAH	µg/kg	44	640		ND<2.6	F2	28.0		ND<2.2		ND<2.2	
EPA 8270C SIM	Anthracene	LMW PAH	µg/kg	85.3	1100	*1800000*	ND<2.9		31.0		ND<2.4		ND<2.5	
EPA 8270C SIM	Benzo (a) anthracene	HMW PAH	µg/kg	261	1600	*1100*	ND<2.2		28.0		ND<1.8		ND<1.8	
EPA 8270C SIM	Benzo (a) pyrene	HMW PAH	µg/kg	430	1600	*110*	6.0	J F2	*130*		4.7	J	6.4	J
EPA 8270C SIM	Benzo (b) Fluoranthene	HMW PAH	µg/kg	·	·	*1100*	5.4	J F2	150		6.0	J	7.8	J
EPA 8270C SIM	Benzo (e) Pyrene	HMW PAH	µg/kg	·	·		ND<2.6		87.0		3.2	J	4.6	J
EPA 8270C SIM	Benzo (g,h,i) Perylene	HMW PAH	µg/kg	·	·		4.5	J	50.0		ND<1.9		4.1	J
EPA 8270C SIM	Benzo (k) Fluoranthene	HMW PAH	µg/kg	·	·	*11000*	ND<2.3	F2	120		4.8	J	6.1	J
EPA 8270C SIM	Biphenyl	HMW PAH	µg/kg	·	·	*4700*	ND<2.9		ND<3.3		ND<2.4		ND<2.5	
EPA 8270C SIM	Chrysene	HMW PAH	µg/kg	384	2800	*110000*	4.0	J	52.0		ND<1.8		3.4	J
EPA 8270C SIM	Dibenz (a,h) Anthracene	HMW PAH	µg/kg	63.4	260	*110*	ND<2.2		28.0		ND<1.8		ND<1.8	
EPA 8270C SIM	Fluoranthene	HMW PAH	µg/kg	600	5100	*240000*	4.9	J *1	37.0		ND<2.3		ND<2.4	
EPA 8270C SIM	Fluorene	LMW PAH	µg/kg	19	540	*240000*	ND<2.5	F1 F2	ND<2.8		ND<2.0		ND<2.1	
EPA 8270C SIM	Indeno (1,2,3-c,d) Pyrene	HMW PAH	µg/kg	·	·	*1100*	3.4	J	66.0		2.6	J	3.5	J
EPA 8270C SIM	Naphthalene	LMW PAH	µg/kg	160	2100	*3800*	ND<2.3	F2	ND<2.6		ND<1.9		ND<2.0	
EPA 8270C SIM	Phenanthrene	LMW PAH	µg/kg	240	1500		ND<2.6		4.1	J	ND<2.2		ND<2.2	
EPA 8270C SIM	Pyrene	HMW PAH	µg/kg	665	2600	*180000*	5.2	J	44.0		2.9	J	3.4	J
EPA 8270C SIM	Total Detectable PAHs	PAH	µg/kg	4022	44792		42	J	855	J	24.2		39.3	J

Table 4-2e. Sediment Chemistry Results – Geotechnical Composites (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-Bay Deposits (-46 to -51 ft)		FDD-Younger Paralic Deposits (-53 to -61 ft)		FDD-Older Paralic Deposits (-58 to -68 ft)	
Phenols														
EPA 8270C SIM	2,4,5-Trichlorophenol	Phenol	µg/kg	·	·	*630000*	ND<1.9	F2	ND<2.1		ND<1.5		ND<1.6	
EPA 8270C SIM	2,4,6-Trichlorophenol	Phenol	µg/kg	·	·	*6300*	ND<2.0	F2	ND<2.3		ND<1.7		ND<1.7	
EPA 8270C SIM	2,4-Dichlorophenol	Phenol	µg/kg	·	·	*19000*	ND<3.2	F2	ND<3.7		ND<2.7		ND<2.7	
EPA 8270C SIM	2,4-Dimethylphenol	Phenol	µg/kg	·	·	*130000*	ND<4.0	*1 F2	ND<4.6		ND<3.3		ND<3.4	
EPA 8270C SIM	2,4-Dinitrophenol	Phenol	µg/kg	·	·	*13000*	ND<92		ND<110	*-	ND<76	*-	ND<78	*-
EPA 8270C SIM	2-Chlorophenol	Phenol	µg/kg	·	·	*39000*	ND<2.9	F1 F2	ND<3.3		ND<2.4		ND<2.5	
EPA 8270C SIM	2-Methylphenol	Phenol	µg/kg	·	·	*320000*	ND<3.1	*1 F2	ND<3.5		ND<2.5		ND<2.6	
EPA 8270C SIM	2-Nitrophenol	Phenol	µg/kg	·	·		ND<2.6	*1 F2	ND<3.0		ND<2.2		ND<2.2	
EPA 8270C SIM	3/4-Methylphenol	Phenol	µg/kg	·	·		ND<5.6	*1	ND<6.3		ND<4.6		ND<4.7	
EPA 8270C SIM	4,6-Dinitro-2-Methylphenol	Phenol	µg/kg	·	·		ND<100		ND<120	*- *1	ND<84	*- *1	ND<87	*- *1
EPA 8270C SIM	4-Chloro-3-Methylphenol	Phenol	µg/kg	·	·		ND<3.2		ND<3.7		ND<2.7		ND<2.7	
EPA 8270C SIM	Pentachlorophenol	Phenol	µg/kg	·	·	*1000*	31	J	ND<2.3	*-	ND<1.7	*-	ND<1.7	*-
EPA 8270C SIM	2,6-Dichlorophenol	Phenol	µg/kg	·	·		ND<3.2	F2	ND<3.7		ND<2.7		ND<2.7	
EPA 8270C SIM	4-Nitrophenol	Phenol	µg/kg	·	·		ND<130		ND<140	*- *1	ND<100	*-	ND<110	*- *1
EPA 8270C SIM	2,3,4,6-Tetrachlorophenol	Phenol	µg/kg	·	·	*190000*	ND<6.0	F2	ND<6.9		ND<5.0		ND<5.1	
Phthalates														
EPA 8270C SIM	Bis(2-Ethylhexyl) Phthalate	Phthalate	µg/kg	·	·	*3900*	29	J B	110	B	34	J B	39	J B
EPA 8270C SIM	Butyl Benzyl Phthalate	Phthalate	µg/kg	·	·	*290000*	8.3	J B	51	J B	28	J B	24	J B
EPA 8270C SIM	Diethyl Phthalate	Phthalate	µg/kg	·	·	*5100000*	3.5	J B F2	8.6	J	5.1	J	3.7	J
EPA 8270C SIM	Dimethyl Phthalate	Phthalate	µg/kg	·	·	*780000*	ND<3.1	F2	ND<3.5		ND<2.5		ND<2.6	
EPA 8270C SIM	Di-n-Butyl Phthalate	Phthalate	µg/kg	·	·	*630000*	10	J B *1	59	J B	20	J B	19	J B
EPA 8270C SIM	Di-n-Octyl Phthalate	Phthalate	µg/kg	·	·	*63000*	40	J	ND<3.3		ND<2.4		ND<2.5	
Chlorinated Pesticides														
EPA 8081A	2,4'-DDD	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.11		ND<0.081		ND<0.083	
EPA 8081A	2,4'-DDE	Chlorinated Pesticides	µg/kg	·	·		ND<0.15		ND<0.17		ND<0.12		ND<0.13	
EPA 8081A	2,4'-DDT	Chlorinated Pesticides	µg/kg	·	·		ND<0.14		ND<0.16		ND<0.12		ND<0.12	
EPA 8081A	4,4'-DDD	Chlorinated Pesticides	µg/kg	2.0	20	*190*	ND<0.77		ND<0.88		ND<0.63		ND<0.65	
EPA 8081A	4,4'-DDE	Chlorinated Pesticides	µg/kg	2.2	27	*2000*	1.5		0.87	J	ND<0.090		ND<0.092	
EPA 8081A	4,4'-DDT	Chlorinated Pesticides	µg/kg	1.0	7.0	*1900*	ND<0.27		ND<0.31		ND<0.23		ND<0.23	
	Total Detectable DDTs	Chlorinated Pesticides	µg/kg	1.58	46.1		1.5		0.87	J	ND<0.63		ND<0.65	
EPA 8081A	Aldrin	Chlorinated Pesticides	µg/kg	·	·	*39*	ND<0.11	*1	ND<0.13		ND<0.091		ND<0.093	
EPA 8081A	Alpha-BHC	Chlorinated Pesticides	µg/kg	·	·	*86*	ND<0.12		ND<0.14		ND<0.10		ND<0.10	
EPA 8081A	Beta-BHC	Chlorinated Pesticides	µg/kg	·	·	*300*	ND<0.14		ND<0.16		ND<0.12		ND<0.12	
EPA 8081A	Delta-BHC	Chlorinated Pesticides	µg/kg	·	·		ND<0.099		ND<0.11		ND<0.082		ND<0.083	
EPA 8081A	Gamma-BHC	Chlorinated Pesticides	µg/kg	·	·	*570*	ND<0.16		ND<0.19		ND<0.13		ND<0.14	
EPA 8081A	Chlordane (Total)	Chlorinated Pesticides	µg/kg	0.5	6.0	*1700*	ND<0.54		ND<0.61		ND<0.44		ND<0.45	
EPA 8081A	Dieldrin	Chlorinated Pesticides	µg/kg	0.02	8.0	*34*	ND<0.10		ND<0.12		ND<0.084		ND<0.086	
EPA 8081A	Trans-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.058		ND<0.066		ND<0.047		ND<0.048	
EPA 8081A	Endosulfan I	Chlorinated Pesticides	µg/kg	·	·	*47000*	ND<0.075		ND<0.085		ND<0.062		ND<0.063	
EPA 8081A	Endosulfan II	Chlorinated Pesticides	µg/kg	·	·		ND<0.35		ND<0.40		ND<0.29		ND<0.29	
EPA 8081A	Endosulfan Sulfate	Chlorinated Pesticides	µg/kg	·	·		ND<0.17		ND<0.19		ND<0.14		ND<0.14	
EPA 8081A	Endrin	Chlorinated Pesticides	µg/kg	·	·	*1900*	ND<0.13	*1	ND<0.15		ND<0.11		ND<0.11	
EPA 8081A	Endrin Aldehyde	Chlorinated Pesticides	µg/kg	·	·		ND<0.75		ND<0.86		ND<0.62		ND<0.63	
EPA 8081A	Endrin Ketone	Chlorinated Pesticides	µg/kg	·	·		ND<0.29		ND<0.33		ND<0.24		ND<0.25	
EPA 8081A	Heptachlor	Chlorinated Pesticides	µg/kg	·	·	*130*	ND<0.092		ND<0.10		ND<0.076		ND<0.077	
EPA 8081A	Heptachlor Epoxide	Chlorinated Pesticides	µg/kg	·	·	*70*	ND<0.13		ND<0.15		ND<0.11		ND<0.11	
EPA 8081A	Methoxychlor	Chlorinated Pesticides	µg/kg	·	·	*32000*	ND<0.25	*1	ND<0.29		ND<0.21		ND<0.21	
EPA 8081A	Toxaphene	Chlorinated Pesticides	µg/kg	·	·	*490*	ND<1.5		ND<1.7		ND<1.3		ND<1.3	
EPA 8081A	Alpha-Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.071		ND<0.081		ND<0.059		ND<0.060	
EPA 8081A	Gamma-Chlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.54		ND<0.61		ND<0.44		ND<0.45	
EPA 8081A	Cis-nonachlor	Chlorinated Pesticides	µg/kg	·	·		ND<0.073		ND<0.083		ND<0.060		ND<0.061	
EPA 8081A	Oxychlordane	Chlorinated Pesticides	µg/kg	·	·		ND<0.23		ND<0.26		ND<0.19		ND<0.19	

DRAFT FINAL

Table 4-2e. Sediment Chemistry Results – Geotechnical Composites (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference	FDD-Bay Deposits (-46 to -51 ft)	FDD-Younger Paralic Deposits (-53 to -61 ft)	FDD-Older Paralic Deposits (-58 to -68 ft)
Polychlorinated Biphenyls										
USEPA 8270C SIM CON	PCB-18	PCB Congeners	µg/kg	·	·		ND<0.10	ND<0.12	ND<0.083	ND<0.084
USEPA 8270C SIM CON	PCB-28	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.12	ND<0.089	ND<0.090
USEPA 8270C SIM CON	PCB-37	PCB Congeners	µg/kg	·	·		ND<0.094	ND<0.11	ND<0.077	ND<0.079
USEPA 8270C SIM CON	PCB-44	PCB Congeners	µg/kg	·	·		ND<0.24	ND<0.27	ND<0.19	ND<0.20
USEPA 8270C SIM CON	PCB-49	PCB Congeners	µg/kg	·	·		ND<0.077	ND<0.088	ND<0.063	ND<0.064
USEPA 8270C SIM CON	PCB-52	PCB Congeners	µg/kg	·	·		ND<0.29	ND<0.34	ND<0.24	ND<0.25
USEPA 8270C SIM CON	PCB-66	PCB Congeners	µg/kg	·	·		ND<0.19	ND<0.22	ND<0.16	ND<0.16
USEPA 8270C SIM CON	PCB-70	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.13	ND<0.091	ND<0.093
USEPA 8270C SIM CON	PCB-74	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.16	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-77	PCB Congeners	µg/kg	·	·	*38*	ND<0.18	ND<0.21	ND<0.15	ND<0.15
USEPA 8270C SIM CON	PCB-81	PCB Congeners	µg/kg	·	·	*12*	ND<0.14	ND<0.16	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-87	PCB Congeners	µg/kg	·	·		ND<0.17	ND<0.20	ND<0.14	ND<0.15
USEPA 8270C SIM CON	PCB-99	PCB Congeners	µg/kg	·	·		ND<0.073	1.8	ND<0.061	ND<0.062
USEPA 8270C SIM CON	PCB-101	PCB Congeners	µg/kg	·	·		ND<0.069	1.7	ND<0.057	ND<0.058
USEPA 8270C SIM CON	PCB-105	PCB Congeners	µg/kg	·	·	*120*	ND<0.083	ND<0.095	ND<0.068	ND<0.070
USEPA 8270C SIM CON	PCB-110	PCB Congeners	µg/kg	·	·		ND<0.052	1.2	ND<0.043	ND<0.044
USEPA 8270C SIM CON	PCB-114	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.13	ND<0.095	ND<0.096
USEPA 8270C SIM CON	PCB-118	PCB Congeners	µg/kg	·	·	*120*	ND<0.054	1.7	ND<0.044	ND<0.045
USEPA 8270C SIM CON	PCB-119	PCB Congeners	µg/kg	·	·		ND<0.097	ND<0.11	ND<0.080	ND<0.081
USEPA 8270C SIM CON	PCB-123	PCB Congeners	µg/kg	·	·	*120*	ND<0.11	ND<0.13	ND<0.093	ND<0.095
USEPA 8270C SIM CON	PCB-126	PCB Congeners	µg/kg	·	·	*0.036*	ND<0.085	ND<0.097	ND<0.070	ND<0.071
USEPA 8270C SIM CON	PCB-128	PCB Congeners	µg/kg	·	·		ND<0.19	ND<0.21	ND<0.15	ND<0.16
USEPA 8270C SIM CON	PCB-132/153	PCB Congeners	µg/kg	·	·		ND<0.25	4.6	ND<0.21	ND<0.21
USEPA 8270C SIM CON	PCB-138/158	PCB Congeners	µg/kg	·	·		ND<0.55	3.9	ND<0.45	ND<0.46
USEPA 8270C SIM CON	PCB-149	PCB Congeners	µg/kg	·	·		ND<0.18	3.0	ND<0.15	ND<0.15
USEPA 8270C SIM CON	PCB-151	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.16	ND<0.11	ND<0.11
USEPA 8270C SIM CON	PCB-156	PCB Congeners	µg/kg	·	·	*120*	ND<0.12	ND<0.14	ND<0.099	ND<0.10
USEPA 8270C SIM CON	PCB-157	PCB Congeners	µg/kg	·	·	*120*	ND<0.13	ND<0.15	ND<0.11	ND<0.11
USEPA 8270C SIM CON	PCB-167	PCB Congeners	µg/kg	·	·	*120*	ND<0.21	ND<0.24	ND<0.17	ND<0.17
USEPA 8270C SIM CON	PCB-168	PCB Congeners	µg/kg	·	·		ND<0.22	ND<0.25	ND<0.18	ND<0.19
USEPA 8270C SIM CON	PCB-169	PCB Congeners	µg/kg	·	·	*0.12*	ND<0.10	ND<0.12	ND<0.083	ND<0.085
USEPA 8270C SIM CON	PCB-170	PCB Congeners	µg/kg	·	·		ND<0.17	ND<0.20	ND<0.14	ND<0.14
USEPA 8270C SIM CON	PCB-177	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.21	ND<0.15	ND<0.15
USEPA 8270C SIM CON	PCB-180	PCB Congeners	µg/kg	·	·		ND<0.14	2.4	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-183	PCB Congeners	µg/kg	·	·		ND<0.14	ND<0.17	ND<0.12	ND<0.12
USEPA 8270C SIM CON	PCB-187	PCB Congeners	µg/kg	·	·		ND<0.16	2.3	ND<0.13	ND<0.13
USEPA 8270C SIM CON	PCB-189	PCB Congeners	µg/kg	·	·	*130*	ND<0.099	ND<0.11	ND<0.082	ND<0.083
USEPA 8270C SIM CON	PCB-194	PCB Congeners	µg/kg	·	·		ND<0.11	ND<0.13	ND<0.095	ND<0.096
USEPA 8270C SIM CON	PCB-201	PCB Congeners	µg/kg	·	·		ND<0.053	ND<0.060	ND<0.043	ND<0.044
USEPA 8270C SIM CON	PCB-206	PCB Congeners	µg/kg	·	·		ND<0.18	ND<0.21	ND<0.15	ND<0.15
	Total PCB Congeners	PCB Congeners	µg/kg	22.7	180	*230*	ND<0.55	23.0	ND<0.45	ND<0.46
USEPA 8082A ECD	Aroclor-1016	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<9.7	ND<7.0	ND<7.2
USEPA 8082A ECD	Aroclor-1221	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<9.7	ND<7.0	ND<7.2
USEPA 8082A ECD	Aroclor-1232	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<9.7	ND<7.0	ND<7.2
USEPA 8082A ECD	Aroclor-1242	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<9.7	ND<7.0	ND<7.2
USEPA 8082A ECD	Aroclor-1248	PCB Aroclors	µg/kg	·	·		ND<8.5	ND<9.7	ND<7.0	ND<7.2
USEPA 8082A ECD	Aroclor-1254	PCB Aroclors	µg/kg	·	·		ND<7.7	27	ND<6.3	ND<6.5
USEPA 8082A ECD	Aroclor-1260	PCB Aroclors	µg/kg	·	·		ND<7.7	30	ND<6.3	ND<6.5
USEPA 8082A ECD	Aroclor-1262	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<8.7	ND<6.3	ND<6.5
USEPA 8082A ECD	Aroclor-1268	PCB Aroclors	µg/kg	·	·		ND<7.7	ND<8.7	ND<6.3	ND<6.5

DRAFT FINAL

Table 4-2e. Sediment Chemistry Results – Geotechnical Composites (Continued)

Analytical Method	Compound Name	Type	Units	ERL	ERM	RSL	LA-5 Reference		FDD-Bay Deposits (-46 to -51 ft)		FDD-Younger Paralic Deposits (-53 to -61 ft)		FDD-Older Paralic Deposits (-58 to -68 ft)	
Pyrethroid Pesticides														
EPA 8270D (M)/TQ/EI	Allethrin	Pyrethroids	µg/kg	·	·		ND<0.71		ND<0.82		ND<0.59		ND<0.60	
EPA 8270D (M)/TQ/EI	Bifenthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.29		ND<0.33		ND<0.24		ND<0.24	
EPA 8270D (M)/TQ/EI	Cyfluthrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.35		ND<0.40		ND<0.29		ND<0.29	
EPA 8270D (M)/TQ/EI	Cypermethrin	Pyrethroids	µg/kg	·	·		ND<0.25		ND<0.28		ND<0.21		ND<0.21	
EPA 8270D (M)/TQ/EI	Deltamethrin/Tralomethrin	Pyrethroids	µg/kg	·	·	*47000*	ND<0.40		ND<0.46		ND<0.33		ND<0.34	
EPA 8270D (M)/TQ/EI	Fenvalerate/Esfenvalerate	Pyrethroids	µg/kg	·	·		ND<0.28		ND<0.32		ND<0.23		ND<0.24	
EPA 8270D (M)/TQ/EI	Fluvalinate	Pyrethroids	µg/kg	·	·		ND<0.25		ND<0.29		ND<0.21		ND<0.21	
EPA 8270D (M)/TQ/EI	Permethrin - (cis/trans)	Pyrethroids	µg/kg	·	·	*320000*	ND<0.25		ND<0.28		ND<0.20		ND<0.21	
EPA 8270D (M)/TQ/EI	Phenothrin	Pyrethroids	µg/kg	·	·		ND<0.30		ND<0.35		ND<0.25		ND<0.26	
EPA 8270D (M)/TQ/EI	Resmethrin/Bioresmethrin	Pyrethroids	µg/kg	·	·	*190000*	ND<0.35		ND<0.40		ND<0.29		ND<0.29	
EPA 8270D (M)/TQ/EI	Lambda Cyhalothrin	Pyrethroids	µg/kg	·	·	*6300*	ND<0.50		ND<0.58		ND<0.42		ND<0.42	
EPA 8270D (M)/TQ/EI	Fenpropathrin	Pyrethroids	µg/kg	·	·	*160000*	ND<0.27		ND<0.31		ND<0.22		ND<0.23	
EPA 8270D (M)/TQ/EI	Tetramethrin	Pyrethroids	µg/kg	·	·		ND<0.16		ND<0.18		ND<0.13		ND<0.13	
EPA 8270D (M)/TQ/EI	Total Pyrethroids	Pyrethroids	µg/kg	·	·		ND<0.71		ND<0.82		ND<0.59		ND<0.60	
Organotins														
Organotins By Krone et al.	Dibutyltin	Organotins	µg/kg	·	·	*1900*	ND<1.1		29		ND<0.93		ND<0.94	
Organotins By Krone et al.	Monobutyltin	Organotins	µg/kg	·	·		ND<2.1		ND<2.4	*-	ND<1.8	*-	ND<1.8	*-
Organotins By Krone et al.	Tetrabutyltin	Organotins	µg/kg	·	·		ND<1.1		ND<1.3		ND<0.95		ND<0.96	
Organotins By Krone et al.	Tributyltin	Organotins	µg/kg	·	·	*1900*	ND<2.3		ND<2.6		ND<1.9		ND<1.9	
	Total Organotins	Organotins	µg/kg	·	·		ND<2.3		29.0		ND<1.9		ND<1.9	

Notes

All values reported in Dry Weight.
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = MS/MSD RPD exceeds control limits
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B = Compound was found in the blank and sample.
*1 = LCS/LCSD RPD exceeds control limits.
*+ LCS and/or LCSD is outside acceptance limits, high bias
*- LCS and/or LCSD is outside acceptance limits, low bias
p = The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
me LCS recovery is within marginal exceedance (ME) control limit range (+/- 4 SD from the mean)
S1+ Surrogate recovery exceeds control limits, high biased
Analytes are reported to the method detection limit provided by Eurofins Calscience.
Totals for TPH and PCBs were provided by analytical laboratory. Totals for PAHs, DDTs, pyrethroid pesticides, and organotins were hand calculated.
Total Chlordane is calculated as the sum of: Chlordane-alpha, Chlordane-gamma, cis-Nonachlor, trans-Nonachlor,Oxychlordane
Analyte list follows project SAP and guidance from USACE and EPA Region 9 Sampling and Analysis Plan/Results Guidelines document (August 11, 2017)

RSL = Regional Screening Level
ERL = Effects range-low
ERM = Effects range-median
BOLD = value detected is above ERL
BOLD = value detected is above ERM
mg - milligram
kg - kilogram
µg - microgram
ND - Non Detect < MDL
PAH - Polycyclic aromatic hydrocarbon
PCB - Polychlorinated biphenyl
TPH - Total Petroleum Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

DRAFT

4.2.1 Sediment Quality Guidelines

Chemistry results for the Study are presented in Tables 4-2a though 4-2e, and Table 4-3. Dry weight sediment chemistry results in Tables 4-2a though 4-2e are compared to ERL, ERM, and regional screening levels (RSL) sediment quality guidelines as a means of assessing sediment quality and potential toxicity hazards (Buchman, 2008). Table 4-3 displays wet weight sediment and leachate lead chemistry results compared to California Code Regulations Title 22 (STLC and TTLC) and Resource Conservation and Recovery Act (RCRA) (TCLP) criteria.

The ERL and ERM benchmark values were developed by the NOAA to evaluate potential toxicological effects on sediment-associated biota. The ERL and ERM guideline values were derived by assessing chemical and biological data. The ERL values represent the lower-tenth-percentile concentration, and ERM values represent the median concentration, at which statistically significant biological effects were reported. These values were calculated using an extensive database of study results, including laboratory- and field-generated data for many endpoints for species and biological effects. In summary, the ERL values are concentrations below which biological effects are rarely expected to occur, and ERM values are concentrations above which biological effects are likely expected to occur (Buchman, 2008). Because of the wide range of site-specific factors that may influence the toxicity and bioavailability of any given compound in the sediment (e.g., grain size, total organic carbon [TOC] content, etc.), these guidelines are intended not as strict criteria for regulatory application, but rather for general screening.

Sediment chemistry results are also compared to RSL for residential soil, which are derived from exposure assumptions and EPA toxicity data and represent risk-based analyte concentrations for cancer risk from dermal exposure. The role of these RSLs is to help identify areas, contaminants, and conditions that may require further attention at a particular site. Generally, when contaminant concentrations fall below RSLs, no further action or study is warranted. Additionally, chemical concentrations above the RSL do not automatically designate a site as contaminated or trigger a response action; however, exceeding a RSL suggests that further evaluation of the potential risks by site contaminants may be appropriate (USEPA, 2021).

Wet-weight sediment chemical concentrations were compared to Total Threshold Limit Concentrations (TTLC) as well as STLC and TCLP trigger levels to determine if the material was hazardous waste and/or needed to be placed in a specially permitted upland landfill.

4.2.2 Composite A – Turning Basin

Overall, two of the four core samples collected in the Composite A Turning Basin contained concentrations of metals and PCBs above ERL guideline values, and the FDD-A-Composite sample had one ERL exceedance. No analytes detected in Composite A samples exceeded ERM guideline values.

ERL exceedances of metals included copper (41.6 mg/kg vs. ERL of 34 mg/kg) in the FDD-A-C2 sample, and cadmium (1.3 mg/kg vs. ERL of 1.2 mg/kg), copper (173 mg/kg vs. ERL of 34 mg/kg), lead (53.1 mg/kg vs. ERL of 46.7 mg/kg), mercury (0.611 mg/kg vs. ERL of 0.15 mg/kg), and zinc

DRAFT FINAL

(248 mg/kg vs. ERL of 150 mg/kg) in the FDD-A-C4 sample. One ERL exceedance for nickel was measured in the FDD-A-Composite sample (28.3 mg/kg vs. ERL of 20.9 mg/kg). Although there were no ERL exceedances for arsenic, all samples did exceed the RSL for arsenic (0.68 mg/kg), including the LA-5 reference sample.

Although the majority of PAHs were detected at concentrations above the method detection limit (MDL), individual and total PAHs did not exceed ERL, ERM, or RSL values. Total PAH concentrations in samples collected from the Turning Basin ranged from 148 µg/kg in the FDD-A-C1 sample to 786 µg/kg in the FDD-A-C4 sample (5 to 27 times lower than the ERL).

Total TPH (C6-C44) concentrations ranged from non-detect to 39 mg/kg, and TRPH ranged from 38.9 mg/kg to 107 mg/kg in the four individual core samples and was 123 mg/kg in the composite A sample. Except for Di-n-Octyl Phthalate and Dimethyl Phthalate which were non-detect, all phthalates were detected between the MDL and reporting limit (RL). Although the majority of individual PCB congeners were non-detect, total PCB Congeners ranged from 12 µg/kg to 30 µg/kg, and both FDD-A-C2 and FDD-A-C4 exceeded the ERL of 22.7 µg/kg by a factor of 1.1 and 1.3, respectively.

All phenols, chlorinated pesticides (excluding 4,4'-DDE in FDD-A-C2, FDD-A-C4, and FDD-A-Composite), pyrethroids, and organotins (excluding dibutyltin) were not detected in samples collected from Composite Area A.

4.2.3 Composite B – Approach and Sump Recent Bay Deposits

Overall, each of the twelve individual core samples collected from Composite B in the approach and dry dock sump had at least five ERL exceedances and seven of the cores had at least one ERM exceedance. The FDD-B-Composite sample had six ERL exceedances and no ERM exceedances. These ERL exceedances included metals, individual and total PAHs, DDTs, and PCB congeners. While ERM exceedances included mercury, and total PCB congeners in select samples, only three of the twelve samples contained more than one ERM exceedances. These samples included FDD-B-C1, FDD-B-C9, and FDD-B-C11.

ERL exceedances for metals included arsenic, cadmium, copper, lead, mercury, nickel, silver, and zinc. While ERL exceedances for cadmium were only measured in two core samples (FDD-B-C1 and FDD-B-C11), ERL exceedances for copper, mercury, and zinc were measured in all twelve individual core samples from Composite B. Nickel exceeded the ERL only in the FDD-B-Composite sample (33.6 mg/kg vs. ERL of 20.9 mg/kg). The magnitude of the metals ERL exceedances ranged from as low as the ERL (zinc in FDD-B-C2) to 7.4 times greater (copper in FDD-B-C10) than the ERL. The only metal that was measured in concentrations greater than the ERM (0.71 mg/kg) was mercury, which included six of the twelve individual core samples. The concentration of mercury in these six samples ranged from 0.719 mg/kg to 1.06 mg/kg.

For PAHs, acenaphthylene (13 of 13 samples), anthracene (6 of 13 samples), benzo(a)pyrene (10 of 13 samples), dibenz(a,h)anthracene (10 of 13 samples), and total PAHs (5 of 13 samples) exceeded the respective ERL. Additionally, 13 of the 13 samples for benzo(a)pyrene, and 6 of the 13 samples for dibenz(a,h) anthracene exceeded their respective RSLs.

DRAFT FINAL

Total TPH (C6-C44) concentrations ranged from non-detect (6 of 13 core samples) to 430 mg/kg (FDD-B-C11), and TRPH ranged from 36.9 mg/kg (FDD-B-C3) to 222 mg/kg (FDD-B-C9) in the Composite B samples. All phthalates were below applicable RSL values, and the majority of phthalates were non-detect or detected between MDL and RL. While individual PCB congeners did not exceed any RSL values, nine of the thirteen samples contained concentrations of total PCB congeners that exceeded the ERL of 22.7 µg/kg, and three of the thirteen samples (FDD-B-C1, FDD-B-C9, and FDD-B-C11) contained concentrations of total PCB congeners that exceeded the ERM of 180 µg/kg and the RSL of 230 µg/kg. The total PCB concentration in FDD-B-C5 exceeded the ERM, but not the RSL.

All chlorinated pesticides, except for 4,4'-DDE (13 of 13 samples) and heptachlor epoxide (1 of 13 samples) were non-detect, and the concentration of 4,4'-DDE exceeded the ERL of 2.2 µg/kg in the FDD-B-C1 samples. Additionally, due to the concentration of 4,4'-DDE in samples, total DDTs exceeded the ERL in four samples (FDD-B-C1, FDD-B-C10, FDD-B-C11, and FDD-B-C12).

4.2.3.1 California Title 22 and RCRA Assessment

In the B Composite area four individual core samples (FDD-B-C1, FDD-B-C4, FDD B C9, and FDD-B-C11) were excluded from ocean disposal due to elevated levels of chemical constituents. To determine suitability for landfill disposal, these four core samples were compared to RCRA (TCLP) and Title 22 (STLC and TCLP) criteria. Of these four samples only FDD-B-C1 exceeded an STLC trigger. The wet weight concentration of lead in FDD-B-C1 was 56.0 mg/kg compared to the STLC trigger of 50 mg/kg, necessitating a waste extraction test (WET) for lead. The concentration of lead in the STLC WET leachate was 1.96 mg/kg, which is less than the STLC threshold of 5.0 mg/L. These results indicate that the dredged material in the vicinity of the FDD-B-C1 sample is not hazardous and is suitable for placement upland in an appropriately permitted California landfill along with dredged material represented by samples FDD-B-C4, FDD-B-C9, and FDD-B-C11.

Table 4-3. Sediment and Leachate Wet Weight Chemistry Results – FDD-B-C1

Analytical Method	Compound Name	Matrix	Units (wet weight)	TTLC Threshold	STLC Trigger	TCLP Trigger	WET STLC threshold	FDD-B-C1
EPA 6020	Lead	sediment	mg/kg	1000	*50*	~~*100*~~	--	*56.0*
EPA 6010B	Lead	leachate	mg/L	--	--	--	5.0	1.96

Notes

BOLD = value detected above TTLC threshold in sediment

BOLD = value detected above STLC Trigger in sediment

~~*BOLD*~~ = value detected above TCLP Trigger in sediment

Bold = value detected above STLC threshold in WET leachate

–g - milligram, –g - kilogram,–L - liter

DRAFT FINAL

4.2.4 Composite C – Approach and Sump Native Formational Materials[8]

Overall, the three individual core samples collected in Composite C and the area composite sample contained relatively low levels of chemical analytes. There were no ERL or ERM exceedances, only one RSL exceedance for arsenic in FDD-C-Composite, and the majority of analytes were below MDLs.

Of the 19 metals tested for, 9 were non detect, and the remaining 10 were typically measured in concentrations at least 3 times lower than the respective ERL. Total TPH (C6-C44) concentrations ranged from non-detect (FDD-C-C5, FDD-C-C6, and FDD-C-Composite) to 19 mg/kg (FDD-C-C3), and TRPH ranged from 23.5 mg/kg (FDD-C-C6) to 103 mg/kg (FDD-C-C5). Phthalate concentrations in Composite C samples were either non-detect or detected at concentrations between the MDL and RL and were all below RSLs.

All PAHs, phenols, chlorinated pesticides, PCBs, pyrethroids, and organotins were non-detect except the PAHs benzo(a)pyrene, benzo(b)fluoranthene, beI(e)pyrene, and benzo(k)fluoranthene, and the chlorinated pesticides 2,4'-DDE and trans-nonachlor in the FDD-C-Composite sample.

4.2.5 Composite D – Sump Native Formational Materials

Analyte concentrations of the five individual core samples collected in Composite D and the area composite sample were all below applicable ERL, ERM, and RSL values except for arsenic (RSL exceedance in all samples), copper (ERL exceedances in all individual core samples), mercury (ERL exceedances in all individual core samples) and zinc (ERL exceedances in three of the five individual core samples). Arsenic concentrations ranged from 0.796 mg/kg to 5.62 mg/kg which are above the RSL of 0.68 mg/kg and below the ERL of 8.2 mg/kg. Copper concentrations in individual core samples ranged from 106 to 148 mg/kg, which is three to four times greater than the ERL of 34 mg/kg. The copper concentration in the composite sample was 11.7 mg/kg. Mercury concentrations in individual core samples ranged from 0.355 to 0.418 mg/kg, which is two to three times greater than the ERL of 0.15 mg/kg, while the area composite sample contained an estimated concentration of 0.0322 mg/kg mercury. Zinc concentrations exceeding the ERL ranged from 150 mg/kg in the FDD-D-C3 sample to 162 mg/kg in the FDD-D-C6 sample.

All individual and total TPHs were non-detect while TRPH ranged from 11.6 mg/kg (FDD-D-C2) to 92.4 mg/kg (FDD-D-C4). The majority of PAHs were non-detect or detected between the MDL and RL, and all PAHs were below ERL, ERM, and RSL values.

All phenols were non-detect except 2,4-dinitrophenol, 2-methylphenol, pentachlorophenol, and 2,3,4,6-tetrachorophenol in FDD-D-C1 and FDD-D-C2. Phthalate concentrations in individual cores and the FDD-D-Composite sample were either non-detect or detected at concentrations between the MDL and RL and were all below RSLs. All organotins were non-detect except dibutyltin in FDD-D-C1 and FDD-D-C6.

[8] As previously mentioned, the Navy modified the required project footprint. Consequently, the native formational material collected in the approach and sump side-slope of Composite C are no longer part of the Navy's proposed dredge footprint for this project.

DRAFT FINAL

Chlorinated pesticides (except trans-nonachlor in FDD-D-Composite), PCB congeners, and pyrethroids were non-detect in all Composite Area D samples.

4.2.6 Geotechnical Composites

The three geotechnical composite samples represent bay deposits from -46 to -51 ft MLLW (FDD-Bay Deposits), younger paralic deposits from -53 to -61 ft MLLW (FDD-Younger Paralic Deposits), and older paralic deposits from -58 to -68 ft MLLW (FDD-Older Paralic Deposits) (Appendix B1).

Analyte concentrations in these three samples were generally low compared to ERL, ERM, and RSL guideline values. The majority of analytes were non-detect, and there were only three ERL exceedances (metals and PCBs), four RSL exceedances (metals and PAHs), and no ERM exceedances.

Metal concentrations only exceeded the ERL for nickel in the FDD-Bay Deposits and FDD-Older Paralic Deposits samples. The nickel concentrations in these two samples were 1.4 and 1.5 times greater than the ERL (20.9 mg/kg), respectively. Similar to the majority of other project samples including the LA-5 reference sample, the RSL was exceeded for arsenic in all three geotechnical composite samples.

Total TPH was non-detect in all three geotechnical samples, while TRPH ranged from 69.8 to 139 mg/kg. All PAHs were below ERL and ERM guideline values, and the majority of PAHs were either non-detect or detected at concentrations between the MDL and RL. However, benzo(a)pyrene in the FDD-Bay Deposits sample exceeded the RSL of 110 µg/kg by a factor of 1.2. Total PAHs ranged from 24.2 to 855 µg/kg, which is 4.7 to 166 times lower than the ERL.

While phthalates were detected in the geotechnical composite samples, the majority were estimated concentrations between the MDL and RL, and all concentrations were well below applicable RSLs. Total PCB congener concentrations were non-detect in the FDD-Younger Paralic Deposits and FDD-Older Paralic Deposits samples, while the FDD-Bay Deposits sample had a concentration of 23.0 µg/kg which is marginally greater than the ERL guideline value of 22.7 µg/kg.

All phenols, chlorinated pesticides (except 4,4’-DDE in FDD-Bay Deposits), organotins (except dibutyltin in FDD-Bay Deposits), and pyrethroids were non-detect and below applicable ERL, ERM, and RSLs in all project samples.

4.3 STFATE Modeling for Composite Area C Sediments

The ITM is intended to guide decisions for nearshore placement of dredged materials (USEPA/USACE 1998). An ITM Tier II evaluation assesses sediment and water chemistry to predict the potential need for additional testing or water column impacts of dredged material placement in a nearshore environment. As part of the Tier II evaluation, a model developed by the USACE is used that conservatively estimates the total release of potential contaminants to the water column during placement. If the model output indicates that contaminant concentrations

DRAFT FINAL

do not exceed water quality standards after initial mixing, no additional testing is required, and the dredged material can potentially be placed at the proposed nearshore site.

Only the contaminant that requires the greatest dilution to meet its water quality standard has to be modeled to determine the need for additional testing. A simple calculation is performed to identify this contaminant that divides the total concentration of the contaminant detected in the sediment by its appropriate water quality standard. For this Study, California Ocean Plan (OP; State Water Resources Control Board and California EPA 2019) and California Toxics Rule (CTR; 40 Code of Federal Regulations [C.F.R.] §131.38(b)(1), USEPA 2000) criteria were used to identify the contaminant to be modeled for this Study to ensure that all available ocean water quality evaluation standards were evaluated. The result of this calculation identified copper as the contaminant for this Study.

Because the discharge proposed for this Study would be in open water using a barge, the Automated Dredging and Disposal Alternatives Modeling Systems (ADDAMS) Short Term Fate of Dredged Material Disposed in Open Water for Predicting Deposition and Water Quality Affects (STFATE) model was used (Schroeder and Palermo 1990). The concentration of copper at the proposed Silver Strand Boat Lanes nearshore placement site after a one-hour mixing period[9] was predicted using the STFATE model. Inputs included the physical characteristics of the proposed dredged materials, estimates of the physical oceanographic characteristics of the Silver Strand nearshore placement area, and the volume of dredged material to be discharged during each placement event (USEPA/USACE 1998, Appendix C).

While sediments from Composite Areas A, B, and D were subjected to full Tier III tests following the Green Book (USEPA/USACE 1991), only sediments collected in Composite Area C[10] were screened using the STFATE model for nearshore open water disposal at the Silver Strand Boat Lanes.

4.3.1 STFATE Model Parameters

The nearshore placement site does not have defined model input parameters that have been promulgated by the regulatory agencies at this time. Similar to prior STFATE models executed by the Navy for prior dredging studies at several of the San Diego Bay Naval facilities, the input parameters used for the modeling of the Silver Strand nearshore site were assembled from publicly available data or employed assumptions from the LA-5 ODMDS site. Assumptions for site temperature, salinity, and surface currents were obtained from the Southern California Coastal Ocean Observing System. The selected surface current (0.65 ft per second from the Northeast) was maintained as the current through the shallow-depth profile (from 0 to an estimated depth of 30 ft). The barge velocity was optimized so that the disposal plume would remain inside the disposal site for as long as possible before exiting the boundary. In this evaluation, a volume scenario of 2,500 cy was used because this is the average barge size predicted to be used at this location based on water depth. Model input parameters for the Silver Strand nearshore beneficial reuse area are summarized in Tables 4-4 to 4-9. The sample specific parameters and results for samples FDD-C-C3, FDD-C-C5, and FDD-C-C6 are summarized in Table 4-4.

[9] One hour was chosen because of the shallow depth of the placement area.
[10] Composite Area C was exempt from additional analysis and approved by the USEPA for placement at the LA-5 ODMDS based on low chemical levels (Appendix D1).

DRAFT FINAL

Table 4-4. Model Input Parameters and Results
Silver Strand Beach Nearshore Placement–Site - 2,500 cy Barge

Model Input	Value		
Depth of site (ft)	30		
Dimensions of site (ft)	3,000 x 1,000		
Area of site (square ft)	3,000,000		
Volume of disposal vessel (cubic yards)	3,000		
Length of simulation (hours)	4		
Current velocity (ft per second)	0.65 (Depth averaged)		
	FDD-C-C3	FDD-C-C5	FDD-C-C6
Solids (percent by mass)	86.6	81.1	84.9
Gravel (percent by mass)	10.52	5.16	7.86
Sand (percent by mass)	82.38	88.94	88.49
Silt (percent by mass)	6.05	4.89	2.87
Clay (percent by mass)	1.04	1.01	0.77
Fluids (percent by mass)	13.4	18.9	15.1
Density of water (grams per cubic centimeter)	1.0241	1.0241	1.0241
Copper Concentration (mg/kg)	4.18	4.73	3.78
Criteria Continuous Concentration (mg/L) = 3.1	3.1	3.1	3.1
Maximum concentration outside mixing zone at 0-ft depth at end of 1-hour (mg/L)	1.08	1.08	1.08
Water Column Toxicity Criteria Violated?	No	No	No

Notes: mg/kg = milligrams per kilogram; mg/L = milligrams per liter

Table 4-5. STFATE Model Input Parameters: Site Description –
Silver Strand Nearshore Placement Site

Parameter	Value	Units
Number of Grid Points (left to right)	45	NA
Number of Grid Points (top to bottom)	45	NA
Spacing Between Grid Points (left to right)	200	ft
Spacing Between Grid Points (top to bottom)	200	ft
Constant Water Depth	30	ft
Roughness Height at Bottom of Disposal Site	0.005	ft
Slope of Bottom in X-Direction	0.0	degrees
Slope of Bottom in Z-Direction	0.0	degrees
Number of Points in Ambient Density Profile Point	2	NA
Ambient Density at Depth = 0 ft	1.0241	g/cc
Ambient Density at Depth = 30 ft	1.0248	g/cc
Distance from the Top Edge of Grid (upper left corner of site)	4,000	ft
Distance from the Left Edge of Grid (upper left corner of site)	6,500	ft
Distance from the Top Edge of Grid (lower right corner of site)	7,000	ft
Distance from the Left Edge of Grid (lower right corner of site)	7,500	ft
Number of Depths for Transport-Diffusion Output	2	Number

Notes: NA = not applicable; g/cc = grams per cubic centimeter

DRAFT FINAL

Table 4-6. STFATE Model Input Parameters: Current Velocity Data – Silver Strand Nearshore Placement Site

Parameter	Value	Units
X-Direction Velocity at 0 ft	0.65	ft/s
Z-Direction Velocity at 0 ft	0	ft/s
X-Direction Velocity at 30 ft	0.65	ft/s
Z-Direction Velocity at 30 ft	0	ft/s

Notes: ft/s = feet per second

Table 4-7. STFATE Model Input Parameters: Material Data – Silver Strand Nearshore Placement Site

Parameter	Value	Units
Dredging Site Water Density (average)	1.0241	g/cc
Number of Layers	1	NA
Material Velocity at Disposal (X-Dir)	-2	ft/s
Material Velocity at Disposal (Z-Dir)	0	ft/s

Notes: NA = not applicable; g/cc = grams per cubic centimeter; ft/s = feet per second

Table 4-8. STFATE Model Input Parameters: Output Options – Silver Strand Nearshore Placement Site

Parameter	Value	Units
Duration of Simulation	3600	Seconds
Long-Term Time Step	100	seconds

Table 4-9. STFATE Model Input Parameters: Disposal Operation Data – Silver Strand Nearshore Placement Site

Parameter	Value, Barge/Scow	Units
Length of Disposal Vessel	195	ft
Width of Disposal Vessel	35	ft
Pre-Disposal Draft	14	ft
Post-Disposal Draft	4	ft
Time Needed to Empty the Disposal Bin	20	seconds
Material Volume	2,500	cubic yards

4.3.2 STFATE Model Results

The STFATE model was used to determine the need for additional testing for each of the three individual core samples collected within Composite Area C (Table 4-4). Copper concentrations ranged from 3.78 mg/kg for sample FDD-C-C6 to 4.73 mg/kg for sample FDD-C-C5. Sample FDD-C-C5 had the finest mean grain size (0.619 mm), while sample FDD-C-C3 contained the greatest percent fines (7.09 %). Based on the model results, the water quality standard for the mixing zone was not violated and therefore did not require additional testing. Appendix C2b contains STFATE modeling results for the Study.

DRAFT FINAL

Given the model assumptions employed for this assessment, model results should be interpreted with caution. Additionally, with the shallow depth and variable current at the site, it is recommended that disposal operations carefully target the upcurrent corner of the disposal area to maximize placement.

4.4 Toxicity and Bioaccumulation Evaluation Results

Results of the suspended particulate (SPP) and solid phase (SP) survival tests are provided in Table 4-10 and Table 4-11, respectively. Bioaccumulation survival results are presented in Table 4-12, and a statistical analysis of tissue chemistry exposed to dredged material compared to LA-5 ODMDS Reference sediment is presented in Table 4-13. The full Bioassay laboratory report is included in Appendix C2, and the full tissue chemistry laboratory report is included in Appendix C3.

Based on low levels of sediment chemistry and suitable STFATE modeling results, Composite Area C was granted a modified Tier I/Tier II exemption and approved for ocean disposal at the LA-5 ODMDS (Appendix D1) before it was eliminated from the dredging area design by the Navy in 2022, and only Composites A, B, and D proceeded with toxicity and bioaccumulation testing.

4.4.1 Suspended Particulate Phase Test

The results of the SPP tests for the Study are summarized in Table 4-10.

Table 4-10. Suspended Particulate Phase Toxicity Test Results

Location	Elutriate Concentration (%)	Mysid Shrimp (*Americamysis bahia*)	Inland Silverside (*Menidia beryllina*)	Bivalve (*Mytilus galloprovincialis*)
		Mean Survival (%)	Mean Survival (%)	Mean Combined Normal Development (%)
Laboratory Control (clean seawater)	—	94.0	96.0	87.7
Comp A	1	-	-	91.4
	10	100.0	96.0	94.3
	50	94.0	96.0	95.4
	100	100.0	98.0	94.0
Comp B	1	-	-	89.3
	10	96.0	100.0	93.0
	50	98.0	100.0	91.3
	100	98.0	100.0	94.2
Comp D	1	-	-	93.6
	10	100.0	100.0	95.3
	50	98.0	98.0	91.7
	100	98.0	96.0	91.5
LC_{50}/EC_{50} (% elutriate)[1]	—	>100	>100	>100

Notes:
Composite Area C was not tested because it was approved as suitable for unconfined aquatic disposal at the LA-5 ODMDS under a modified Tier I/Tier II exemption based on preliminary testing results.
[1]An LC_{50}/EC_{50} of >100 percent indicates that there was greater than 50 percent survival/normal larvae in the 100 percent elutriate concentration. — = not applicable; > = greater than; % = percent; EC_{50} = median effect concentration; LC_{50} = median lethal concentration.

DRAFT FINAL

The SPP benthic tests with the mysid shrimp (*A. bahia*) and the inland silverside larvae (*M. beryllina*) were initiated on July 20, 2021, and the SPP test with bivalve embryos (*M. galloprovincialis*) were initiated on July 21, 2021. Laboratory control samples of filtered seawater were also evaluated. The *A. bahia*, *M. beryllina*, and *M. galloprovincialis* tests were validated by 94, 96, and 87.7 % survival in the control samples (Table 4-10).

The mean percentage survival Of *A. bahia* in the 100 % elutriate concentrations was 100 % for the Composite A sample, and 98 % for the Composite B and Composite D samples. The mean percentage survival of *M. beryllina* in the 100 % elutriate concentrations was 98 % for the Composite A sample, 100 % for the Composite B sample, and 96 % for the Composite D sample. Mean percent combined normal survival of the bivalve *M. galloprovincialis* in the 100 % elutriate concentration was 94, 94.2, 91.5 % for the Composite A, Composite B, and Composite D samples respectively.

No statistically significant effects relative to a laboratory control were observed in the undiluted (100 %) elutriate for mysid shrimp (*A. bahia*), inland silverside larvae (*M. beryllina)* and bivalve embryos (*M. galloprovincialis*). The results of the SPP acute exposure tests indicated that LC_{50} values were greater than 100 % for all three organisms in all three composite samples. Statistical analysis did not indicate a significant difference between test and control organism survival, meaning that SPP tests for these species met acceptability criteria and the LPC for ocean disposal.

4.4.2 Solid Phase Test

The results of the SP tests for the Study are summarized in Table 4-11. Puget Sound Estuary Program (PSEP) guidelines (1995) recommend the use of *E. estuaries* when percent fines are below 60 % and *A. abdita* when percent fines are above 60 %. Based on mean grain size results from individual cores samples, which were comprised of between 10.0 % and 72.9 % fine4-38iliana4-38c*uarius* was chosen for Composite A and D, and *A. Abdita* was chosen for Composite B. The LA-5 Reference sediment was tested with bo4-38iliana4-38c*uarius* (to compare survival response with Composite A and D) and *A. abdita* (to compare survival response with Composite B).

Table 4-11. Solid Phase Toxicity Test Results

Location	Amphipod (*Eohaust4-38iliana4-38cuarius*)	Amphipod (*Ampelisca abdita*)	Polychaete Worm (*Neanthes arenaceodentata*)
	Mean Survival (%)	Mean Survival (%)	Mean Survival (%)
Laboratory Control (Native Sediment)	99.0	94.0	100.0
LA-5 ODMDS Reference	99.0	97.0	100.0
Comp A	90.0	-	100.0
Comp B	-	96.0	98.0
Comp D	96.0	-	98.0

Notes:
Bold = statistically significantly less (p-value < 0.05) but within 20 percent of the reference survival level

The 10-day SP test for all organisms were initiated on July 13, 2012. The test was validated by 99.0, 94.0, and 100 % survival 4-38iliana4-38c*uarius*, *A. abdita*, and *N. arenaceodentata*,

respectively, in the native sediment laboratory control sample. For the amphip4-39iliana4-39c*uarius* organism survival in Composite A sediment was 90.0 %, which is significantly less than the amphipod survival in the reference test but did not exceed reference toxicity by more than 20 %. Amphipod survival for Composite B and Composite D was 96.0 %. Polychaete worm survival was 100 % in the laboratory control and refence sediment, and was 100, 98.0, and 98.0 % in the Composite A, B, and D samples, respectively. There were no samples in which organism survival was significantly reduced compared to the reference and exceeded reference toxicity by more than 20 %. Therefore, SP tests met acceptability criteria and LPC for ocean disposal.

4.4.3 Bioaccumulation Phase Survival Results

The bioaccumulation phase survival results for the Study are summarized in Table 4-12. The 28-day bioaccumulation test was initiated on July 23, 2021. Mean survival in the control sample was 100 % for *A. virens*, and 96.8 % for *M. nasuta.* Survival in the LA-5 ODMDS Reference sample was 100 % for *A. virens* and 97.6 % for *M. nasuta*. Mean survival for *A. virens* was 100 % for Composite A and Composite B samples, and 99 % for the Composite D sample. Mean survival for *M. nasuta* was 93.6 % for Composite A, 96.8 % for Composite B, and 96 % for Composite D.

Table 4-12. Bioaccumulation Phase Survival Test Results

Sample ID	Polychaete Worm *(Alitta virens)*	Bivalve *(Macoma nasuta)*
	Mean Survival (%)	Mean Survival (%)
Laboratory Control (Native Sediment)	100.0	96.8
LA-5 Reference	100.0	97.6
Comp A	100.0	93.6
Comp B	100.0	96.8
Comp D	99.0	96.0

Notes:
% = percent

4.4.3.1 Bioaccumulation Tissue Compliance Evaluation

To determine the potential for bioaccumulation, clam and worm tissues were analyzed for constituents of concern following a 28-day exposure to the composited sediments from dredge footprints (Composites A, B, and D), and the LA-5 ODMDS Reference. Compliance with ocean disposal requirements for bioaccumulation was then evaluated in three ways:

1. Concentrations of chemical analytes detected in clam and worm tissue exposed to Project sediments were statistically compared clam and worm tissue exposed to LA-5 ODMDS reference sediment.
2. Metal and total PCB concentrations observed in the test tissues were compared with the FDA action levels for chemicals in fish and shellfish.
3. Applicable chemical analytes (i.e., those found to be significantly greater in tissues exposed to Project sediments compared with tissues exposed to reference sediments) were compared with toxicity reference values (TRV) in the ERED (USEPA/USACE, 2019). The ERED defines toxic effects levels for various organisms and endpoints (i.e., survival, mortality, and growth). Comparisons of test tissue results with the ERED were used to

DRAFT FINAL

evaluate whether tissue concentrations in this study were above documented effects levels.

Tissues used in the bioaccumulation tests were evaluated for ocean disposal suitability and beneficial reuse nearshore placement. The results of these evaluations are described in the following sections. A full tissue chemistry report from Calscience and statistical test results are provided in Appendix C4.

4.4.3.2 Bioaccumulation Exposure Statistical Comparisons

Based on sediment chemistry results of dredged material, bioaccumulation and tissues chemistry testing was limited to metals, PAHs, and PCBs.[11] Tissue from organisms exposed to Composite A sediments were tested for copper, mercury, zinc, and PCBs. Tissue from organisms exposed to Composite B sediments were tested for all metals, PAHs, and PCBs, while tissue from organisms exposed to Composite D sediments were tested for copper, mercury, and zinc. Additionally, percent solids and percent lipids were measured in all tissue samples.

All tissue results are in wet weight units. In place of non-detect results, one-half the MDL value was used for statistical comparison only to determine if tissues exposed to Project sediments contained significantly greater concentrations of analytes than tissue exposed to reference sediment. One-tailed t-tests of log-transformed data were used to statistically compare concentrations of contaminants in the tissue of organisms exposed to the test sediment with those of the reference tissues.

In addition to tissues exposed to Project and reference sediments, two pre-test tissues (one worm and one clam) were also analyzed to determine whether any pre-existing concentrations could be detected in tissues. Pre-test tissue analyte concentrations are included in the summary tables provided with the analytical reports from Calscience in Appendix C3 and Appendix C4.

Tissue chemistry results for the bioaccumulation analyses in clam and polychaete worm tissues are summarized in Table 4-13. These data show the mean and standard deviation of the five replicates analyzed for each test treatment in which the analyte concentration in tissues exposed to test sediment was significantly greater (p-value < 0.05) than the analyte concentration in tissues exposed to the LA-5 ODMDS reference sediments. In cases where replicate results were non-detect, ½ the MDL was used for t-test statistical calculations. For sums and averages, non-detects were treated as zero.

For metals, tissues exposed to Composite A sediments contained significantly elevated levels of copper and mercury for clam tissues, and copper and zinc for worm tissues compared to clam and worm tissues exposed to LA-5 ODMDS reference sediment. Tissues exposed to Composite B sediments contained significantly elevated levels of arsenic, lead, and nickel for clam tissues, and cadmium, lead, nickel, and silver for worm tissues compared to clam and worm tissues exposed to LA-5 ODMDS reference sediment. No tissues exposed to Composite D sediments contained significantly elevated concentrations of analytes compared to the tissues exposed to LA-5 ODMDS reference sediment.

[11] As approved by the agencies on June 30, 2021 (Appendix D2).

DRAFT FINAL

Total PAHs and eleven individual PAHs in Composite B clam tissues were significantly elevated, while only three individual PAHs were significantly elevated in worm tissues compared to the LA-5 ODMDS reference tissues (Table 4-13). Total PCB congeners and up to 14 individual congeners were significantly elevated in clam tissues exposed to Composite A and B sediments. While total PCB congeners were not significantly elevated in worm tissues exposed to Composite A and B sediments, twelve individual PCB congeners were significantly elevated.

DRAFT FINAL

This page intentionally left blank

DRAFT FINAL

Table 4-13. Summary of Bioaccumulation Tissue Chemistry Results for Significantly Elevated Tissue Residues

Compound	Unit (Wet Weight)	Analytes Measured in Clam (*Macoma nasuta*) Tissue										Analytes Measured in Worm (Alitta *virens*) Tissue									
		LA-5 Reference		Composite A		Composite B		Composite C[1]		Composite D		LA-5 Reference		Composite A		Composite B		Composite C[1]		Composite D	
		Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD	Mean	1 SD
Arsenic	mg/kg	2.2	0.43	NT	NT	4.1	1.6	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Cadmium	mg/kg	--	--	NT	NT	--	--	NT	NT	NT	NT	ND	--	NT	NT	*0.036*	*0.034*	NT	NT	NT	NT
Copper	mg/kg	1.40	0.33	2.6	0.49	--	--	NT	NT	--	--	1.3	0.32	1.8	0.32	--	--	NT	NT	--	--
Lead	mg/kg	0.077 J	0.02	NT	NT	0.22	0.041	NT	NT	NT	NT	0.081 J	0.020	NT	NT	0.13 J	0.045	NT	NT	NT	NT
Mercury	mg/kg	0.024 J	0.0037	0.032	0.0086	--	--	NT	NT	--	--	--	--	--	--	--	--	NT	NT	--	--
Nickel	mg/kg	0.10	0.017	NT	NT	0.34	0.17	NT	NT	NT	NT	0.11 J	0.033	NT	NT	0.19 J	0.035	NT	NT	NT	NT
Silver	mg/kg	--	--	NT	NT	--	--	NT	NT	NT	NT	ND	--	NT	NT	*0.019 J*	*0.018*	NT	NT	NT	NT
Zinc	mg/kg	--	--	--	--	--	--	NT	NT	--	--	14	6.6	22	2.9	--	--	NT	NT	--	--
Acenaphthylene	µg/kg	ND	--	NT	NT	*1.5 J*	*1.5*	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Anthracene	µg/kg	ND	--	NT	NT	*2.3 J*	*1.3*	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Benzo (a) Pyrene	µg/kg	ND	--	NT	NT	103	11	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Benzo (b) Fluoranthene	µg/kg	ND	--	NT	NT	130	12	NT	NT	NT	NT	4.4	4.0	NT	NT	13 J	0.89	NT	NT	NT	NT
Benzo (e) Pyrene	µg/kg	ND	--	NT	NT	43	5.7	NT	NT	NT	NT	ND	--	NT	NT	*2.7 J*	*1.6*	NT	NT	NT	NT
Benzo (k) Fluoranthene	µg/kg	ND	--	NT	NT	106	14	NT	NT	NT	NT	ND	--	NT	NT	7.2 J	1.3	NT	NT	NT	NT
Chrysene	µg/kg	ND	--	NT	NT	*6.5 J*	*3.7*	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Dibenz (a,h) Anthracene	µg/kg	ND	--	NT	NT	12	1.3	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Fluoranthene	µg/kg	ND	--	NT	NT	3.2 J	0.42	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Indeno (1,2,3-c,d) Pyrene	µg/kg	ND	--	NT	NT	**26**	**2.6**	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Pyrene	µg/kg	ND	--	NT	NT	6.3 J	0.54	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
Total PAHs	µg/kg	ND	--	NT	NT	*452 J*	*40*	NT	NT	NT	NT	--	--	NT	NT	--	--	NT	NT	NT	NT
PCB049	µg/kg	ND	--	1.8	0.49	2.1	0.54	NT	NT	NT	NT	ND	--	0.4	0.15	0.70	0.14	NT	NT	NT	NT
PCB052	µg/kg	ND	--	0.82	0.087	1.7	0.18	NT	NT	NT	NT	ND	--	1.0	0.17	1.6	0.23	NT	NT	NT	NT
PCB066	µg/kg	ND	--	1.4	0.089	1.8	0.15	NT	NT	NT	NT	ND	--	0.9	0.05	1.1	0.16	NT	NT	NT	NT
PCB070	µg/kg	ND	--	0.60	0.15	1.2	0.18	NT	NT	NT	NT	--	--	--	--	--	--	NT	NT	NT	NT
PCB074	µg/kg	ND	--	--	--	*0.38*	*0.36*	NT	NT	NT	NT	--	--	--	--	--	--	NT	NT	NT	NT
PCB099	µg/kg	ND	--	*1.6*	*0.93*	2.6	0.42	NT	NT	NT	NT	*0.16*	*0.15*	1.4	0.26	1.7	0.59	NT	NT	NT	NT
PCB101	µg/kg	ND	--	2.6	0.11	3.5	0.49	NT	NT	NT	NT	*0.22*	*0.20*	2.0	0.27	2.9	0.58	NT	NT	NT	NT
PCB110	µg/kg	ND	--	2.3	0.21	3.3	0.54	NT	NT	NT	NT	ND	--	1.3	0.29	2.0	0.51	NT	NT	NT	NT
PCB118	µg/kg	ND	--	2.1	0.19	2.8	0.44	NT	NT	NT	NT	ND	--	1.2	0.19	1.6	0.34	NT	NT	NT	NT
PCB132/153	µg/kg	ND	--	3.9	0.34	4.8	0.46	NT	NT	NT	NT	*1.4*	*0.78*	3.6	0.73	4.7	1.2	NT	NT	NT	NT
PCB138/158	µg/kg	ND	--	3.2	0.23	3.9	0.45	NT	NT	NT	NT	*1.1*	*0.62*	2.8	0.51	3.9	1.0	NT	NT	NT	NT
PCB149	µg/kg	ND	--	2.8	0.29	3.5	0.40	NT	NT	NT	NT	*0.46*	*0.42*	2.4	0.53	3.4	0.87	NT	NT	NT	NT
PCB180	µg/kg	ND	--	--	--	1.1	0.26	NT	NT	NT	NT	*0.17*	*0.38*	*1.1*	*0.67*	*1.9*	*1.3*	NT	NT	NT	NT
PCB187	µg/kg	ND	--	1.0	0.04	1.2	0.15	NT	NT	NT	NT	*0.57*	*0.54*	1.5	0.19	2.0	0.52	NT	NT	NT	NT
Total PCB Congeners	µg/kg	ND	--	*24*	*1.1*	*34*	*4.2*	NT	NT	NT	NT	--	--	--	--	--	--	NT	NT	NT	NT

Notes:

BOLD = Test tissue concentration is significantly greater than reference tissue concentration ($p < 0.05$); For stastical comparisons (t-test), 1/2 of the method detection limit was used in place of the non-detects (NDs), and the data was log transformed; NDs were treated as zero to calculate mean values, standard deviations, and sum polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyl congeners (PCBs); *ITALICS* = at least one of the replicates was ND; If all replicates were ND, the means are presented as ND. -- =analyte concentration in test tissues were not significantly greater than reference tissues or all replicates were ND and the standard deviation was not calculated; J = value detected between the MDL and RL. For sums and averages J flags were included if any of the constituents of the sum or average included a J flag. mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; NT = not tested ; SD = standard deviation. 1: FDD-C Composite was not tested and was approved for modified Tier I/Tier II exemption for ocean disposal based on sediment chemistry results (Appendix D).

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

4.4.3.3 Comparison to FDA Action Levels

Table 4-14 compares average analyte concentrations in clam and worm tissues with available FDA action levels (note that not all chemicals analyzed in tissue samples have FDA action levels). Although concentrations of some of the analytes were statistically elevated in tissues exposed to Project sediment compared with tissues exposed to the LA-5 ODMDS reference tissues, all chemicals analyzed in test tissue samples exposed to proposed dredged material were below FDA action levels. These results indicate that constituents of concern found in the Project dredged material proposed for disposal at the LA-5 ODMDS would not be expected to bioaccumulate in the biota to levels that would exceed FDA action levels for human consumption.

Table 4-14. Comparison of Test Tissue Concentrations to FDA

Analyte	Unit (wet weight)	FDA Action Level[1]	FDD-A Composite		FDD-B Composite		FDD-C Composite[2]		FDD-D Composite	
			Clams	Worms	Clams	Worms	Clams	Worms	Clams	Worms
Arsenic[3]	mg/kg	86	NT	NT	4.08	2.93	NT	NT	NT	NT
Cadmium[3]	mg/kg	4	NT	NT	0.0203	0.0364	NT	NT	NT	NT
Chromium[3]	mg/kg	13	NT	NT	0.988	0.962	NT	NT	NT	NT
Lead[3]	mg/kg	1.7	NT	NT	0.216	0.133	NT	NT	NT	NT
Mercury[4,5]	mg/kg	1.0	0.0324	0.0217	0.0257	0.0228	NT	NT	0.0201	0.0074
Nickel[3]	mg/kg	80	NT	NT	0.343	0.189	NT	NT	NT	NT
Total PCBs Congeners[4]	µg/kg	2000	24	20	34	31	NT	NT	NT	NT

Notes:
1. U.S. Food and Drug Administration. 2007. National Shellfish Sanitation Program Guide for the control of Molluscan Shellfish 2007 Edition. Accessed on October 19, 2021 at http://wayback.archive-it.org/7993/20180126093326/https://www.fda.gov/downloads/Food/GuidanceRegulation/FederalStateFoodPrograms/UCM241512.pdf.
2. FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).
3. FDA action level for molluscan shellfish
4. FDA action level for all fish
5. FDA action level for methyl mercury (wet weight)
BOLD = value is above FDA action level.
µg/kg = micrograms per kilogram (parts per billion); FDA = U.S. Food and Drug Administration; mg/kg = milligrams per kilogram (parts per million); ND = non-detect, or value reported as less than the method detection limit (MDL)

4.4.3.4 Environmental Residue Effects Database Comparison

The ERED (USEPA/USACE, 2019) was queried to further evaluate the potential ecological effects related to concentrations of significantly elevated analytes observed in clam and worm tissues because of exposure to the Project sediments. This database specifies the following instructions for comparing tissue data, and cautions proper use when doing so:

1. The ERED contains residue-effects information on many environmental contaminants of potential concern.

2. Although the database is the result of an extensive literature search of known residue-effects data, the search was not exhaustive.

DRAFT FINAL

3. When using the database for regulatory purposes, such as dredged material evaluations, consideration must be given to the nature of the biological effect associated with a particular residue level. The database contains information on a broad range of biological effects caused by the presence of a particular contaminant in the tissue of an organism, from the induction of particular enzymes or enzyme systems to whole-organism effects on survival, growth, or reproduction. A more vital inferential link exists between whole-organism toxicological effects (e.g., reduced survival) and ecological impacts on populations, communities, and ecosystems (i.e., effects the Marine Protection, Research, and Sanctuaries Act and the Clean Water Act specifically state should be avoided). Cellular/subcellular responses are most appropriately used as biomarkers of exposure; they are biological indicators that the organism has been exposed to some type of stress. The causal relationship between the induction of such biomarkers and higher-order effects such as whole-organism survival, growth, reproduction, or ecological impacts is unknown in most cases.

4. Merely identifying the presence of a chemical substance in the tissues of an organism, for example, following a bioaccumulation test, is not sufficient information to conclude that the chemical will produce an adverse effect. All chemical substances can produce adverse effects (i.e., toxicity), including such diverse compounds as aspirin, zinc, and dioxin. The likelihood that a chemical substance in the tissues of an organism will produce an adverse effect is a function of the physical and chemical properties of the substance, the concentration of the chemical in the tissues of the organism, and the length of time the organism is exposed to the compound. Because environmental contaminants vary so widely in their potential to produce toxicity, contaminant-specific information must be used to reach a determination regarding the potential for a bioaccumulated substance to produce adverse effects.

Based upon these instructions, the following six criteria were established by the Multi-MAC JV Group for queries of the Study tissue data using the ERED:

- The chemical of concern in test tissues and the database matches precisely.
- The actual test species or an appropriate surrogate species is used.
- The whole body is the analysis unit.
- An appropriate study endpoint (e.g., survival or growth) is selected.
- To be conservative, the lowest observed level of effect listed in the database is chosen for comparison with the analytical tissue results.
- The toxicity or effects measurements are appropriate (e.g., no-observed-effect dose [NOED] or lowest-observed-effect dose [LOED]).

Table 4-15 summarizes the relevant ERED study results and the Study clam and worm bioaccumulation results for analytes that were significantly elevated in tissues exposed to test sediment compared with those exposed to the LA-5 ODMDS reference sediment.

A comparison of the tissue chemistry results of the Study with published data in the ERED shows that levels of bioaccumulated constituents in clam and worm tissues exposed to Study sediments

DRAFT FINAL

would not be expected to cause significant effect to marine biota, with the exception of arsenic in Composite B, if placed at the LA-5 ODMDS or other unconfined aquatic disposal area.

The clam tissue residue concentration for arsenic in Composite B was 4.08 mg/kg compared to 2.15 mg/kg the reference tissue, and 3.6 mg/kg no observed effects concentration (NOEC) in the ERED database. While the ERED defines 3.6 mg/kg tissue residue concentration for arsenic as the NOEC for whole body mortality, the cited study found no significant difference in mortality among groups during the exposure period, and arsenic tissue residue concentrations were not correlated with mortality during the exposure period (St-Jean et al., 2003).

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Table 4-15. Summary of ERED Entries of Significantly Elevated Chemicals in Clam and Worm Tissue Residues

Analyte	Test Species	Units (wet wt.)	Reference Mean Tissue Concentration[1,2]	Test Area Mean Tissue Concentration[1,2]	P Value[3]	Comparison to Relevant Environmental Residue-Effects Database Values
Arsenic	Clam	mg/kg	2.15 ± 0.43	FDD-B Composite – 4.08 ± 1.62	FDD-B Composite – 0.014	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for arsenic bioaccumulation; however, a study using a similar species (*Mytlius edulis*) was located. This in situ study reported a tissue residue level of arsenic measured at 3.6 mg/kg. While there were no sediment arsenic concentrations sampled, the study reported this tissue level as a no observed effect concentration (NOEC). (St-Jean SD, SC Courtenay, RW Parker Water Qual Res J Can 38(4):647-666).
Cadmium	Worm	mg/kg	ND<0.0426	FDD-B Composite – 0.0364 ± 0.0345	FDD-B Composite – 0.022	NA—There are no relevant effects in the ERED database for this compound and test species.
Copper	Clam	mg/kg	1.40 ± 0.33	FDD-A Composite – 2.55 ± 0.49	FDD-A Composite – 0.001	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for copper bioaccumulation; however, a study using a similar species (*Macoma balthica*) was located. This study reported a tissue residue level of copper measured at 5.0 mg/kg. While there was no sediment copper exposure concentration reported, the study is reporting this tissue level as a survival no observed effect concentration (NOEC). (Absil MCP, M Berntssen, LJA Gerringa; Aquat Toxicol 34:13-29).
Copper	Worm	mg/kg	1.28 ± 0.32	FDD-A Composite – 1.78 ± 0.32	FDD-A Composite – 0.027	Several polychaete worm studies are contained in the database; however, none were conducted using *Alitta virens* (i.e., the worm species used in this study). The marine worm studies contained in the ERED report whole body mortality and biochemical no observed effect concentrations (NOECs). For mortality NOECs, one study reported a residue tissue concentration of 6.422 mg/kg when exposed to 0.02 mg/L copper for a duration of 34 days. Another study reported a residue tissue concentration of 95.5 mg/kg when exposed to 0.075 mg/L copper for a duration of 21 days. A third study reported a residue tissue concentration of 36.0 -38.0 mg/kg copper as a result of a sediment exposure concentration of 1300-1400 mg/kg copper. Fo4-49iliana4-49calemcial NOEC, a study reported a residue tissue concentration of 12.43 mg/kg when exposed to a concentration of 62.5 ug/L copper. ([Milanovich et al. 1976. Uptake of copper by the polychaete Cirri.... Estuar Coast Mar Sci 4:585-588.], [King et al. 2004. An assessment of five Australian pIcha.... Arch Environ Con Tox 47:314-323.], [McLusky and Phillips. 1975. Some effects of copper on the pIchaete.... Estuar Coast Mar Sci 3:103-108.], Ferreira-Cravo et al. 2009. Antioxidant responses in diflent body .... Ecotox Environ Safe 72:388-393.]).
Lead	Clam	mg/kg	0.0771 ± 0.0175	FDD-B Composite – 0.216 ± 0.041	FDD-B Composite – <0.001	There are no relevant effects in the ERED database for *Macoma nasuta*. However, a study using the Eastern Oyster Crassostrea virginica reported a residue tissue concentration of 2.28 mg/kg for growth and mortality when exposed to 3.3 ug/L lead. The study also reported a residue issue concentration of 2.6 mg/kg for reproduction when exposed to 3.3 ug/L lead. The study reports the no observed effect concentration (NOEC) as 3.3 ug/L for all endpoints discussed above. (Zaroogian, G.E., G. Morrison, and J.F. Heltshe; Mar Biol 52:189-196).
Lead	Worm	mg/kg	0.0813 ± 0.0203	FDD-B Composite – 0.133 ± 0.045	FDD-B Composite – 0.023	NA—There are no relevant effects in the ERED database for this compound and test species.
Mercury	Clam	mg/kg	0.0238 ± 0.0037	FDD-A Composite – 0.0324 ± 0.0086	FDD-A Composite – 0.034	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for mercury bioaccumulation; however, a study using a similar species (*Mytlius edulis*) was located. This study reported a range of tissue residue levels of mercury measured at 1.12 mg/kg to 73.44 mg/kg when exposed to a mercury concentration of 50 ug/L in an aqueous environment. (Sheir et al. 2010. Tissue injury and cellulaImmune respon.... Ecotox Environ Safe 73:1338-1344.).
Nickel	Clam	mg/kg	0.102 ± 0.017	FDD-B Composite – 0.343 ± 0.168	FDD-B Composite – 0.002	NA—There are no relevant effects in the ERED database for this compound and test species.
Nickel	Worm	mg/kg	0.112 ± 0.033	FDD-B Composite – 0.189 ± 0.035	FDD-B Composite – 0.005	NA—There are no relevant effects in the ERED database for this compound and test species.
Silver	Worm	mg/kg	ND<0.0232	FDD-B Composite – 0.0193 ± 0.0178	FDD-B Composite – 0.020	NA—There are no relevant effects in the ERED database for this compound and test species.
Zinc	Worm	mg/kg	14.0 ± 6.6	FDD-A Composite – 22.5 ± 2.9	FDD-A Composite – 0.012	There are no relevant effects for zinc in the ERED database for the worm species used in this dredge characterization study (polychaete *Alitta* [formerly *Nereis*] *virens*). However, the ERED does contain a study which list effects to the marine worm species *Australonereis ehlersi* and *Aglaophamus australiensis*. For *Australonereis ehlersi*, the study reports a tissue residue of 20 mg/kg for the mortality endpoint when exposed to a concentration of 3100 mg/kg of zinc in sediment. The study is reporting a tissue residue of 3100 mg/kg as a no observed effect concentration (NOEC). For *Aglaophamus australiensis*, the study reports a tissue residue of 60 mg/kg for the mortality endpoint when exposed to a concentration of 3900 mg/kg of zinc

DRAFT

Table 4-15.
Summary of ERED Entries of Significantly Elevated Chemicals in Clam and Worm Tissue Residues (Continued)

Analyte	Test Species	Units (wet wt.)	Reference Mean Tissue Concentration[1,2]	Test Area Mean Tissue Concentration[1,2]	P Value[3]	Comparison to Relevant Environmental Residue-Effects Database Values
						in sediment. The study is reporting 3900 mg/kg as a no observed effect concentration (NOEC). (King et al. 2004. An assessment of five Itralian polycha.... Arch Environ Con Tox 47:314-323.).
Acenaphthylene	Clam	µg/kg	ND<1.7	FDD-B Composite – 1.5 ± 1.5	FDD-B Composite – 0.0226	NA—There are no relevant effects in the ERED database for this compound and test species.
Anthracene	Clam	µg/kg	ND<1.9	FDD-B Composite – 2.3 ± 1.3	FDD-B Composite – 0.0026	NA—There are no relevant effects in the ERED database for this compound and test species.
Benzo (a) Pyrene	Clam	µg/kg	ND<1.4	FDD-B Composite – 103 ± 11	FDD-B Composite – <0.001	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for benzo(a)pyrene bioaccumulation; however, a study using a similar species (*Mytlius edulis*) was located. This flow-through study reported a tissue residue level of benzo(a)pyrene measured at 3.2 mg/kg. While there were no benzo(a)pyrene sediment exposure concentrations listed, the study is reporting this tissue level as a 50 percent effective dose (ED50) for physiological effects. (Eertman et al. 1995. Response of the blulussel Mytilus edul.... Mar Environ Res 39:169-173.). An additional sIudy identifies effects in *Mytilus galloprovincialis*. Damage to DNA was observed at tissue residue concentrations of Benzo (a) pyrene ranging from 9.7 mg/kg to 116.2 mg/kg. The study reports this data as a range of no observed effect concentration (NOEC) values. (Akcha et al. 2000. Benzo {a} pyreIinduced DNA damage in .... Biomarkers 5:355-367.).
Benzo (b) Fluoranthene	Clam	µg/kg	ND<1.4	FDD-B Composite – 130 ± 12	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
Benzo (b) Fluoranthene	Worm	µg/kg	4.4 ± 4.0	FDD-B Composite – 13 ± 1	FDD-B Composite – 0.0139	NA—There are no relevant effects in the ERED database for this compouland test species.
Benzo (e) Pyrene	Clam	µg/kg	ND<1.7	FDD-B Composite – 43 ± 6	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this comInd and test species.
Benzo (e) Pyrene	Worm	µg/kg	ND<1.7	FDD-B Composite – 2.7 ± 1.6	FDD-B Composite – 0.0023	NA—There are no relevant effects in the ERED database for this compound and test species.
Benzo (k) Fluoranthene	Clam	µg/kg	ND<1.5	FDD-B Composite – 106 ± 14	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
Benzo (k) Fluoranthene	Worm	µg/kg	ND<1.5	FDD-B Composite – 7.2 ± 1.3	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
Chrysene	Clam	µg/kg	ND<1.4	FDD-B Composite – 6.5 ± 3.7	FDD-B Composite – 0.0020	NA—There are no relevant effects in the ERED database for this compound and test species.
Dibenz (a,h) Anthracene	Clam	µg/kg	ND<1.4	FDD-B Composite – 12 ± 1	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
Fluoranthene	Clam	µg/kg	ND<1.8	FDD-B Composite – 3.2 ± 0.4	FDD-B Composite – <0.001	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for fluoranthene bioaccumulation; however, a study using a similar species (*Macoma balthica*) was located. This static study reported tissue residue levels of 30 and 150mg/kg. While there were no fluoranthene sediment exposure concentrations listed, the study is reporting these tissue levels as no observed effects concentration (NOECs) for behavioral effects in the ability of the organism to re-bury itself. (Ahrens et al. 2002.4-50ilianaIty of juvenile Macomona liliana.... Environ Toxicol 17:567-577.).
Indeno (1,2,3-c,d) Pyrene	Clam	µg/kg	ND<1.3	FDD-B Composite – 26 ± 3	FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
Pyrene	Clam	µg/kg	ND<1.6	FDD-B Composite – 6.3 ± 0.5	FDD-B Composite – <0.001	There were no specific studies found in the database for the clam species used in the dredge characterization study (*Macoma nasuta*) for pyrene bioaccumulation; however, a study using a similar species (*Mytlius edulis*) was located. The study reported an exposure concentration of 0.04 mg/L pyrene as the 50 percent effected dose (ED50). At this level, the researchers noted a 50% reduction In feeding rate (Donkin, P., J. Widdows, S.V. Evans, C.M. Worrall and M. Aquat Toxicol 14:277-294).

DRAFT FINAL

Table 4-15.
Summary of ERED Entries of Significantly Elevated Chemicals in Clam and Worm Tissue Residues (Continued)

Analyte	Test Species	Units (wet wt.)	Reference Mean Tissue Concentration[1,2]	Test Area Mean Tissue Concentration[1,2]	P Value[3]	Comparison to Relevant Environmental Residue-Effects Database Values
Total PAHs[3]	Clam	µg/kg	0.44 ± 0.98	FDD-B Composite – 452 ± 40	FDD-B Composite – <0.001	The ERED information for individual PAHs detected in tissues of clams exposed to Project sediments is summarized in the comment section for each analyte. There are no relevant studies in the ERED database for total PAHs for any applicable species.
PCB049	Clam	µg/kg	ND<0.11	FDD-A Composite – 1.8 ± 0.5 FDD-B Composite – 2.1 ± 0.5	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB049	Worm	µg/kg	0.055	FDD-A Composite – 0.41 ± 0.15 FDD-B Composite – 0.70 ± 0.14	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB052	Clam	µg/kg	ND<0.061	FDD-A Composite – 0.82 ± 0.09 FDD-B Composite – 1.7 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB052	Worm	µg/kg	ND<0.061	FDD-A Composite – 1.0 ± 0.2 FDD-B Composite – 1.6 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB066	Clam	µg/kg	ND<0.10	FDD-A Composite – 1.4 ± 0.1 FDD-B Composite – 1.8 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB066	Worm	µg/kg	ND<0.10	FDD-A Composite – 0.87 ± 0.05 FDD-B Composite – 1.1 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB070	Clam	µg/kg	ND<0.058	FDD-A Composite – 0.60 ± 0.15 FDD-B Composite – 1.2 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB074	Clam	µg/kg	ND<0.085	FDD-B Composite – 0.38 ± 0.36	FDD-B Composite – 0.0208	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB099	Clam	µg/kg	ND<0.059	FDD-A Composite – 1.6 ± 0.9 FDD-B Composite – 2.6 ± 0.4	FDD-A Composite – 0.002 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB099	Worm	µg/kg	0.16 ± 0.15	FDD-A Composite – 1.4 ± 0.3 FDD-B Composite – 1.7 ± 0.6	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB101	Clam	µg/kg	ND<0.096	FDD-A Composite – 2.6 ± 0.1 FDD-B Composite – 3.5 ± 0.5	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB101	Worm	µg/kg	0.22 ± 0.20	FDD-A Composite – 2.0 ± 0.3 FDD-B Composite – 2.9 ± 0.6	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB110	Clam	µg/kg	ND<0.045	FDD-A Composite – 2.3 ± 0.2 FDD-B Composite – 3.3 ± 0.5	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB110	Worm	µg/kg	ND<0.045	FDD-A Composite – 1.3 ± 0.3 FDD-B Composite – 2.0 ± 0.5	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB118	Clam	µg/kg	ND<0.082	FDD-A Composite – 2.1 ± 0.2 FDD-B Composite – 2.8 ± 0.4	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB118	Worm	µg/kg	ND<0.082	FDD-A Composite – 1.2 ± 0.2 FDD-B Composite – 1.6 ± 0.3	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB132/153	Clam	µg/kg	ND<0.17	FDD-A Composite – 3.9 ± 0.3 FDD-B Composite – 4.8 ± 0.5	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB132/153	Worm	µg/kg	1.4 ± 0.8	FDD-A Composite – 3.6 ± 0.7 FDD-B Composite – 4.7 ± 1.2	FDD-A Composite – 0.0304 FDD-B Composite – 0.0161	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB138/158	Clam	µg/kg	ND<0.093	FDD-A Composite – 3.2 ± 0.2 FDD-B Composite – 3.9 ± 0.4	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB138/158	Worm	µg/kg	1.1 ± 0.6	FDD-A Composite – 2.8 ± 0.5 FDD-B Composite – 3.9 ± 1.0	FDD-A Composite – 0.0379 FDD-B Composite – 0.0196	NA—There are no relevant effects in the ERED database for this compound and test species.

DRAFT FINAL

Table 4-15.
Summary of ERED Entries of Significantly Elevated Chemicals in Clam and Worm Tissue Residues (Continued)

Analyte	Test Species	Units (wet wt.)	Reference Mean Tissue Concentration[1,2]	Test Area Mean Tissue Concentration[1,2]	P Value[3]	Comparison to Relevant Environmental Residue-Effects Database Values
PCB149	Clam	µg/kg	ND<0.096	FDD-A Composite – 2.8 ± 0.3 FDD-B Composite – 3.5 ± 0.4	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB149	Worm	µg/kg	0.46 ± 0.42	FDD-A Composite – 2.4 ± 0.5 FDD-B Composite – 3.4 ± 0.9	FDD-A Composite – 0.0063 FDD-B Composite – 0.0029	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB180	Clam	µg/kg	ND<0.041	FDD-B Composite – 1.1 ± 0.3	FDD-B Composite – <0.0001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB180	Worm	µg/kg	0.17 ± 0.38	FDD-A Composite – 1.1 ± 0.7 FDD-B Composite – 1.9 ± 1.3	FDD-A Composite – 0.0240 FDD-B Composite – 0.0180	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB187	Clam	µg/kg	ND<0.083	FDD-A Composite – 1.0 ± 0.0 FDD-B Composite – 1.2 ± 0.2	FDD-A Composite – <0.001 FDD-B Composite – <0.001	NA—There are no relevant effects in the ERED database for this compound and test species.
PCB187	Worm	µg/kg	0.57 ± 0.54	FDD-A Composite – 1.5 ± 0.2 FDD-B Composite – 2.0 ± 0.5	FDD-A Composite – 0.0282 FDD-B Composite – 0.0169	NA—There are no relevant effects in the ERED database for this compound and test species.
Total PCB Congeners	Clam	µg/kg	ND<0.041	FDD-A Composite – 24 ± 1 FDD-B Composite – 34 ± 4	FDD-A Composite – <0.001 FDD-B Composite – <0.001	There are relevant tests in the ERED database for *Macoma nasuta* for total PCBs. A 1995 study in the database reports a no observed effect concentration (NOEC) for mortality at 0.6496 mg/kg, resulting in a tissue concentration of 1.75 mg/kg (Boese, B.L., M. Winsor, H. Lee Li, S. Echols, J. Pelletier and R. Randall; Environ Tox & Chem 14:303-310).

Notes:
Refer to ERED for reference information. https://ered.el.erdc.dren.mil
PAH = polycyclic aromatic hydrocarbon; PCB = polychlorinated biphenyl congener; µg/kg = microgram(s) per kilogram; µg/L = micrograms per liter; mg/kg = milligram(s) per kilogram; mg/L = milligrams per liter; ± = plus or minus; NA = not applicable; NOEC = no observed effects concentration; LOEC = lowest observed effects concentration; ED50 = effects dose 50 (e.g. 50 precent effective dose) is the dose of drug that produces an effect in 50 percent of the population (quantal) or causes 50 percent of maximal effect (graded); ERED = Environmental Residue-Effects Database.

DRAFT FINAL

4.5 Quality Assurance/Quality Control

All sample results were reviewed for conformance with the Project SAP (NAVFAC Southwest, 2021). The SAP includes data quality acceptability limits applicable to Project sediments. The laboratory (Eurofins Calscience) holds a valid certification by the California Department of Public Health's Environmental Laboratory Accreditation Program (ELAP) and is accredited by the United States Department of Defense ELAP (DoD-ELAP). The following analytical method variances were noted from the SAP Table 3-3a: total solids by moisture, and oil and grease and TRPH by 1664A. These method updates were determined to be acceptable and preferrable by the quality assurance team for this study. While method sensitivity criteria (SAP Table 3-3a) were not met for certain sediment target reporting limits (including analytes in metals, TPH, PAH, PCB, phenol, pyrethroid, and organotin groups) or for tissue target reporting limits for metals, these analytes were evaluated to the method detection limit (MDL) which was below applicable screening levels and met target reporting limits (except chlordane, and dieldrin), and many of the analytes were detected at concentrations above the MDL or RL. Total chlordane (the sum of chlordane-alpha, chlordane-gamma, cis-nonachlor, trans-nonachlor, and oxychlordane) and dieldrin were measured as non-detect in all project samples, although the MDLs were marginally greater than the respective ERLs in 18 of the 32 samples for total chlordane, and 32 of the 32 samples for dieldrin. The ERLs for these compounds are well below achievable detection levels for this method and the MDLs for both compounds were within the SAP target RLs. Therefore, the reported non-detect values are considered valid for the intended data use. Additionally, the laboratory reporting limits for the majority of analytes are lower than the target reporting limits (TRLs) outlined in the updated USACE and USEPA Sampling and Analysis Plan Guidelines (USACE and USEPA, 2021). These deviations in the methods list and screening levels are considered negligible given the entirety of the data set, and data comparability is maintained as prescribed in the SAP.

Prescribed holding times were met for all project samples except total and dissolved sulfides in the four area composite samples. These samples were created and analyzed after analysis of individual core samples and agency consultation and may have experienced degradation which would bias results low. Affected data has been appropriately flagged to indicate holding time exceedances outlined in Table 3-3b of the SAP (NAVFAC Southwest, 2021).

Hardcopy and electronic data deliverables (EDDs) were reported, and data was qualified (flagged) based on both the laboratory performance-based criteria limits and the project-specific criteria limits, including surrogates and matrix spike/matrix spike duplicate (MS/MSD) recoveries and duplicate precision listed in the SAP. All requested analyses and analytes were reported. Laboratory QA/QC results for metals can be made available upon request. A summary of each of the QC indicators (SAP, Table 3-3c) and exceedances of any Measurement Quality Objectives (MQOs) for accuracy and precision (reference SAP Table 3-3d) is provided below.

DRAFT FINAL

4.5.1 Sediment Chemistry

1) *MS/MSDs* were outside of recovery limits and/or relative precent difference exceeded control limits for select samples for total organic carbon, organotins (monobutyltin, dibutyltin), chlorinated pesticides (19 analytes), PCBs (Aroclor-1016), metals (barium, mercury, molybdenum, silver), phenols (16 analytes), phthalates (6 analytes), PAHs (18 analytes), and pyrethroids (Cyfluthrin, Cypermethrin, fluvalinate, Fenvalerate/Esfenvalerate, Lambda cyhalothrin, permethrin cis/trans). Additionally, due to the high concentration of copper and zinc, the MS/MSDs and RPD for metals for certain samples could not be evaluated for accuracy and precision. Noted accuracy and/or precision exceedances are attributed to matrix interference and/or sample heterogeneity since these results are also associated with acceptable recoveries and relative percent differences (RPDs) of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD), and the method blank (MB), and are therefore reported as measured. These exceedances are flagged appropriately in the quality control section of the lab report.

2) *Surrogate* recoveries were biased high for select samples for pyrethroids. However, pyrethroids were not detected in any project sample, therefore re-extraction and/or re-analysis was not performed, and sample results were not impacted by these exceedances.

3) *Method Blanks:* For select samples, phenols (2,3,4,6-tetrachlorophenol, 2,4-dinitrophenol, phenol, pentachlorophenol), and phthalates (bis(2-ethylhexyl) phthalate, butyl benzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, diethyl phthalate) were detected in the method blank at concentrations between the MDL and RL. Phthalates are a common laboratory contaminant, are highly variable, and are not a significant constituent of potential concern at the levels measured, therefore all results are reported as measured.

4) *LCS/LCSD* recovery was outside of acceptance limits for select samples for pesticides (endosulfan sulfate, endosulfan I, gamma and beta BHC). These analytes were biased high in the LCS and were not detected in any of the project samples; therefore, the data have been reported. The LCS/LCSD recoveries for organotins (monobutyltin) and phenols (2,4-dinitrophenol, pentachlorophenol and 4,6 dinitro-2-methylphenol) were biased low in select samples, however, this is not indicative of a systematic control problem as these were random marginal exceedances. The LCS/LCSD RPD exceeded the control limit for select samples for organotins (monobutyltin and dibutyltin), pesticides (gamma-chlordane, gamma-BHC), and phenols (2,4-dinitrophenol, pentachlorophenol and 4,6-dinitro-2-methylphenol). However, this is also not considered indicative of a systematic control problem as these are considered random marginal exceedances. All affected results have been appropriately qualified in the corresponding laboratory reports.

4.5.2 Tissue Chemistry

1) *MS/MSDs* were outside of recovery limits and/or relative percent difference exceeded control limits for select samples for PAHs (12 analytes), and metals (copper, silver, mercury, and zinc) which are potentially biased high. Sample matrix interference, such as lipid interference and/or sample heterogeneity, are suspected as the associated LCS recovery was within acceptance limits and the LCSD RPD was within control limits.

DRAFT FINAL

2) *Method Blanks*: For select samples chromium was detected in concentrations above the MDL. However, the analyte concentration in the method blank was less than the RL; therefore, re-extraction and/or re-analysis of samples was not performed. Project samples did contain concentrations of chromium above the RL, and may therefore be biased high for chromium.

Based on the above-noted performance limit exceedances, there were no significant patterns of method blank contamination or surrogate, LCS/LCSD, or MS/MSD recovery or RPD exceedances that would indicate systemic bias. These exceedances were limited in nature relative to the full analytic data set and deemed to not adversely affect data quality. Based on this review, using the SAP and laboratory-derived reporting criteria, all results are considered valid for the intended data use as reported.

4.5.3 Bioassay Testing

Bioassay testing was conducted between July 13 and August 20, 2021. Overall, all organisms were confirmed to meet the criteria for all levels of toxicity and bioaccumulation testing, and no notable QA/QC related issues were observed.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Navy is proposing to conduct dredging in three areas (the approach to the FDD sump, the FDD sump, and the turning basin) at NBSD. A comprehensive sediment evaluation was conducted to determine the suitable location(s) for disposal of the dredged material. The primary disposal locations evaluated were nearshore beneficial reuse site at the Silver Strand Boat Lanes and the LA-5 ODMDS. The sediment assessment was conducted according to the Green Book, the ITM, and the agency-approved SAP[12] (NAVFAC Southwest, 2021). For testing purposes, the Project site was divided into four composite areas: (1) Composite A Turning Basin, (2) Composite B Approach and Sump Recent Bay Deposits, (3) Composite C Approach and Sump NFMs[13], and (4) Sump NFMs.

The results of the Study indicate that the proposed Project dredged materials, except cores FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11, are likely suitable for unconfined aquatic disposal at the LA-5 ODMDS. In addition, the dredged materials from Composites A, B, and C are also likely suitable for placement at the Silver Strand Boat Lanes nearshore beneficial reuse site. These conclusions are based on the results of grain size, analytical chemistry analysis of sediments and tissues, STFATE modeling, toxicity evaluations, and bioaccumulation exposures which were performed in compliance with ocean disposal suitability requirements outlined in Title 40 CFR Parts 220–238. Specifically:

5.1 Physical Testing Results

- Percent fines in the Composite A and B samples contained 24.41 and 68.03 percent fines while percent fines in the Composite C[4] and D samples were 4.99 and 10.64 percent, respectively. The percent fines in the LA-5 reference sample was 56.10 percent fines. These results indicate that sediment from Composite A and B would be more suitable for placement at the LA-5 ODMDS than Composite C[4] and D sediments based on physical properties; however, all of the samples are suitable for unconfined aquatic disposal at the LA-5 ODMDS.
- Samples FDD-A-Composite, FDD-C-Composite, and FDD-D-Composite predominantly fell within the grain size envelope for the Silver Strand Boat Lanes nearshore beneficial reuse receiver site and contained less than 55.8 % fines which meet the criteria for nearshore placement.
- Additionally, the high sand content (approximately >80% sand) in the majority of Composite C and Composite D dredged materials meets the criteria for direct beach placement at the Silver Strand Boat Lanes nearshore placement areas, and satisfactory STFATE modeling results excluded this area from further Tier III testing.
- Because it is assumed that sediments from Composite C or D are primarily consolidated NFMs, it is possible that sediments are partially lithified and may need to be crushed or broken in the dump scow prior to disposal at either placement site.

[12] The agencies approved the SAP on May 27, 2021.
[13] The Navy modified the original dredge footprint identified in the SAP. Composite C sediments are no longer part of the required dredge footprint for the proposed Project.

DRAFT FINAL

5.2 Chemical Testing Results

- Chemical testing results of the four area composite samples (excluding the four cores from composite B deemed NUAD) contained relatively low levels of chemical analytes and few ERL exceedances.
  - In the Composite A sample there was only one ERL exceedance for nickel, and no ERM exceedances.
  - In the Composite B sample there were six ERL exceedances (metals, PAHs, and PCBs), and no ERM exceedances.
  - In the Composite C and Composite D samples there were no ERL or ERM exceedances.
  - When these results are considered with the results of the toxicity exposures and bioaccumulation tissue results, it appears that all of the proposed dredged material except four cores from composite B would likely be suitable for placement at the LA-5 ODMDS and the majority of the Project sediments may be suitable for placement at Silver Strand.

5.3 Toxicity Evaluation Results

- Results of the SPP and SP tests for the proposed dredged materials meet the LPC for disposal at the LA-5 ODMDS. For the SPP test, no statistically significant effects were observed relative to a laboratory control in the undiluted (100 %) elutriate for any species tested when exposed to the proposed dredged materials, and the LC_{50}/EC_{50} was greater than 100 % for all samples.
- For the SP test, there were no samples in which organism survival was significantly reduced compared to the reference and exceeded reference toxicity by more than 20 %.

5.4 Bioaccumulation Evaluation Results

- After 28 days of exposure, eight metals, eleven individual PAHs and total PAHs, and 14 individual PCBs and total PCBs in select samples were detected at significantly elevated concentrations in test tissues of clams and worms compared to the reference tissues.
- The results of this Study suggest that the bioaccumulation potential of constituents in the proposed Study dredged material poses minimal risk to aquatic organisms, based on the following evaluations:
  - No U.S. FDA action levels were exceeded for any analyte.
  - Comparison of the tissue chemistry results of this sediment characterization study with study data published in the ERED (USEPA/USACE, 2019) showed that the chemical levels detected in clam and worm tissues exposed to dredged sediments were well below any expected effects levels for all analytes.

DRAFT FINAL

5.5 Disposal Suitability Recommendations

In summary, the results of this Study indicate that the proposed Project dredged materials (with the exception of the sediment represented by cores FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11) comply with the ocean disposal suitability requirements of Title 40 CFR Parts 220–238 and are likely suitable for placement at the LA-5 ODMDS. In addition to being suitable for disposal at the LA-5 ODMDS, Composites A and D dredged materials are also likely suitable for placement at the Silver Strand Boat Lanes beneficial reuse site. Final approvals for placement will be determined by the USACE and USEPA.

Sediments from core sites FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11 were determined to be NUAD by USEPA and USACE in June 2021; however, these sediments are suitable for disposal within an appropriately permitted upland landfill in the state of California. The final placement locations for these materials will be coordinated by the Navy and the dredging contractor.

Figure 5-1 shows the location and volumes for likely NUAD and SUAD sediments within the Project footprint. Table 5-1 also presents the proposed NUAD and SUAD volumes for agency consideration.

Table 5-1. Proposed Placement Locations and Estimated Dredging Volumes Mole Pier Floating Dry Dock

Dredge Area	Composite Area	Design Depth (feet MLLW)	Design Depth Volume (cy)	2-foot OD Depth (feet MLLW)	OD Volume (cy)	Total Volume (cy)
Total Proposed Suitable for Unconfined Aquatic Disposal (SUAD) Volume (cy)[1]						
Turning Basin	A	-35	3,690	-37	7,378	11,068
Approach Channel	B	-37	5,790	-39	5,640	11,430
Dry Dock Sump[2]	B and D	-56	47,180	-58	8,215	55,396
Total Tier III Volume	Various	Various	56,660	Various	21,233	77,893
Total Proposed No Unconfined Aquatic Disposal (NUAD) Volume (cy)						
NUAD Area West FDD-B-C1 FDD-B-C11	B	-37	2,832	-39	2,474	5,306
NUAD Area East FDD-B-C4 and FDD-B-C9	B	-56	10,263	-58	3,752	14,015
Total NUAD Volume	Various	Various	13,095	Various	6,226	19,321
Grand Total	Various	Various	69,755	Various	27,459	97,214

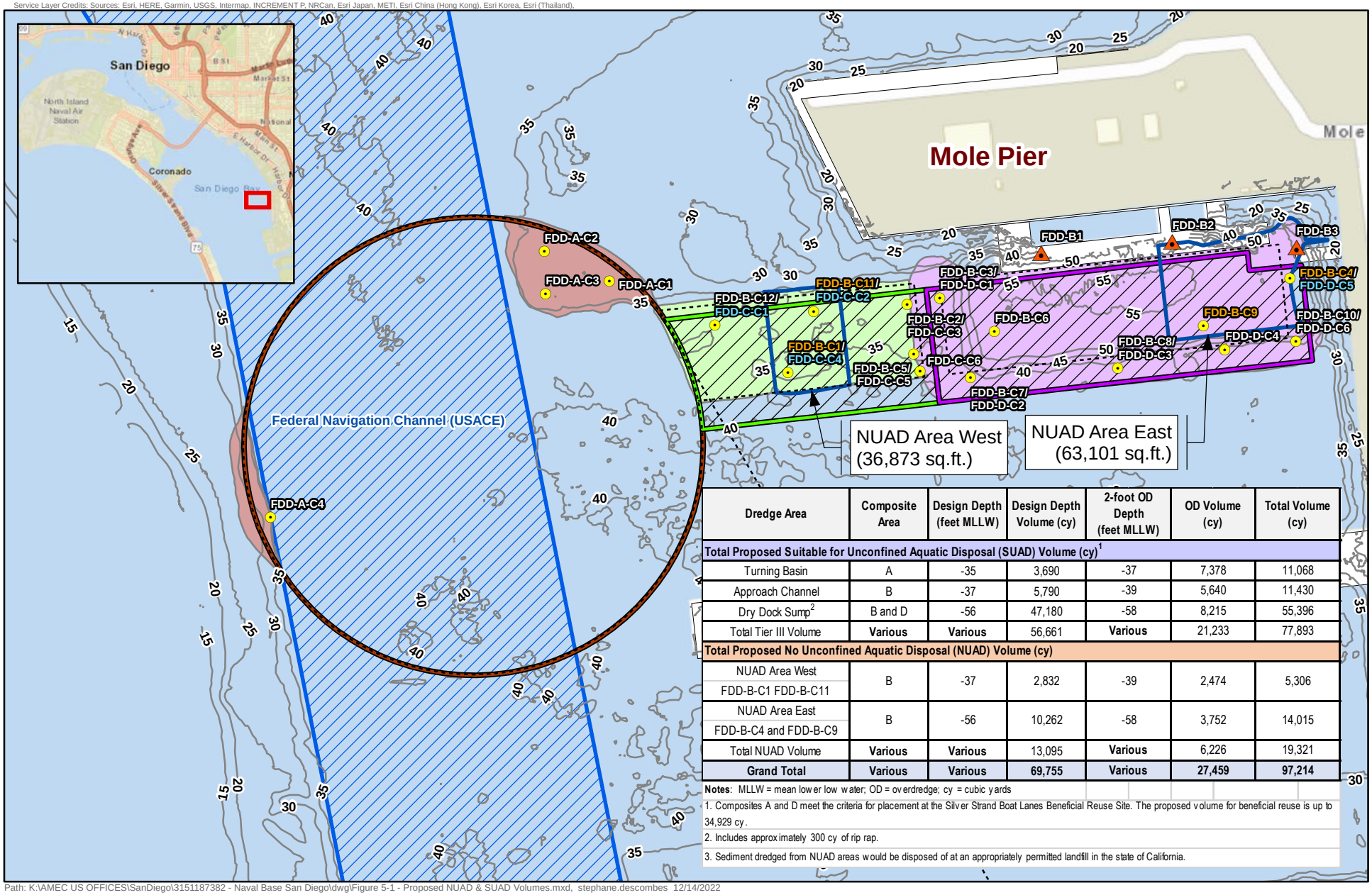
Notes: MLLW = mean lower low water; OD = overdredge; cy = cubic yards
1. Composites A and D meet the criteria for placement at the Silver Strand Boat Lanes Beneficial Reuse Site. The proposed volume for beneficial reuse is up to 34,929 cy.
2. Includes approximately 300 cy of rip rap.
3. Sediment dredged from NUAD areas would be disposed of at an appropriately permitted landfill in the state of California.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),



Dredge Area	Composite Area	Design Depth (feet MLLW)	Design Depth Volume (cy)	2-foot OD Depth (feet MLLW)	OD Volume (cy)	Total Volume (cy)
Total Proposed Suitable for Unconfined Aquatic Disposal (SUAD) Volume (cy)[1]						
Turning Basin	A	-35	3,690	-37	7,378	11,068
Approach Channel	B	-37	5,790	-39	5,640	11,430
Dry Dock Sump[2]	B and D	-56	47,180	-58	8,215	55,396
Total Tier III Volume	**Various**	**Various**	56,661	**Various**	21,233	77,893
Total Proposed No Unconfined Aquatic Disposal (NUAD) Volume (cy)						
NUAD Area West FDD-B-C1 FDD-B-C11	B	-37	2,832	-39	2,474	5,306
NUAD Area East FDD-B-C4 and FDD-B-C9	B	-56	10,262	-58	3,752	14,015
Total NUAD Volume	**Various**	**Various**	13,095	**Various**	6,226	19,321
Grand Total	**Various**	**Various**	**69,755**	**Various**	**27,459**	**97,214**

Notes: MLLW = mean lower low water; OD = overdredge; cy = cubic yards

1. Composites A and D meet the criteria for placement at the Silver Strand Boat Lanes Beneficial Reuse Site. The proposed volume for beneficial reuse is up to 34,929 cy.
2. Includes approximately 300 cy of rip rap.
3. Sediment dredged from NUAD areas would be disposed of at an appropriately permitted landfill in the state of California.

Path: K:\AMEC US OFFICES\SanDiego\3151187382 - Naval Base San Diego\dwg\Figure 5-1 - Proposed NUAD & SUAD Volumes.mxd, stephane.descombes 12/14/2022

1 inch = 300 feet

0 150 300 Feet

Actual Geotechnical Borings

Actual Sampling Location *

*Samples from locations in light blue text were unable to be collected in the field

*Samples from locations in orange text are considered no unconfined aquatic disposal (NUAD)

Dredge Footprint - Design Depth

-35

-37

-56

No Unconfined Aquatic Disposal (NUAD) Areas

Composite Areas

Composite A: Turning Basin

Composite B: Recent Bay Deposits (Approach and Sump)

Composite C: Native Formational Material (Approach and Sump)

Composite D: Native Formational Material (Sump)

FIGURE 5-1

Proposed NUAD and SUAD Volumes
Naval Base San Diego
Maintenance Dredging
San Diego, CA

This page intentionally left blank.

DRAFT FINAL

6.0 DISPOSAL SUITABILTY DETERMINATION

The results of this dredged material investigation were presented to the USACE and USEPA on 3 November 2022. Following the results presentation, the agencies provided the following response and feedback regarding edits to the report, including an early SUAD determination for the dredged materials within the footprint that were not already determined to be NUAD. Sediments considered as NUAD will be placed at an appropriately permitted upland landfill in the state of California.

Comments were received from USEPA on 25 November 2022 regarding the suitability for placements of the remainder of the dredged materials. Based on these comments, the Navy revised the Draft SAP Report, and provided an updated Draft Final SAP to the USACE for final reviews and approval on 19 December 2022 (Appendix D3).

Following additional review, USEPA provided a response on 11 January 2023 that concurred that the SUAD and NUAD determinations and areas were the same; however, the proposed alternatives to ocean disposal, which included nearshore placement at the Silver Strand, were not approved. Sediments, particularly consolidated NFM and fine sediments from Composite Area B were not recommended for nearshore placement. Furthermore, USEPA required that additional processing of consolidated NFM be performed before placement at the LA-5 ODMDS. These requirements included screening sediments with a 12-inch grizzly, grinding them down to a 4-inch size fraction, and distributing them over a larger grid area during placement at LA-5.

Overall, the USACE concurred with USEPA that the Project sediments (excluding the NUAD Area East and NUAD Area West dredging amounts shown in Table 5-1) are suitable for ocean disposal at the LA-5 ODMDS and not for nearshore placement or beach nourishment. Also, the USACE and USEPA concurred that one of the four composites (FDD-B-Composite) is too fine for beach nourishment. Sediments identified as NUAD Area West and NUAD Area East (19,321 cy) shown in Figure 3-1 would be handled/transported to an appropriately permitted upland disposal site (Appendix D3).

In summary, the USACE and USEPA 12 January 2023 SUAD was as follows:

- NUAD Area East and NUAD Area West (total 19,321 cy) are approved for screening and placement at an appropriately permitted landfill.
- The remainder of the dredged materials (up to 77,893 cy) are SUAD for placement at the LA-5 ODMDS.
    - Consolidated NFM will be screened through a 12-inch grizzly and ground to a size of no larger than 4-inches prior to transport and disposal at the LA-5 ODMDS.
    - Dredged materials will not be placed solely in the LA-5 surface disposal zone, but will be managed over a larger grid (i.e., series of quadrants).
- Dredged materials from Composite Area B are too fine for nearshore placement at the Silver Strand.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

7.0 UPDATED MOLE PIER FLOATING DRY DOCK DESIGN AND DREDGING VOLUMES

The initially proposed Mole Pier FDD design and dredging volumes and EA were updated by the Navy in February and March of 2023. This update included a revised dredging plan for the Project with new dredging volumes that were re-calculated using the current FDD design and 2022 bathymetric survey data.[14]

Table 7-1 shows the current proposed dredging design volumes. These volumes include a contingency that was calculated using the expected sedimentation rate between now and when the Project dredging would occur in late 2023/early 2024. The sedimentation rate was determined using the current FDD design overlaid on the 2019 bathymetry compared to the current FDD design overlaid with the 2022 bathymetry. Figure 7-1a and 7-1b show the current Project design and dredging footprints.

Table 7-1. Mole Pier Floating Dry Dock Proposed Dredging Volumes (July 2023)

Dredge Area	Dredged Material Type	Dredging Depth (2-foot OD) (ft MLLW)	Project Volume to Design (cy)	2-ft OD Volume (cy)	Total Volume (cy)	Total Placement Location Volume (cy)
Turning Basin	Unconsolidated SUAD	-37	3,796	7,219	11,015	93,248
Approach	Unconsolidated SUAD	-39	7,705	8,273	15,978	
Dry Dock Sump	Unconsolidated SUAD	-43	29,899	14,152	44,051	
	Consolidated SUAD	*-58*	*19,885*	*2,319*	*22,204*	
	Unconsolidated NUAD West	-58	2,888	2,538	5,426	17,712
	Unconsolidated NUAD East	-58	8,530	3,756	12,286	
Total	All	Various	Various	72,703	38,257	110,960

Notes: MLLW = mean lower low water; cy = cubic yards; OD = overdredge; blue shading = approved for ocean disposal at the LA-5 ODMDS; orange shading = upland disposal at an appropriately permitted landfill; italicized values = approximate volume of consolidated sediments to be placed at the LA-5 ODMDS.

In addition to updating the proposed dredging volumes for the Project, the USEPA and USACE have determined that nearshore placement of this sediment at the Silver Strand Boat Lanes was unsuitable due to incompatible grain size (FDD-B-Composite sediments). The original Project SAP (dated May 28, 2021) was designed to characterize a dredging volume of up to 121,247 cy within a similar dredging footprint that overlaps the current design (NAVFAC Southwest 2021); therefore, the testing described in the December 2022 report is still considered representative of the proposed dredge site that was evaluated for ocean disposal at the LA-5 ODMDS.

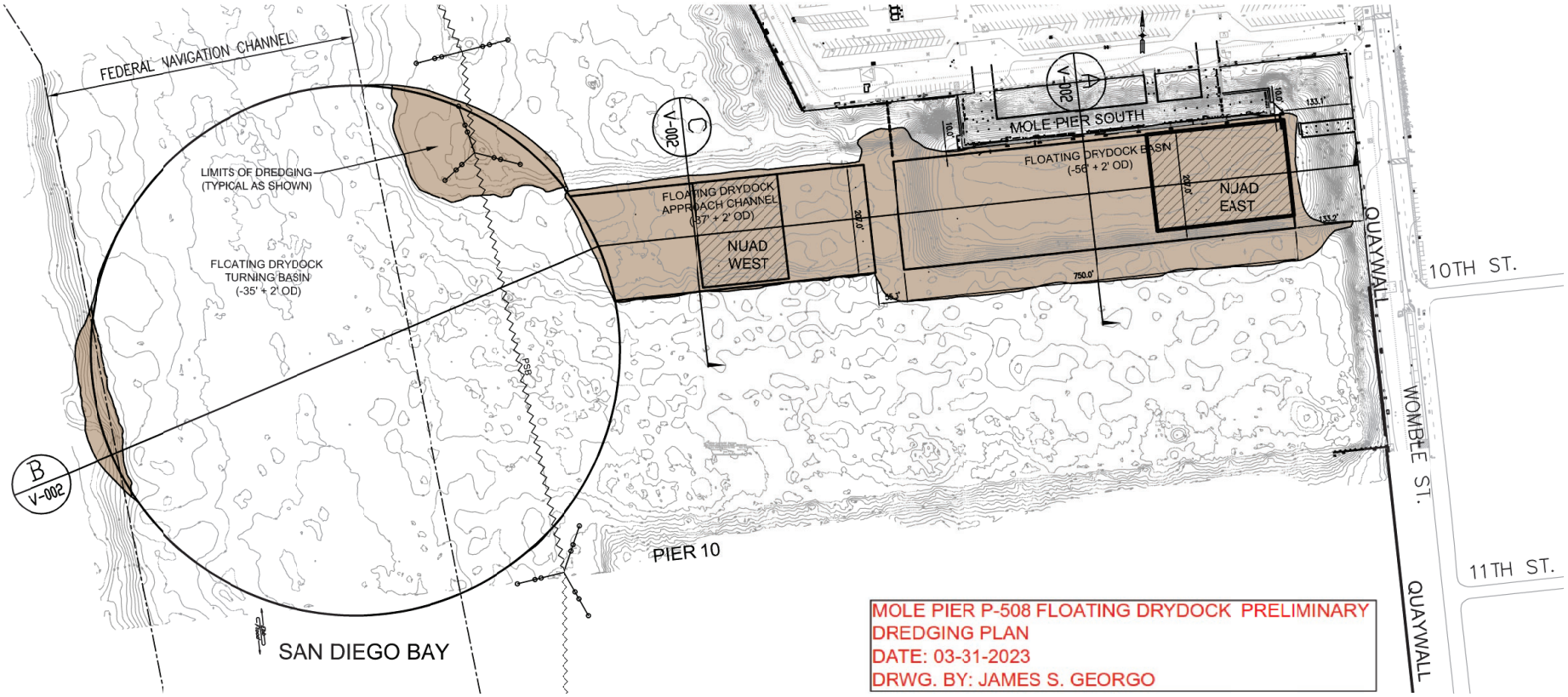
[14] Prior designs used 2019 bathymetry.

In conclusion, the Navy requests agency approval for placing approximately 93,248 cy of SUAD dredged materials at the LA-5 ODMDS. Of this 93,248 cy of approved dredged material, approximately 22,204 cy (all within the proposed dry dock sump) have been determined to be potential lithified native formational materials. Unconsolidated materials approved for ocean disposal would be dredged first and placed at the LA-5 ODMDS.

Following placement of the unconsolidated dredged materials, native formational materials within the NBSD FDD Project footprint would be processed through a 12-inch grizzly and then ground down to a 4-inch size fraction. These sediments would be placed at the LA-5 ODMDS over a larger grid (i.e. series of quadrants) to prevent a rubble pile or potential hard bottom from forming at the ocean disposal site via placement of the native formational materials (Figure 7-3). Real-time tracking of the dump scow will be used during placement to ensure dredged materials are placed in the correct areas. USACE Dredging Quality Management (DQM) procedures will be followed for the Project.

DRAFT FINAL

MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364



Representative Cross-Sections (Plan View) of Proposed Dredging Footprint

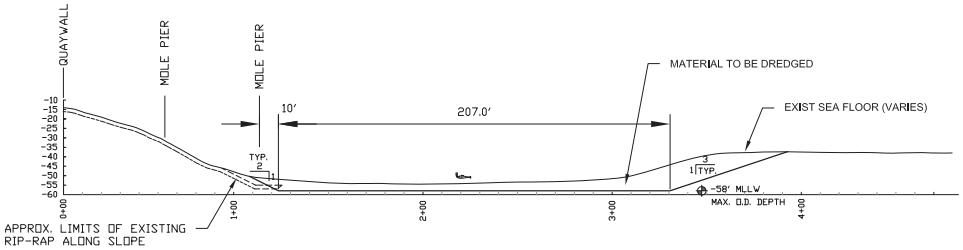
Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

FIGURE
7-1a

This page intentionally left blank.

DRAFT FINAL

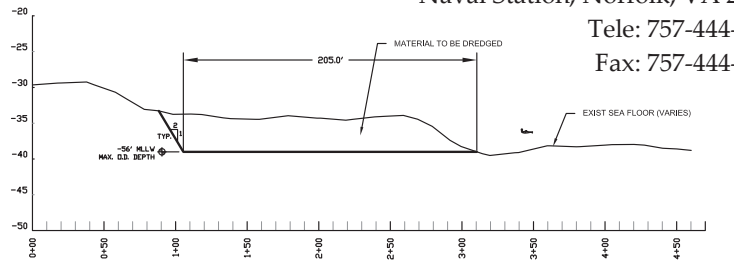
MIDLANT CAPITAL IMPROVEMENTS
HYDROGRAPHIC ENGINEERING BRANCH
Bldg. CEP-188, Virginia Ave
Naval Station, Norfolk, VA 23511
Tele: 757-444-0830
Fax: 757-444-3364



A
V-002

TRANSVERSE SECTION THRU FDD BASIN

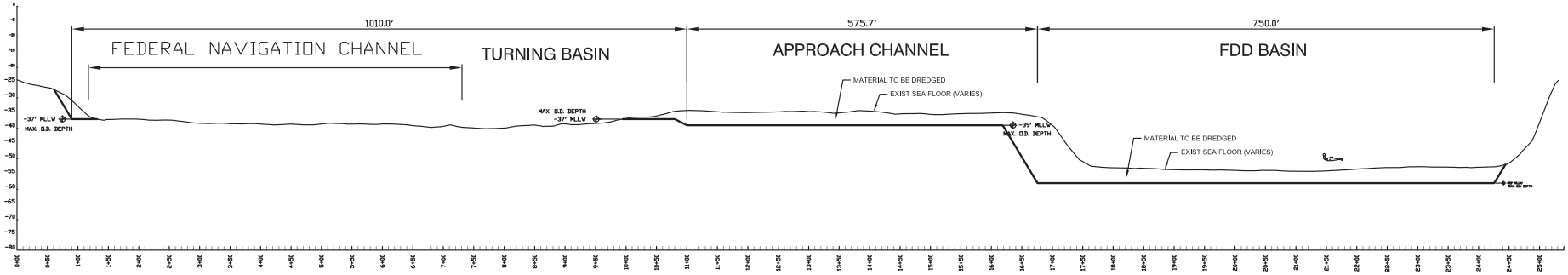
SCALE: HORIZ 1"= 50'
VERTICAL 1" = 50'



C
V-002

TRANSVERSE SECTION THRU FDD APPROACH CHANNEL

SCALE: HORIZ 1"= 50'
VERTICAL 1" = 50'



B
V-002

LONGITUDINAL SECTION THRU FDD BASIN

SCALE: HORIZ 1"= 100'
VERTICAL 1" = 20'

MOLE PIER P-508 FLOATING DRYDOCK PRELIMINARY
DREDGING PLAN
DATE: 03-31-2023
DRWG. BY: JAMES S. GEORGO

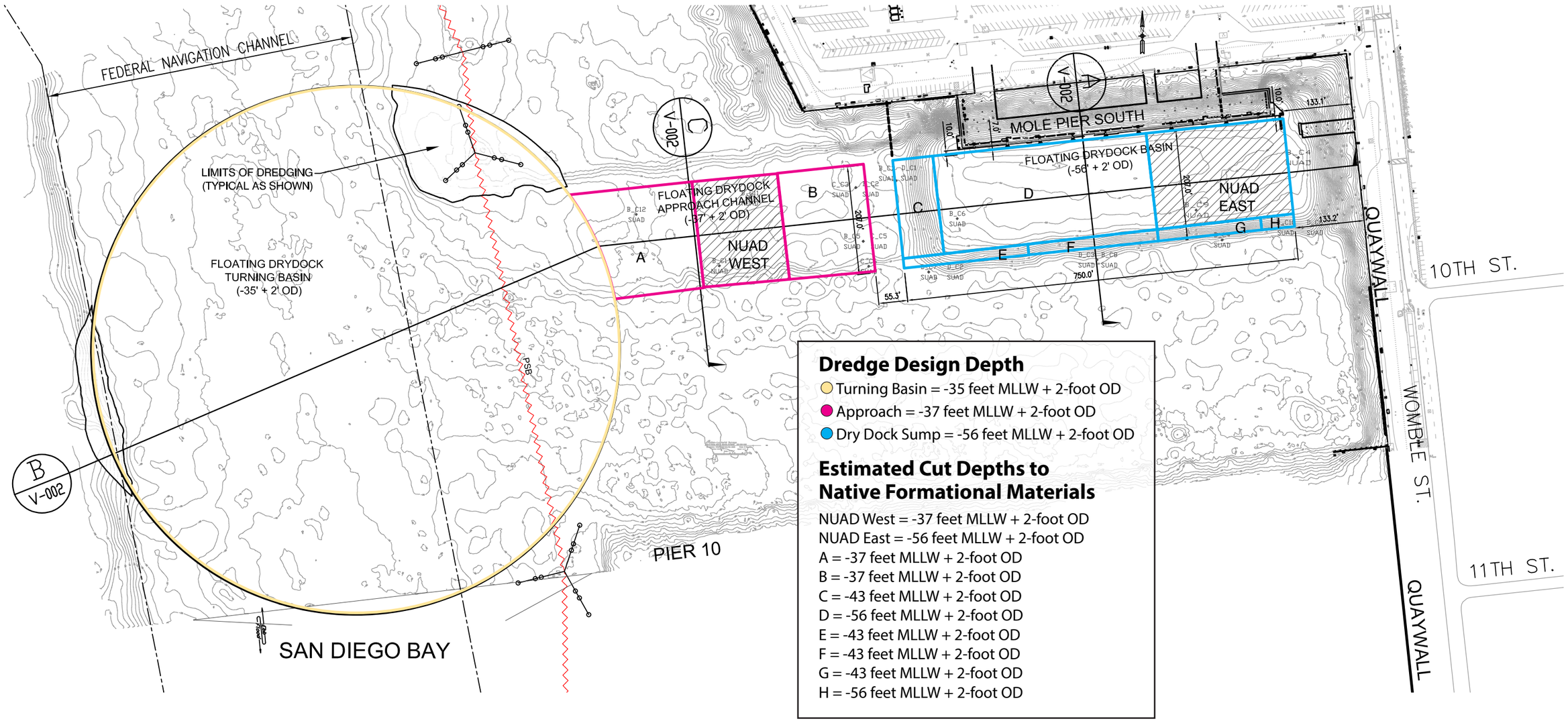
Representative Cross-Sections of Proposed Dredging Footprint

Mole Pier Floating Dry Dock Sediment Characterization Study | Naval Base San Diego

FIGURE
7-1b

This page intentionally left blank.

DRAFT FINAL



Estimated Dredging Areas and Cut Depths to Native Formational Materials

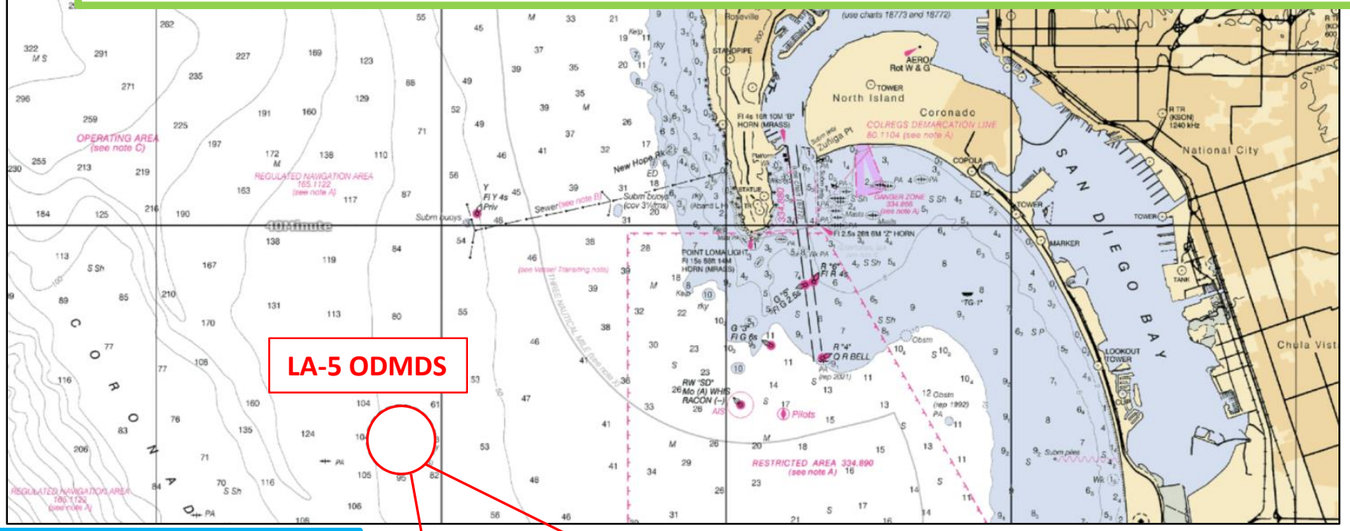
NBSD Mole Pier Floating Dry Dock Sediment Characterization Study Naval Base San Diego

FIGURE
7-2

This page intentionally left blank.

DRAFT FINAL

Special Conditions for Disposal of Native Formation Sediments



Maintenance Dredging of Unconsolidated Sediments
-use grizzly to screen/exclude UXO and other non-dredged material

Crush/break consolidated sediments to approx. 4-inch size (photo documentation of each scow load) - spread sequentially over 77 disposal target quadrants

Standard SDZ
1,000 ft radius

Central Disposal Target for Unconsolidated Maintenance Dredged Sediments

1,000 ft

Exclusion- No Dumping

Buffer Cells- Do Not Start Dumps Here

	26	27	28	29	30	31	32	
56	25	1	2	3	4	5	33	34
55	23	24	S-1	S-2	S-3	6	7	35
54	22	S-4	S-5	S-6	S-7	S-8	8	36
53	21	S-9	S-10	S-11	S-12	S-13	9	37
52	20	S-14	S-15	S-16	S-17	S-18	10	38
51	19	18	S-19	S-20	S-21	12	11	39
50	49	17	16	15	14	13	41	40
	48	47	46	45	44	43	42	

Expanded SDZ
Approx. 1,800 ft radius

Disposal Target Quadrants
400 ft by 400 ft oriented around **SDZ** boundary

56 Additional Quadrants for disposal of **Consolidated Native Formation Dredged Sediments**

LA-5 ODMDS Surface Disposal Zones for Native Formational Materials

FIGURE
7-3

This page intentionally left blank.

DRAFT FINAL

8.0 REFERENCES

American Public Health Association, American Water Works Association, and Water Environment Federation. 1995. *Standard Methods for the Examination of Water and Wastewater*. 19th Edition. Edited by A.D. Eaton, L.S. Clesceri, and A.E. Greenberg. Washington, DC.

ASTM International. 2010. *Standard Method for Particle Size Distribution of Catalytic Material by Laser Light Scattering.* ASTM Designation D4464-10.

ASTM International. 1998. *Standard Guide for Conducting Static Acute Toxicity Tests Starting With Embryos of Four Species of Saltwater Bivalve Molluscs.* American Society for Testing and Materials. ASTM Designation E 724-98.

ASTM International. 1999. *Standard Guide for Conducting 10-Day Static Sediment Toxicity Tests with Marine and Estuarine Amphipods.* American Society for Testing and Materials. ASTM Designation E 1367-99.

ASTM International. 2000. *Standard Guide for Conducting Sediment Toxicity Tests with Marine and Estuarine Polychaetous Annelids.* American Society for Testing and Materials. ASTM Designation E 1611-00.

BAE Systems San Diego Ship Repair. Final Sampling and Analysis Plan Report Compilation Pier 1 North Dry Dock Sump Dredging Project Dredged Material Characterization Study BAE Systems San Diego Ship Repair, San Diego, California. April 27, 2016.

Buchman, M.F. 2008. NOAA Screening Quick Reference Tables. NOAA OR&R Report 08-1. Seattle Washington: Office of Response and Restoration Division, National Oceanic and Atmospheric Administration. 34 pages.

Code of Federal Regulations (CFR) Title 29, Part 1910 (Occupational Safety and Health Standards). Occupational Safety and Health Administration, Department of Labor. U.S. Government Accounting Office. E-file current through January 16, 2009.

CFR Title 33, Parts 320–330 and 335–338 of the Marine Protection, Research, and Sanctuaries Act (1972), Section 103 (Corps of Engineers Permits). July 1, 1999.

CFR Title 40, Parts 220–228, Ocean Dumping Permit Programs. United States Environmental Protection Agency. 1985.

CFR Title 40, Part 230 (Environmental Protection Agency). Environmental Protection Agency. E-file current through April 10, 2008.

CFR 40, §131.38(b)(1). California Toxics Rule, United States Environmental Protection Agency. 2000.

Krone, C.A., D.W. Brown, D.G. Burrows, R.G. Bogar, S.L. Chan, U. Varanasi. 1989. *A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound*. *Marine Environmental Research* 27: 1-18.

DRAFT FINAL

National Oceanic and Atmospheric Administration (NOAA). 1993. *Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects*, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods. July.

Naval Facilities Engineering Command Southwest (NAVFAC Southwest). 2018. *Dry Dock No. 1 Modifications and Mole Pier Floating Dry Dock Studies, Naval Base San Diego, San Diego, California, Final Submittal*. Prepared by GHD/COWI Joint Venture Contract Number N62473-13-D-3004 Delivery Order N6247317F4345. 18 August 2018.

NAVFAC Southwest 2019. *Final Sampling and Analysis Plan for a Sediment Characterization Study to Support Proposed Dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego, San Diego, California.* 24 June 2019.

NAVFAC Southwest, 2021 *Final Sampling and Analysis Plan for a Sediment Characterization Study to Support Proposed Dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego, San Diego, California.* Prepared by MMEC Group. 24 June 2019, Revised 28 May 2021.

NAVFAC Southwest 2022. *Draft Sampling and Analysis Plan Report for Sediment characterization Study to support Proposed Dredging a the Pole Pier Floating Dry Dock at Naval Base San Diego, San Diego California.* 16 December 2022.

NAVFAC Southwest. 2023. *Supplemental Environmental Assessment for the P508 Mole Pier – South Berth Floating Dry Dock at Naval Base San Diego, San Diego, California*. April.

Plumb, R.H. 1981. Procedures for Handling and Chemical Analysis of Sediment and Water Samples. USEPA/COE Technical Committee on Criteria for Dredged and Fill Material. AD-A103 788/6. May.

Puget Sound Estuary Program (PSEP). 1995. *Recommended guidelines for conducting laboratory bioassays on Puget Sound Sediments*. Puget Sound Water Quality Authority.

Rice, C.D., F.A. Espourteille, and R.J. Huggett. 1987. Analysis of Tributyltin in Estuarine Sediments and Oyster Tissue, *Crassostrea virginica*. *Applied Organometallic Chemistry* 1: 541-544.

San Diego Association of Governments. 2006. Final Sand Compatibility and Opportunistic Use Program Plan. Prepared by Moffatt & Nichol. March.

Schroeder, P.R., and M.R. Palermo. 1990. *Automated Dredging and Disposal Alternatives Management System User's Guide.* Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Base. Tech. Note EEDP-06-12.

St-Jean, S.D., Courtenay, S.C, and R.W. Parker. 2003. *Immunomodulation in Blue Mussels (Mytilus edulis) Exposed to a Pulp and Paper Mill Effluent in Eastern Canada.* Water Quality Research Journal 38 (4): 647–666.

DRAFT FINAL

State Water Resources Control Board and California Environmental Protection Agency. 2019. Water Quality Control Plan Ocean Waters of California. Established 1972, Revised 2019.

Tidepool Scientific Software. 2000-2016. Comprehensive Environmental Toxicity Information System (CETIS). Database. Version 1.8.0.8B.

United States Army Corps of Engineers (USACE). 2014. *Safety – Safety and Health Requirements*. EM 385-1-1. November 2014.

United States Environmental Protection Agency (USEPA). 1986-1996. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. Revision 3 (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 95), and III (December 96). SW-846.

USEPA. 1991. *General Recommendations for Sediment Testing of Dredged Material Proposed for Ocean Dumping.* USEPA Region 9. December.

USEPA. 1994. *Methods for Assessing the Toxicity of Sediment-associated Contaminants to Estuarine and Marine Amphipods.* Washington DC: USEPA Office of Research and Development. USEPA 600/R-94/025. June.

USEPA. 1995. *QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations (Chemical Evaluations).* USEPA 832-B-95-001.

USEPA. 2000. *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule [CTR]), 40 CFR Part 131.* 18 May.

USEPA. 2001. *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual.* USEPA-823-B-01-002. October.

USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. October 2002. Environmental Protection Agency, Office of Water. USEPA 821/R-02/012.

USEPA. 2021. Regional Screening Levels for Chemical Contaminants at Superfund Sites. https://www.epa.gov/risk/regional-screening-levels-rsls. 20 July 2021.

USEPA/USACE. 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal: Testing Manual*. USEPA-503/8-91/001 (“Green Book”). February.

USEPA/USACE. 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S: - Inland Testing Manual*. USEPA 823-B-98-004. February.

USEPA/USACE. 2019. Environmental Residue-Effects Database (ERED). Environmental Laboratory, U.S. Army Engineer Research and Development Center. Retrieved October, 15, 2021 from http://el.erdc.usace.army.mil/ered/.

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

REVISED DRAFT FINAL

SAMPLING AND ANALYSIS PLAN REPORT FOR A SEDIMENT CHARACTERIZATION STUDY TO SUPPORT PROPOSED DREDGING AT THE MOLE PIER FLOATING DRY DOCK AT NAVAL BASE SAN DIEGO

SAN DIEGO, CALIFORNIA

Submitted to:
U.S. Army Corps of Engineers
Carlsbad Field Office
5900 La Place Ct., Suite 1100
Carlsbad, California 92008

and

U.S. Environmental Protection Agency
Region 9 Water Division
75 Hawthorne Street
San Francisco, California 94105

Submitted by:

U.S. Department of the Navy
Naval Facilities Engineering Systems Command Southwest
750 Pacific Highway
12th Floor
San Diego, California 92132

December 16, 2022
REVISED June 15, 2023

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

APPENDIX A

DRY DOCK FEASIBILITY STUDY
(INCLUDED ON CD)

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
Contract # N62473-13-D-3004
Delivery Order N6247320F4940
Mole Pier Floating Dry Dock Alternatives Study
Naval Base San Diego
San Diego, California

Naval Base San Diego
Mole Pier P508 Floating Dry Dock Alternatives Study

Final Submittal

November 20, 2020

This Memorandum ("Document"):

1. *Has been prepared by GHD-COWI JV ("GHD-COWI") for Naval Facilities Engineering Command ("NAVFAC")*
2. *May only be used and relied on by the NAVFAC*
3. *Must not be copied to, used by, or relied on by any entity other than NAVFAC without the prior written consent of GHD-COWI*

GHD-COWI and its employees and officers otherwise expressly disclaim responsibility to any person other than NAVFAC arising from or in connection with this Document.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD-COWI and the Document are excluded unless they are expressly stated to apply in this Document.

The services undertaken by GHD-COWI in connection with preparing this Document:

- *Were limited to those specifically detailed in the SAES and the Scope of Work presented in Section 1, Executive Summary, of this Document*
- *Did not include materials testing or identification of hazardous materials*
- *Did not include the preparation of detailed design drawings or construction specifications*

The opinions, conclusions and any recommendations in this Document are based on assumptions made by GHD-COWI when undertaking services and preparing the Document including, but not limited to

- *Existing utilities were originally engineered, designed, constructed and permitted per the requirements of governing codes and regulations applicable at the time of construction.*
- *No unforeseen conditions exist at the project site.*

GHD-COWI expressly disclaims responsibility for any error in, or omission from, this Document arising from or in connection with any of the Assumptions being incorrect.

Subject to the paragraphs in this section of the Document, the opinions, conclusions and any recommendations in this Document are based on conditions encountered and information reviewed at the time of preparation and may be relied on until 12 months, after which time, GHD-COWI expressly disclaims responsibility for any error in, or omission from, this Document arising from or in connection with those opinions, conclusions and any recommendations.

Table of Contents

1. Executive Summary 6
   1.1 Introduction 6
   1.2 Mole Pier Floating Dry Dock Alternatives Findings/Recommendations 6
      1.2.1 Requirements for Mole Pier Floating Dry Dock 6
      1.2.2 Required Structural Modifications to Mole Pier Mooring Wharf 7
      1.2.3 Cost Estimates for Mooring Alternatives 8
      1.2.4 Recommended Alternative 8
2. Scope and General Background 9
   2.1 Scope of Study 9
      2.1.1 Evaluate Two Mooring Alternatives for a New Floating Dry Dock at Mole Pier 9
      2.1.2 Deliverables 9
   2.2 Project Location 9
   2.3 Design Criteria 10
   2.4 Environmental Conditions 11
      2.4.1 Tides 11
3. Mole Pier Floating Dry Dock 12
   3.1 Mole Pier Background 12
   3.2 Existing Conditions 13
      3.2.1 Structure Configuration 13
      3.2.2 Geotechnical 15
      3.2.3 Civil, Mechanical, Electrical and Fire Protection 15
      3.2.4 Dredging and Navigation 16
   3.3 Requirements 17
      3.3.1 Mole Pier Floating Dry Dock – Mooring Conceptual Design 17
      3.3.2 Civil, Mechanical, Electrical Systems and Fire Protection 26
      3.3.3 Dredging 28
   3.4 Recommended Facility Modifications 29
      3.4.1 Design Service Life Recommendation 29
      3.4.2 Structural Recommendation 30
      3.4.3 Civil Utilities Recommendation 30
      3.4.4 Mechanical Utilities Recommendation 30
      3.4.5 Electrical Utilities Recommendation 30

3.4.6 Dredging 31
3.5 Construction Schedule 31
3.6 Construction Cost Estimate 33
4. Recommended Additional Studies 36
4.1 Mole Pier South Berth Modifications 36
5. Appendices 37
5.1 Drawings 37
5.1.1 P508 FDD Mooring Alternatives and Preliminary Dredge Plans 37
5.2 Cost Estimates 37
5.2.1 P508 FDD Mooring Alternatives Cost Estimates 37
Appendix 5.1 Drawings 38
Appendix 5.2 Cost Estimates 39

Figure Index

Figure 1-1: AFDM 14 Steadfast floating dry dock at Mole Pier circa 1986 (with USS Tuscalossa LST-1187) 7
Figure 2-1: Project Location 10
Figure 2-2: Mole Pier Location 10
Figure 3-1: AFDM 14 Steadfast at Mole Pier 12
Figure 3-2: AFDM 14 Steadfast at Mole Pier 12
Figure 3-3: Plan of Mole Pier South – Mooring Wharf 13
Figure 3-4: Photograph of Mole Pier South Wharf 14
Figure 3-5: Section through Mole Pier South Wharf 15
Figure 3-6: Proposed footprint of the dredging limits between the Mole Pier and Pier 10 17
Figure 3-7: Floating Dry Dock Mooring Modification – Alternative 1 19
Figure 3-8: Floating Dry Dock Mooring Modification – Alternative 2 19
Figure 3-9: Longitudinal Wind Profile 21
Figure 3-10: Traverse Wind Profile 21
Figure 3-11: Concept Mooring Wharf Modification – Alterative 1 23
Figure 3-12: Conceptl Forward and Aft Mooring Dolphins – Alternative 2 24
Figure 3-13: Conceptual Dolphin Gripper Attachments 25
Figure 3-14: Existing Wharf with P508 Mooring Modifications SAP2000 Model – Alternative 1 25

Table Index

Table 1-1: Alternative Criteria Comparison Summary 8
Table 2-1: Tides 11
Table 3-1: Naval Base San Diego Dredge Depths 16
Table 3-2: P508 Conceptual Floating Dry Dock Sizing 20
Table 3-3: Utility Requirements 26
Table 3-4: Dredge Alternatives 28
Table 3-5: Mole Pier South – Preliminary Dredging Volumes 29
Table 3-6: Mole Pier South Modifications – Estimated Construction Schedule 31
Table 3-7: Estimated Construction Cost – Mole Pier South Improvements (Alternative 1 – Option A) 33
Table 3-8: Estimated Construction Cost – Mole Pier South Improvements (Alternative 1- Option B) 33
Table 3-9: Estimated Construction Cost – Mole Pier South Improvements (Alternative 2 - Option A) 34
Table 3-10: Estimated Construction Cost – Mole Pier South Improvements (Alternative 2 - Option B) 34

1. Executive Summary

1.1 Introduction

The GHD-COWI Joint Venture (GHD-COWI) has been tasked to perform an alternatives study for a floating dry dock to be located at Mole Pier, Naval Base San Diego (NBSD). In 2018, GHD-COWI performed an investigation and study for installation of a floating dock at the south side of the Mole Pier. The PMS325T group has been requested by PACFLT/NAVSEA to perform a concept study that includes a preliminary design for the MILCON P508 floating dry dock to be moored at Mole Pier South (dry dock mooring wharf.)

At the request of the Navy, GHD-COWI reviewed and developed two additional mooring concepts to meet the stated objectives and requirements for the project.

The scope of the current study includes the following:

- Alternative 1: Two (2) dolphins integrated within the existing mooring wharf structure at Mole Pier South with a vehicle access ramp support ledge installed.
- Alternative 2: Two (2) mooring dolphins offset from the south-face of the mooring wharf and an expansion of the vehicle bridge and vehicle access ramp support ledge installed.
- Review changes to the current conceptual design and dredge footprint from 2018 concept study.
- Develop cost estimates for the two dry dock mooring alternatives. Cost estimates will be used to update the DD1391.

1.2 Mole Pier Floating Dry Dock Alternatives Findings/Recommendations

This section provides findings by GHD-COWI on how the Mole Pier at Naval Base San Diego can be modified to accommodate a new floating dry dock.

1.2.1 Requirements for Mole Pier Floating Dry Dock

The pile-supported marginal wharf ("Dry Dock Mooring Wharf") on the south side of Mole Pier is to be modified to allow for berthing of a new floating dry dock (AFDM(X)). This study reviewed requirements for the new dry dock facility. The new mooring improvements at Mole Pier South dock must accommodate an AFDM(X) class vessel. The marginal wharf was originally designed to berth a steel pontoon floating dry dock. Figure 1-1 shows the AFDM 14 Steadfast floating dry dock at the Dry Dock Mooring Wharf.

The P508 concept developed is a similar single all steel floating dry dock capable of drydocking three vessel classes. The floating dry dock will have an 18,000 long ton (LT) vessel lifting capacity and designed to meet the requirements of the US Navy's MIL-STD 1625D. Minimum dimensions for the concept floating dry dock were determined to be 700' length, 160' outside width with a 132' clear width and a pontoon height at dock centerline of 14'-9" feet.

Two mooring points, located forward and aft of the floating dry dock will be required to secure the dock's position as outlined in GHD-COWI's 2018 study. That study noted that due to previous moorage of AFDM 14 Steadfast at Mole Pier South, the Mole Pier South location has existing infrastructure to support a dry dock facility. The existing ramp pier can be used to access the floating dock and the utility piers remain in serviceable condition for the new facility.

Figure 1-1: AFDM 14 Steadfast floating dry dock at Mole Pier circa 1986 (with USS Tuscalossa LST-1187)

1.2.2 Required Structural Modifications to Mole Pier Mooring Wharf

To meet the mooring requirements for Mole Pier Floating Dry Dock, the modifications reviewed consist of the following elements for the two alternatives:

- Alternative 1: Partial demolition of the existing concrete mooring wharf and piles between pile bents 6 to 9 and 24 to 27. Addition of piles and thicker cast-in-place concrete deck in these locations and dry dock gripper attachments mounted on the face of the new deck.
- Alternative 2: Addition of pile-supported forward and aft mooring dolphins on the south side of existing wharf – dry dock gripper attachments will be mounted on the face of each dolphin to hold the dry dock position.

Drawings of the proposed modifications are provided in Appendix 5.1.1.

1.2.3 Cost Estimates for Mooring Alternatives

Cost estimates for the alternative modifications to Mole Pier to accommodate a new floating dry dock are provided in Appendix 5.2.1. For purposes of comparison, a rough order magnitude (ROM) cost estimate of $30.3M has been developed for the recommended modifications for Alternative 1 Option A and $33.5M for Alternative 1 Option B based on various assumptions, research and preliminary pricing from similar projects. A ROM cost estimate for Alternative 2 Option A is $35.5M and $38.5M for Alternative 2 Option B. The cost estimates assume that the new floating dry dock will be procured separately.

1.2.4 Recommended Alternative

Table 1-1 provides a comparison summary of the criteria used to evaluate both alternatives.

Table 1-1 Alternative Criteria Comparison Summary

Criteria	Alternative 1 - FDD Mooring Points integrated within existing Mooring Wharf		Alternative 2 - FDD Mooring Dolphins offset from existing Mooring Wharf	
	PRO	CON	PRO	CON
Existing Mooring Wharf	▪ Demolition of existing deck and removal of existing piles required to tie substructure for new mooring points to the existing wharf deck. ▪ Multiple potential conflicts between new mooring piles and existing wharf piles to be negociated.		▪ New mooring dolphins are positioned to avoid conflicts with existing wharf batter and plumb piles. ▪ Need to install walkway ramps / catwalks to connect the existing wharf deck to the new mooring dolphins to provide access to FDD service deck	
FDD Mooring Construction	▪ Fewer new piles required than ALT 2.	▪ Demo of existing wharf deck and substructure is required. ▪ Reconstruction of wharf substructure and deck required.	▪ No demo required for existing wharf structure. ▪ No disruption of exising crane rail support structure	▪ Larger number of piles required than ALT 1. ▪ If used, steel piles have greater hydroacoustic impact during installation
Seismic		▪ Mooring wharf modifications may require strengthening/retrofit	▪ Mooring wharf not impacted by FDD mooring modifications	
Utilities on Existing Wharf		▪ Utilities on mooring wharf will be out of service for the duration of construction ▪ Existing utilities will require rerouting following construction of the integrated mooring points.	▪ Utilities do not have to interrupted until after the dolphins are constructed	▪ Existing utilities will have to rerouted to serve the FDD.
Vehicle Access Pier	▪ Modifications to existing vehicle access pier are not anticipated.			▪ Existing vehicle access pier will need to be widened to align with the location of FDD - approximately 50-ft from face of existing wharf. ▪ Additional piles are required as compared with ALT 1.
Dredging	▪ Slight increase in calculated dredge volume due to increased depth of concept P508 FDD.			▪ Larger increase in dredging volume required at berth.
Comparative Estimated Cost	$30.3M - $33.5M			$35.5M - $38.5M

Based on the evaluation criteria and comparison of the alternatives, GHD-COWI JV recommends that Alternative 1 Option B be considered for design and implementation at Mole Pier South. This alternative meets the criteria required for the mooring the ADFM(X) and provides greater value to the Government.

2. Scope and General Background

2.1 Scope of Study

In August 2020 the Navy issued a task order to the GHD-COWI Joint Venture to study two floating dry dock mooring alternatives, including modifications and improvements to existing facilities at Mole Pier, Naval Base San Diego to safely dry dock various class of vessels. The scope of work from the task order is as follows:

2.1.1 Evaluate Two Mooring Alternatives for a New Floating Dry Dock at Mole Pier

a. Determine dredging requirements for two alternatives to accommodate the new P508 floating dry dock at Mole Pier.

b. Evaluate necessary modifications to existing Mole Pier for both alternatives.

c. Determine utility needs and necessary modifications.

2.1.2 Deliverables

The report deliverable will include a summary of the study findings. The report will include the following for both alternatives evaluated:

a. Summary of the above items

b. Figures and sketches showing general arrangements

c. Cost Estimate

d. Preliminary construction schedule

2.2 Project Location

Mole Pier is located in California at Navy Base San Diego as shown in Figure 2-1.

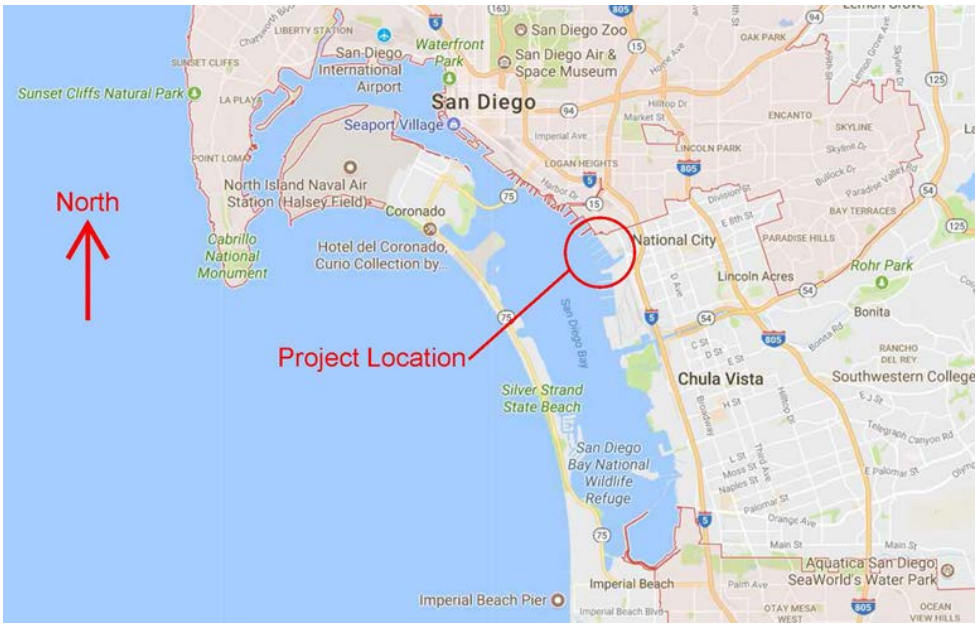


Figure 2-1: Project Location

Mole Pier is south of Pier 8 as shown in Figure 2-2.

Figure 2-2: Mole Pier Location

2.3 Design Criteria

The following standards were used as design criteria for the alternatives study:

1. UFC 3-301-01, Structural Engineering
2. UFC 4-150-02, Dockside Utilities for Ship Service
3. UFC 4-150-06, Military Harbors and Coastal Facilities
4. UFC 4-152-01, Design: Piers and Wharves

5. UFC 4-159-03, Mooring Design
6. UFC 4-213-10, Graving Drydocks
7. UFC 4-213-12, Drydocking Facilities Characteristics
8. ASCE 7-10, Minimum Design Loads For Buildings and Other Structures

2.4 Environmental Conditions

2.4.1 Tides

Tides at the project location are shown in the table below. Values are per Ref. 6 (Chollas Creek Quaywall Repair Metocean Report, Naval Station San Diego, Facilities Certification Report, October 2020).

Table 2-1: Tides

Tide	**Elevation [ft]**
Highest Astronomical Tide	+7.72
Mean Higher-High Water (MHHW)	+5.72
Mean High Water (MHW)	+4.99
Mean Lower Low Water (MLLW)	0.00
Lowest Astronomical Tide	-2.11

3. Mole Pier Floating Dry Dock

3.1 Mole Pier Background

The Mole Pier consists of a bulkhead wall retaining soil and fill and extends into San Diego Bay south of Pier 8 and north of Pier 10. On the south side of the Mole Pier is a pile supported concrete marginal wharf that is accessed from the Mole Pier by two concrete ramp structures. The existing pile-supported concrete wharf, access ramps, finger pier located on the quaywall just east of the wharf, and dry dock sump was original constructed in the early 1980's per drawings titled “Dry Dock Mooring Wharf”. GHD-COWI has been unable to locate a copy of the original as-built drawings for the wharf. The Mole Pier South location was previously used to berth the floating dry dock AFDM 14 “Steadfast.” The Steadfast was relocated in 1998 and shown at Mole Pier in *Figure 3-1* and *Figure 3-2*.

Figure 3-1: AFDM 14 Steadfast at Mole Pier

Figure 3-2: AFDM 14 Steadfast at Mole Pier

The Mole Pier South wharf was modified in 2002 (Reference 18) to accommodate berthing and mooring of the USS Curtiss, currently stationed at the wharf. Modifications to the wharf included construction of two mooring points for the Curtiss; a dolphin at the forward portion of the vessel and an extension of the wharf at the aft location.

3.2 Existing Conditions

3.2.1 Structure Configuration

Mole Pier South is located approximately 5,500 lineal feet south of the entrance gate to Naval Base San Diego, San Diego, California. It is comprised of the following sections: the Dry Dock Mooring Wharf, the mechanical pier, the access pier, the electrical pier, and the ramp pier. The wharf is about 588 feet long and 53 feet wide, the mechanical pier is about 75 feet long and 53 feet wide, the electrical pier is about 21 feet long and 53 feet wide, and the access ramp pier is about 105 feet long and 23 feet wide.

The mechanical, electrical, and access piers were constructed north of the main wharf to provide mechanical and electrical servicing and access to the wharf. The main wharf and access piers are shown in plan on Figure 3-3.

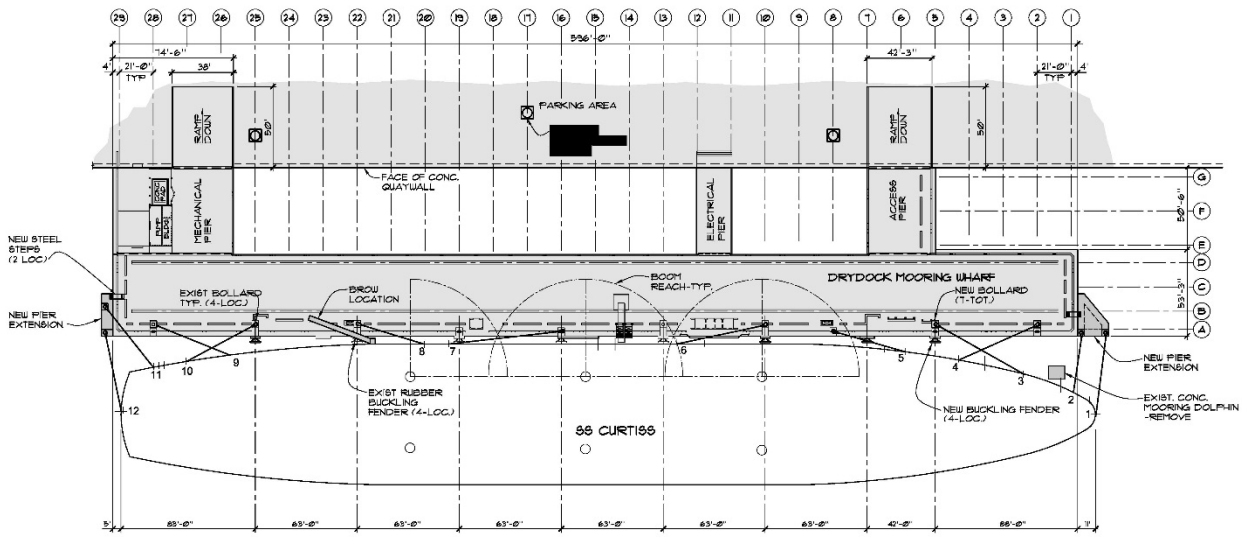


Figure 3-3: Plan of Mole Pier South – Mooring Wharf

The wharf deck consists of a 6-inch thick concrete slab underlain by the original prestressed concrete planks, which span between pile caps that are typically spaced at 21 foot centers. At the main pier, pile caps are supported by 263 precast concrete piles that are 24 inch square and of which 175 are vertical piles and 88 are battered piles. At the north end of the main pier, a mooring dolphin for the USS Curtiss is supported by five octagonal concrete piles (three vertical piles and two battered piles) as shown in Figure 3-4 and Figure 3-5. At the mechanical, electrical, and access piers, pile caps are supported by 74 concrete piles that are 20 inch square and of which 43 are vertical piles and 31 are battered piles.

Figure 3-4: Photograph of Mole Pier South Wharf

The water depth at the Dry Dock Mooring Wharf ranges from 19 feet below Mean Lower Low Water (MLLW) to 55.5 ft below MLLW (Figure 4-5).

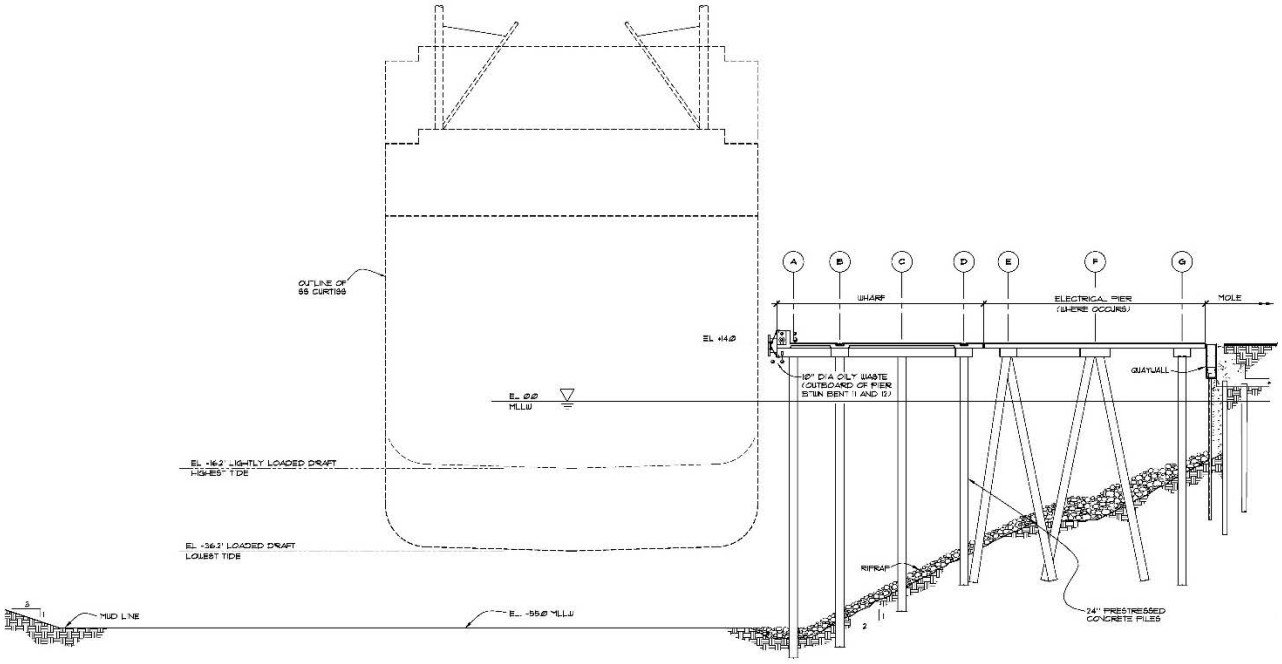


Figure 3-5: Section through Mole Pier South Wharf

3.2.2 Geotechnical

Existing geotechnical borings by Woodward Clyde Consultants, from the 1981 original wharf construction, indicate the presence of recent Bay deposits underlined by Bay Point formation. No additional geotechnical investigations were performed as part of GHD-COWI's study.

3.2.3 Civil, Mechanical, Electrical and Fire Protection

3.2.3.1 Civil and Mechanical Utilities

The utilities serving the Dry Dock Mooring Wharf from Mole Pier consist of potable water, waste water, oily waste, steam and electrical systems. The potable water system consists of an 8-inch main running along the perimeter of the pier on the topside of the deck, with two potable water service connections, each consisting of 1-1/2 inch diameter laterals with check valves. The waste water system consists of 4-inch diameter and 6-inch diameter lines for disposal off the pier. There are two wastewater hookup stations at the pier. The oily waste system features two hookup stations on the deck, that are connected to 8-inch diameter mains located under the deck and extend along the perimeter of the pier. Finally, there is a 16-inch insulated steam line that runs along the perimeter of the pier, with one service connection located on the deck.

3.2.3.2 Electrical and Communication Systems

The electrical system consists of high voltage substations, transformers and switches, which are all located on the topside of the deck. The power is typically provided by electrical cables sheathed in conduits inside the main duct banks running at the under deck. There is one fire alarm pull station, 62 curb lights, and one safety ladder at the pier.

The electrical distribution in the Mole Pier area is fed from the South Cummings Substation via Loop NC3/NC-4. This loop consists of a single set of three 1/C 500 kcmil 15kV EPR cables. Total ampacity of a single set of 500 kcmil 15kV cables is 465 amps (assuming MV-90 cable), or a load of 9.66 MVA. The existing Mole Pier shore power distribution is fed from the Mole Pier Substation. It is estimated that the existing Mole Pier Substation load is approximately 3.33 MVA, with other loads on the loop estimated to be no more than 1 MW.

Copper telephone (voice) circuit connection facilities are present on the Mole Pier. Network (fiber optic LAN) connections, if required, are available at Building 3539. Existing pathways are available at the foot of the Mole Pier for routing a multistrand fiber optic cable.

Fire alarm reporting is via dial-up telephone circuit.

3.2.4 Dredging and Navigation

According to 2014 bathymetric data provided to GHD-COWI by the Navy, the berth is at an approximate depth of -54 MLLW'. The basin also has an approximate length of 700' and 150' wide. There are depth variances in this area that range from -35' to -55' MLLW. According to the Dredging and Disposal Long Term Management Strategy for San Diego Bay, Naval Region Southwest Draft Study (Reference 20) provided to GHD-COWI by NAVFAC, the last known date of dredging for the area south of the Mole Pier was 1985. The current depth requirement for this area is -37 and -50 MLLW. The approach channel to the Mole Pier is -37 MLLW. This area was last dredged in 1971. The table below shows the dredge depths of NBSD, including the Mole Pier.

Table 3-1: Naval Base San Diego Dredge Depths

Facility	Pier/Area	Current (2017 and earlier) Depth Requirement (feet MLLW)	Last Date of Known Dredging (year)	Map Number
Naval Base San Diego	Chollas Creek	-20	2016-2017	2-6
	Mouth of Chollas Creek	-30	1997	2-7
	Pier 1	-30	1993	2-8
	Pier 2	-37	1986	2-9
	Pier 3	-37	1995, 1998	2-10
	Approach to Piers 1, 2, and 3	-37	1995	2-11
	Pier 4	-30	1981	2-12
	Pier 5	-30	1981	2-13
	Pier 6	-30	1981	2-14
	Approach to Piers 4, 5, and 6	-30	1995	2-15
	Pier 7	-37	1997	2-16
	Pier 8	-37	1997	2-17
	Approach to Piers 7 and 8	-37	1993	2-18
	Paleta Creek	-20	1942	2-19
	Mole Pier—North Side	-30, -24	1993	2-20
	Mole Pier—South Side	-37, -50	1985	2-21
	Pier 10	-37	2002–2005	2-22
	Approach to Mole Pier (South Side) and Pier 10	-37	1971	2-23

3.2.4.1 Preliminary Dredging Design

The preliminary dredging design for this project will follow United Facilities Criteria (UFC) 4-150-06 Military Harbors, Department of Defense Standard MIL-STD-1625D, and Coastal Facilities. Turning

basins and navigational channels were designed to accommodate vessels class DDG-51 and AFDM (X), as directed by NAVFAC during the kickoff meeting on August 18, 2020. The following chapters in the UFC were used in the navigation and dredging design of this project:

- Chapter 5 – Project Planning
- Chapter 6 – Design of Dredging Projects

Figure 3-6 shows the proposed footprint of the dredging limits between the Mole Pier and Pier 10. There is approximately 640 feet between the Mole Pier and Pier 10.

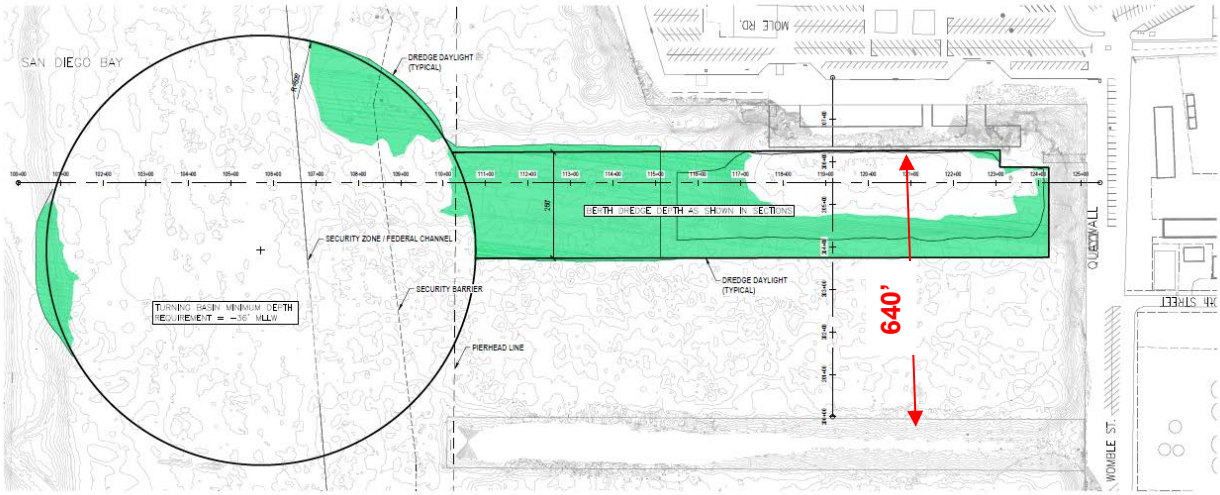


Figure 3-6: Proposed footprint of the dredging limits between the Mole Pier and Pier 10

3.2.4.2 Navigational Aids

This project would not require any additional navigational aids.

3.2.4.3 Sediment Characteristics

Proposed dredge volume are based on 2014 bathymetric survey provided by the Navy. A new Pre-Design Bathymetric Survey will be required prior to final design, to confirm that recommendations for design are accurate based on current existing condition.

Sediment characterization information was not available at the south side of the Mole Pier. Therefore, existing sediment characteristics and chemistry are unknown. GHD-COWI recommends that the sediments characterization study be performed for this area as well. This will aid NAVFAC and the design team in determining the handling, transport, and disposal requirements of the dredged sediment.

3.3 Requirements

3.3.1 Mole Pier Floating Dry Dock – Mooring Conceptual Design

To meet NAVFAC's requirements for vessel docking, GHD-COWI reviewed two alternative mooring configurations for a floating dry dock to be located at the Dry Dock Mooring Wharf**Error! Reference source not found.**. Alternative 1 shown in Figure 3-7 below proposes mooring points in line with the face of the existing mooring wharf and supporting structure integrated within the existing wharf. Alternative 2

as shown in Figure 3-8 proposes installation of two new mooring dolphins, which will be independent structures located forward and aft of the dry dock to secure the dry dock's position. It is assumed for this study that the USS Curtiss will be permanently relocated prior to any modifications to the Dry Dock Mooring Wharf to accommodate a floating dry dock. We understand the P508 floating dry dock is to be permanently moored at Mole Pier and not self-powered or capable of maneuvering.

The existing ramp pier will be utilized to access the floating dry dock via a new movable access bridge. A pile-supported concrete ledge will be added to support the vehicle ramp when the dry dock during ballasting operations or repositioned for maintenance dredging. Forklifts, vehicles and equipment will use the bridge to access the dry dock.

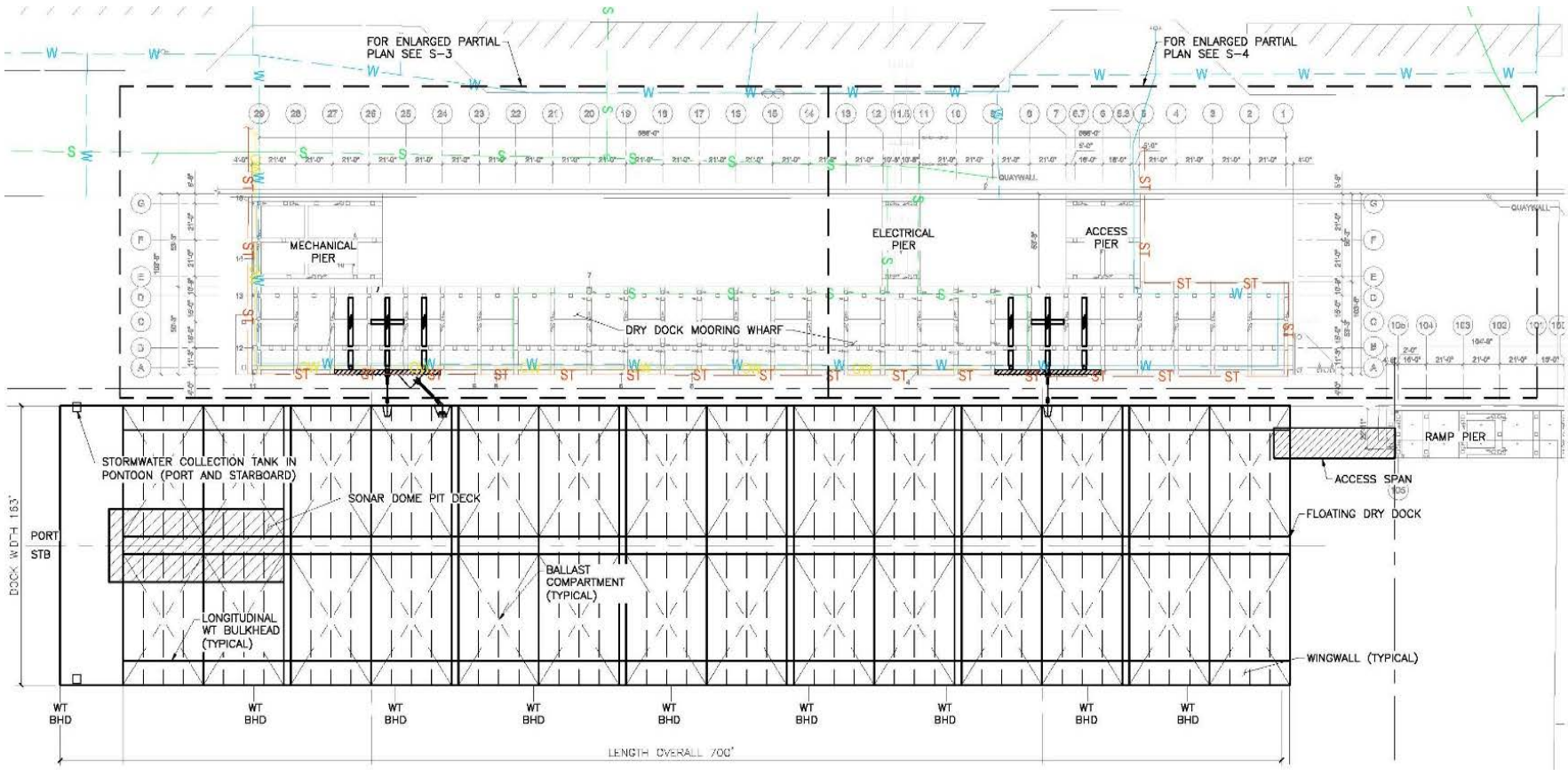


Figure 3-7: Floating Dry Dock Mooring Modification – Alternative 1

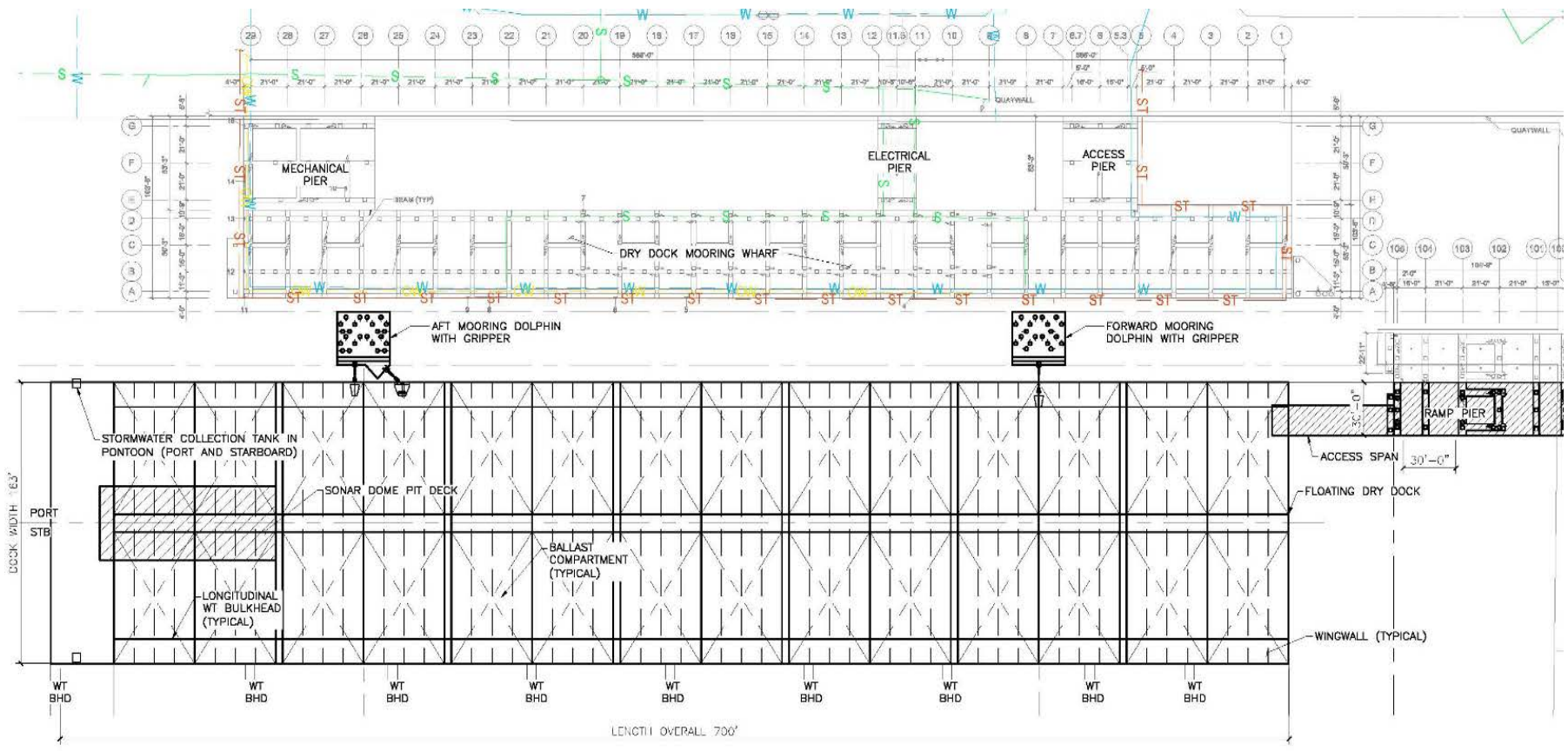


Figure 3-8: Floating Dry Dock Mooring Modification – Alternative 2

3.3.1.1 Floating Dry Dock Requirements and Characteristics

To accommodate the 18,000 LT vessel lift capacity requirement, the P508 AFDM(X) conceptual floating dry dock has principal dimensions as follows: Overall Length 704 ft.; outside width 160 ft; inside width 132 ft.; pontoon depth 14'-3".; and a wing wall height of 50'-9" above the pontoon deck. The dry dock will not have support facilities capable of powering emergency loads.

Table 3-2 lists the design vessel and floating dry dock characteristics.

Table 3-2: P508 Conceptual Floating Dry Dock Sizing

Vessel Class	**Length Overall (ft)**	**Length over Pontoons (ft)**	**Beam (ft)**	**Draft (ft) (fully loaded at keel)**	**Displacement (LT)**	**Keel Block Loading (LT/ft)**
Mole Pier Floating Dry Dock	704	668	160	54	18,000[1]	65

Note 1: Required lifting capacity

3.3.1.2 Floating Dry Dock - Design Loading Conditions

Keel Block Load: The transverse bulkheads outside the buoyancy compartment will be designed to support a 65 LT /FT keel load from DDG-51 class vessel without longitudinal distribution. This loading induces compression in the pontoon deck plating and the upper part of the transverse bulkheads. These compressive areas will be stiffened against buckling. The bottom plating is in tension for this load.

The transverse bulkheads within the buoyancy compartment will be designed for 2 x 65 LT /FT keel load due to the probability of a local concentrated load. This may occur because blocks are removed to permit inspection and repair of the docked ship, or because variation of block elevation and ship keel straightness results in unequal keel block loading. The longitudinal bulkheads off centerline are able to distribute these locally high loads to the adjoining transverse bulkheads.

Side Blocks: The transverse bulkheads will be designed to support side blocks. Side blocks are required for docking DDG-51 as noted in this report.

A section showing the conceptual floating dry dock is shown in **Error! Reference source not found.**. The sinking basin will require a minimum depth of 55 feet for the floating dry dock. This depth will provide a one foot underkeel clearance. The basin was previously dredged for the AFDM (X) Steadfast dry dock and creation of the deeper basin to accommodate the floating dry dock will require additional dredging as discussed in Section 4.2.4.

3.3.1.3 Floating Dry Dock - Mooring Analysis

As part of the 2018 study, GHD-COWI performed a mooring analysis of the floating dry dock to estimate load demand on the aft and forward mooring points. The wind and current velocity and dry dock and vessel area were determined. Static wind force was calculated in the transverse and longitudinal directions. The wind profile on Figure 3-9 and Figure 3-10 includes a DDG-51 vessel in dock at operational freeboard (18" pontoon deck freeboard.) Currents and effects from passing vessels were also reviewed.

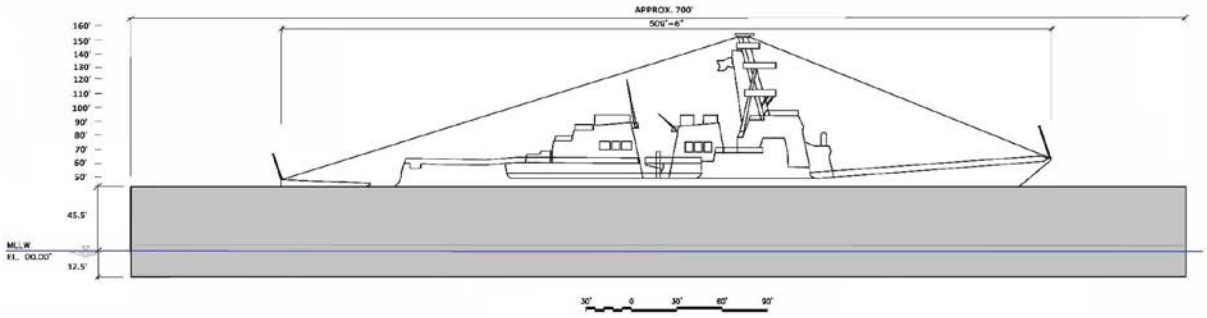


Figure 3-9: Longitudinal Wind Profile

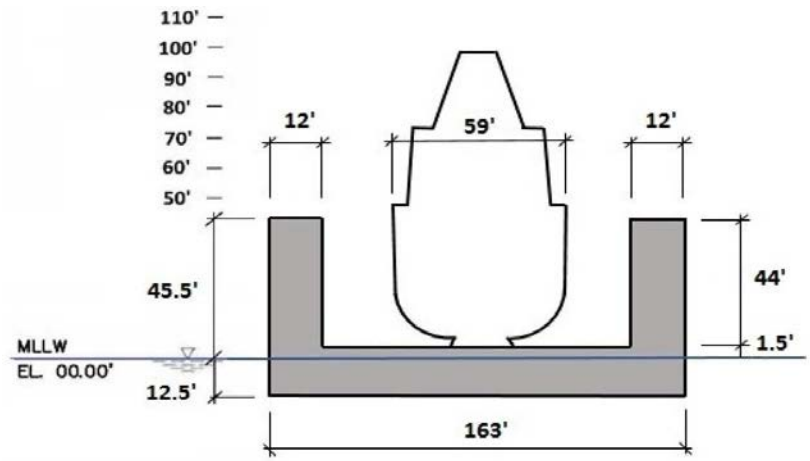


Figure 3-10: Traverse Wind Profile

A summary of the mooring analysis results is provided below.

Maximum mooring system loads at operational freeboard (1'-6" below pontoon deck):

1. Design wind speed = 115 mph
2. Design vessel in floating dry dock = DDG-51 or LCS-2 or LSD-41/49
3. Mooring Type = MST IV (Ref. 16)
4. Transverse LRFD design load on aft transverse mooring point (grippers) = 878 kips
5. Transverse ASD design load on aft transverse mooring point (grippers) = 864 kips
6. Transverse LRFD design load on forward transverse mooring point (grippers) = 439 kips
7. Transverse ASD design load on forward transverse mooring point (grippers) = 432 kips
8. Longitudinal LRFD design load on longitudinal mooring point (gripper) =620 kips
9. Longitudinal ASD design load on longitudinal mooring point (gripper) = 611 kips

3.3.1.4 Floating Dry Dock Mooring Requirements

The floating dry dock will require mooring points at the Mole Pier mooring wharf to hold position. GHD-COWI reviewed two concept designs for the mooring configuration. Alternative 1 requires the addition of piles between existing wharf pile bents 6 to 9 and 24 to 27. Three mooring points will be installed via a thickened deck and edge beam to accommodate the mooring grippers (one laterally and one diagonally from the aft mooring location and one laterally from the forward mooring location). The modifications will consist of installing 18 - 24" octagonal precast prestressed batter and plumb piles and a 48" thick reinforced concrete pile cap (as shown in Figure 3-11). Utilizing the existing wharf provides additional lateral capacity to the mooring system allowing for fewer new piles to be installed for this alternative.

Alternative 2 involves an aft mooring dolphin and a forward mooring dolphin to be installed west and east of the dry dock mooring wharf. There will be three mooring points for the floating dry dock, one laterally from the aft mooring dolphin, one diagonally from the aft mooring dolphin and one laterally from the forward mooring dolphin (as shown in Figure 3-12**Error! Reference source not found.**). The aft and forward mooring points will consist of pile-supported dolphins, independent of the existing wharf. The dolphins will be constructed of 24"octagonal precast prestressed concrete piles, installed with a batter and a large reinforced concrete cap (24 piles are required at the aft dolphin and 20 at the forward dolphin) . Battered steel pipe piles are used in the east and west directions for the aft dolphin to resist longitudinal forces imposed by the diagonal gripper. The batter piles will resist large compressive and tension forces from the mooring grippers. A geotechnical study from the 2002 dry dock wharf expansion, shows an allowable compression load of 570 for 24-inch concrete piles. Tension capacity for 24-inch concrete batter piles is 250 kips. Sketches showing the conceptual mooring dolphins are shown on Figure 3-12.

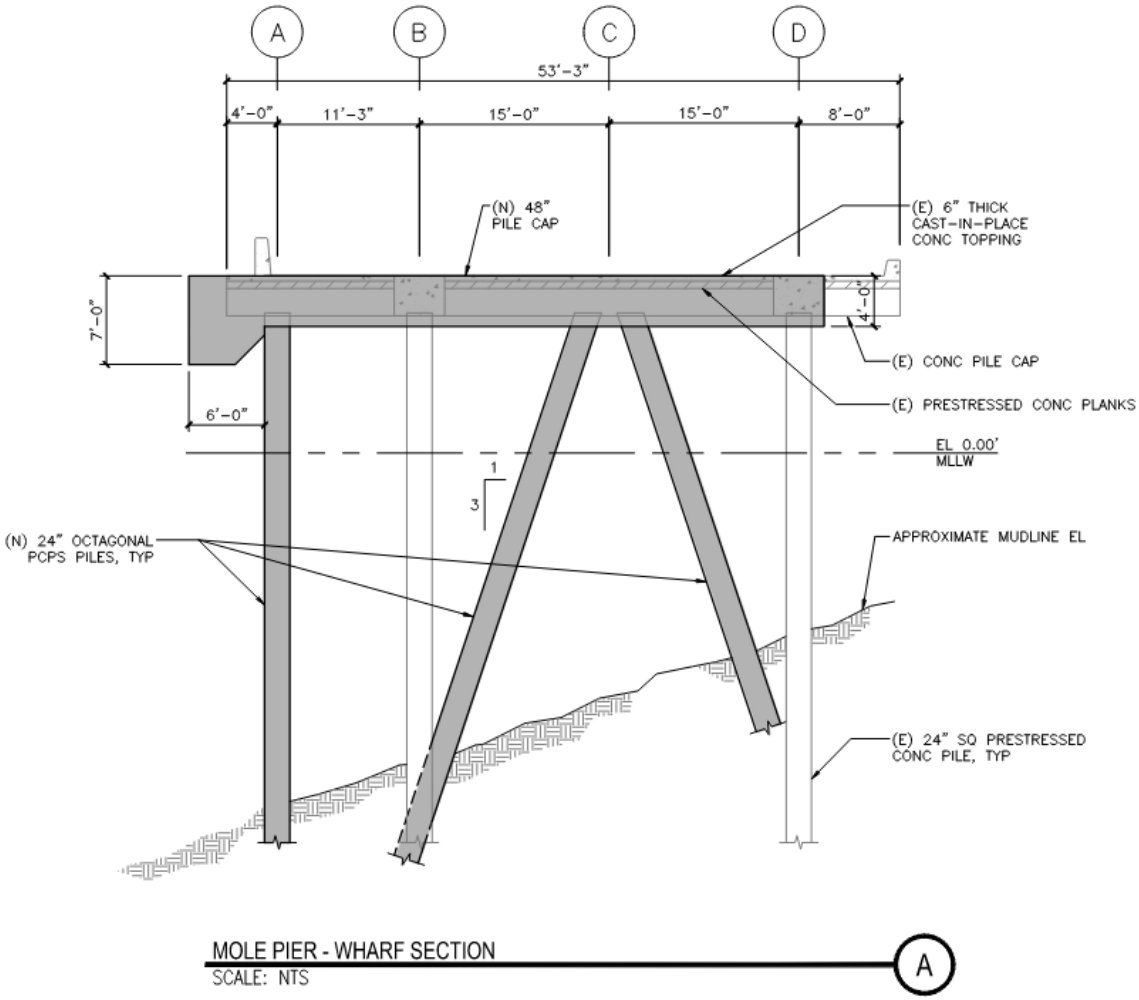


Figure 3-11: Concept Mooring Wharf Modification – Alterative 1

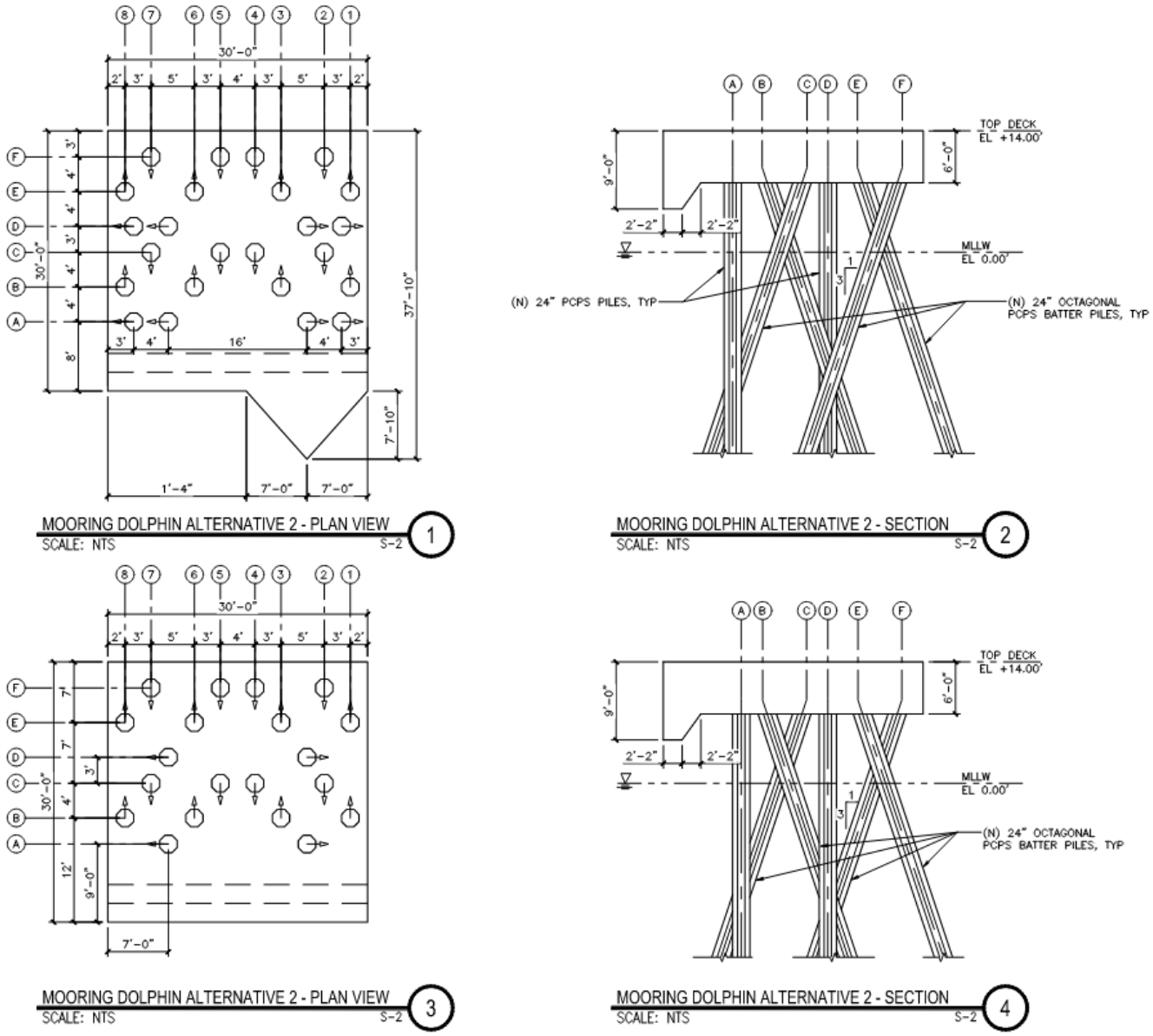


Figure 3-12: Conceptl Forward and Aft Mooring Dolphins – Alternative 2

Gripper attachments will be used that utilize tee sections welded to the outer wingwall of the dry dock. The grippers will be secured to the dolphin concrete pile cap using fasteners that will yield at a lower stress. The purpose of this connection is to create a fuse that will release the attachments at a seismic load, preventing damage to the pile-supported mooring structures.

Conceptual details for the mooring dolphin gripper attachments are shown on Figure 3-13.

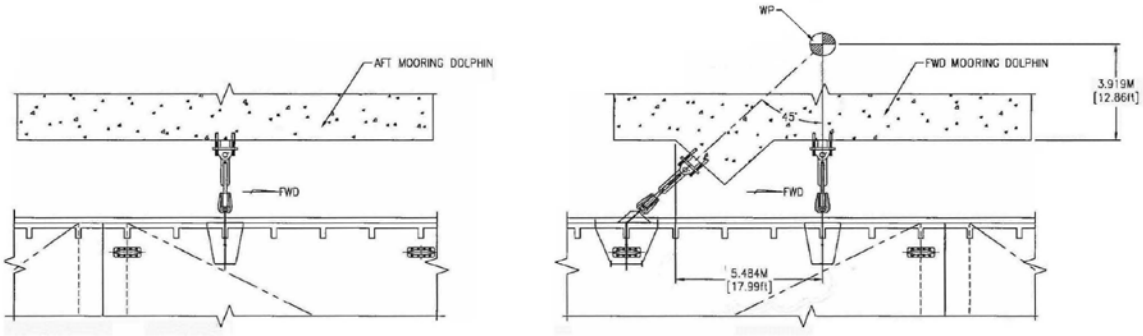


Figure 3-13: Conceptual Dolphin Gripper Attachments

Structural analysis was performed for the mooring alternatives using a linear elastic model with SAP2000 computer software. The analysis used loading demands from the mooring analysis in Section 3.3.1.3. Figure 3-14 and Figure 3-15 below shows the extruded finite element models for each alternative. We note that GHD-COWI's alternatives study did not include a seismic analysis of the existing mooring wharf structure nor the concept modifications. This analysis should be performed to determine if seismic strengthening of the mooring wharf is required as part of the project.

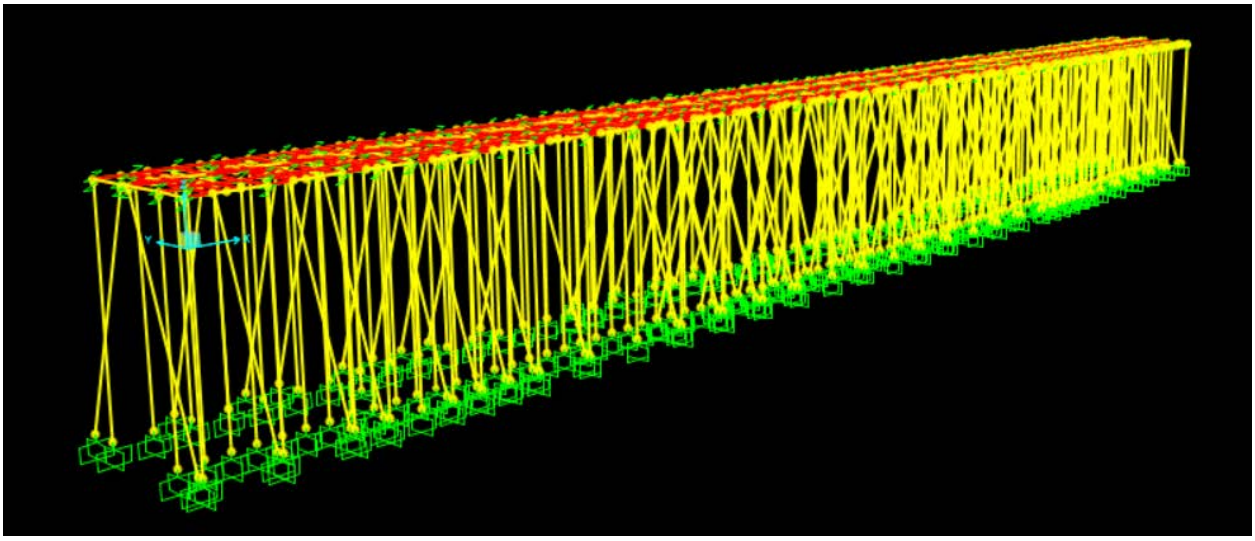


Figure 3-14: Existing Wharf with P508 Mooring Modifications SAP2000 Model – Alternative 1

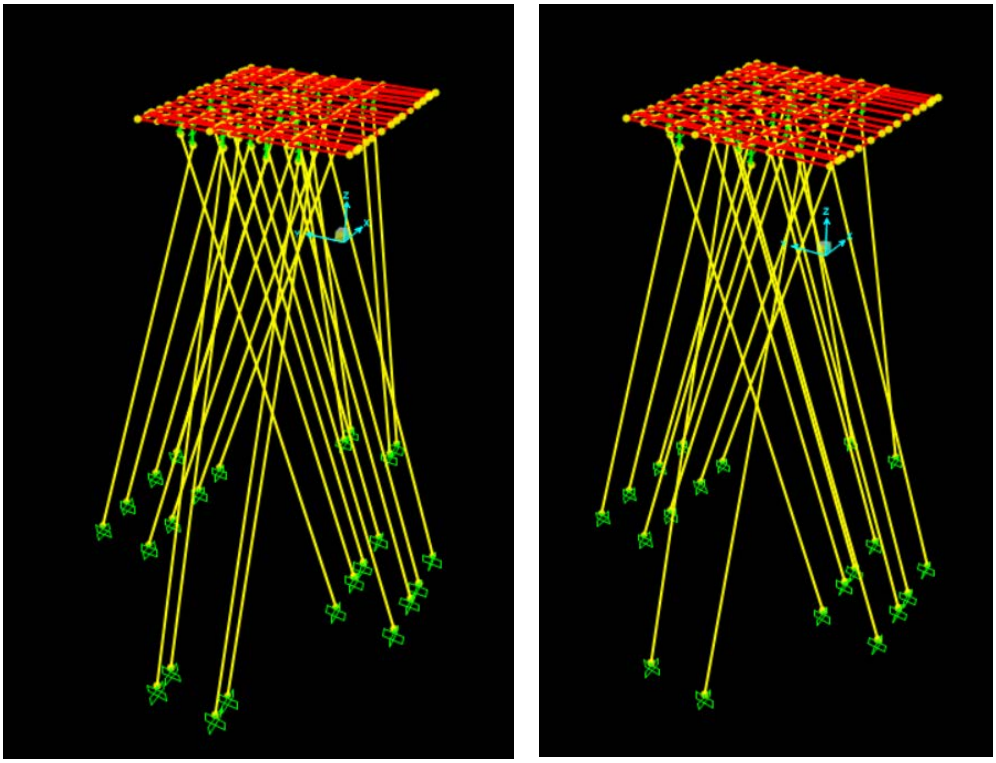


Figure 3-15 P508 Fwd and Aft Mooring Dolphins – Alternative 2

3.3.2 Civil, Mechanical, Electrical Systems and Fire Protection

Shore services required for the various class vessels per UFC 4-150-02 include compressed air, salt or non-potable water for firefighting/cooling/flushing, potable water, oily waste/waste oil (OWWO) discharge, sanitary (CHT) discharge, electrical, and telecommunications. The utility requirements for the vessels are outlined in Table 3-3 below.

Table 3-3: Utility Requirements

Vessel Class	Power (AMP)	Compressed Air (SCFM)	Compressed Air (PSIG)	Salt Water Fire-fighting (GPM)	Salt Water Cooling (GPM)	Potable Water (GPD)	Oily Waste Discharge (GPD_{AVE})	CHT Discharge (GPM)
CG 47	5,200	1,000	125	1,000	250	16,000	3,000	100
DDG 51	4,500	1,000	125	1,000	250	9,500	3,000	40
LCS 1	1,600	Portable only		1,000		250	500	250
LCS 2	1,600	Portable only		1,000		250	500	250
LSD 41	2,400	300	125	2,000	500	14,000	2,700	100
LSD 49	2,160	300	125	2,000	500	12,000	2,700	100

Potable water mains need to provide the required quantity of distilled or potable water at a residual pressure of 40 to 80 psi at any outlet. Meters should be provided to record water consumption. For piping materials and installation requirements, UFC 3-230-19N should be followed.

All sewage from ships in dry dock shall be collected and transported to a treatment plant. Preferably, a sewer main should be located on each side of the dock. The main sewer should be sized to receive ship discharges at peak flow rates plus any other flow entering the collection system. The laterals between the receiving hose connections and the main sewer must have a minimum diameter of 4-inches. Ductile iron pipe is preferred for pressurized systems and PVC pipe may be used for gravity systems.

Compressed air is required in a dry dock for tools and sandblasting and should have mains on both sides of the dock. The size of the main should be a minimum 4-inch.

Salt water mains for fire water and flushing/cooling should be looped, with a main on both sides of the pier with a cross connection at the outboard end of the pier. The piping system must be designed to provide the required residual pressure at the rated design flows. A sufficient amount of saltwater should be provided to meet the requirement of the design vessel. The saltwater pressure should be 150 psi residual pressure at the most remote outlet. The pressure requirement should be available within 3 minutes of system activation.

The pumps required should be selected to provide for both fire protection and cooling/flushing requirements. Pressure must be controlled under varying demands by staging of pumps. The material for the pumps that are generally considered appropriate for salt water are as follows: 316/316L stainless steel or nickel aluminum bronze for all wetted parts and nickel-copper (monel) for shafts/couplings.

The typical outlet should consist of a 6-inch branch main and riser feeding a manifold arrangement of three 2-1/2 inch and one 4-inch valved hose connections. All connections should be protected by a chained cap. Pipe and fittings should conform to UFC 3-230-19N and be pressure rated at 250 psi minimum.

The electrical aspects of the floating dry dock assume that the existing Mole Pier Substation's 480V shore power distribution will not be used while 12 kV power is provided to power the new floating dry dock. Therefore, the major load on this loop circuit would be either the existing Mole Pier Substation Load, or the floating dry dock load, but not both occurring concurrently.

All power for the floating dry dock, including the dry docked vessel, will normally be served from the shore power source. The floating dry dock will be provided shore power at the primary distribution system level of 12.0 kV. The dry dock will include its own unit substations to step voltage down to utilization levels and engine-generators that will be used for docking and undocking operations, as well as for backup power in case of commercial power failure. Primary voltage connection facilities will be provided at the berth for connection of the dry dock's shore power cables. All 480V connections for shore power, 480 and 120V connections for industrial power, lighting, and miscellaneous power circuits are included with the floating dry dock itself, and do not need to be provided as a part of the land-side facilities.

The DDG-51 has an intermittent requirement for power to three support vans. The largest load is the 400 Hertz electrical power van, which requires approximately 300 kW of 60 Hertz power, or the equivalent of one shore power receptacle.

Total estimated electrical load for the floating dry dock, including dry dock facilities and a DDG-51, is 3,567kW, or 172 amps at 12,000V. This load should be able to be supplied via the existing loop circuit [SC-3/SC-4][SC-5/SC-6] without needed to add a second, parallel set of 500 kcmil, 15kV cables.

Six (6) copper voice lines are required for DDG-51 telephone service. The total quantity of available voice circuits at the Mole Pier is not currently, known, but is assumed to exceed the quantity required.

3.3.3 Dredging

GHD-COWI JV previously evaluated various dredging options as part of the 2018 Floating Dry Dock Study to address the UFC 4-150-06 dredging depth requirements. The following dredging option was evaluated for the updated conceptual alternatives at a depth of -55 and -56 using the turning basin and approach channel layout from the 2018 GHD-COWI study Option 1. Clearances of 50 ft and 150 ft were added to the basin in the transverse and longitudinal directions respectively. A summary of the dredge alternatives reviewed in this study is below:

Table 3-4: Dredge Alternatives

Alternative	Basin Depth Elev. (ft)	North Dredge Distance from Wharf Edge (ft)	Basin Width (ft)	Basin Length (ft)
1A	-55	24	210	850
1B	-56	24	210	850
2A	-55	48	210	850
2B	-56	48	210	850

A turning basin with a radius of 505 feet would be dredged at the end of the Mole Pier with a 250-foot wide access channel on the south side of the Mole Pier leading to the floating Dry Dock. The plan area of the dry dock basis will be expanded to accommodate a large structure. The JV team developed exhibits showing what the dredging would look like should the UFC be strictly adhered to. The increased dredged area for the sinking basin is set back from the Mooring Wharf substructure and fender system and does not impact the integrity of the piles or stability of the wharf substructure.

Pros:

- Meets the requirements of UFC 4-150-06.
- Allows new floating dry dock to berth on the south side of the Mole Pier
- Dredging does not impact the existing Mole Pier South Berth and other surrounding structures.

Cons:

- While dredging to the depths required by the UFC 4-150-06 is feasible, this would likely introduce additional cost to the project due to the deepening of the area.

Variations of this option in terms of dredge depth, turning basin radius, access channel width are possible. The preliminary volumes in Table 3-5 are based on the alternatives and depth options.

Table 3-5: Mole Pier South – Preliminary Dredging Volumes

Dredging Quantities and Cost									
Alternative	**Dredge Location**	**Dredge Design Depth**	**Upland Disposal Volume (CY) - (Assume Top 2ft of Channel/Pier Berth)**	**Ocean Disposal Volume (CY)**	**1' Overdredge Depth (CY) - (Assumed clean for Ocean)**	**Total Volumes (CY)**	**Upland Cost ($550)**	**Ocean Cost ($40)**	**Total Cost ($)**
1A	Turning Basin (assume full depth is clean for ocean)	-36	N/A	6,450	4,249	10,699	$ 10,663,367	$ 2,762,716	**$ 13,426,083**
	Approach Channel	-37	4,585		3,062	7,647			
		-55	14,803	48,657	6,650	70,110			
	Total (CY)		**19,388**	**55,107**	**13,961**	**88,456**			
1B	Turning Basin (assume full depth is clean for ocean)	-36	N/A	6,450	4,249	10,699	$ 12,395,867	$ 3,038,716	**$ 15,434,583**
	Approach Channel	-37	4,585		3,062	7,647			
		-56	17,953	55,557	6,650	80,160			
	Total (CY)		**22,538**	**62,007**	**13,961**	**98,506**			
Alternative	**Dredge Location**	**Dredge Design Depth**	**Upland Disposal Volume (CY) - (Assume Top 2ft of Channel/Pier Berth)**	**Ocean Disposal Volume (CY)**	**1' Overdredge Depth (CY) - (Assumed clean for Ocean)**	**Total Volumes (CY)**	**Upland Cost ($550)**	**Ocean Cost ($40)**	**Total Cost ($)**
2A	Turning Basin	-36	N/A	6,450	4,249	10,699	$ 10,980,261	$ 3,151,396	**$ 14,131,657**
	Approach Channel	-37	4,711		3,179	7,890			
		-55	15,253	58,257	6,650	80,160			
	Total (CY)		**19,964**	**64,707**	**14,078**	**98,749**			
2B	Turning Basin	-36	N/A	6,450	4,249	10,699	$ 12,410,261	$ 3,439,396	**$ 15,849,657**
	Approach Channel	-37	4,711		3,179	7,890			
		-56	17,853	65,457	6,650	89,960			
	Total (CY)		**22,564**	**71,907**	**14,078**	**108,549**			

* These are neatline volumes only. Contingencies have not been added.

3.4 Recommended Facility Modifications

3.4.1 Design Service Life Recommendation

The recommended service life for the modifications to Mole Pier mooring wharf and floating dry dock is 50 years. The P508 dry dock will require visual and ultrasonic (UT) gauging inspections to be conducted as part of a regular inspection and maintenance program. Visual inspection and UT gauging of steel plate and primary structural framing elements should be conducted at 12 month intervals. The thickness gauging should occur at consistent, marked and documented locations.

Dry docking may be required for removal of marine growth and recoating. An overhaul of the dry dock will likely be required after 25 years in service. This work would include patching of deteriorated steel plating

on the pontoon deck and other areas. Marine growth will reduce the available lifting capacity of the dry dock over time if not removed.

Corrosion will also reduce vessel lifting capacity of the steel floating dry dock given exposure to the marine environment, requiring repairs in order to continue achieving NAVSEA certifications. Design for the floating dry dock will include corrosion protection incorporating impressed current, sacrificial anodes, and coating systems.

3.4.2 Structural Recommendation

3.4.2.1 Mole Pier South Modifications

Mooring of a floating dry dock at Mole Pier South berth requires either the addition of two new mooring dolphins or modification to the existing mooring wharf. Partial demolition at the east and west ends of the existing wharf is necessary for Alternative 1. A total deck area of approximately 5,324 sf between pile bents 6 to 9 and 24 to 27 will need to be removed in order to install the proposed piles and thicker deck. New battered piles will be installed with a thickened concrete cap and deck for both modified locations.

Alternative 2 standalone dolphin locations are forward and aft of the dry dock. New battered piles will be installed and a concrete pile cap constructed for both forward and aft dolphins. Both new mooring dolphins will be independent of the remaining wharf section, with access ramps provided that allow for relative translation of the structures. This option will require extension of the vehicle access pier for the vehicle ramp to access the floating dry dock.

Due to the integration into the existing wharf, Alternative 1 requires installation of fewer piles (18) compared to Alternative 2 (44) while providing slightly greater overall capacity.

3.4.3 Civil Utilities Recommendation

Civil utility services will be provided to support dry dock operations, docked vessel and maintenance and repair work on the dry docked vessel. Services required include potable water, salt water, sanitary sewer, and compressed air services to the berth. The potable water and sanitary sewer utilities are adequate for the proposed Mole Pier Alternative 1 modifications and floating dry dock operations. Alternative 2 modifications will require the removal and capping of the conflicting steam, potable water, and oil waste lines.

3.4.4 Mechanical Utilities Recommendation

The main deballasting pumps and valves will be operated by remote control from the control room, likely to be located on top of the wing wall on the floating dry dock. The control room will be equipped with gauges showing the water levels in each of the ballast compartments and drafts at specific locations on the hull.

3.4.5 Electrical Utilities Recommendation

The floating dry dock will have its own electrical distribution system but no capability to generate electrical power. It will rely completely on shore power of other external source to provide electrical power to the dry dock and vessel.

Electrical and Shore Power – Existing electrical infrastructure at Mole Pier has capacity to support the electrical requirements of the floating dry dock and docked vessel. Additional electrical infrastructure to

support the floating dry dock is essentially limited to extending 12kV feeders from the existing Mole Pier Substation.

Utility and power connections to the floating dry dock from the marginal wharf will be made using flexible lines to accommodate relative movement due to tidal changes.

3.4.6 Dredging

The proposed alternatives would require dredging to accommodate the maximum AFDM (X) draft of -54 ft during ballasting operations with 1 ft of underkeel clearance (if aligned with high tide conditions). A design dredge depth of the worst case scenario maximum draft (-54 ft) in addition to a 1 ft and 2 ft underkeel clearance has been provided for each alternative.

Based on previous experience with UXO and contaminated sediments in the area, GHD-COWI recommends that a full and detailed sediment characterization study be performed for this area. This will aid NAVFAC and the design team in determining the cost, handling, transport, and disposal requirements of the dredged sediment ahead of dredging operations.

5. Appendices

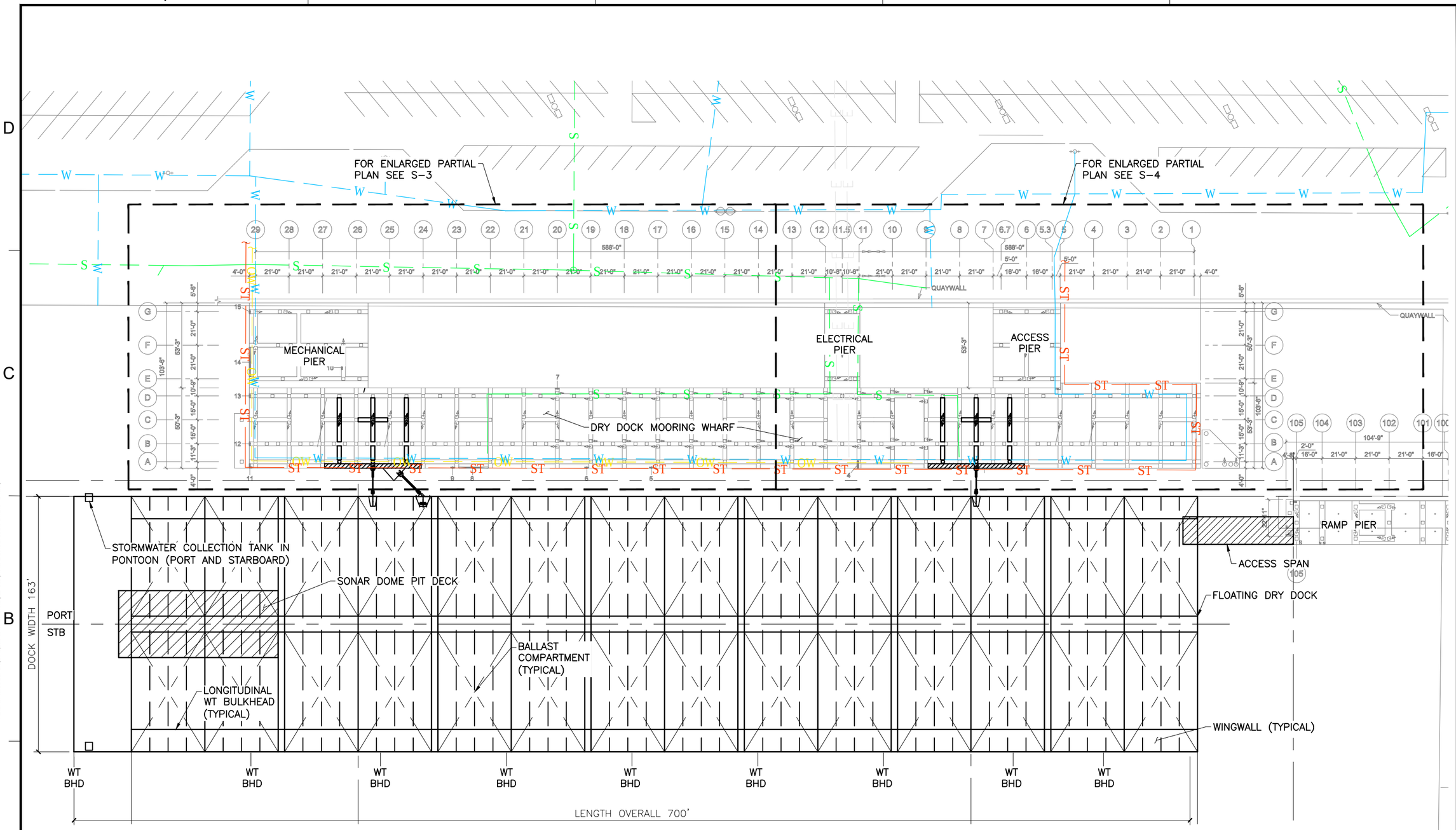
5.1 Drawings

5.1.1 P508 FDD Mooring Alternatives and Preliminary Dredge Plans

5.2 Cost Estimates

5.2.1 P508 FDD Mooring Alternatives Cost Estimates

Appendix 5.1 Drawings



ALTERNATIVE 1 SITE PLAN - MOLE PIER DRY DOCK

NOT TO SCALE

CONCEPT DESIGN

NOT FOR CONSTRUCTION

STM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

ALTERNATIVE 1 - SITE PLAN
MOLE PIER DRY DOCK

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

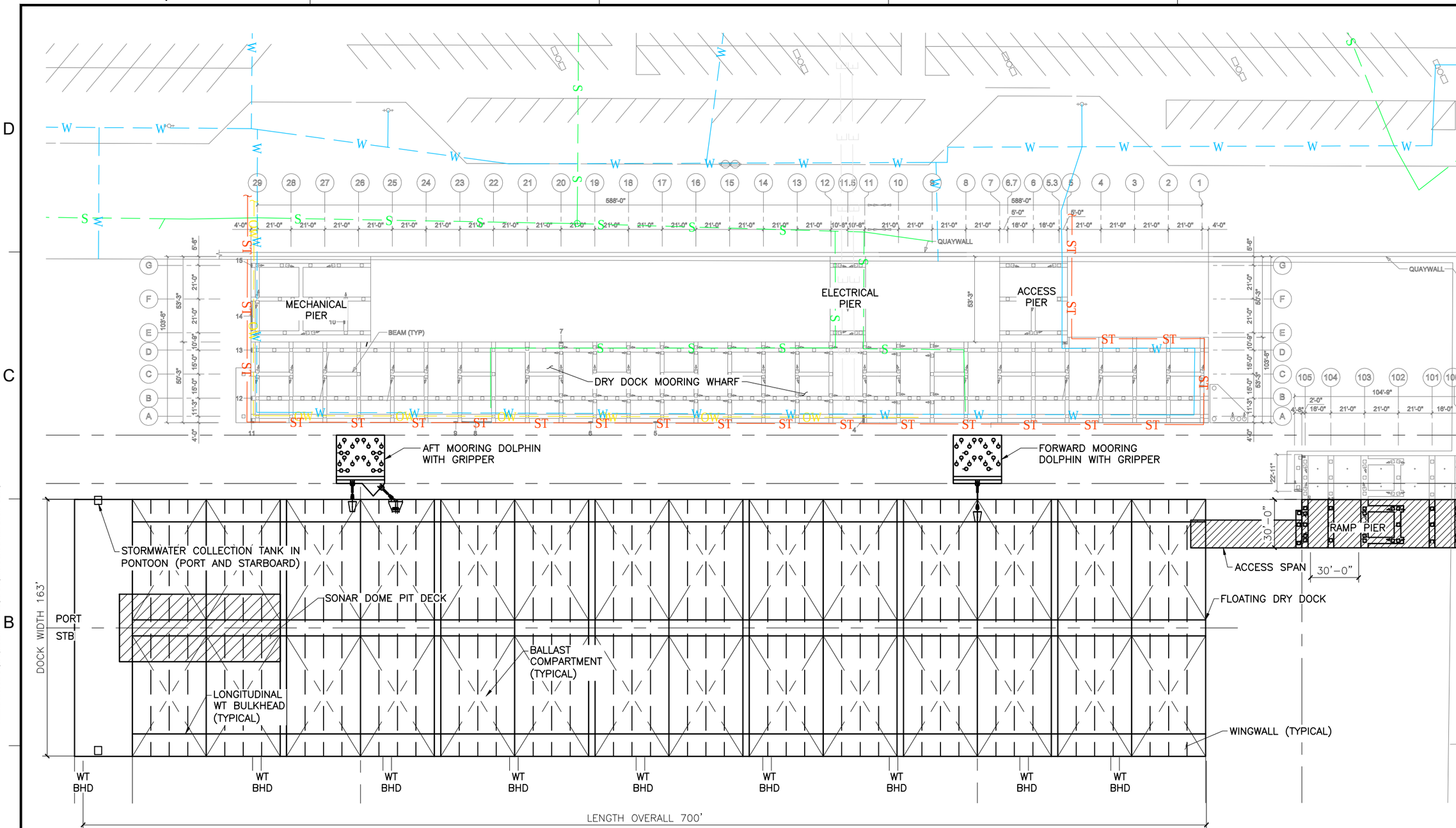
S-1

DRAWFORM REVISION: 10 MARCH 2009

Filename: N:\US\San Diego\Projects\561\11217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-1.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 12:08 PM



ALTERNATIVE 2 SITE PLAN - MOLE PIER DRY DOCK

NOT TO SCALE

PLAN NORTH

CONCEPT DESIGN

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
SAN DIEGO, CA
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CALIFORNIA
COASTAL IPT
NAVAL BASE SAN DIEGO
NBSD DRY DOCK STUDY

ALTERNATIVE 2 - SITE PLAN
MOLE PIER DRY DOCK

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

S-2

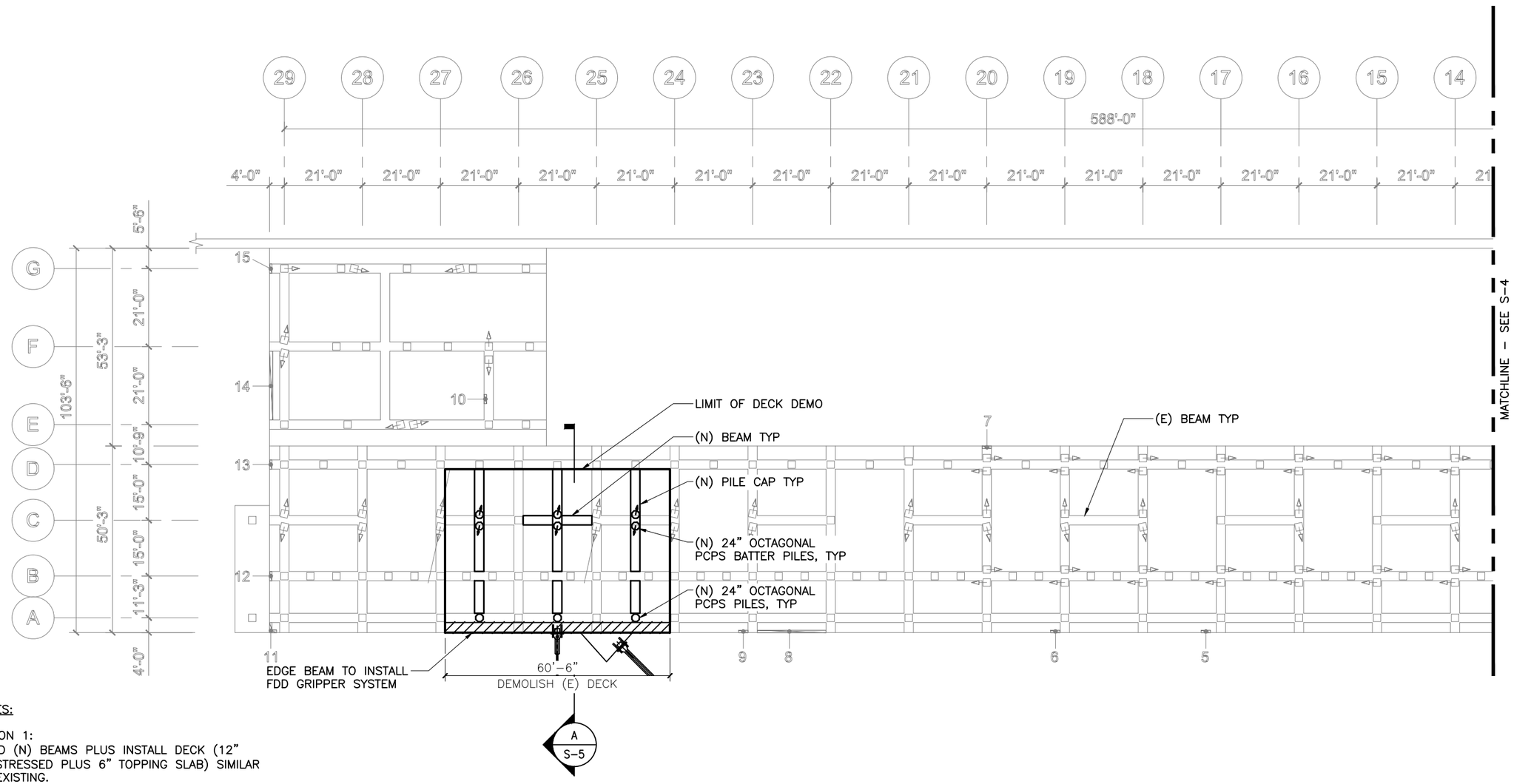
DRAWFORM REVISION: 10 MARCH 2009

NOT FOR CONSTRUCTION

Filename: N:\US\San Diego\Projects\561\11217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-2.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 12:11 PM



NOTES:

OPTION 1:
BUILD (N) BEAMS PLUS INSTALL DECK (12" PRESTRESSED PLUS 6" TOPPING SLAB) SIMILAR TO EXISTING.

OPTION 2:
INSTALL DEEP DECK, SAME DEPTH AS BEAMS

LEGEND:

- □ INDICATES EXISTING 20" SQ OR 24" SQ PRESTRESSED CONCRETE PILE
- INDICATES EXISTING 20" SQ OR 24" SQ PRESTRESSED CONCRETE BATTER PILE
- ○ INDICATES EXISTING 24" OCTAGONAL PRESTRESSED CONCRETE PILE
- INDICATES EXISTING 24" OCTAGONAL PRESTRESSED CONCRETE BATTER PILE

MOLE PIER - PARTIAL UNDER DECK PLAN

NOT TO SCALE

PLAN NORTH

CONCEPT DESIGN

NOT FOR CONSTRUCTION

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

PARTIAL UNDER DECK PLAN
MOLE PIER DRY DOCK

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

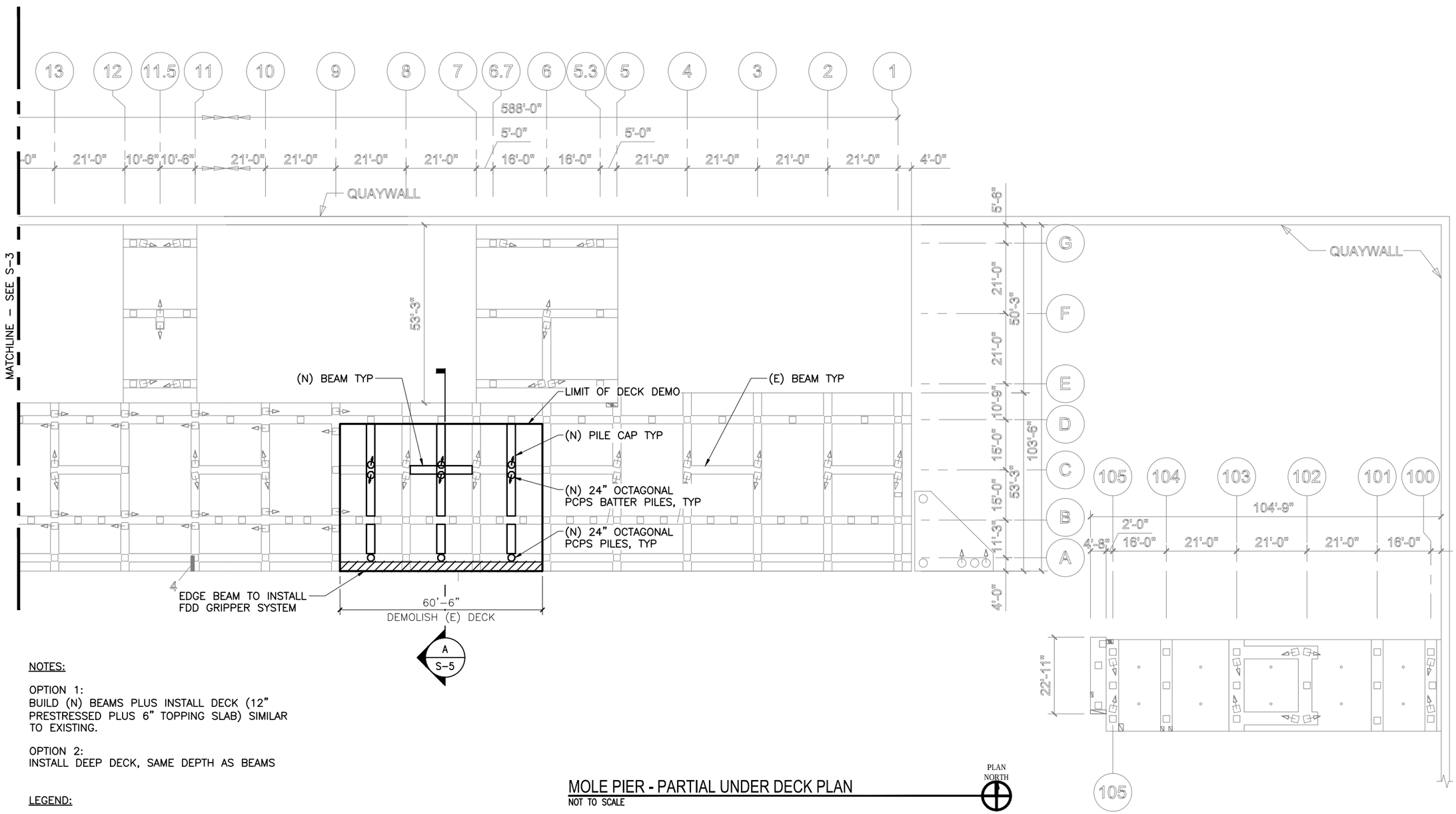
S-3

DRAWFORM REVISION: 10 MARCH 2009

Filename: N:\US\San Diego\Projects\561\11217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-3.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 9:00 AM



NOTES:

OPTION 1:
BUILD (N) BEAMS PLUS INSTALL DECK (12" PRESTRESSED PLUS 6" TOPPING SLAB) SIMILAR TO EXISTING.

OPTION 2:
INSTALL DEEP DECK, SAME DEPTH AS BEAMS

LEGEND:

- □ INDICATES EXISTING 20" SQ OR 24" SQ PRESTRESSED CONCRETE PILE
- INDICATES EXISTING 20" SQ OR 24" SQ PRESTRESSED CONCRETE BATTER PILE
- ○ INDICATES EXISTING 24" OCTAGONAL PRESTRESSED CONCRETE PILE
- INDICATES EXISTING 24" OCTAGONAL PRESTRESSED CONCRETE BATTER PILE

MOLE PIER - PARTIAL UNDER DECK PLAN

NOT TO SCALE

PLAN NORTH

CONCEPT DESIGN

NOT FOR CONSTRUCTION

STM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

PARTIAL UNDER DECK PLAN
MOLE PIER DRY DOCK

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

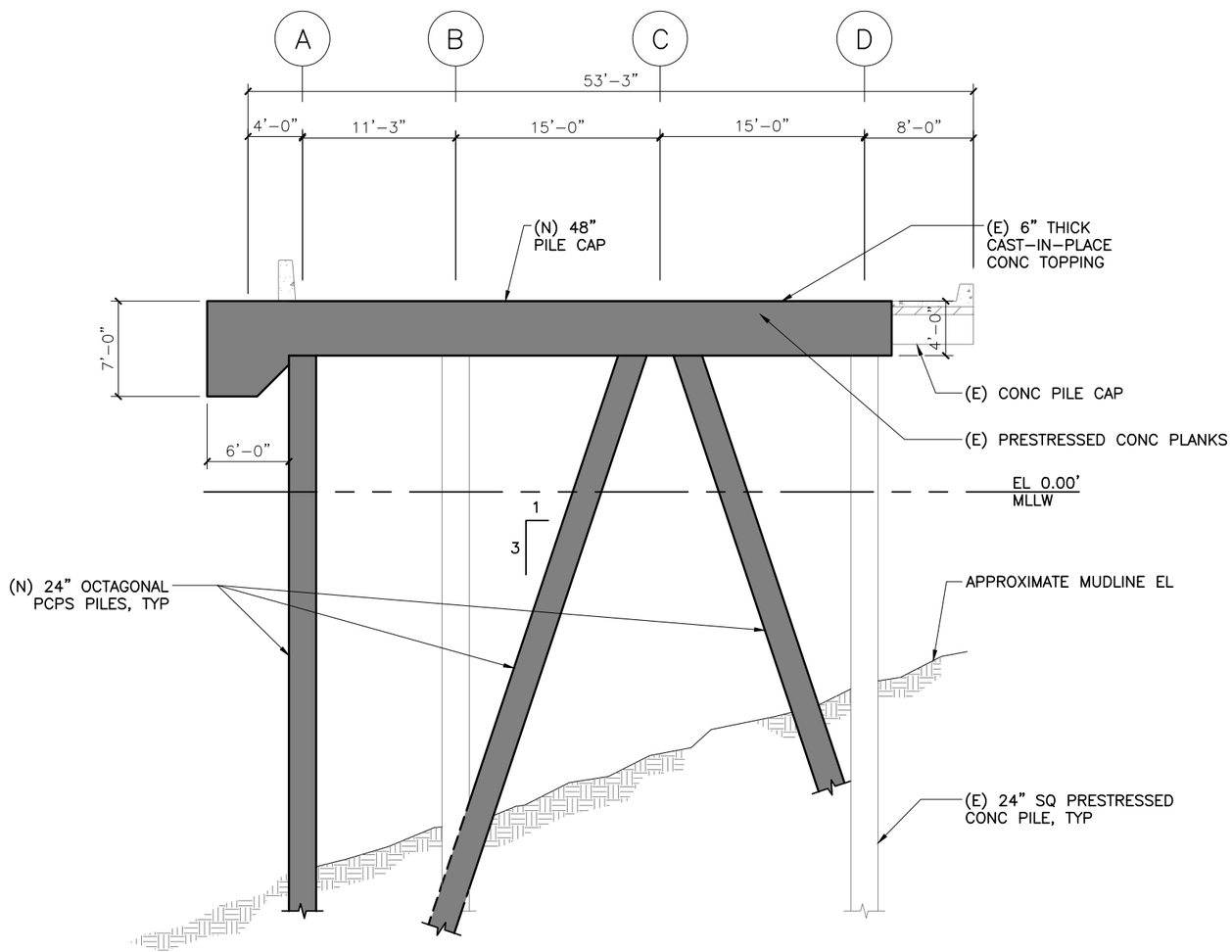
S-4

DRAWFORM REVISION: 10 MARCH 2009

Filename: N:\US\San Diego\Projects\561\1127219\Digital_Design\ACAD 2019\Sheets\1127219 - S-4.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 9:01 AM



MOLE PIER - WHARF SECTION (A)

SCALE: NTS

SYM	DESCRIPTION	DATE	APPR

NAVFAC

CH2M COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

ALTERNATIVE 1 - SECTION
MOLE PIER DRY DOCK

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO. N62473-13-D-3004

NAVFAC DRAWING NO. -

SHEET - OF -

CONCEPT DESIGN

S-5

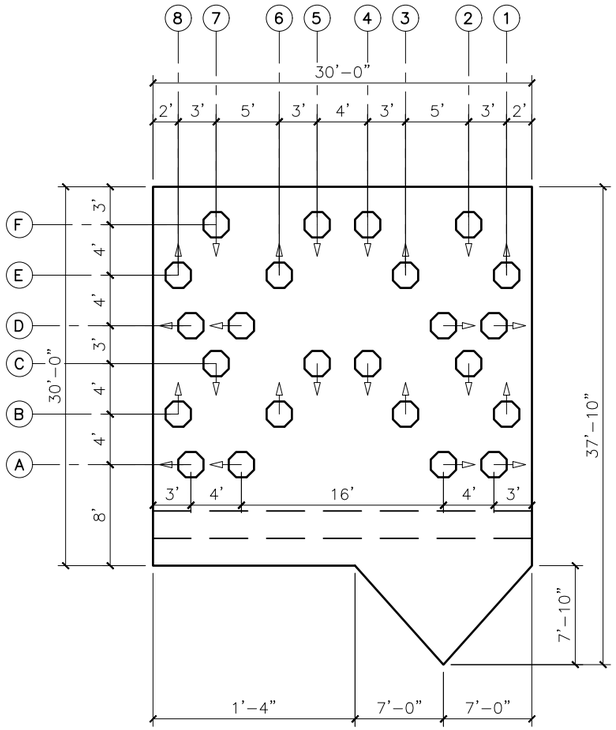
NOT FOR CONSTRUCTION

DRAWFORM REVISION: 10 MARCH 2009

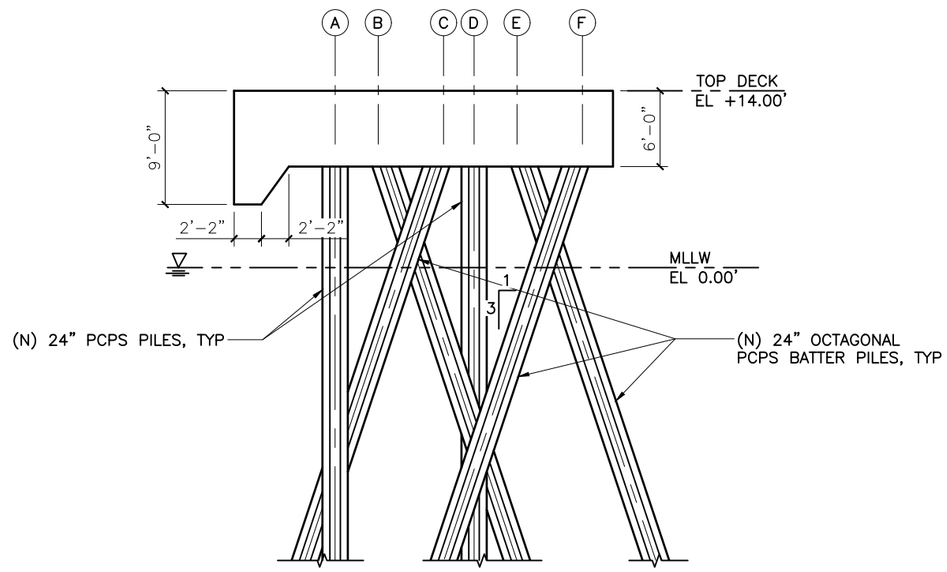
Filename: N:\US\San Diego\Projects\561\11217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-5.dwg

Plotted By: Carlos Martinez II

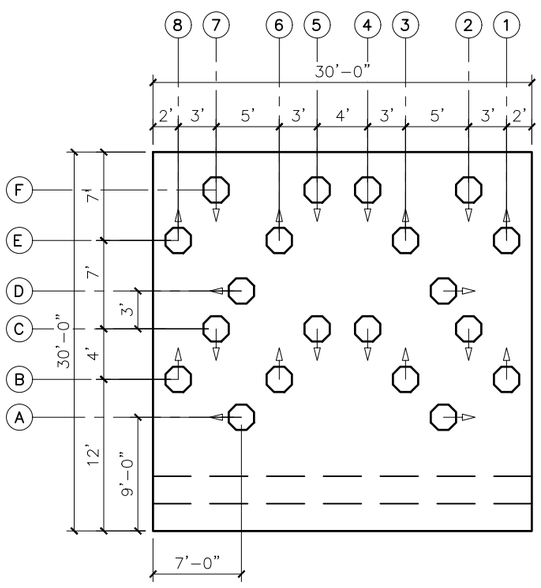
Plot Date: 28 October 2020 - 9:02 AM



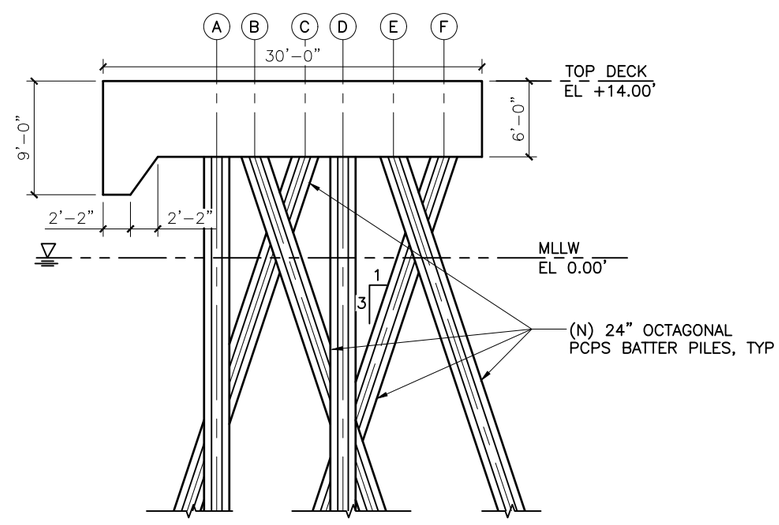
MOORING DOLPHIN ALTERNATIVE 2 - PLAN VIEW (1)
SCALE: NTS S-2



MOORING DOLPHIN ALTERNATIVE 2 - SECTION (2)
SCALE: NTS S-2



MOORING DOLPHIN ALTERNATIVE 2 - PLAN VIEW (3)
SCALE: NTS S-2



MOORING DOLPHIN ALTERNATIVE 2 - SECTION (4)
SCALE: NTS S-2

SYM	DESCRIPTION	DATE	APPR

NAVFAC
COWI JOINT VENTURE

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE DEC 2017
DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

ALTERNATIVE 2 - MOORING DOLPHINS
MOLE PIER DRY DOCK

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.
N62473-13-D-3004
NAVFAC DRAWING NO.
-
SHEET - OF -

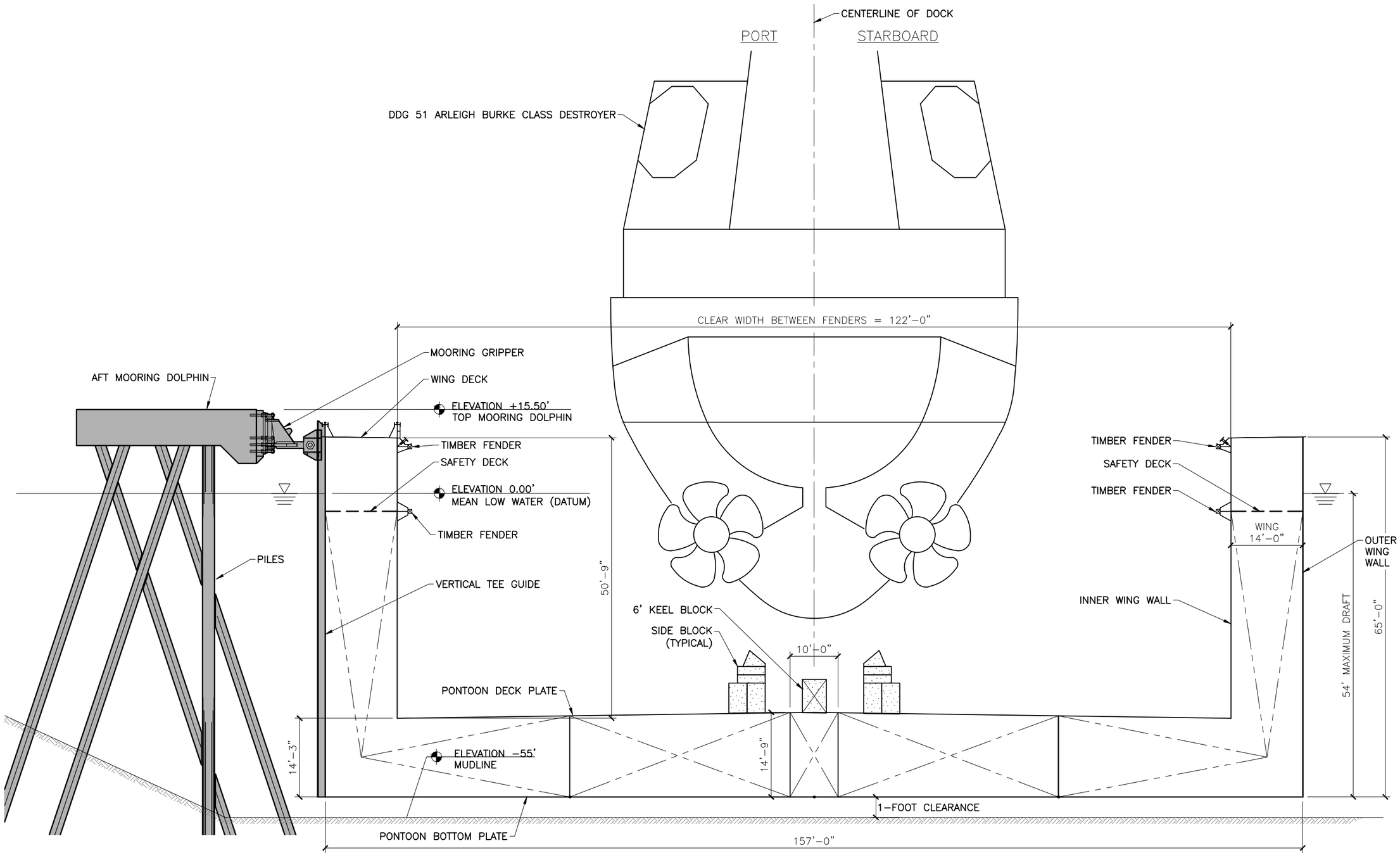
CONCEPT DESIGN

S-6

NOT FOR CONSTRUCTION

DRAWFORM REVISION: 10 MARCH 2009

Filename: N:\USSan Diego\Projects\561\11272719\Digital_Design\ACAD 2018\Sheets\11272719 - S-6.dwg
Plotted By: Carlos Martinez II
Plot Date: 28 October 2020 - 9:03 AM



P508 CONCEPT FLOATING DRY DOCK AT FULL SUBMERGENCE LOOKING FORWARD

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES CL DRW PS CHK JC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO, CA

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

SECTION - DOCK AT FULL SUBMERGENCE

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO. N62473-13-D-3004

NAVFAC DRAWING NO. -

SHEET - OF -

CONCEPT DESIGN

S-7

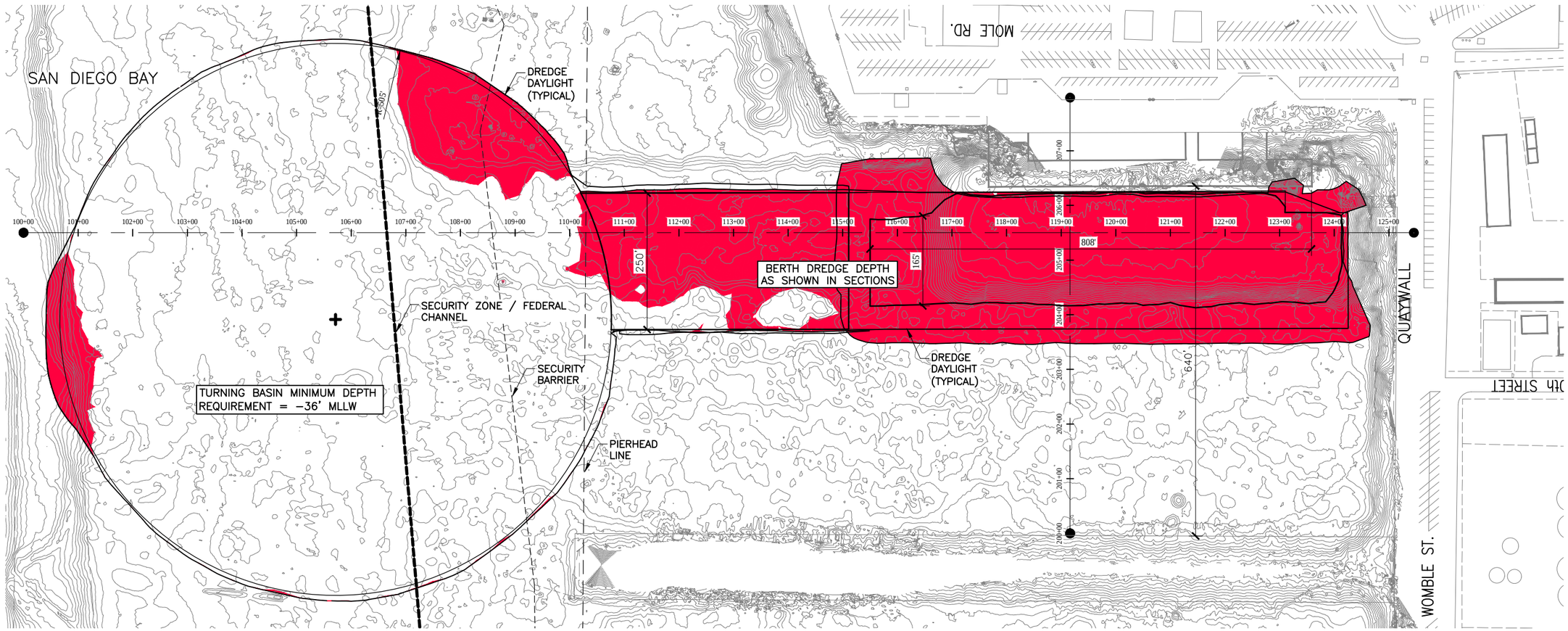
DRAWFORM REVISION: 10 MARCH 2009

NOT FOR CONSTRUCTION

Filename: N:\US\San Diego\Projects\50111217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-7.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 10:49 AM



DREDGING PLAN

SCALE: 1" = 100'-0"

PLAN NORTH

100' 0 100' 200' 300'

SCALE: 1" = 100'-0"

CONCEPT DESIGN

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES MD DRW - CHK VT

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

MOLE PIER
DREDGING PLAN - ALTERNATIVE 1

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

S-8

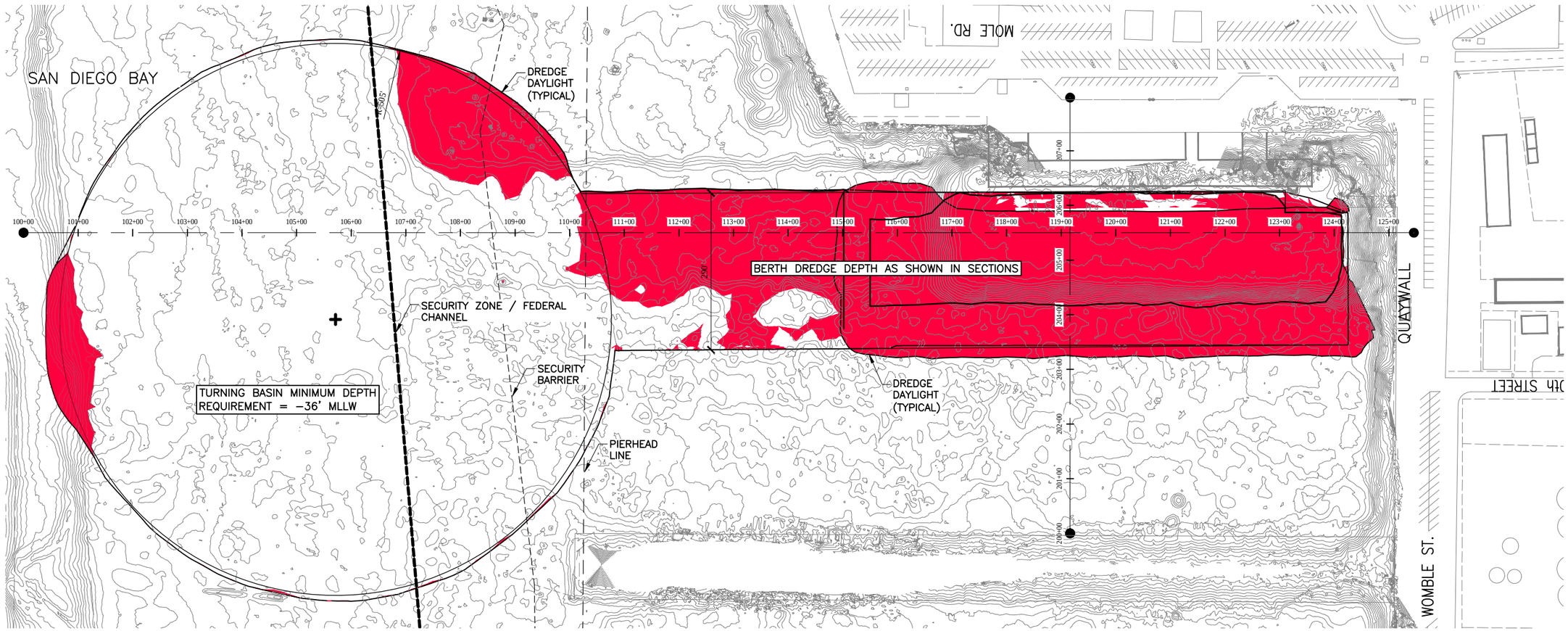
DRAWFORM REVISION: 10 MARCH 2009

NOT FOR CONSTRUCTION

Filename: N:\US\San Diego\Projects\561\11217219\Dgn_Design\ACAD 2018\Sheets\11217219 - S-8.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 11:12 AM



DREDGING PLAN

SCALE: 1" = 100'-0"

PLAN NORTH

100' 0 100' 200' 300'

SCALE: 1" = 100'-0"

CONCEPT DESIGN

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES MD DRW - CHK VT

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

MOLE PIER
DREDGING PLAN - ALTERNATIVE 2

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

S-9

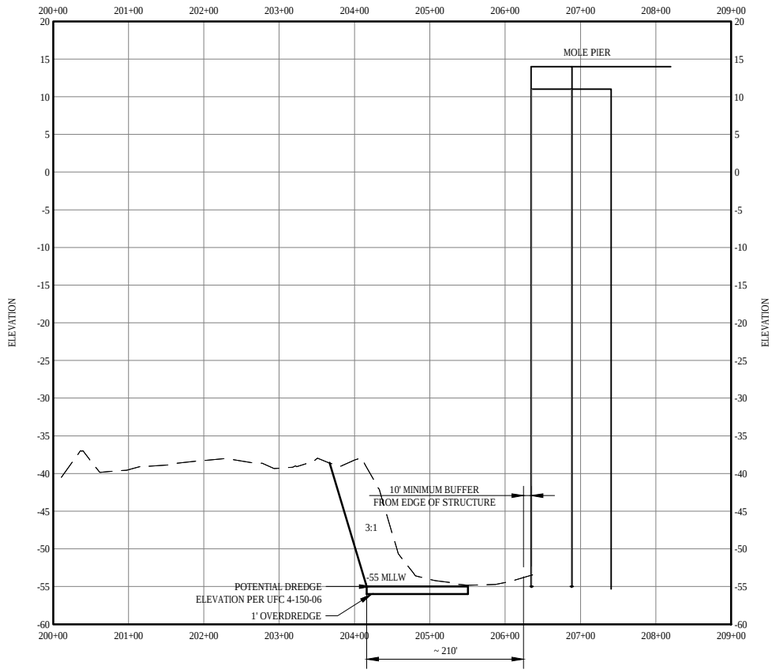
DRAWFORM REVISION: 10 MARCH 2009

NOT FOR CONSTRUCTION

Filename: N:\US\San Diego\Projects\561\11217219\Dgn_Design\ACAD 2018\Sheets\11217219 - S-9.dwg

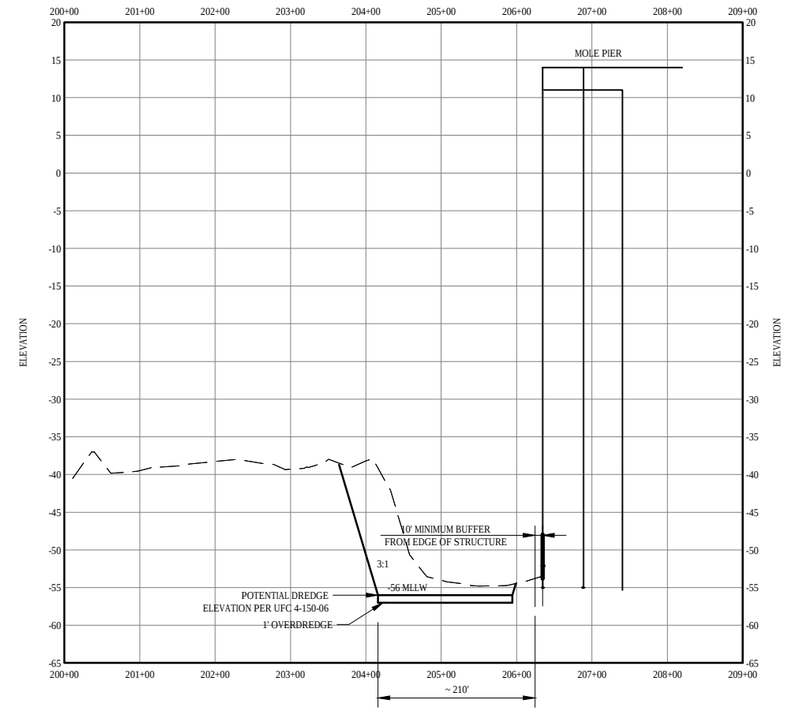
Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 11:01 AM



MOLE PIER ALT 1 - DREDGING SECTION A

HORIZ. SCALE: 1" = 100'-0", VERT. SCALE 1" = 10'-0"



MOLE PIER ALT 1 - DREDGING SECTION B

HORIZ. SCALE: 1" = 100'-0", VERT. SCALE 1" = 10'-0"

0 100' 200' 300'

HORIZ. SCALE: 1" = 100'-0"

0 10' 20' 30'

VERT. SCALE: 1" = 10'-0"

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER, NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES MD DRW - CHK VT

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

MOLE PIER
DREDGING SECTIONS - ALTERNATIVE 1

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

S-10

CONCEPT DESIGN

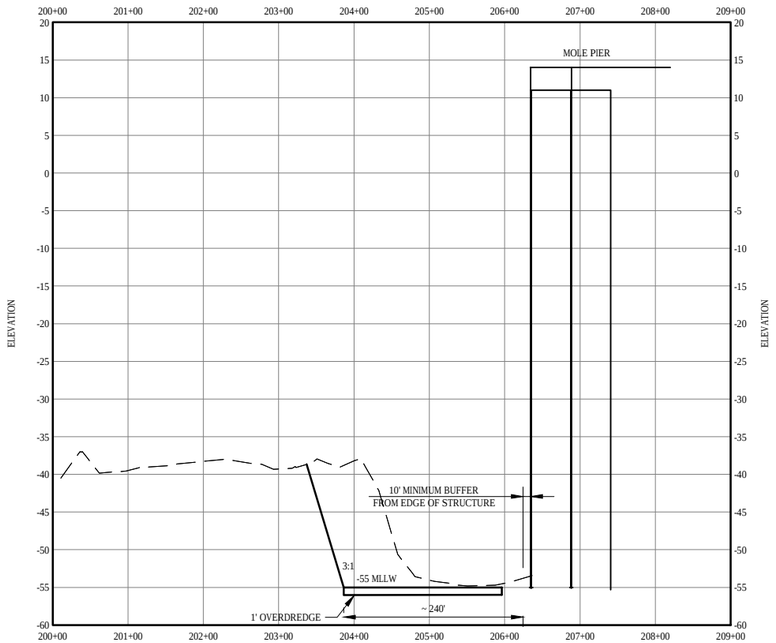
NOT FOR CONSTRUCTION

DRAW/FORM REVISION: 10 MARCH 2009

Filename: N:\US\San Diego\Projects\561\11217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-10.dwg

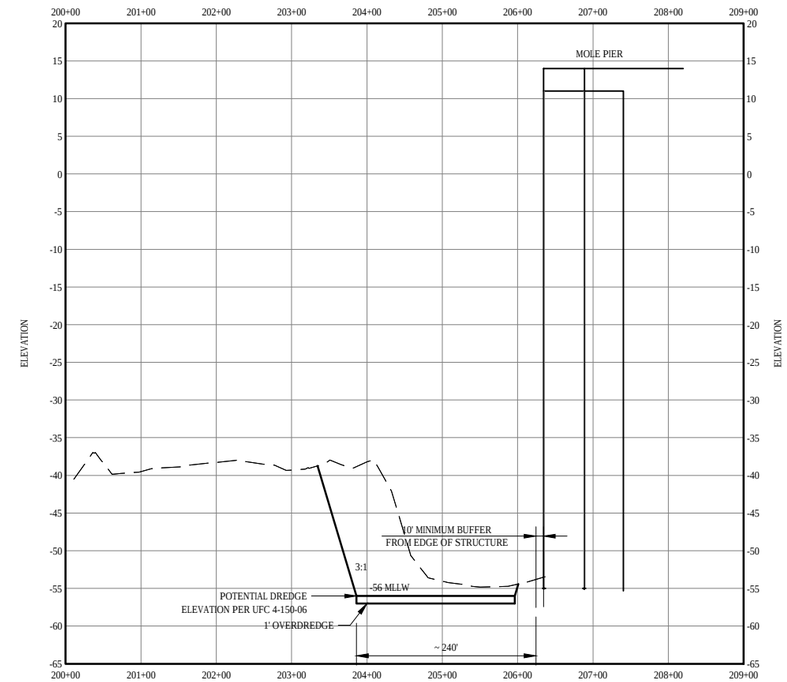
Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 11:43 AM



MOLE PIER ALT 2 - DREDGING SECTION A

HORIZ. SCALE: 1" = 100'-0", VERT. SCALE 1" = 10'-0"



MOLE PIER ALT 2 - DREDGING SECTION B

HORIZ. SCALE: 1" = 100'-0", VERT. SCALE 1" = 10'-0"

0 100' 200' 300'

HORIZ. SCALE: 1" = 100'-0"

0 10' 20' 30'

VERT. SCALE: 1" = 10'-0"

SYM	DESCRIPTION	DATE	APPR

NAVFAC

GHD COWI JOINT VENTURE

APPROVED

FOR COMMANDER, NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES MD DRW - CHK VT

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

MOLE PIER
DREDGING SECTIONS - ALTERNATIVE 2

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

CONCEPT DESIGN

S-11

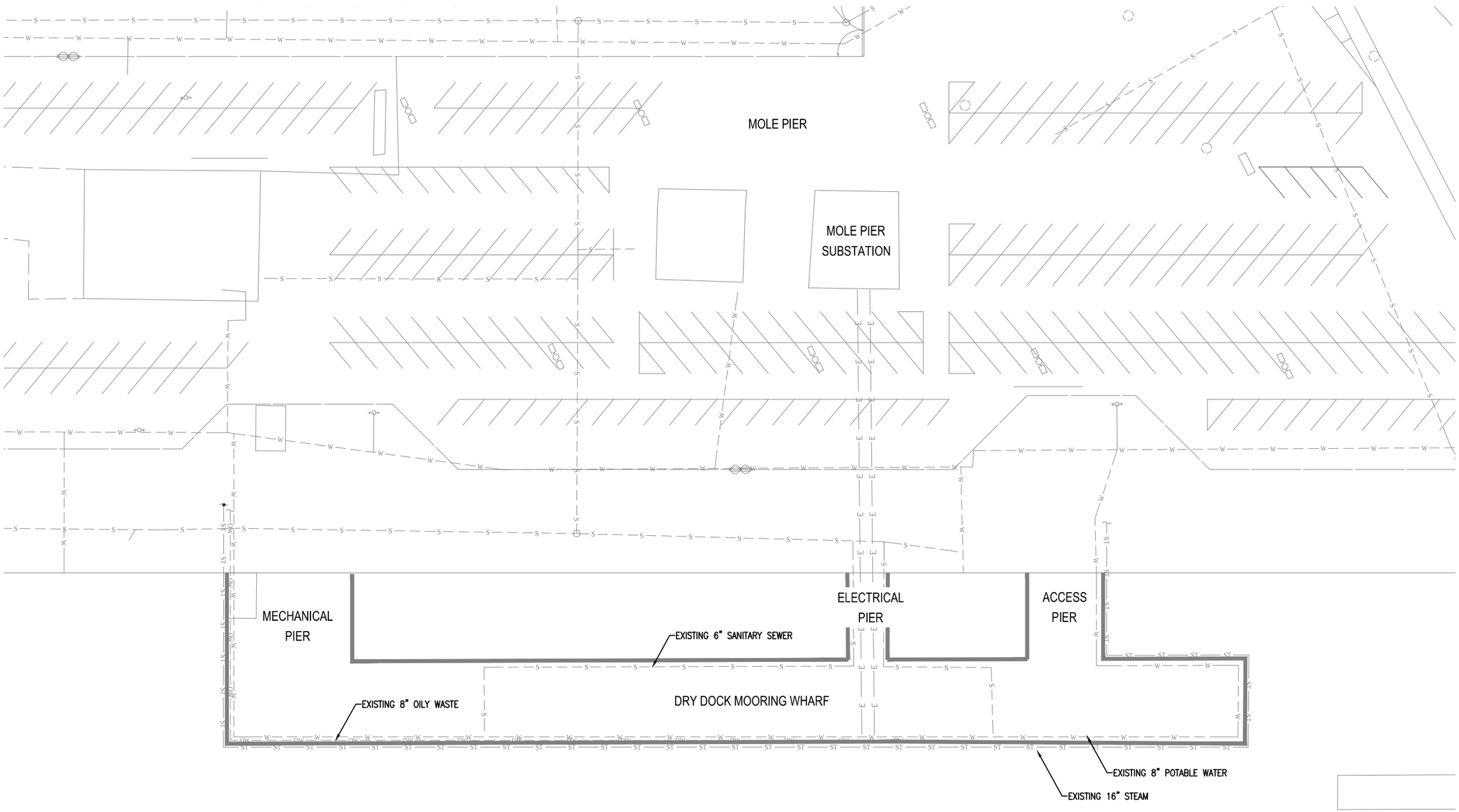
NOT FOR CONSTRUCTION

DRAWFORM REVISION: 10 MARCH 2009

Filename: K:\US\San Diego\Projects\561\11217219\Dsgn_Design\ACAD 2018\Sheets\11217219 - S-11.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 11:53 AM



LEGEND

A	COMPRESSED AIR
OW	OILY WASTE
S	SANITARY SEWER
ST	STEAM
W	POTABLE WATER
E	ELECTRICAL

MOLE PIER SITE UTILITIES PLAN

SCALE: 1" = 30'-0"

30' 0 30' 60' 90'

PLAN NORTH

CONCEPT DESIGN

SYM	DESCRIPTION	DATE	APPR

NAVFAC

COWI JOINT VENTURE

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE DEC 2017

DES RG DRW - CHK CL

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
COASTAL IPT
NAVAL BASE SAN DIEGO

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
NAVAL BASE SAN DIEGO, CA
SAN DIEGO, CA
SAN DIEGO, CALIFORNIA

NBSD DRY DOCK STUDY

MOLE PIER
SITE UTILITIES PLAN

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.
N62473-13-D-3004

NAVFAC DRAWING NO.
-

SHEET - OF -

S-12

DRAWFORM REVISION: 10 MARCH 2009

NOT FOR CONSTRUCTION

Filename: N:\JS\San Diego\Projects\5611\1217219\Digital_Design\ACAD 2018\Sheets\11217219 - S-12.dwg

Plotted By: Carlos Martinez II

Plot Date: 28 October 2020 - 11:57 AM

Appendix 5.2 Cost Estimates

BASIS OF DESIGN

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION

SAN DIEGO, CA

June 17, 2002

PREPARED BY:
BLAYLOCK ENGINEERING GROUP
1775 HANCOCK STREET, SUITE 250
SAN DIEGO, CALIFORNIA 92110

PREPARED FOR:
SOUTHWEST DIVISION
NAVY FACILITIES ENGINEERING COMMAND

SAN DIEGO, CALIFORNIA 92136

BASIS OF DESIGN

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS
NAVAL STATION, SAN DIEGO, CA

This project provides for the modifications of the drydock mooring wharf on the south side of the Mole Pier at Naval Station San Diego in order to accommodate the SS Curtiss during loading and off-loading activities. The modifications include two concrete pier extensions, four rubber buckling fender stations, seven mooring bollards and 3 high-mast lights.

1. GENERAL

Project Title: Modifications to Mole Pier South for SS Curtiss

Location: Naval Station San Diego, CA

Project Leader: Ms. Carol Davis

A-E Contract No: N68711-01-D-3017
Delivery Order No: 0002

Name of the Firm: Blaylock Engineering Group

Point of Contact: Cameron Duncan, S.E. Tel: (619) 543-4719

2. CODE CRITERIA SEARCH

2.1 CODE CRITERIA

Design of these modifications is based upon the following codes and criteria:

- Statement of Architect/Engineer Services:
  Scope of Work dated 14 Feb 2002.

- Military Handbooks

  1002/1 Structural Engineering General Requirements, November 1987.
  1002/2A Loads w/ Change, October 1996.
  1025/1 Piers and Wharves, October 1987.
  1025/5 Ferry Terminals and Small Craft Facilities, September 1988.
  1025/6 General Criteria for Waterfront Construction, September 1988.
  1026/4A Mooring Design, July 1999.

- Other Sources and References

  Feasibility Study for SS Curtiss/Hughes Mining Barge Shared Berthing, along Southside of Mole Pier, Naval Station, San Diego, CA., October 2001. Performed by Blaylock Engineering Group for NAVFACENGCOM-Southwest

Division.

Standard Specifications for Highway Bridges, Fifteenth Edition, 1992, Adopted by the American Association of State Highway and Transportation Officials (AASHTO).

Building Code Requirements for Structural Concrete (ACI 318-95) by the American Concrete Institute.

Jane's Fighting Ships, Jane's Information group Inc., Alexandria, VA, 1993.

Observations: Data Collection and Inspections by Blaylock Engineering Group.

3. GENERAL INFORMATION

3.1 STATION MASTER PLAN

The pier modifications are in conformance with the Station Master plan.

3.1.1 BASE EXTERIOR ARCHITECTURE PLAN (BEAP).

The BEAP is not applicable to this project. No handicapped provisions are included or required for these repairs. No fallout shelter or protective construction was considered for this project.

3.1.2 SITE PLANNING

Installation of the new fender stations and bollards will require coordination of the constructions schedule to allow the Hughes Mining Barge to have mooring fittings available for its intended mooring at the berth during the entire duration of construction. Coordination between the Contractor and the Hughes Mining Barge shall be done through the Contracting Officer. Removal of an existing mooring dolphin and new pile driving will be performed from a floating crane barge. A truck mounted crane will be used to auger the holes for the new high-mast light poles. There may be periods during demolition and construction when smaller truck cranes, forklifts and other equipment will be placed on or adjacent to the pier for unloading fabricated items or supporting items during installation.

Some pier utilities will be temporarily interrupted during construction. It is anticipated that electrical power in the parking lot adjacent to the pier and the steam utility on the pier will require temporary interruptions to modify services. Temporary interruptions shall be coordinated with PWC Utilities personnel to minimize operational impact. The contractor must comply with the maximum allowable time periods for utility interruption.

It is anticipated that the work will take approximately five months to complete.

3.2 PROGRAM REQUIREMENTS

3.2.1 DESIGN AREA TABULATION

The Drydock Mooring Wharf and Mooring Guide Dolphin on the South side of Mole Pier is 31,801 SF. The new pier extensions add 511 SF and the removal of the existing concrete mooring dolphin reduces the area by 64 SF.

3.2.2 FACILITY DESIGN

The Drydock Mooring Wharf is located on the south side of the Mole Pier at Naval Station San Diego. This wharf is currently 596-feet long by 53-feet wide and provides a berth, which is referred to as Mole Pier South Side. The proposed modifications will increase the wharf length to 622-feet. The wharf is constructed out of prestressed concrete piles and a cast- in-place concrete pile caps and deck. The wharf was constructed in 1983-84. The wharf had no fender system since it was intended for use by a floating drydock. Three mooring spuds fixed to the edge of the pier secured the original drydock. The wharf was modified in 2001 to accommodate the Hughes Mining Barge. That project added four rubber buckling fender stations and four mooring bollards.

The majority of the utilities run above deck in a continuous loop around the perimeter of the wharf. The location of the utilities necessitates that the mooring hardware be elevated to prevent mooring lines from contacting the utility pipes. The top of the piers deck is at elevation +14.0 Mean Lower Low Water.

3.3 ENERGY CONSERVATION

The energy requirements of the site will be increased during periods of nighttime loading operations when the high-mast lighting is in use. Such operations are expected to occur less than 1week per year. The only additional energy consumption impact will be that energy used for construction. This will be a one-time occurrence, and will consist almost exclusively of fossil fuels used to power construction equipment. Some electricity will be used by the contractor for lighting and office equipment.

3.4 WEIGHT HANDLING EQUIPMENT

The weight handling equipment requirements of the pier will not be modified as part of this construction contract.

3.5 CONSTRUCTION PERMIT INFORMATION

Recent changes to Section 1576 “Temporary Environmental Controls” (a regional SOUTHWESTDIV NAVFACENGCOM specification) indicate that a variety of construction permits may be required. Obtaining these permits becomes the responsibility of the General Contractor.

3.6 OCCUPATIONAL SAFETY AND HEALTH

The occupational safety and health features of the site will not be modified as part of this project. The contractor’s operations and procedures will include the applicable OSHA / CALOSHA provisions.

3.7 PHYSICAL SECURITY

The security of the facility will not be changed or modified as a result of this repair. The Contractor’s operations will be per the facilities security requirements.

4. ENVIRONMENTAL REQUIREMENTS

4.1 ENVIRONMENTAL ASSESSMENT/ENVIRONMENTAL IMPACT STATEMENT

The project involves the removal of an existing concrete mooring dolphin and driving seven new concrete piles to support two pier extensions. The work will remove 64 SF of construction and add 511 SF. Waste materials from the project will be disposed of in an approved manner under the applicable regulations governing such waste. Noise impact is expected to be considerable during an estimated 1-week of pile driving. A non-use of Class I Ozone Depletion Substances Statement will be provided at the conclusion of design.

The work contained in the project has been reviewed by the environmental planner who has determined that a Categorical Exclusion is applicable to the project and an EIS or EA will not be required. The Army Corps of Engineers, Regional Water Quality Control Board and the California Coastal Commission have been notified of the project. Permits for this project under the U.S. Army Corps of Engineers' jurisdiction will be covered by the nationwide Section 404 permit for repair and maintenance of existing facilities. All other required permit applications will be prepared and submitted by Southwest Division Naval Facilities Engineering Command.

5. CIVIL ENGINEERING

5.1 SITE GRADING

The site grading will not be altered as part of this repair. Vertical control will be from top of pier deck Elev. 14.00' Mean Lower Low Water (MLLW) Datum, Elev. 0.00'.

5.2 UTILITIES

The existing pier steam utility will need to be temporarily interrupted. The contractor must comply with the maximum allowable time periods for utility interruptions.

5.3 STORM SEWER SYSTEM AND SURFACE DRAINAGE

The storm sewer system and surface drainage criteria are not applicable to this project.

5.4 WATER SYSTEMS

Water systems will not be interrupted as part of this project.

5.5 SANITARY SEWER SYSTEMS

Sanitary sewer systems will not be interrupted as part of this project.

5.6 SEWAGE TREATMENT SYSTEM

The sewage treatment system criteria are not applicable to this project.

5.7 DUST AND EROSION CONTROL

The dust and erosion control criteria are not applicable to this project.

5.8 FENCING

The fencing will not be altered as part of this project. Temporary fences and barricades will be installed as necessary by the contractor.

5.9 RAILROADS

The railroad criteria are not applicable for this project.

5.10 PAVING

The paving in the parking area, adjacent to the wharf, will be restored to its original condition. Parking space striping destroyed by the excavation for the light pole footings will be repainted.

5.11 AIRFIELD PAVEMENT SYSTEMS

The airfield pavement system criteria are not applicable for this project.

6. LANDSCAPE ARCHITECTURE

6.1 IRRIGATION SYSTEMS

The irrigation systems criteria are not applicable for this project.

6.2 PLANT MATERIALS

The plant materials criteria are not applicable for this project.

6.3 OTHER SITE FEATURES

The other site features criteria are not applicable for this project.

7. ARCHITECTURE

The architectural criteria are not applicable for this project.

7.1 PASSIVE FEATURES

The passive architectural features criteria are not applicable for this project.

7.2 MOVABLE PARTITIONS

The movable partitions criteria are not applicable for this project.

7.3 EQUIPMENT ROOMS

The existing equipment rooms will not be modified as part of this construction.

7.4 ROOF STRUCTURE

The roof structure criteria are not applicable for this project.

7.5 COLORS, MATERIALS AND FINISHES

The colors, materials and finishes will match the existing construction.

8. STRUCTURAL

8.1 SEISMIC DESIGN CRITERIA

The seismic design elements will not be modified as part of this project.

8.2 FOUNDATION CONDITIONS

Concrete piles support the existing wharf. The concrete piles are located in the bay. The existing foundation elements will not be modified as part of this project. Foundation materials for the new concrete piles consists of the Bay Point Formation, a Pleistocene sediment sand, silt and clay formation, overlain by 2-feet of rock slope protection for the original drydock mooring basin adjacent to the wharf.

- A Hydrographic post-dredge survey of the facility indicates that the mudline is at

approximately -55' at the outboard side of the pier. Mudline is approximately at –50' at the north end of the proposed pier extensions.

- Review of the boring logs from the original wharf construction indicate that 22 feet of embedment will achieve the desired design criteria for the vertical piles and 41 feet is required to achieve the uplift loads on the batter pile group of the east extension.

- The footings for the new high-mast lights utilize a cast-in-place concrete caisson footing, which will act as a flagpole type footing. Design is per the 1997 UBC criteria and is based on an unrestrained condition at grade. The required embedment is 14-feet to withstand the wind loading on the 100-foot tall pole, support arms and 12 fixtures.

8.3 TYPE OF CONSTRUCTION

The wharf extensions are comprised of prestressed concrete piles supporting cast-in-place concrete pile caps and deck. The bollard and fender foundations are cast-in-place concrete mounds doweled into the existing construction. The new fender systems are comprised of a pair of rubber buckling fenders behind steel or reinforced plastic face panel. Restraint chains will limit the longitudinal movement of the fender under load and a vertical chain will keep the fender from sagging under its own weight.

8.4 MATERIALS

The materials to be used are as follows:

• Rubber Buckling Fenders-	550mm x 1500mm & 2000mm, ASTM D 2000
Chain -	ASTM A 413, galvanized proof coil chain
Face Panel-	ASTM A 36, coated with an epoxy material intended for steel protection in the marine environment. Reinforced plastic face panels are and acceptable alternative.
• Prestressed Concrete Piles-	ACI 315, 24-in. Octagonal Piles ASTM A615/A 615M spiral ties with ASTM A 934/A 934 M epoxy coating
• Metal Fabrications	
Structural Steel -	ASTM A 36, hot dipped galvanized after fabrication in accordance with ASTM A 123
Bolts and Nuts -	ASTM A 307, galvanized per ASTM A 153
Washers -	ASTM F 844, galvanized per ASTM A 153
Inserts-	316 Alloy, stainless steel per ASTM 593
Bollards-	Mil-S-15083-cast steel

8.5 LIVE LOADS

Design of the fendering system is based on the requirements of the indicated references. The design parameters derived from these criteria consist of the following:

Wind Velocity -	50 mph
Current Velocity -	Negligible at site

Berthing Loads - 602-foot long cargo ship
Berthing Velocity - Moderate Environmental Conditions

8.6 LATERAL FORCES
The lateral resisting systems are comprised of concrete piles, concrete pile caps, and concrete slabs. The existing lateral resisting systems will not be modified as part of this project.

8.7 SEISMIC DESIGN
The seismic design elements will not be modified as part of this project.

9. MECHANICAL

9.1 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)
The heating, ventilating and air conditioning criteria are not applicable for this project.

9.2 PLUMBING
The plumbing criteria are not applicable for this project.

9.3 COLD STORAGE
The cold storage criteria are not applicable for this project.

9.4 HEATING PLANTS
The heating plants criteria are not applicable for this project.

9.5 EXTERIOR DISTRIBUTION SYSTEMS
The exterior distribution systems, high temperature water, chilled water, natural gas, and compressed air criteria are not applicable for this project. A small steam manifold/drip valve will be removed and capped. PWC utilities will review the need for this valve and verify the acceptability to cap it.

9.6 FUEL DISTRIBUTION AND STORAGE
The fuel distribution and storage criteria are not applicable for this project.

10. ELECTRICAL

10.1 FACILITIES
Three new high-mast lights will be added to the parking area adjacent to the wharf as part of this construction.

10.2 ELECTRICAL DISTRIBUTION SYSTEM
Power for the new high-mast lights will be routed from the existing service panel inside Building 3361.

10.3 INSTRUMENTATION AND CONTROL SYSTEMS
A new meter will be installed at the point of connection at BLDG 3361. The lights will have manual and photocell controls.

11. FIRE PROTECTION

The fire protection system of the pier will not be modified as part of this repair. This structure is classified as follows:

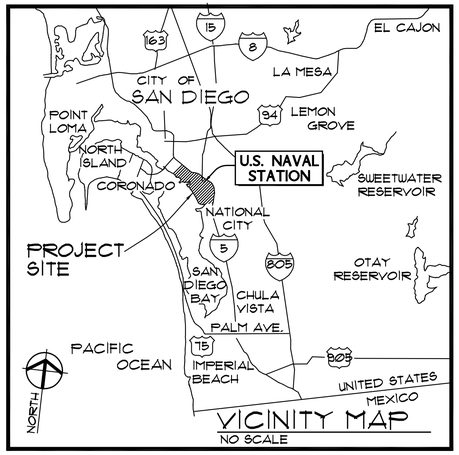
Construction Class - Not Applicable

12. CATHODIC PROTECTION

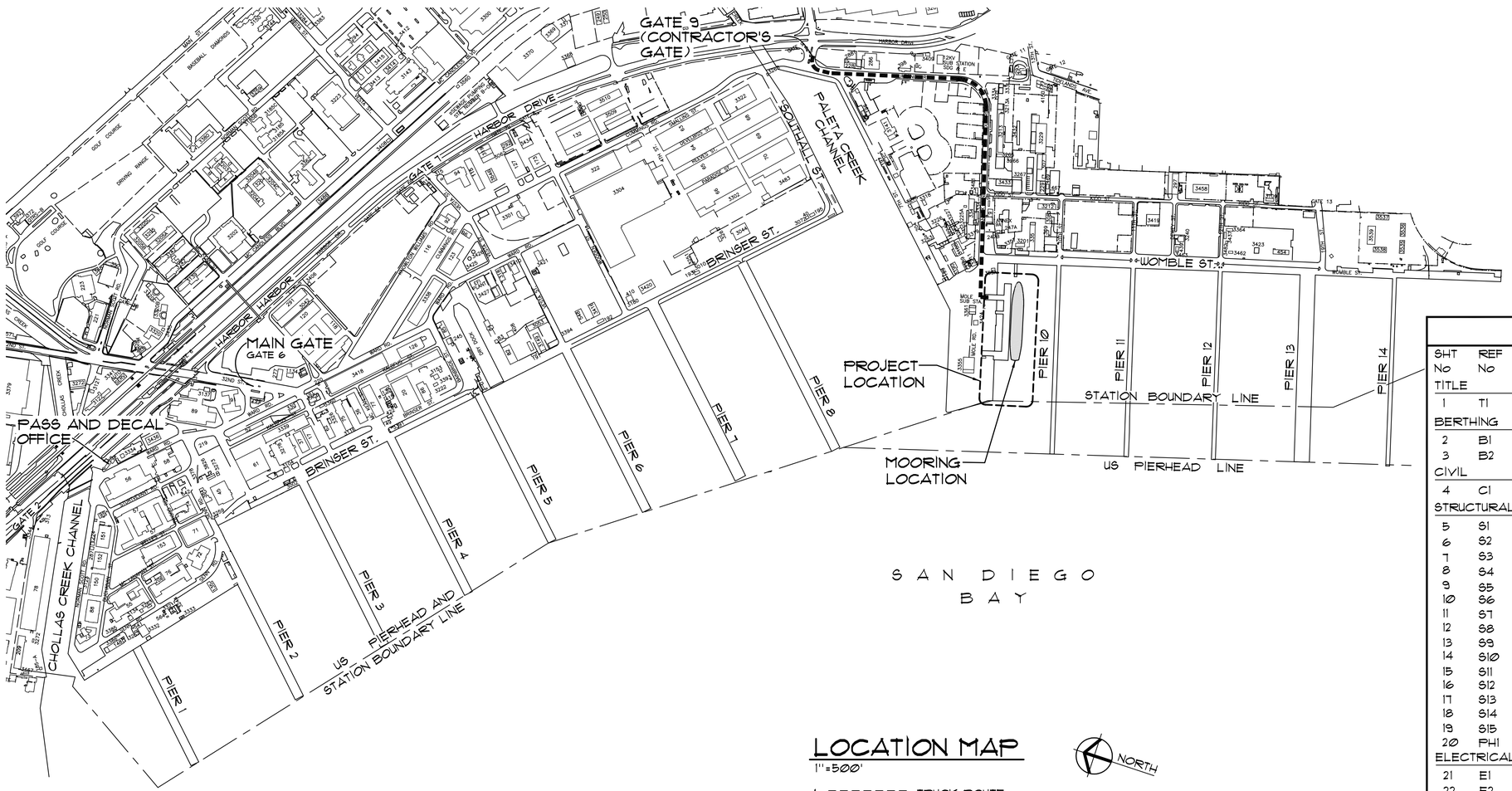
Corrosion protection is provided by a very high quality concrete mix design, 3 inches minimum of concrete cover and epoxy coated reinforcement on the pile ties and pile cap reinforcement.

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION SAN DIEGO, CALIFORNIA



VICINITY MAP
NO SCALE



LOCATION MAP
1"=500'

1. ■■■■■■■ TRUCK ROUTE

DRAWING INDEX

SHT No	REF No	NAVFAC DWG No	TITLE
TITLE			
1	T1	.	TITLE SHEET AND DRAWING INDEX
BERTHING			
2	B1	.	EXISTING BERTHING LAYOUT HUGHES MINING BARGE
3	B2	.	GENERAL PLAN AND BERTHING LAYOUT SS CURTISS
CIVIL			
4	C1	.	BORING LOGS
STRUCTURAL			
5	S1	.	GENERAL NOTES AND TYPICAL DETAILS
6	S2	.	EXISTING DECK PLAN - BENTS 1 TO 10
7	S3	.	EXISTING DECK PLAN - BENTS 10 TO 20
8	S4	.	EXISTING DECK PLAN - BENTS 20 TO 29
9	S5	.	EXISTING PIER SECTION
10	S6	.	EXISTING MOORING DOLPHIN DETAILS
11	S7	.	EXISTING MISCELLANEOUS DETAILS
12	S8	.	NEW DECK PLAN - BENTS 1 TO 10
13	S9	.	NEW DECK PLAN - BENTS 10 TO 20
14	S10	.	NEW DECK PLAN - BENTS 20 TO 29
15	S11	.	NEW FENDER DETAILS
16	S12	.	NEW BOLLARD DETAILS
17	S13	.	NEW PIER EXTENSION PLANS
18	S14	.	NEW PIER EXTENSION DETAILS
19	S15	.	NEW STEEL STEP DETAILS
20	PH1	.	PHOTOGRAPHS
ELECTRICAL			
21	E1	.	SINGLE LINE DIAGRAM AND LEGEND
22	E2	.	LIGHTING AND POWER PLAN
23	E3	.	ELECTRICAL DETAILS

PROJECT ENGINEERS:

Blaylock Engineering Group

Structural Engineers
1775 Hancock Street, Suite 250
San Diego, California 92110
Phone(619) 543-4719
FAX (619) 543-0667

100% SUBMITTAL
MAY 3, 2002

GRAPHIC SCALE
0 500 1000
1"=500'

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
SYMBOL	DESCRIPTION	DATE	APPROVED	PREP.BY

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C. DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

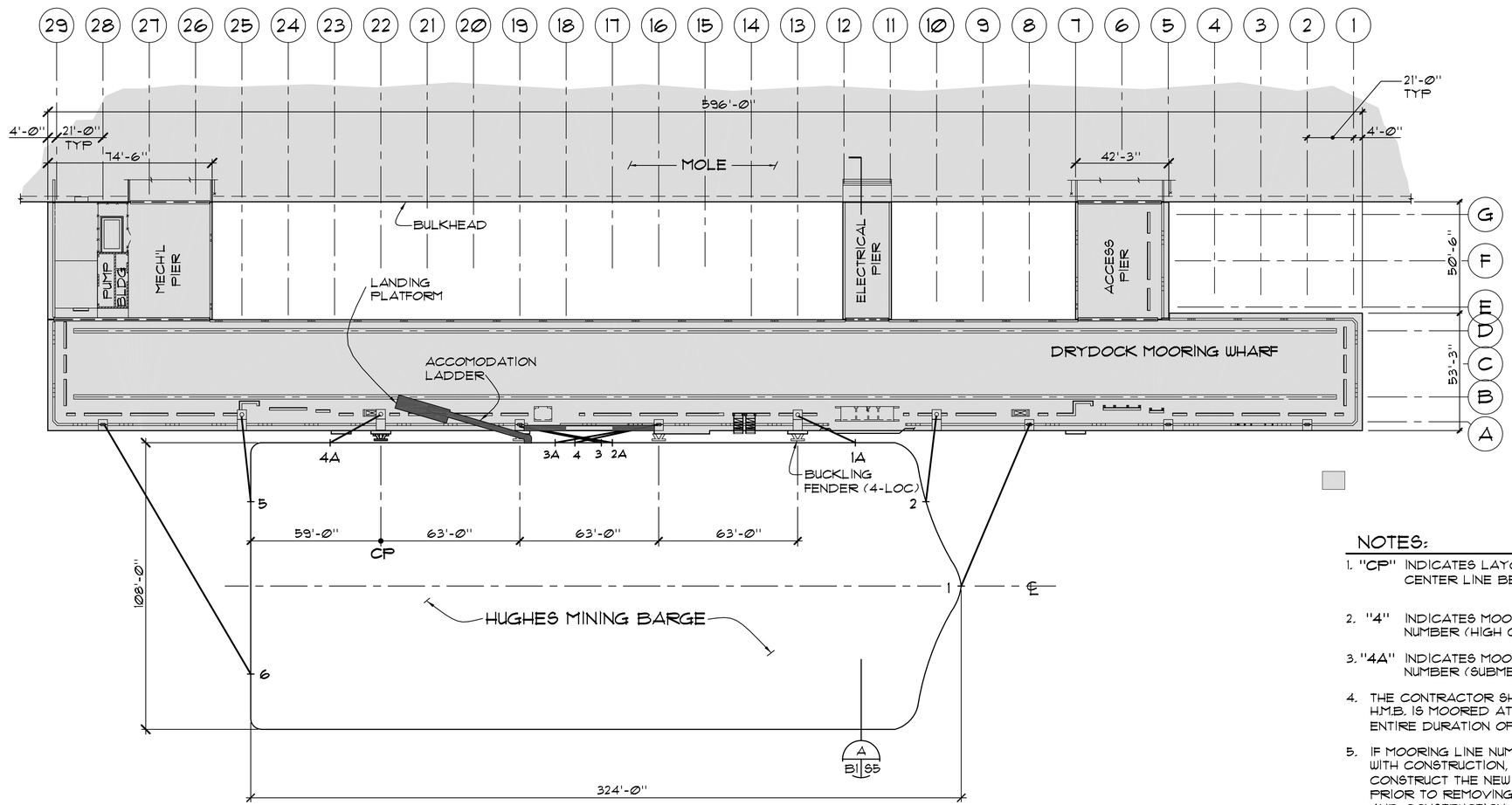
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
TITLE SHEET AND DRAWING INDEX

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO. .
SHEET 1 OF 23
T1

150579
JN 02M003



EXISTING BERTHING LAYOUT
HUGHES MINING BARGE
1"=30'-0"

NOTES:

1. "CP" INDICATES LAYOUT CONTROL POINT CENTER LINE BENT (22)
2. "4" INDICATES MOORING LINE REFERENCE NUMBER (HIGH CONDITION)
3. "4A" INDICATES MOORING LINE REFERENCE NUMBER (SUBMERGED CONDITION)
4. THE CONTRACTOR SHALL ASSUME THAT THE H.M.B. IS MOORED AT THIS BERTH FOR THE ENTIRE DURATION OF CONSTRUCTION.
5. IF MOORING LINE NUMBERS 2, 5 & 6 INTERFERE WITH CONSTRUCTION, THEN THE CONTRACTOR SHALL CONSTRUCT THE NEW BOLLARDS AT BENTS 5 & 28 PRIOR TO REMOVING THE CLEAT AT BENT 28 AND CONSTRUCTION OF THE BUCKLING FENDER PEDESTALS AT BENTS 10 & 25. THE H.M.B. MAY THEN TEMPORARILY TIE BOTH LINES 5 & 6 TO THE BOLLARD AT BENT 28, LINE 2 TO THE CLEAT AT BENT 8 AND LINE 1 TO THE BOLLARD AT BENT 5.

GRAPHIC SCALES

0 15 30 60
1"=30'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

APPROVED	DATE	PREP.BY	DESCRIPTION	SYMBOL

DATE SATISFACTORY TO SW DIV FOR COMMANDER NAVFAC

DATE DIRECTOR

DATE APPROVED

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C.DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
EXISTING BERTHING LAYOUT HUGHES MINING BARGE

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

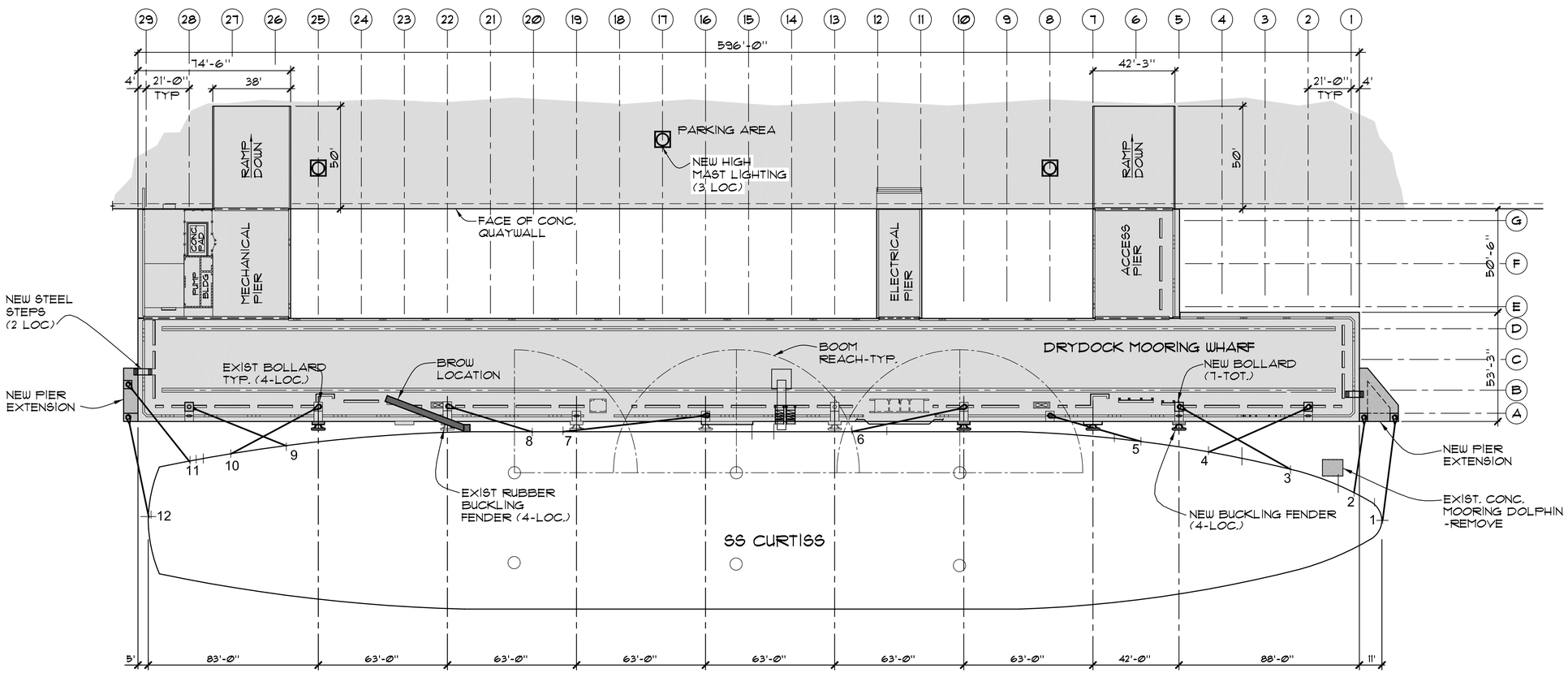
SPEC. 1101

NAVFAC DWG. NO. .

SHEET 2 OF 23

B1

150579
JN 02M003



NOTES:

1. "4" INDICATES MOORING LINE REFERENCE NUMBER

GENERAL PLAN AND BERTHING LAYOUT

1"=30'-0"

NORTH REFERENCE NORTH

GRAPHIC SCALES

0 15 30 60

1"=30'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP-BY	DESCRIPTION	SYMBOL

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER: C.D. DUNCAN
DRAFTER: H.V.GONZALEZ
CHECKER: M.N.MARTINEZ
PROJ. LEADER: C.DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

GENERAL PLAN AND BERTHING LAYOUT SS CURTISS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO. 8161324
SHEET 3 OF 23

B2

150579
JN 02M003

BORING 6

DATE: 3-14-82 EL = -26.0'±

DEPTH IN FEET (MLLW = 0.0')	TEST DATA MC	DD	BC	OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft to firm, saturated, gray black, silty clay (CH) BAY DEPOSITS
-5	24	105	52	GS	6-1	Hard, Saturated, Gray brown, Sandy silt (ML) to very dense, silty fine sand (SM) BAY POINT FORMATION
-10	16	116	37		6-2	Dense to very dense, saturated, brown, silty medium to coarse sand (SM) BAY POINT FORMATION
-15			35		6-3	
-20			50/4"		6-4	
-25	28	102	51	GS, UCS= 1480 psf	6-5	Very dense, saturated, light brown, silty fine sand (SM) to hard, fine sandy silt (ML) interbedded layers approximately 1" thick, occasional thin clay layers (CH) BAY POINT FORMATION
-30	38	84	50	PI	6-6	Possible clay lens
-35	16	112	66	GS	6-7	Very dense, saturated, light gray brown, slightly silty medium sand (SP-SM) BAY POINT FORMATION
-40			50/4"		6-8	Very dense, saturated, light gray brown, slightly silty coarse sand and small gravels to medium sand (SP-SM) BAY POINT FORMATION
-45						
-50						
-55						Gravel layer, hole caving prevented sampling below 52'
-60						Possible clay layer ?
-65						Gravel
						Gravel
-70						Clay layer
-75						Bottom of Hole

BORING 8

DATE: 3-14-82 EL = -29.0'±

DEPTH IN FEET (MLLW = 0.0')	TEST DATA MC	DD	BC	OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			15		8-1	Firm, saturated, dark gray, fine sandy silt (ML) to medium dense, saturated, silty fine sand (SM) BAY DEPOSITS
-5			42		8-2	Dense to very dense, saturated, light gray coarse sand (SP) BAY POINT FORMATION
						Lost samples and drilling fluid
-10			64		8-3	
-15	30	95	33	GS, PI UCS = 2180 psf	8-4	Hard, saturated, light brown, silty clay (CL) to silty sand (SM) BAY POINT FORMATION
-20			80		8-5	Very dense, saturated, light gray, silty fine to medium sand (SM) BAY POINT FORMATION
-25			70		8-6	Stiff, saturated, light brown, silty clay (CH) BAY POINT FORMATION
	21	107	58	GS	8-7	Very dense, saturated, light gray brown, silty sand with occasional cementation (SM) BAY POINT FORMATION
-30			68		8-8	Some shells present Becomes slightly clayey
-35	19	112	63/6"	GS	8-9	
-40						Gravel layer
-45	16	120	50	GS, PI UCS= 3780 psf	8-10	Hard, saturated, light brown, silty clay (CL) BAY POINT FORMATION
-50						
-55	15	120	50/4"	GS, PI	8-11	Very dense, saturated, light gray, silty sand (SM) BAY POINT FORMATION
-60						
-65						
-70			50/5"		8-12	Very dense, saturated, light red brown, clayey sand (SC) with occasional clay lenses BAY POINT FORMATION
-75						Bottom of Hole

BORING NUMBER

EL: M.L.L.W. = 0.0'

DEPTH IN FEET (MLLW = 0.0')	TEST DATA MC	DD	BC	OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
5	12	110	65		1	Very dense, damp, brown silty sand (SM)

SOIL CLASSIFICATION SYMBOL
In accordance with the Unified Soil Classification System.

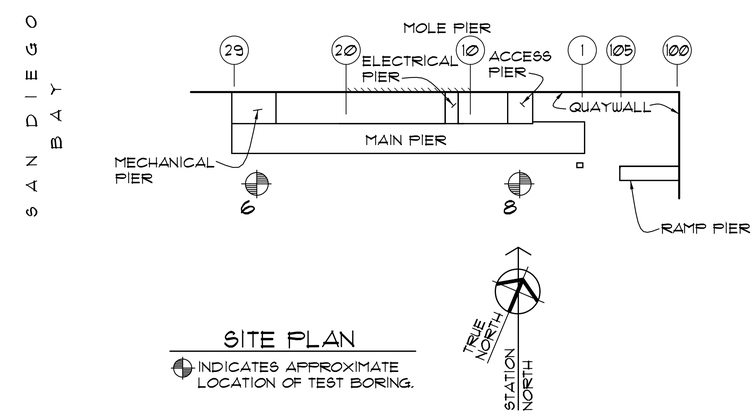
UNDISTURBED SAMPLE LOCATION

INDICATES SAMPLE TESTED FOR OTHER PROPERTIES
CT- Consolidation Test
GS- Grain Size Distribution
UCS- Unconfined Compression Test
LL- Liquid Limit
PI- Plasticity Index
DS- Direct Shear Test
TX- Triaxial Compression Test

BLOW COUNT
Number of blows by 140 pound hammer falling 30 inches to drive sampler 12 inches. Sampler data: 2.0" inside diameter, 2.5" outside diameter.

DRY DENSITY
Pounds per Cubic Foot

MOISTURE CONTENT



SITE PLAN

INDICATES APPROXIMATE LOCATION OF TEST BORING.

NOTE:
BORING LOGS WERE COPIED FROM REPORT ENTITLED 'GEOTECHNICAL INVESTIGATION, PROPOSED FLOATING DRYDOCK FACILITY P-242, NAVAL STATION, SAN DIEGO, CALIFORNIA', PREPARED BY WOODWARD-CLYDE CONSULTANTS, DATED APRIL 16, 1982, (WCC PROJECT NO. 51249V-S102).

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	PREP. BY	DATE	APPROVED

SATISFACTORY TO DATE
DIRECTOR DATE
APPROVED DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C. DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

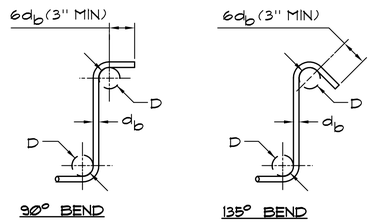
MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA

BORING LOGS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT- SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO.
SHEET 4 OF 23
C1

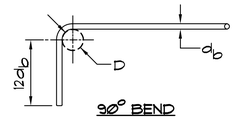
150579
JN 02M003



90° BEND 135° BEND

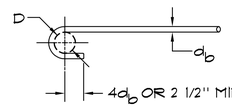
BAR SIZE	#3	#4	#5	#6	#7	#8
D	1 1/2"	2"	2 1/2"	4 1/2"	5 1/4"	6"

TYP. STIRRUP AND TIE BENDS (1 / S1 | S1)
NO SCALE

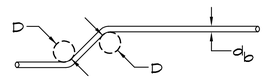


NOTES:
D=6db FOR #3 THRU #8
D=8db FOR #9 THRU #11
D=10db FOR #14 AND #18

90° BEND

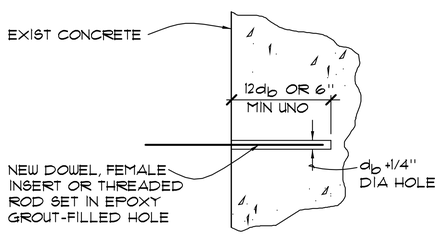


180° BEND



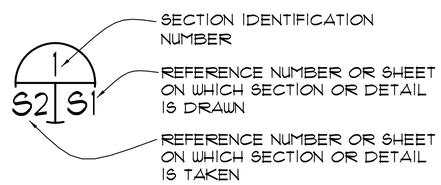
45° BEND

TYPICAL REINFORCING BENDS (2 / S1 | S1)
NO SCALE



SECTION

TYP DOWEL INSTALLATION (3 / S11,S12 | S1)
NO SCALE



SECTION/DETAIL IDENTIFICATION (4 / S1 | S1)
NO SCALE

GENERAL NOTES

OUTLINE OF WORK

WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. REMOVAL AND DISPOSAL OF STEEL MOORING SPUD, HARDWARE, MOORING CLEATS AND MOORING DOLPHIN.
2. CONSTRUCTION OF CONCRETE BUCKLING FENDER FOUNDATIONS, BOLLARD PEDESTALS AND CONCRETE PIER EXTENSIONS.
3. INSTALLATION OF NEW RUBBER BUCKLING FENDER SYSTEMS, BOLLARDS AND STEEL STEPS.
4. OTHER WORK AS INDICATED OR REQUIRED.

A. GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND NOTIFY THE CONTRACTING OFFICER OF ANY DISCREPANCIES FOUND PRIOR TO PROCEEDING.
2. PLANS AND DETAILS SHOWN IN THESE DRAWINGS OF THE EXISTING CONDITIONS ARE FROM ORIGINAL CONSTRUCTION DOCUMENTS AND FIELD INVESTIGATIONS (AS OF APRIL 2002). THE CONTRACTOR SHALL VERIFY THE EXISTING CONSTRUCTION, UNLESS NOTED OTHERWISE.
3. REFERENCE DRAWINGS "DRYDOCK MOORING (P-242)" NAVFAC DWG. NUMBERS 6174216 TO 6174405 DATED 9/16/82, AND "MODIFY SOUTH SIDE OF MOLE PIER TO BERTH HUGHES MINING BARGE" NAVFAC DWG. NUMBERS 8161323 TO 8161341 UNDATED.
4. IN CASE OF CONFLICT, NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE NOTES AND TYPICAL DETAILS.
5. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS OTHER SIMILAR WORK.
6. QUALITY CONTROL SPECIALIST REQUIRED: CONCRETE, EPOXY, PILE DRIVING.
7. THE CONTRACTOR SHALL MAINTAIN A STRAIGHT, 15 FOOT WIDE APPROVED FIRE LANE. THE FIRE LANE SHALL BE CLEAR OF OBSTACLES AT ALL TIMES.
8. CONTRACTOR SHALL NOT INTERRUPT UTILITY SERVICES UNLESS AUTHORIZATION IS RECEIVED FROM THE CONTRACTING OFFICER.
9. REFERENCE ELEVATION: MEAN LOWER LOW WATER (MLLW) DATUM ELEVATION 0.00.
10. ALL UTILITIES (WATER AND ELECTRIC) TO BE METERED, INCLUDING TEMPORARY TRAILER SUPPORT SITES. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING METERS, METER CANS, WIRE, TRANSFORMERS, RUNNING CONDUIT FROM POC TO LOAD, KWH METERS, WATER METERS AND BACKFLOWS. THE POC WILL BE DETERMINED BY THE ROICC AND PWC UTILITY ENGINEERING. THE POC SHALL BE DETERMINED BEFORE BRINGING TRAILERS ON SITE. THE CONTRACTOR IS RESPONSIBLE FOR SETTING UP A UTILITY ACCOUNT TO PAY FOR UTILITY USAGE. CONTACT MR. ACIO PWC CODE 611, PHONE 619-556-7994 FOR INFORMATION ON SETTING UP ACCOUNT AND CURRENT RATES.

B. CONCRETE

1. CONCRETE SHALL HAVE MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 5000 PSI IN 28 DAYS.
2. PROVIDE 3/4" CHAMFER ON ALL CAST-IN-PLACE EXPOSED CORNERS UNLESS NOTED OTHERWISE.
3. LOCATE SPLICES IN REINFORCING ONLY WHERE DETAILED ON THE DRAWINGS.
4. MINIMUM COVER FOR REINFORCING STEEL: 3", UNLESS NOTED OTHERWISE.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
6. LOCATE EXISTING CONDUITS AND UTILITIES PRIOR TO SAWCUTTING, CORING, OR DRILLING.
7. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE FIRMLY SECURED IN POSITION PRIOR TO PLACING CONCRETE.
8. CLEAN AND ROUGHEN EXISTING CONCRETE SURFACES WHICH INTERFACE WITH NEW CONCRETE TO A MINIMUM AMPLITUDE OF 1/4 INCH.

C. STRUCTURAL STEEL AND MISCELLANEOUS METAL

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
2. INSERTS SHALL CONFORM TO ASTM A479, TYPE 316L.
3. BOLTS AND NUTS SHALL CONFORM TO ASTM A307.
4. WASHERS SHALL CONFORM TO ASTM F844, UNLESS NOTED OTHERWISE. WASHERS SHALL BE USED UNDER ALL BOLT HEADS AND NUTS.
5. THREADED RODS SHALL CONFORM TO ASTM A36.
6. STAINLESS STEEL CONNECTORS SHALL BE MADE WITH 316 ALLOY AND SHALL CONFORM TO ASTM F593 AND ASTM F594.
7. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
8. HOT-DIP GALVANIZE AFTER FABRICATION: ALL STEEL STEPS, PADEYES, THREADED RODS, BOLTS, NUTS, WASHERS, CHAINS, ASSEMBLIES AND RELATED ITEMS UNLESS NOTED OTHERWISE. STAINLESS STEEL ITEMS SHALL NOT BE GALVANIZED.

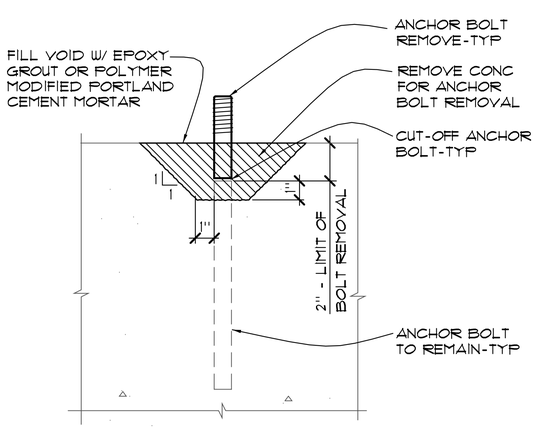
D. CONSTRUCTION LOADS

1. THE CONTRACTOR SHALL LIMIT THE LOADS PLACED ON THE MAIN PIER, AS FOLLOWS:
   A) 600 PSF - UNIFORM LIVE LOAD.
   B) HS20 TRUCK LOADING.
   C) MOBILE TRUCK CRANE - 50 TONS.
      1) CRANES AND CONSTRUCTION EQUIPMENT SHALL NOT BE ALLOWED ON THE ELECTRICAL PIER.

E. DESIGN LOADS

FENDER SYSTEM:
A. WIND SPEED: 50 MPH - TEMPORARY MOORING FOR SHIP LOADING AND OFF LOADING ONLY.
B. CURRENT: NEGLIGIBLE.
C. SHIP TYPE: 602' CARGO SHIP.

UTILITY RELATED EMERGENCY
IN CASE OF A UTILITY RELATED EMERGENCY DURING CONSTRUCTION, IMMEDIATELY CONTACT THE PWC DUTY DESK AT (619) 556-7349.



TYPICAL ANCHOR BOLT REMOVAL (5 / S7,PH1 | S1)
3"=1'-0"

ABBREVIATIONS

AB	ANCHOR BOLT	EL	ELEVATION	#	NUMBER	SW	SALT WATER
ADD'L	ADDITIONAL	E, ELEC	ELECTRICAL	NO	NUMBER	T	TONS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	EMBED	EMBEDMENT	NTS	NO TO SCALE	TYP	TYPICAL
&	AND	EQ	EQUAL	OC	ON CENTER	UHMWP	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
ASS'Y	ASSEMBLY	EXIST	EXISTING	OD	OUTSIDE DIAMETER	UNO	UNLESS NOTED OTHERWISE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EXP	EXPANSION	OW	OILY WASTE	W/	WITH
AVE	AVERAGE	FW	FRESH WATER	PB	PIPE BRACKET	WT	WEIGHT
BOT	BOTTOM	GALV	GALVANIZED	PH	PHOTO	WW	WASTE WATER
CA	COMPRESSED AIR	GOV'T	GOVERNMENT	PL	PLATE		
CF	CUBIC FEET	HORIZ	HORIZONTAL	POC	POINT OF CONNECTION		
CHK'D	CHECKERED	ID	INSIDE DIAMETER	PSF	POUNDS PER SQUARE FOOT		
CIP	CAST-IN-PLACE	INFO	INFORMATION	PSI	POUNDS PER SQUARE INCH		
CLR	CLEAR	INT	INTERMEDIATE	PWC	PUBLIC WORKS CENTER		
CMU	CONCRETE MASONRY UNIT	JT	JOINT	R	RADIUS		
CONC	CONCRETE	L	ANGLE	REF	REFERENCE		
CONN	CONNECTION	LG	LONG	SCHED	SCHEDULE		
CONT	CONTINUOUS	LOC	LOCATION	SF	SQUARE FEET		
CTR'D	CENTERED	MB	MACHINE BOLT	SHT	SHEET		
db	BAR DIAMETER	MC	MISC CHANNEL	SIM	SIMILAR		
DEMO	DEMOLITION	MFR	MANUFACTURER	SQ	SQUARE		
DF-L	DOUGLAS FIR-LARCH	MIN	MINIMUM	SS	STAINLESS STEEL		
DIA	DIAMETER	MISC	MISCELLANEOUS	STD	STANDARD		
DM	DESIGN MANUAL	MLLW	MEAN LOWER LOW WATER	STIFF	STIFFENER		
DWG	DRAWING	MPH	MILES PER HOUR	STM	STEAM		
EA	EACH	NAVFAC	NAVAL FACILITIES	STL	STEEL		
		NEC	NECESSARY				

GRAPHIC SCALES
0 3" 6" 9"
3"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	DATE	PREP-BY	APPROVED

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C. DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
GENERAL NOTES AND TYPICAL DETAILS

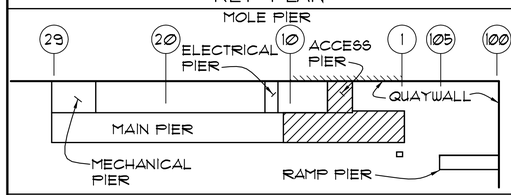
SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT- SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO.
SHEET 5 OF 23

S1

150579
JN 02M003

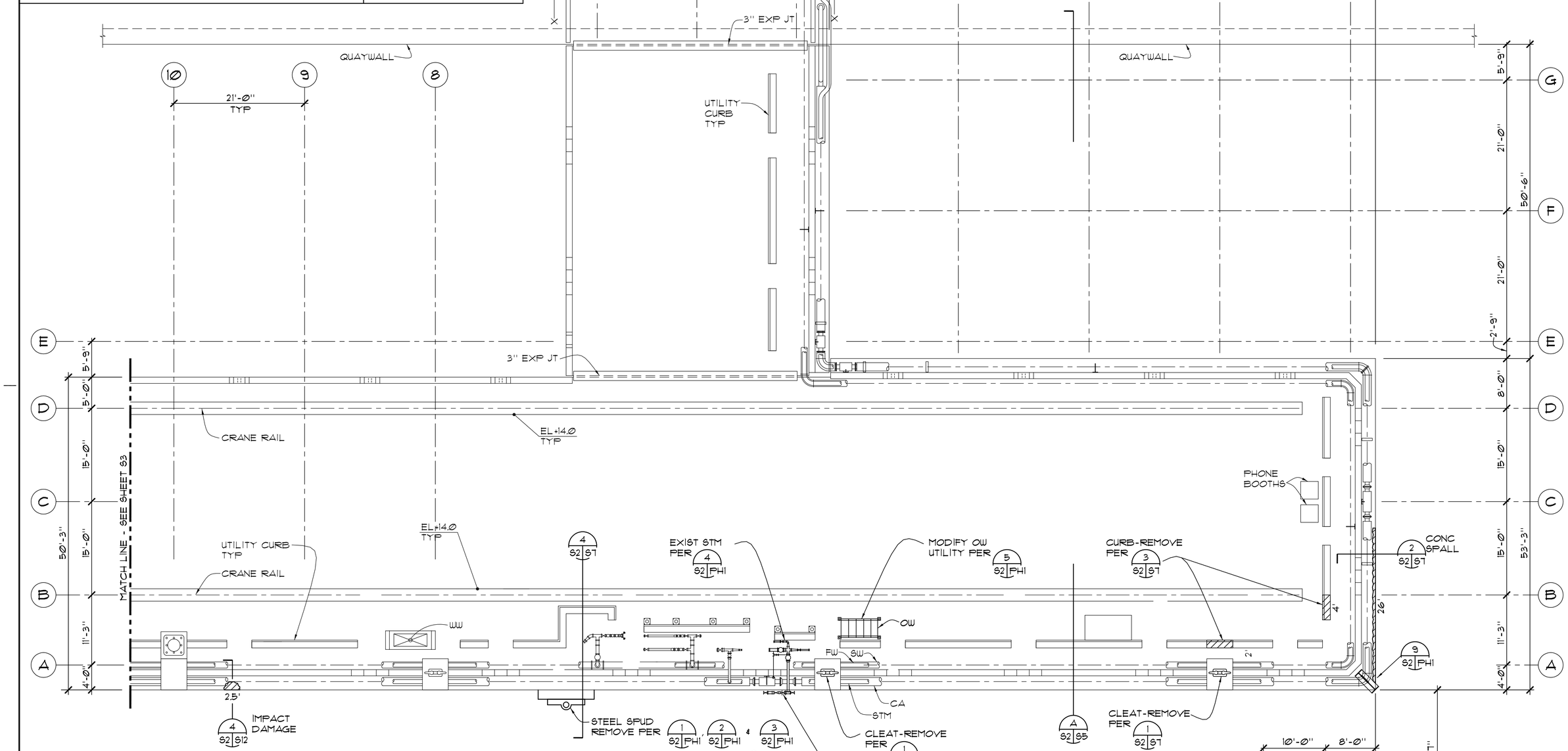
KEY PLAN



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"



EXISTING DECK PLAN

1/8"=1'-0"

NORTH REFERENCE NORTH

LEGEND:

1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
5. INDICATES GUARD POST
6. INDICATES STEAM LINE ANCHOR
7. INDICATES BOLLARD

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

SATISFACTORY TO — DATE

DIRECTOR — DATE

APPROVED — DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C.DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

SAN DIEGO — CALIFORNIA

SOUTHWEST DIVISION

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

EXISTING DECK PLAN - BENTS 1 TO 10

SIZE D

IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. **80091**

PROJECT NO.

A-E CONTR. NO. N68711-01-D-3017

CONSTR. CONTR. NO. N68711-01-C-

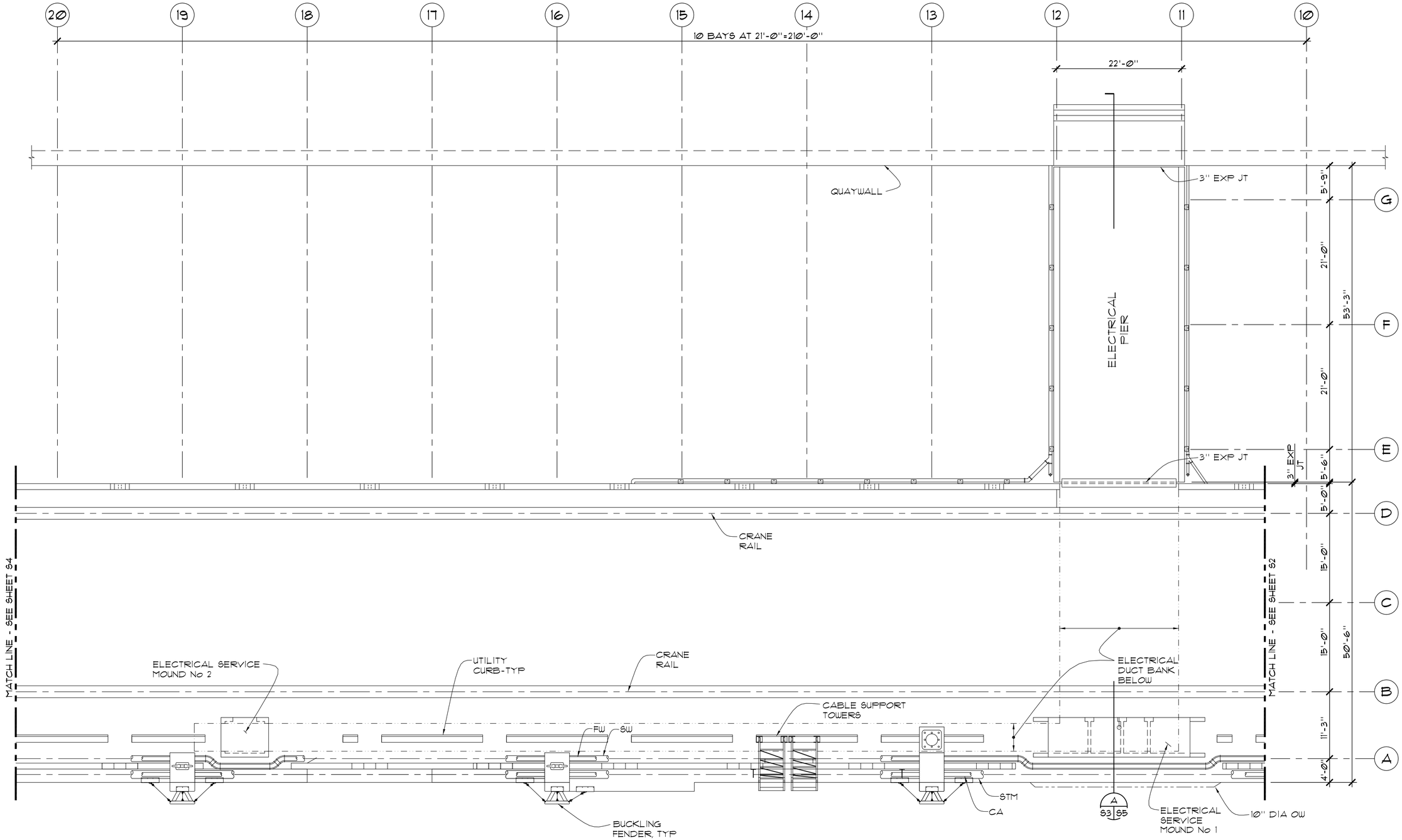
SPEC. 1101

NAVFAC DWG. NO.

SHEET 6 OF 23

S2

150579
JN 02M003



LEGEND:

1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
5. INDICATES BOLLARD

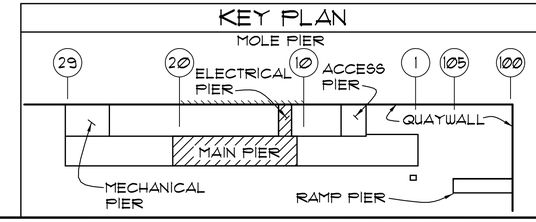
EXISTING DECK PLAN

1/8"=1'-0"

NORTH
REFERENCE NORTH

KEY PLAN

MOLE PIER



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

DESIGNER	C.D. DUNCAN	SATISFACTORY TO	DATE
DRAFTER	H.V.GONZALEZ		
CHECKER	M.N.MARTINEZ	DIRECTOR	DATE
PROJ. LEADER	C. DAVIS		
FIRE PROT.		APPROVED	DATE
DESIGN MGR.			
BRANCH MGR.		SW DIV FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

EXISTING DECK PLAN - BENTS 10 TO 20

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

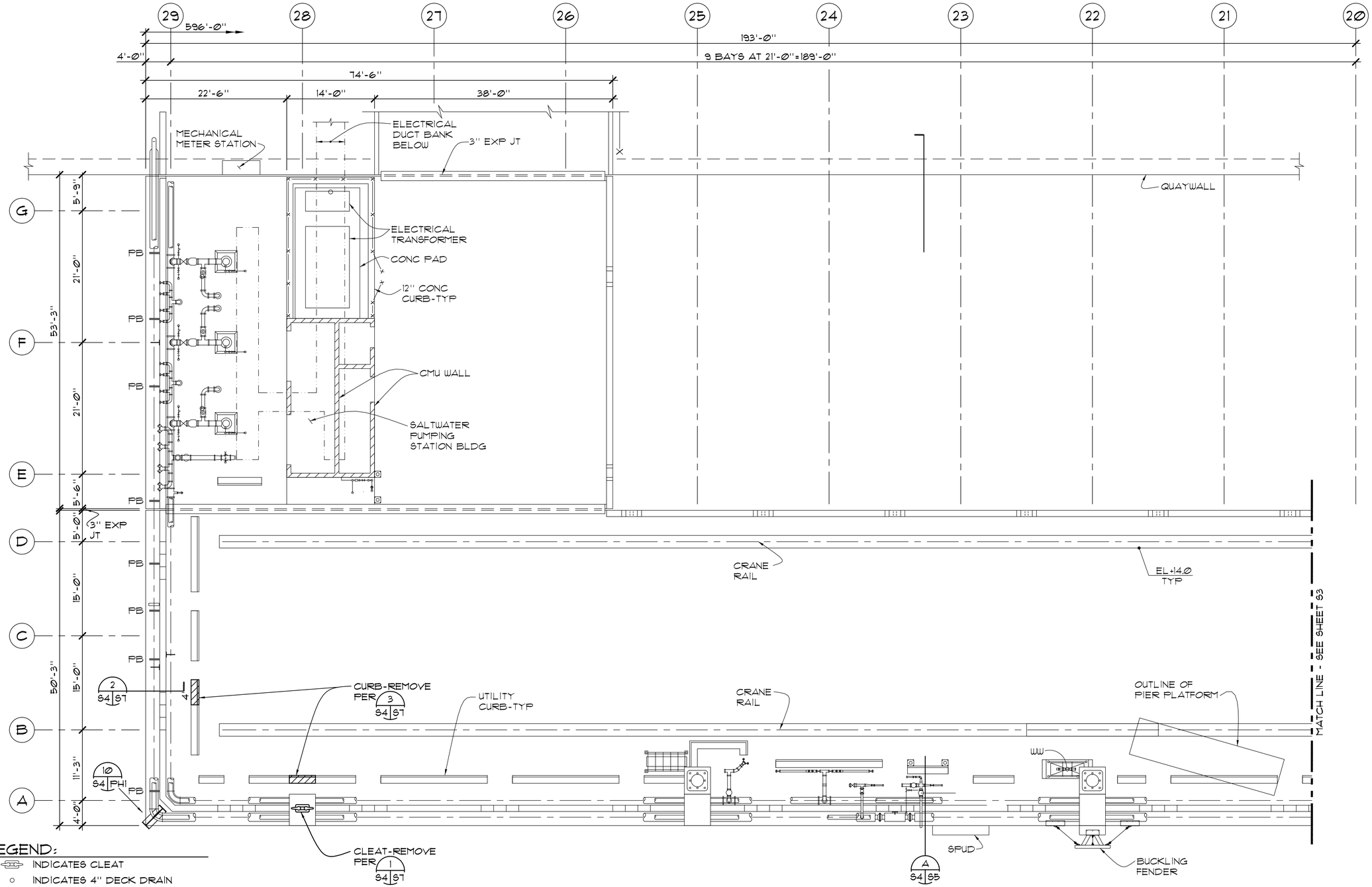
SPEC. 1101

NAVFAC DWG. NO.

SHEET 7 OF 23

S3

150579
JN 02M003



LEGEND:

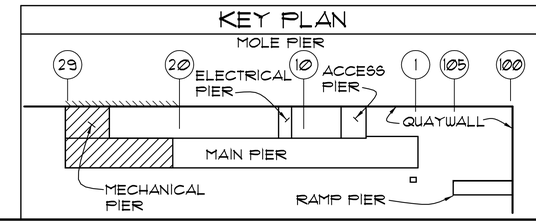
1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
6. INDICATES GUARD POST
7. INDICATES STEAM LINE ANCHOR
8. INDICATES CHAIN LINK FENCE.
9. PB INDICATES PIPE BRACKET
10. INDICATES BOLLARD

EXISTING DECK PLAN

1/8"=1'-0"

NORTH REFERENCE NORTH

KEY PLAN



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP.BY	DESCRIPTION	SYMBOL

DESIGNER	C.D. DUNCAN	SATISFACTORY TO	DATE
DRAFTER	H.V.GONZALEZ		
CHECKER	M.N.MARTINEZ	DIRECTOR	DATE
PROJ. LEADER	C. DAVIS		
FIRE PROT.		APPROVED	DATE
DESIGN MGR.			
BRANCH MGR.		SW DIV FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

EXISTING DECK PLAN - BENTS 20 TO 29

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

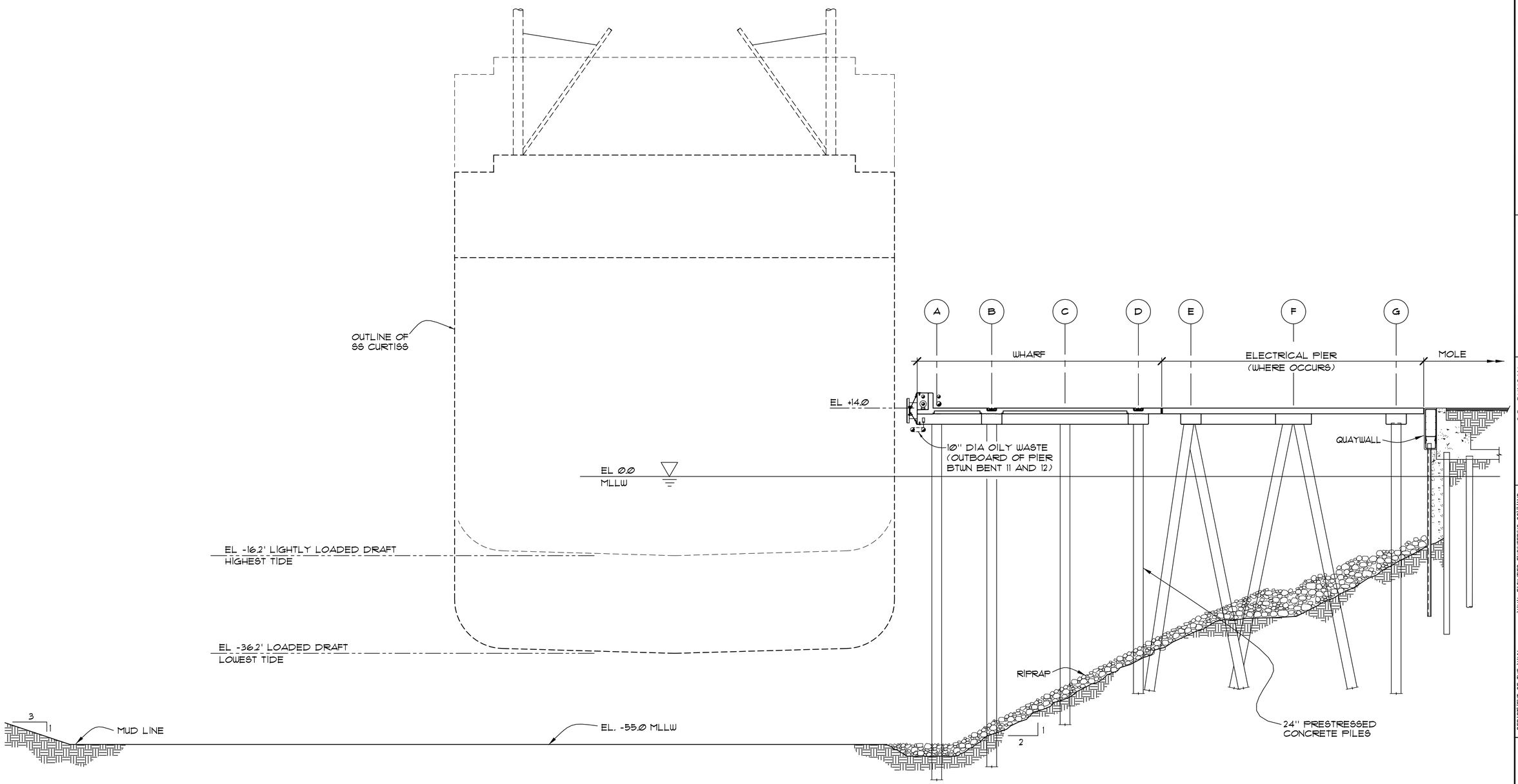
SPEC. 1101

NAVFAC DWG. NO.

SHEET 8 OF 23

S4

150579
JN 02M003



EXISTING PIER SECTION (A)

1"=10'-0"

S2-S4,S8-S10 | S5

GRAPHIC SCALES

0 5 10 20

1"=10'

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	DATE	PREP.BY	APPROVED

SATISFACTORY TO — DATE

DIRECTOR — DATE

APPROVED — DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C. DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

EXISTING PIER SECTION

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A-E CONTR. NO. N68711-01-D-3017

CONSTR. CONTR. NO. N68711-01-C-

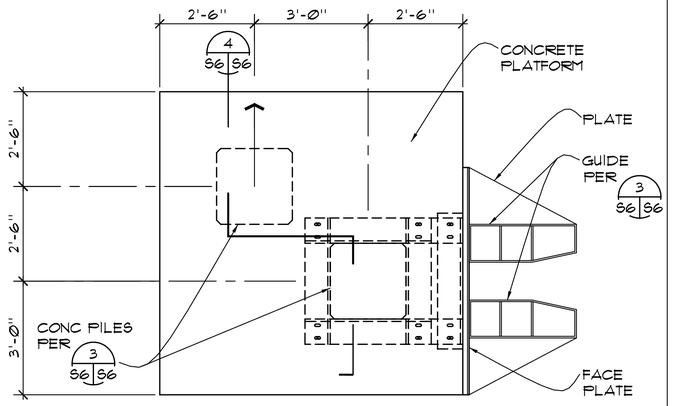
SPEC. 1101

NAVFAC DWG. NO.

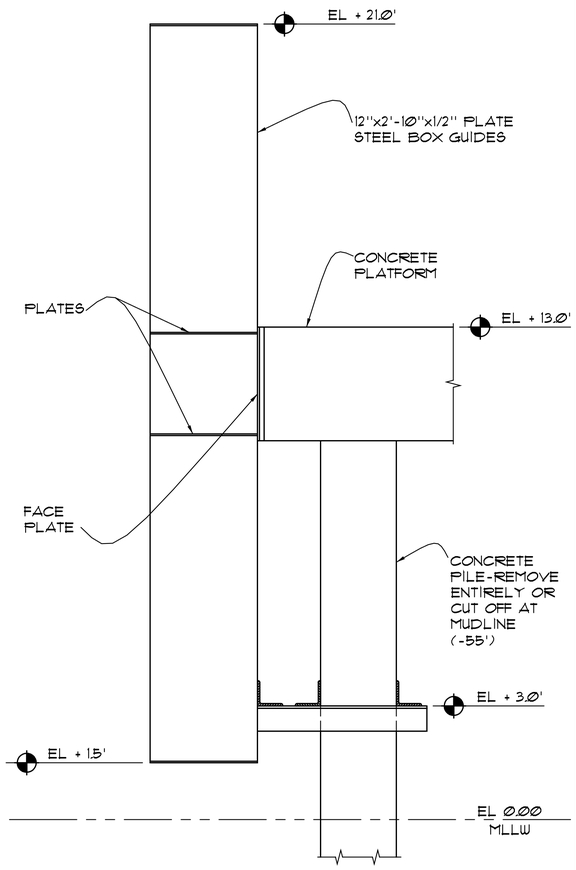
SHEET 9 OF 23

S5

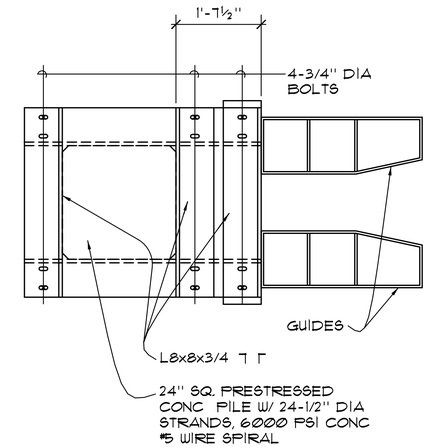
150579
JN 02M003



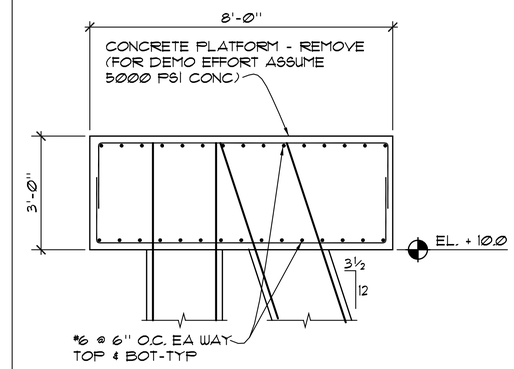
PLAN - MOORING DOLPHIN
(REMOVE ALL)
1/2"=1'-0"
1 S2 S6



ELEVATION - MOORING DOLPHIN
(REMOVE ALL UNO)
1/2"=1'-0"
2 S2 S6

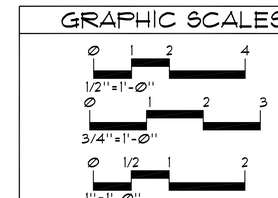


PLAN - MOORING DOLPHIN GUIDE
3/4"=1'-0"
3 S6 S6



SECTION - MOORING DOLPHIN
1/2"=1'-0"
4 S6 S6

GRAPHIC SCALES



REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C.DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

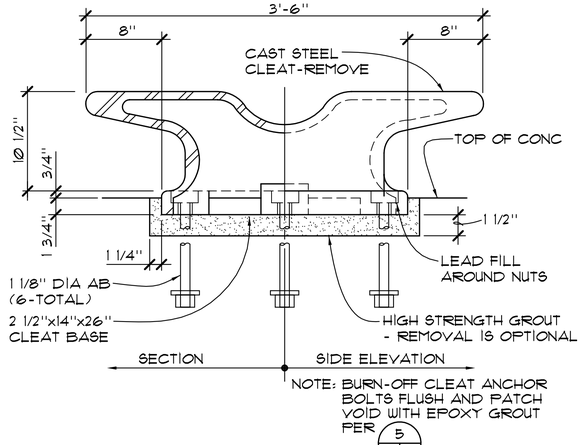
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
EXISTING MOORING DOLPHIN DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A–E CONTR. NO. N68711–01–D–3017
CONSTR. CONTR. NO. N68711–01–C–
SPEC. 1101
NAVFAC DWG. NO.
SHEET 10 OF 23
S6

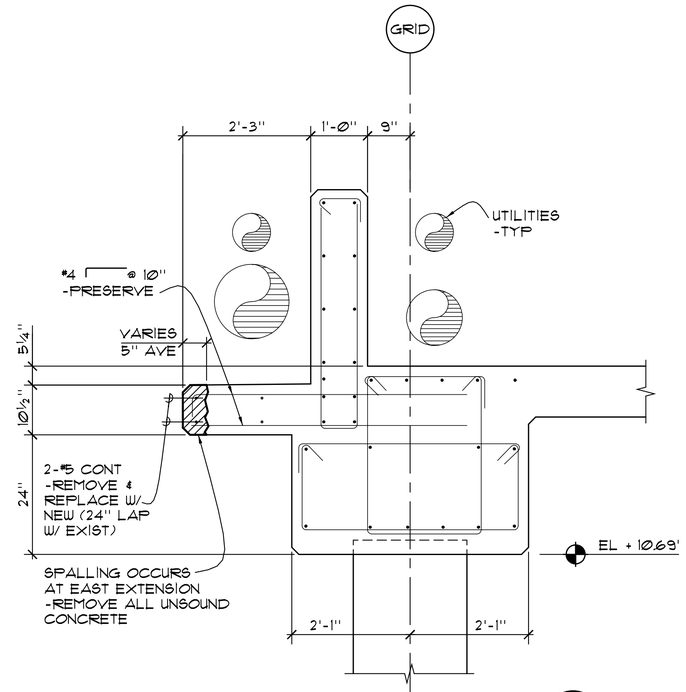
150579
JN 02M003



EXISTING CLEAT

1 1/2"=1'-0"

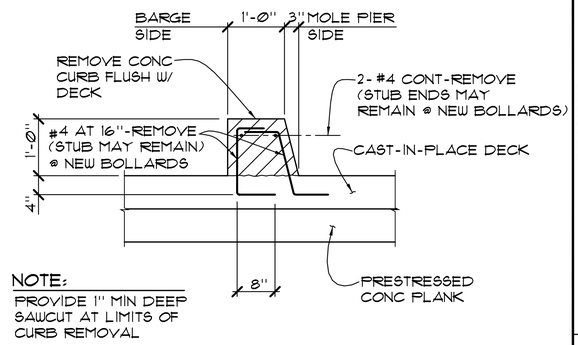
1 S2,S4 S7



EXISTING PIER EDGE - SECTION

3/4"=1'-0"

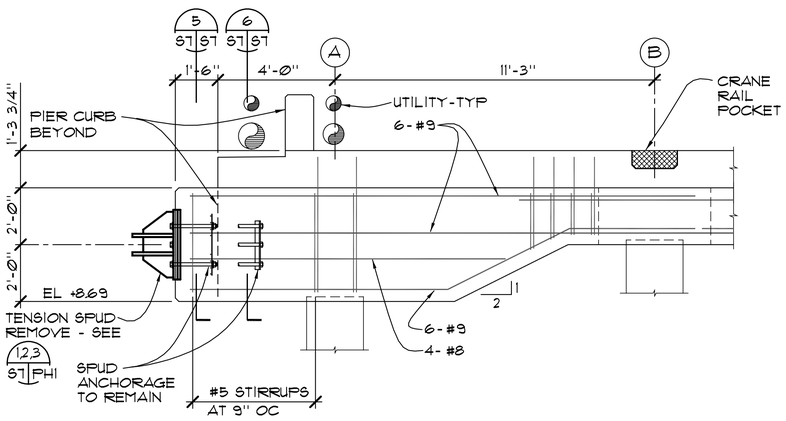
2 S2,S4 S7



EXIST CURB - SECTION

3/4"=1'-0"

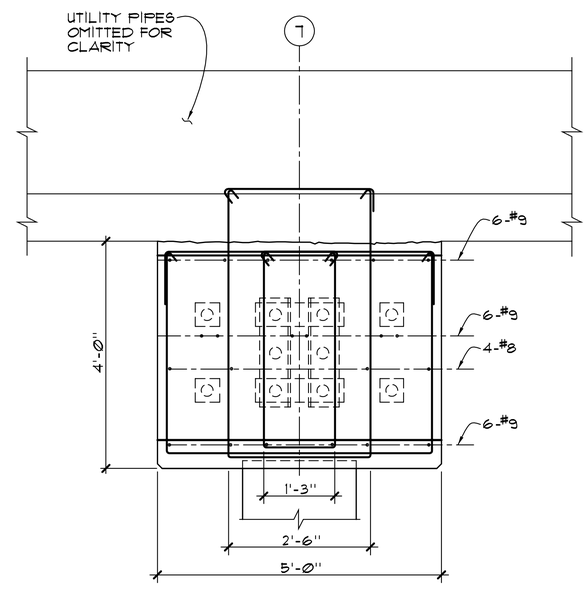
3 S2,S4 S7



EXIST TENSION SPUD - SECTION

3/8"=1'-0"

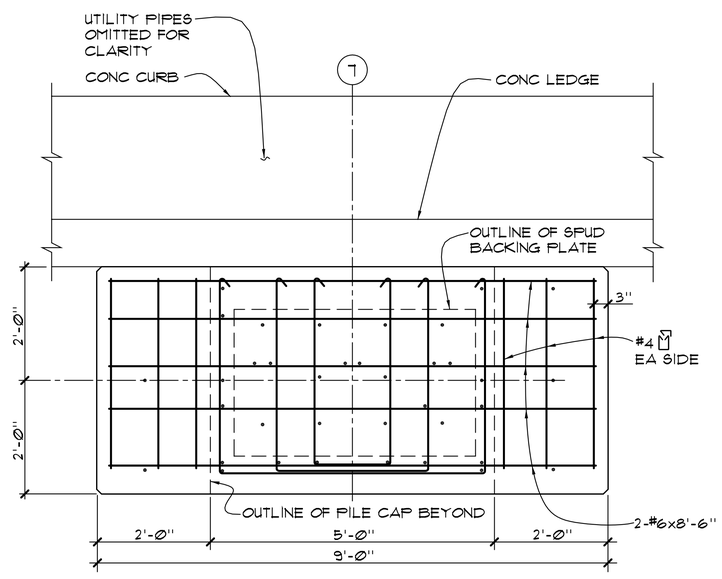
4 S2 S7



EXISTING TENSION SPUD - SECTION

3/4"=1'-0"

6 S7 S7



EXISTING TENSION SPUD - ELEVATION

3/4"=1'-0"

5 S7 S7

GRAPHIC SCALES

0 1 2 4 — 1/2"=1'-0"

0 1 2 3 — 3/4"=1'-0"

0 6" 12" 18" — 1 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
SYMBOL	DESCRIPTION	DATE	PREP.BY	APPROVED

DATE — SATISFACTORY TO — DIRECTOR — APPROVED — SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C.DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

EXISTING MISCELLANEOUS DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A-E CONTR. NO. N68711-01-D-3017

CONSTR. CONTR. NO. N68711-01-C-

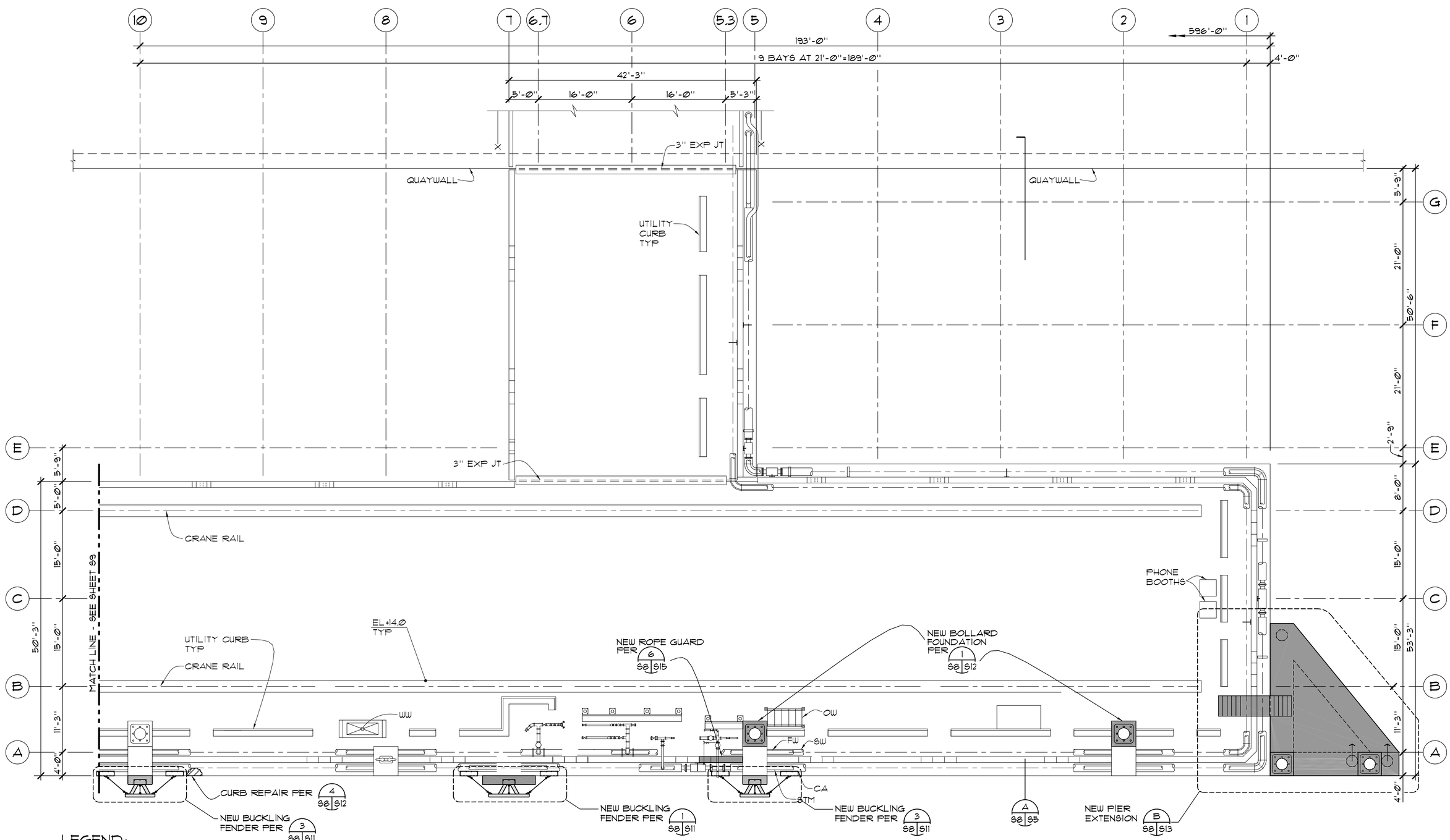
SPEC. 1101

NAVFAC DWG. NO. .

SHEET 11 OF 23

S7

150579
JN 02M003



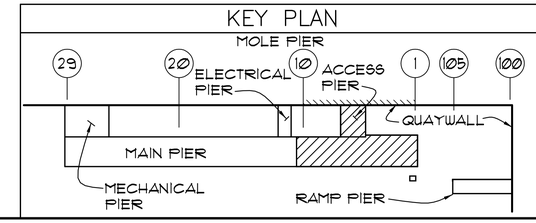
NEW DECK PLAN

1/8"=1'-0"

LEGEND:

1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
5. INDICATES GUARD POST
6. INDICATES STEAM LINE ANCHOR
7. INDICATES BOLLARD

KEY PLAN



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP-BY	DESCRIPTION	SYMBOL

SATISFACTORY TO — DATE

DIRECTOR — DATE

APPROVED — DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C. DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

NEW DECK PLAN - BENTS 1 TO 10

SIZE D

IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

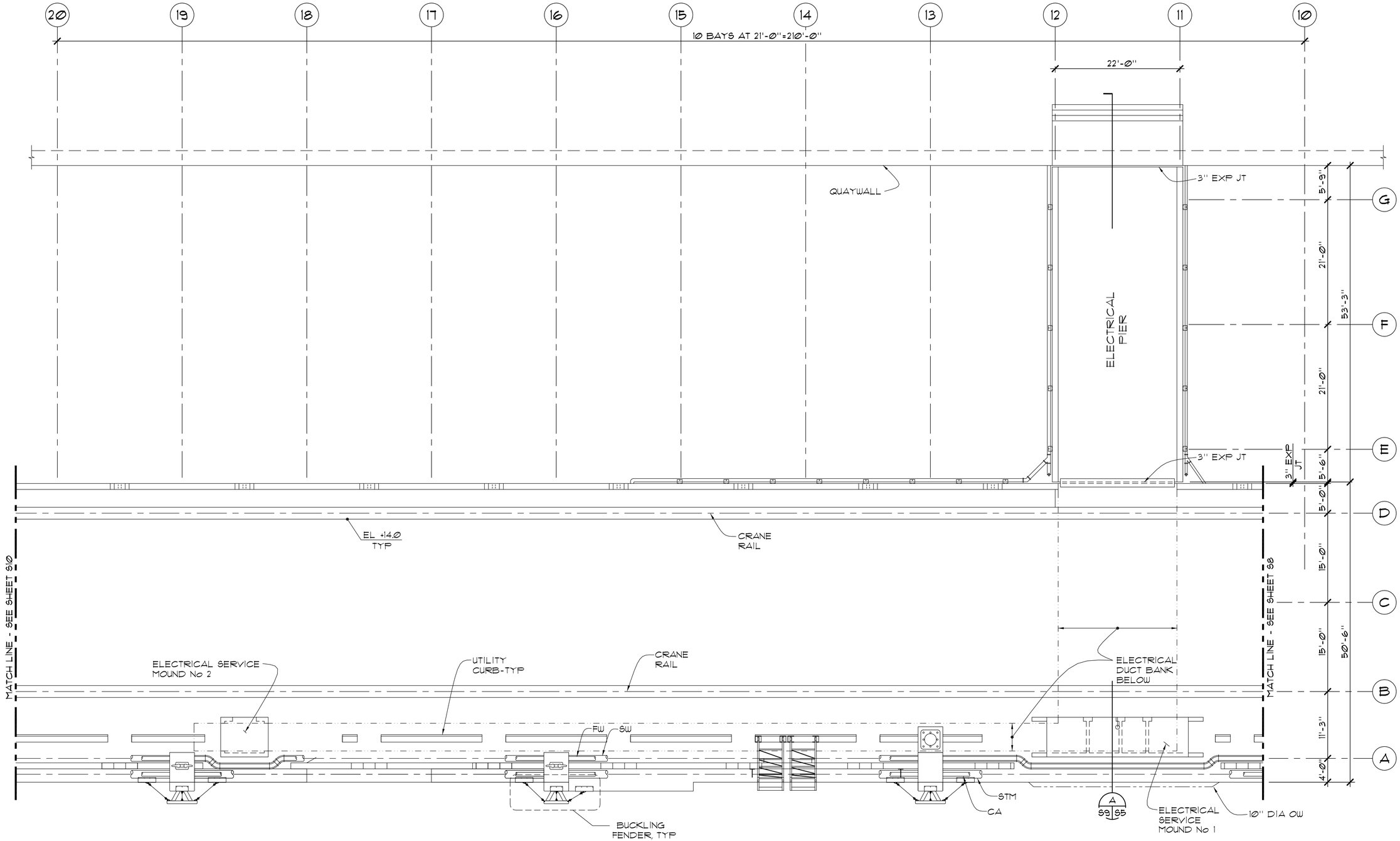
SPEC. 1101

NAVFAC DWG. NO.

SHEET 12 OF 23

S8

150579
JN 02M003



LEGEND:

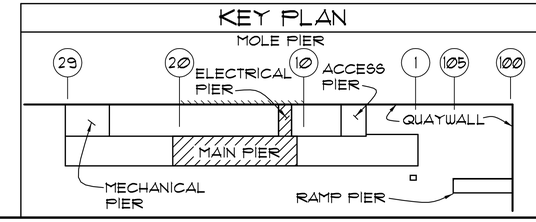
1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
5. INDICATES BOLLARD

NEW DECK PLAN

1/8"=1'-0"

NORTH
REFERENCE NORTH

KEY PLAN



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP.BY	DESCRIPTION	SYMBOL

DESIGNER	C.D. DUNCAN	SATISFACTORY TO	DATE
DRAFTER	H.V.GONZALEZ		
CHECKER	M.N.MARTINEZ	DIRECTOR	DATE
PROJ. LEADER	C. DAVIS		
FIRE PROT.		APPROVED	DATE
DESIGN MGR.			
BRANCH MGR.		SW DIV FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

NEW DECK PLAN - BENTS 10 TO 20

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. **80091**

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

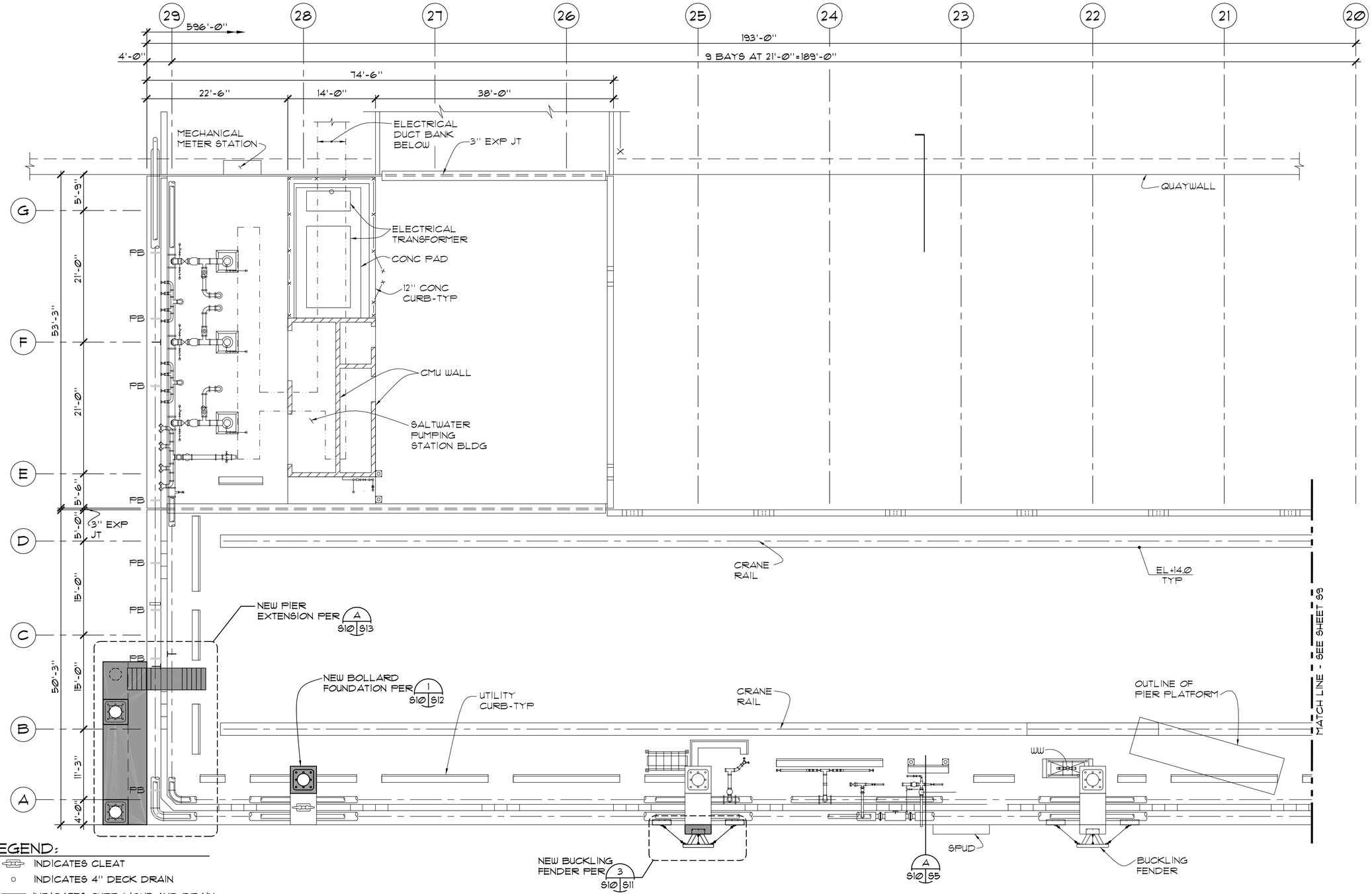
SPEC. 1101

NAVFAC DWG. NO.

SHEET 13 OF 23

S9

150579
JN 02M003



LEGEND:

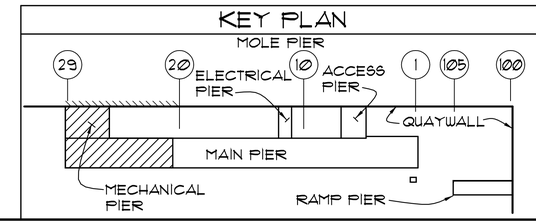
1. INDICATES CLEAT
2. INDICATES 4" DECK DRAIN
3. INDICATES CURB LIGHT AND DRAIN
4. INDICATES CURB LIGHT
6. INDICATES GUARD POST
7. INDICATES STEAM LINE ANCHOR
8. INDICATES CHAIN LINK FENCE.
9. PB INDICATES PIPE BRACKET
10. INDICATES BOLLARD

NEW DECK PLAN

1/8"=1'-0"

NORTH
REFERENCE NORTH

KEY PLAN



GRAPHIC SCALE

0 4 8 16

1/8"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP.BY	DESCRIPTION	SYMBOL

DESIGNER	C.D. DUNCAN	SATISFACTORY TO	DATE
DRAFTER	H.V.GONZALEZ		
CHECKER	M.N.MARTINEZ	DIRECTOR	DATE
PROJ. LEADER	C. DAVIS		
FIRE PROT.		APPROVED	DATE
DESIGN MGR.			
BRANCH MGR.		SW DIV FOR COMMANDER NAVFAC	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

NEW DECK PLAN - BENTS 20 TO 29

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

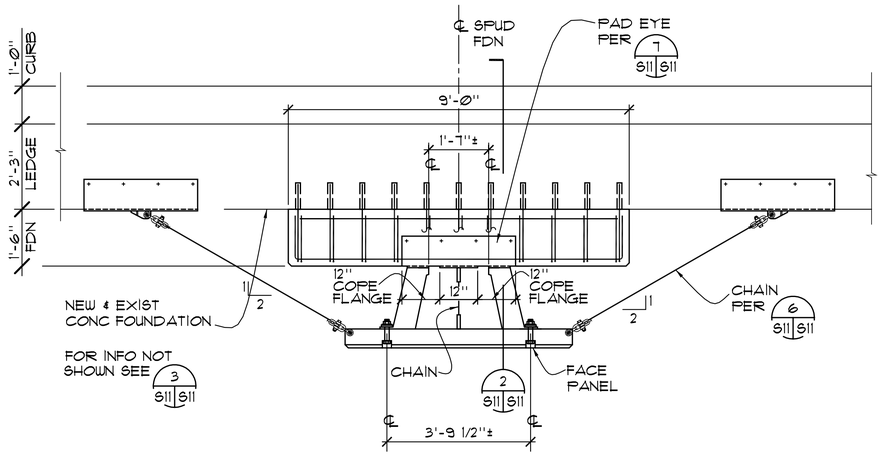
SPEC. 1101

NAVFAC DWG. NO.

SHEET 14 OF 23

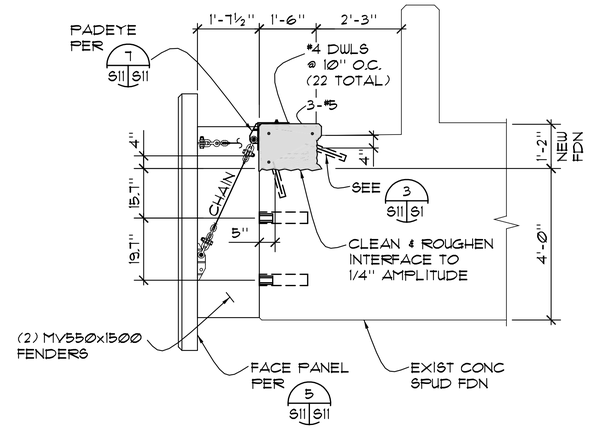
S10

150579
JN 02M003



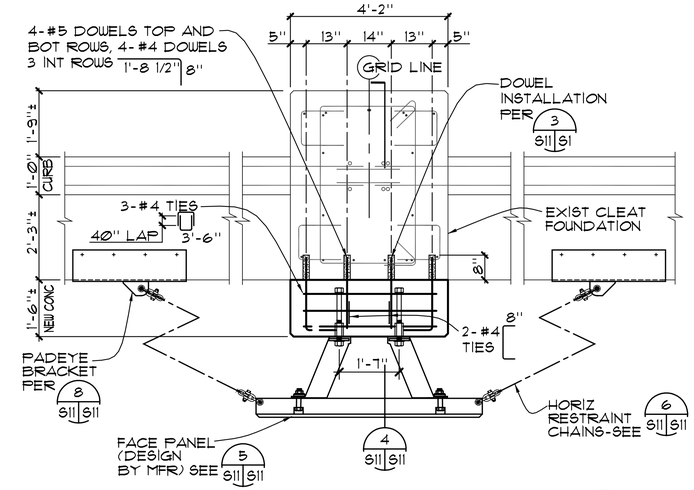
NEW BUCKLING FENDER AT BENT 7 - PLAN 1 S8 S11

1/2"=1'-0"



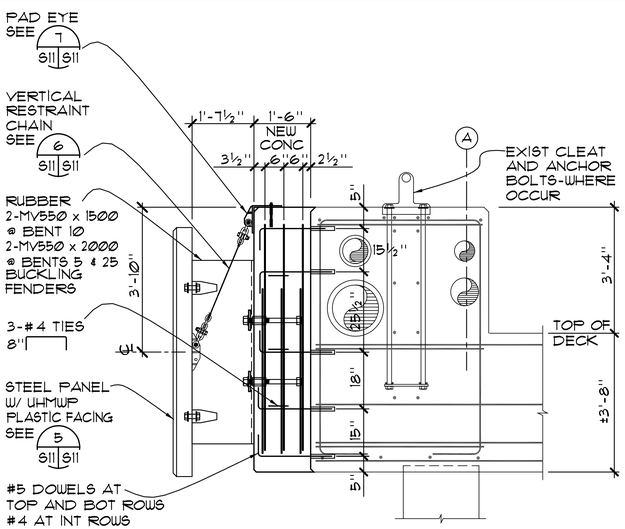
NEW FENDER FOUNDATION - BENT 7 2 S11 S11

1/2"=1'-0"



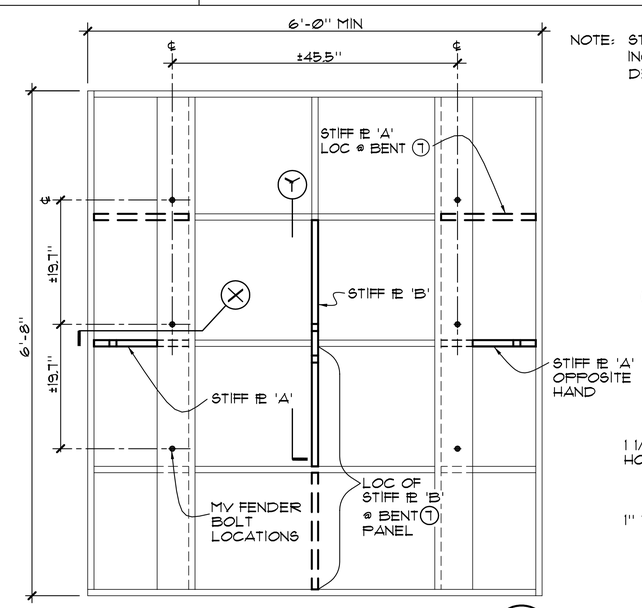
NEW BUCKLING FENDER - PLAN 3 S8,S10,S11 S11

1/2"=1'-0"



NEW BUCKLING FENDER - SECTION 4 S11 S11

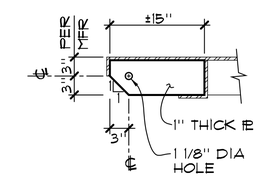
1/2"=1'-0"



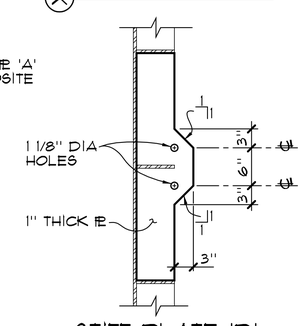
FACE PANEL - REAR ELEVATION 5 S11 S11

1"=1'-0"

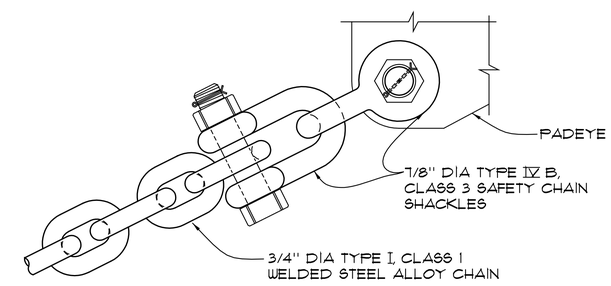
NOTE: STIFF PLATES 'A' AND 'B' SHALL BE INCORPORATED INTO THE PANEL DESIGN BY THE MANUFACTURER



X STIFF PLATE 'A'

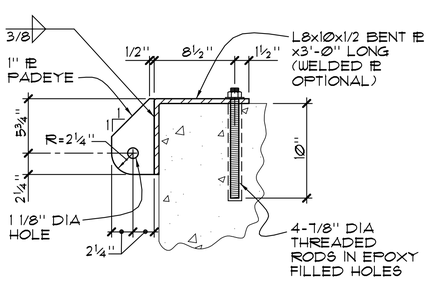


Y STIFF PLATE 'B'



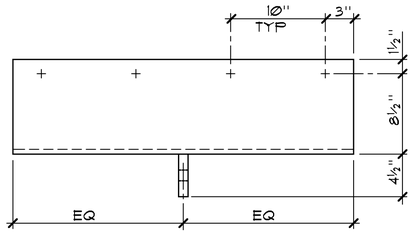
CHAIN END CONNECTION DETAIL 6 S11 S11

3"=1'-0"

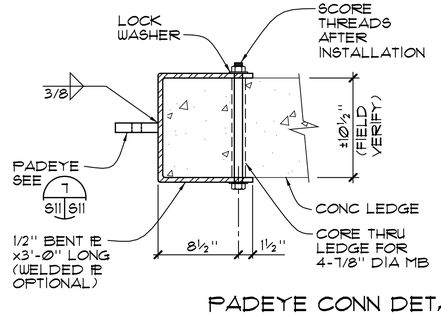


PADEYE CONN DETAIL - SECTION 7 S11 S11

1½"=1'-0"

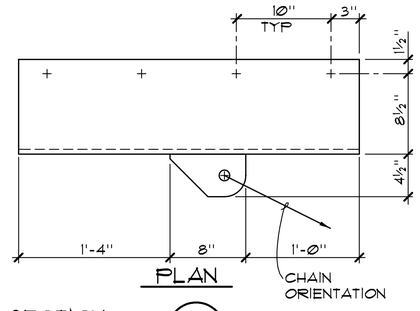


PLAN



PADEYE CONN DETAIL - SECTION 8 S11 S11

1½"=1'-0"



PLAN

GRAPHIC SCALES

0 1 2 4 6 — 3/8"=1'-0"

0 6" 12" 18" — 1 1/2"=1'-0"

0 1 2 4 — 1/2"=1'-0"

0 3" 6" 9" — 3"=1'-0"

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

SPEC. 1101

NAVFAC DWG. NO.

SHEET 15 OF 23

S11

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

DATE SATISFACTORY TO SW DIV FOR COMMANDER NAVFAC

DATE DIRECTOR H.V.GONZALEZ

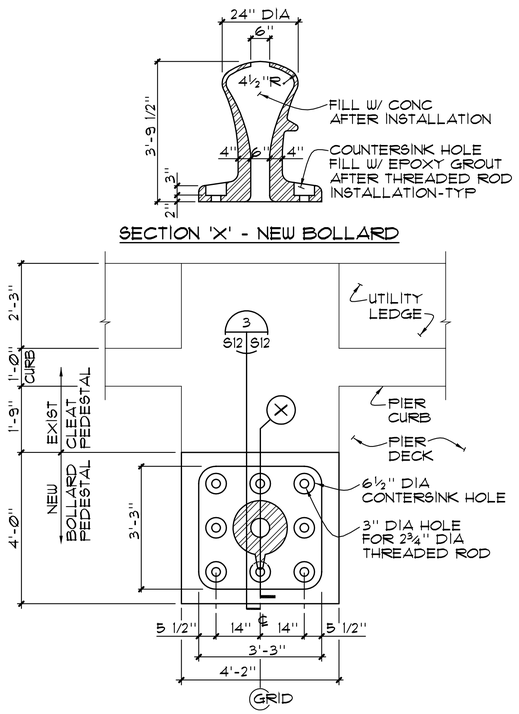
DATE APPROVED M.N.MARTINEZ

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C. DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

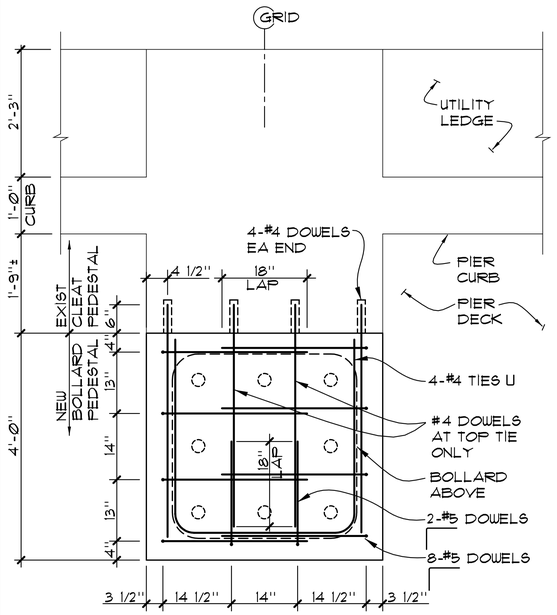
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
NEW FENDER DETAILS

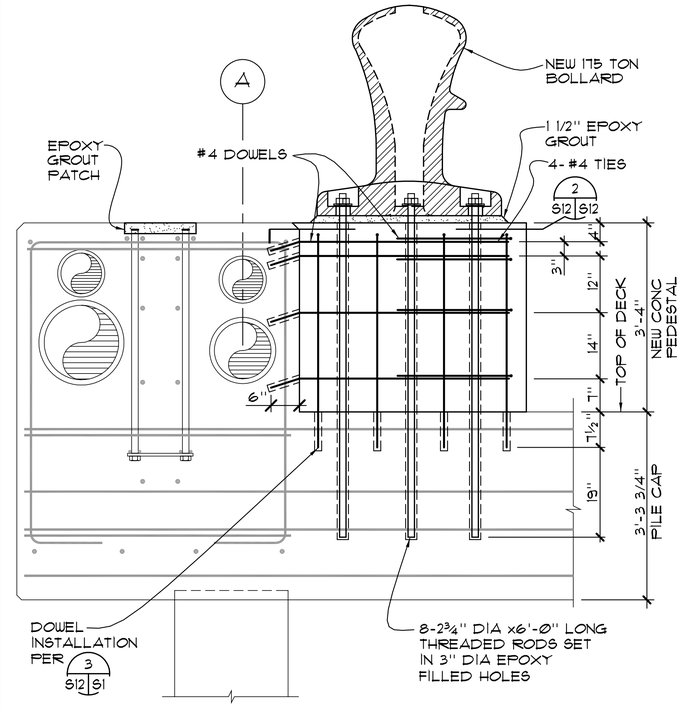
150579
JN 02M003



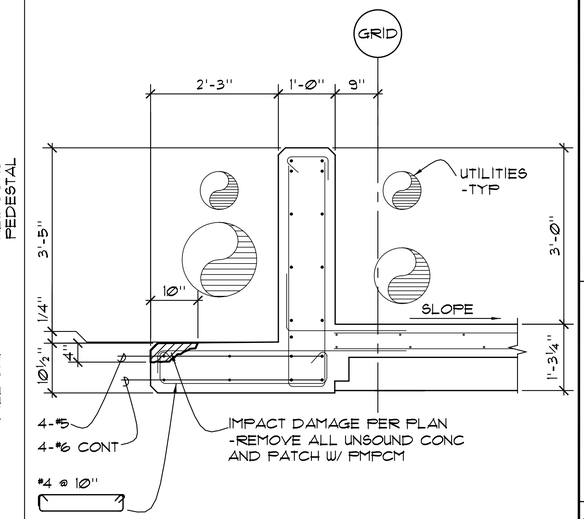
NEW 175 TON BOLLARD - PLAN (1) S8,S10,S14 | S12
1/2"=1'-0"



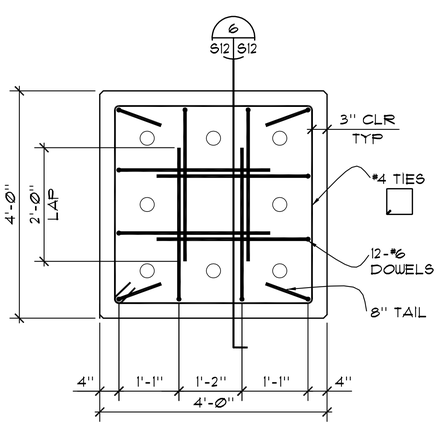
NEW BOLLARD PEDESTAL - PLAN (2) S12 | S12
3/4"=1'-0"



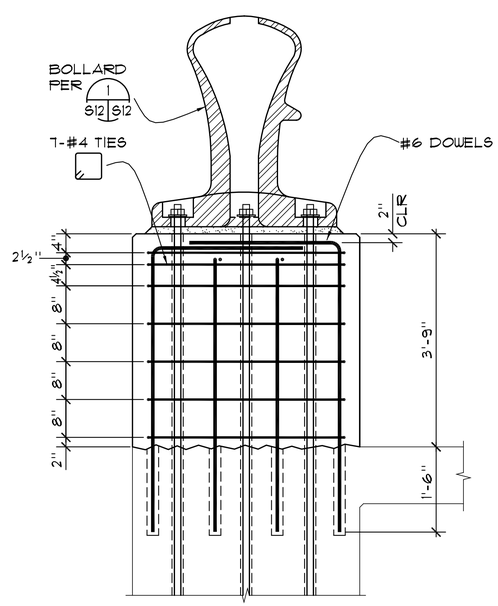
NEW BOLLARD - SECTION (3) S12 | S12
3/4"=1'-0"



EXISTING PIER EDGE - SECTION (4) S2,S8 | S12
3/4"=1'-0"

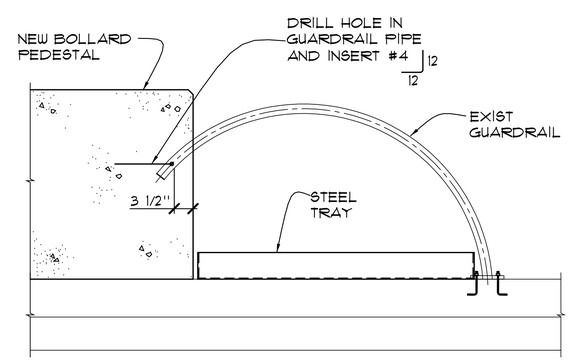


NEW BOLLARD PEDESTAL - PLAN (5) S13 | S12
3/4"=1'-0"



NEW BOLLARD PEDESTAL - SECTION (6) S12 | S12
3/4"=1'-0"

NOTE:
APPLY YELLOW TOUCH UP PAINT TO MATCH EXIST AT OW GUARDRAIL



MODIFIED GUARDRAIL (7) PH1 | S12
3/4"=1'-0"

GRAPHIC SCALES

1/2"=1'-0"
3/4"=1'-0"
1"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D. DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C. DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO CALIFORNIA
SOUTHWEST DIVISION

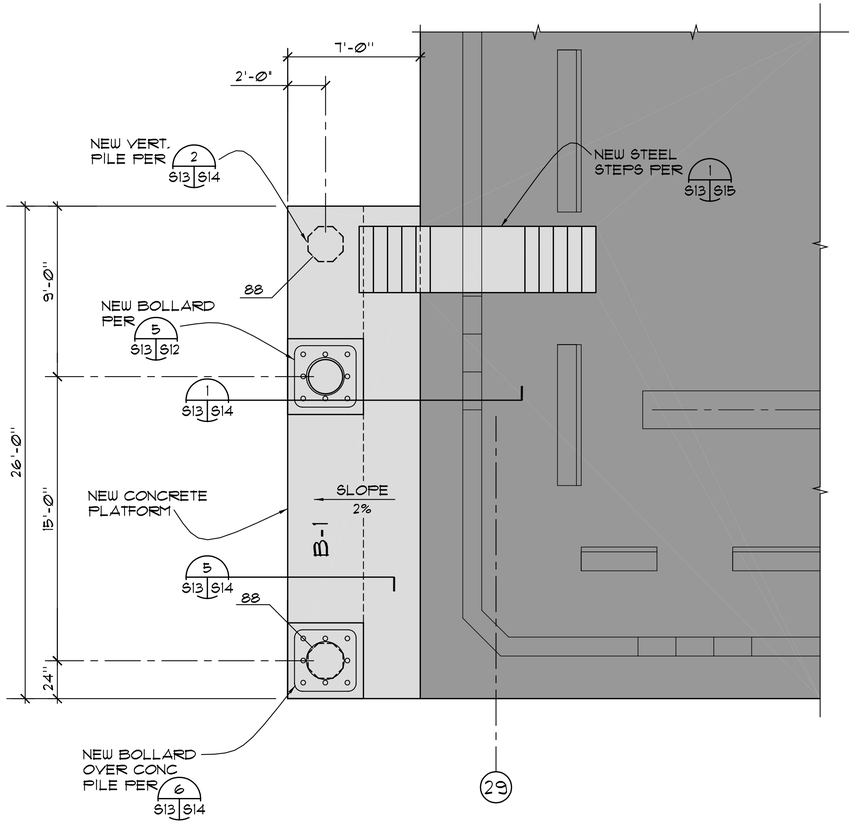
MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA
NEW BOLLARD DETAILS

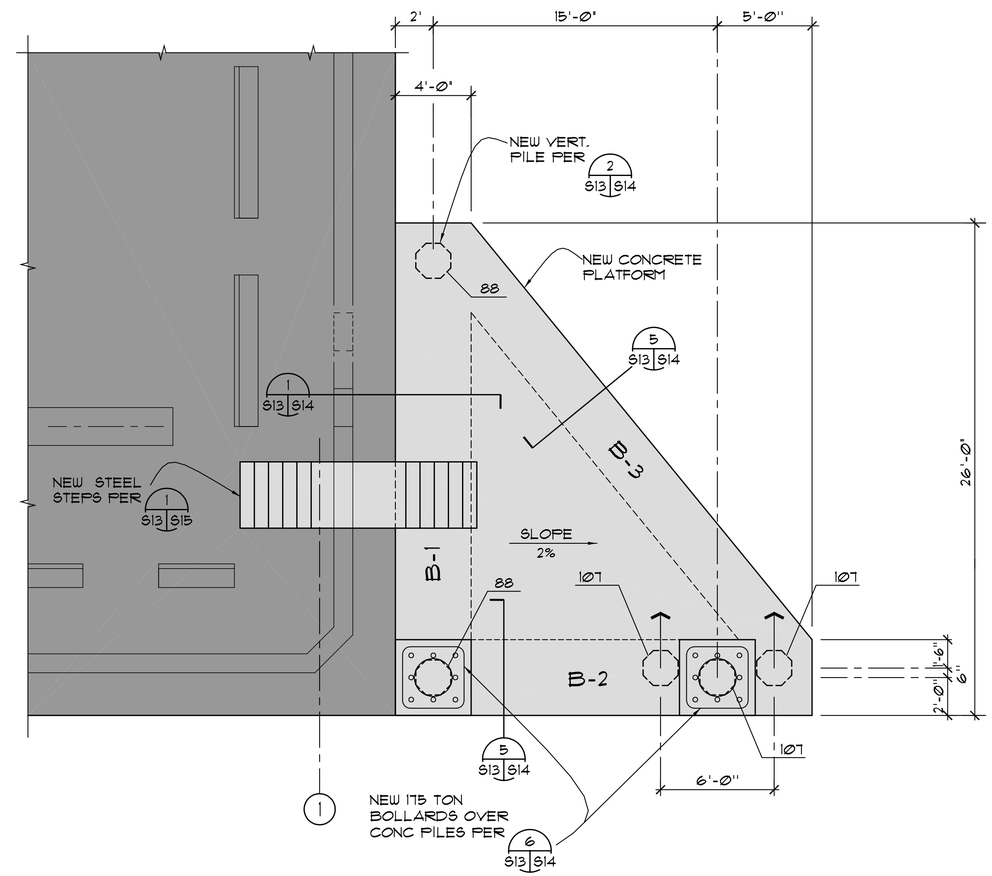
SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A–E CONTR. NO. N68711–01–D–3017
CONSTR. CONTR. NO. N68711–01–C–
SPEC. 1101
NAVFAC DWG. NO.
SHEET 16 OF 23
S12

150579
JN 02M003



NEW PIER EXTENSION - PLAN
WEST SIDE
1/4"=1'-0"
A S10 S13



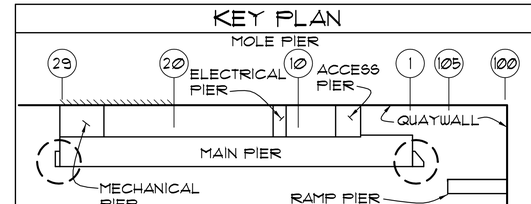
NEW PIER EXTENSION - PLAN
EAST SIDE
1/4"=1'-0"
B S8 S13

NORTH

NOTES:

1. 88 INDICATES TOTAL PILE LENGTH
2. BM-1 INDICATES CONC PILE CAP BEAM PER SCHED 4 S13 S14
3. INDICATES BATTER PILE AND DIRECTION
4. DRIVE NEW PILES THRU EXISTING 2' MIN THICK RIPRAP SLOPE, MOVE ROCK IF NECESSARY TO DRIVE PILE
5. 107' LONG PILES REQUIRE 41' EMBEDMENT
6. 88' LONG PILES REQUIRE 22' EMBEDMENT

KEY PLAN



GRAPHIC SCALE

0 2 4 8
1/4"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS				
APPROVED	DATE	PREP-BY	DESCRIPTION	SYMBOL

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C.DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

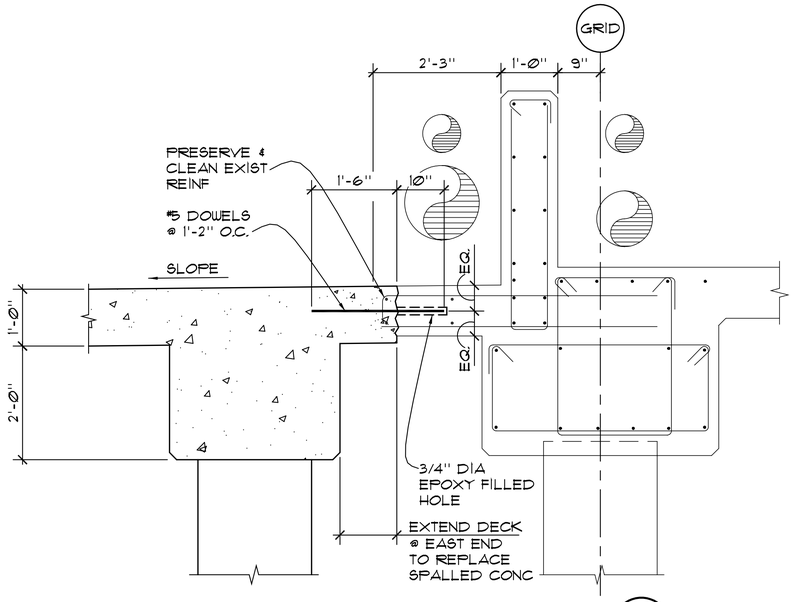
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
NEW PIER EXTENSION PLANS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A–E CONTR. NO. N68711–01–D–3017
CONSTR. CONTR. NO. N68711–01–C–
SPEC. 1101
NAVFAC DWG. NO.
SHEET 17 OF 23
S13

150579
JN 02M003



NEW DECK EDGE - SECTION (1 / S13 | S14)
3/4"=1'-0"

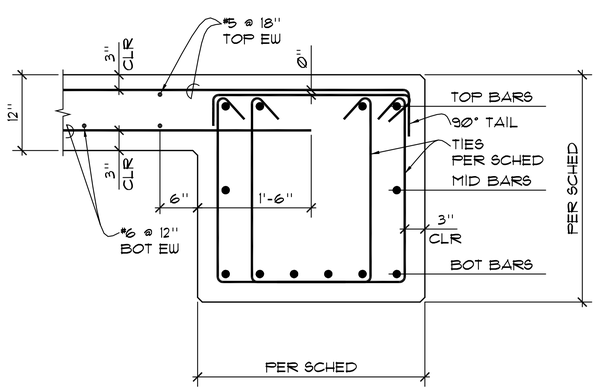
BEAM SCHEDULE

MARK	SIZE WxD	TOP REINF	MID REINF	BOT REINF	TIES
B-1	36x36	4-#8	2-#6	5-#9	DBL #3 @ 12"
B-2	48x36	8-#9	2-#7	6-#9	DBL #4 @ 8" CONT BTWN BATTERS; DBL #4 @ 16" REM
B-3	36x36	4-#8	2-#6	5-#9	DBL #3 @ 12"

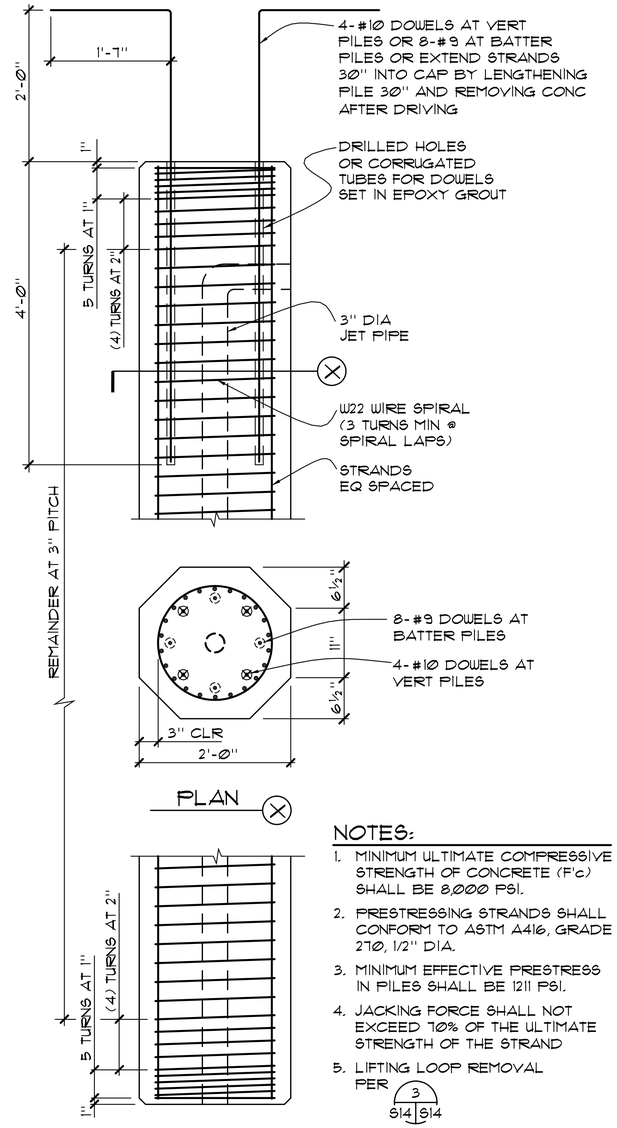
NOTES:

1. FIRST TIE AT 2" FROM FACE OF SUPPORT -TYP
2. TERMINATE TOP BARS W/ STD TAIL @ BEAM ENDS -TYP
3. PLACE B-2 BARS AT TOP & BOTTOM MOST LAYERS
4. RUN B-3 BARS AS FAR AS POSSIBLE INTO BM-1 & BM-2

NOT TO SCALE (4 / S13 | S14)



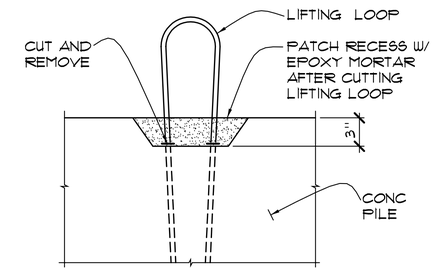
EDGE BEAM SECTION - TYPICAL (5 / S13 | S14)
1"=1'-0"



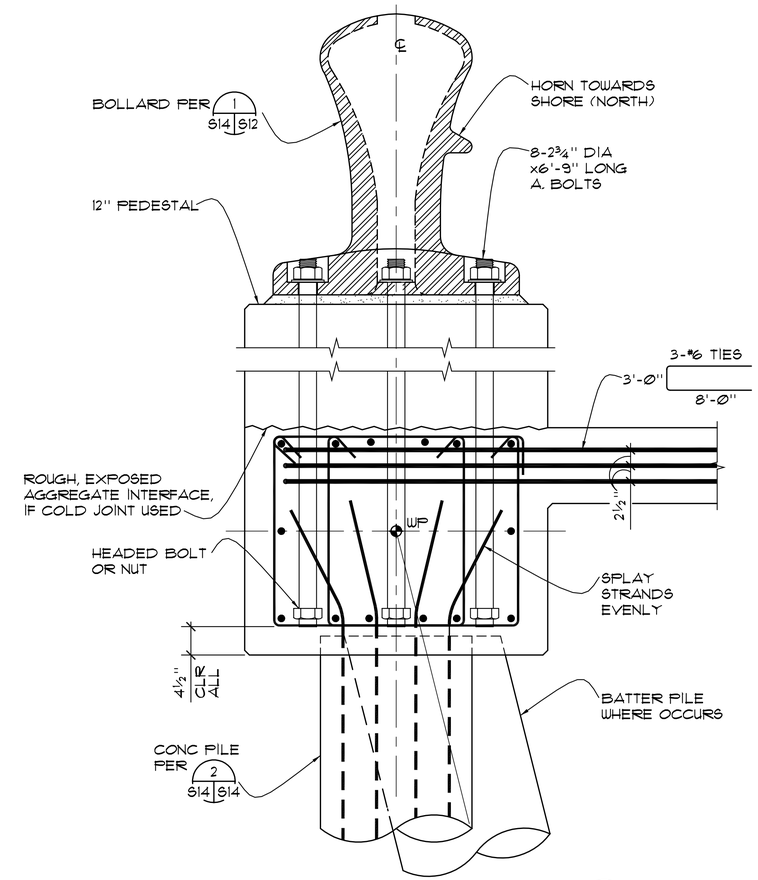
NOTES:

1. MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE (F'c) SHALL BE 8,000 PSI.
2. PRESTRESSING STRANDS SHALL CONFORM TO ASTM A416, GRADE 270, 1/2" DIA.
3. MINIMUM EFFECTIVE PRESTRESS IN PILES SHALL BE 1211 PSI.
4. JACKING FORCE SHALL NOT EXCEED 70% OF THE ULTIMATE STRENGTH OF THE STRAND
5. LIFTING LOOP REMOVAL PER (3 / S14 | S14)

NEW 24" PRESTRESSED CONC PILE (2 / S13,S14 | S14)
1"=1'-0"



LIFTING LOOP DETAIL (3 / S14 | S14)
1½"=1'-0"



PILE CAP @ BOLLARD - SECTION (6 / S13 | S14)
1"=1'-0"

GRAPHIC SCALES

0 1 2 3
3/4"=1'-0"

0 1/2 1 2
1"=1'-0"

0 6" 12" 18"
1 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS

SYMBOL	DESCRIPTION	DATE	PREP.BY	APPROVED

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C.DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

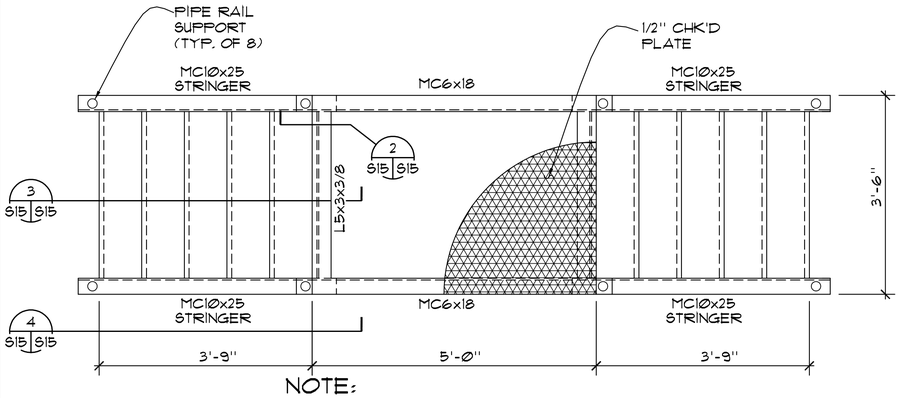
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
NEW PIER EXTENSION DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO.
SHEET 18 OF 23
S14

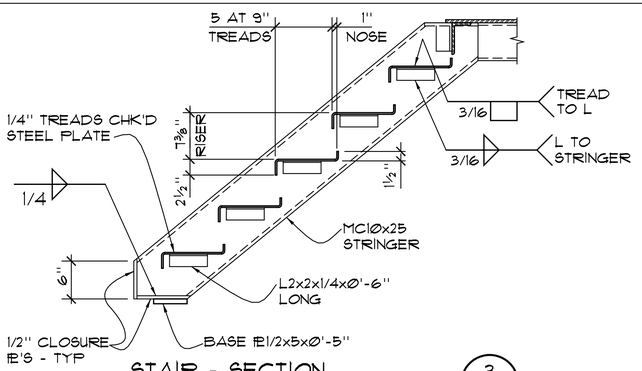
150579
JN 02M003



NOTE:

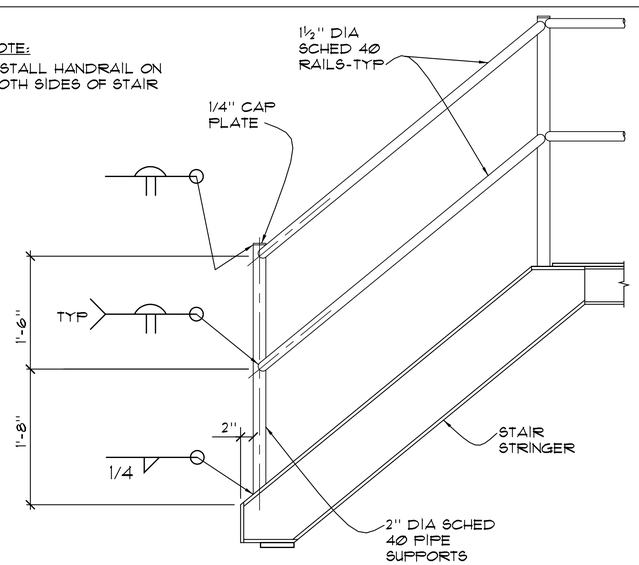
1. GALVANIZED ALL AFTER FABRICATION.
2. SHOP PRIME & PAINT ALL ITEMS NAVY GRAY.

CROSSOVER STAIR - PLAN (1 / S13 | S15)
3/4"=1'-0"

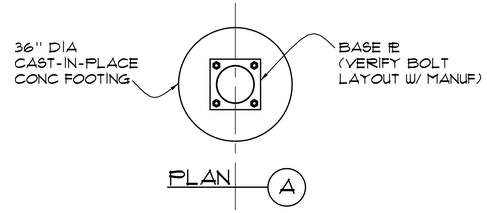


STAIR - SECTION (3 / S15 | S15)
1"=1'-0"

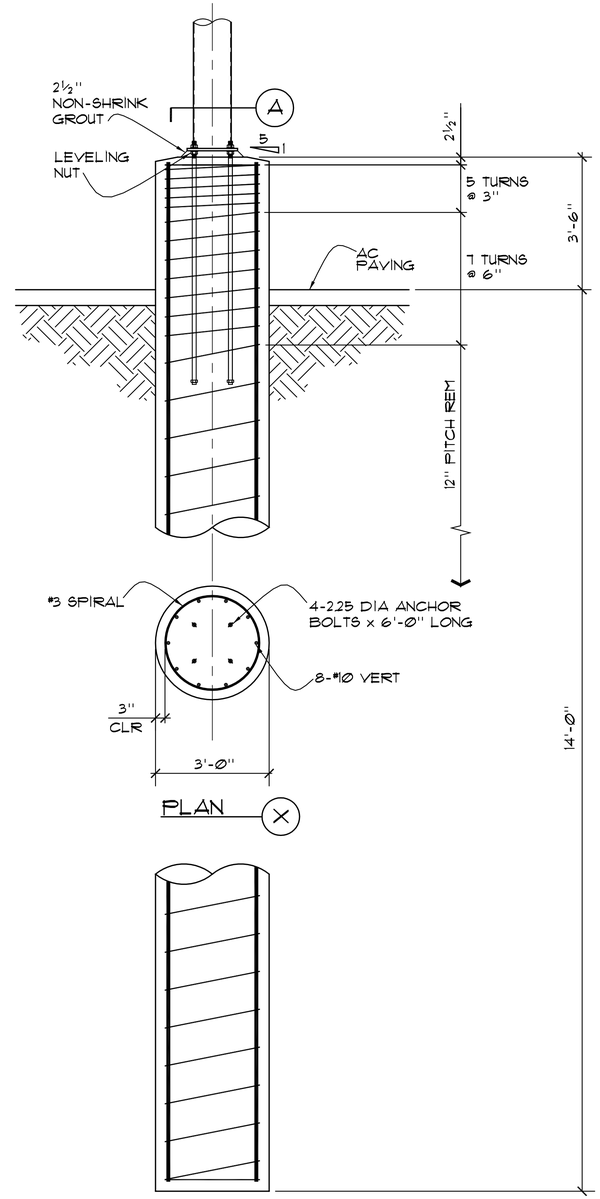
NOTE:
INSTALL HANDRAIL ON BOTH SIDES OF STAIR



STAIR - HANDRAIL ELEVATION (4 / S15 | S15)
1"=1'-0"

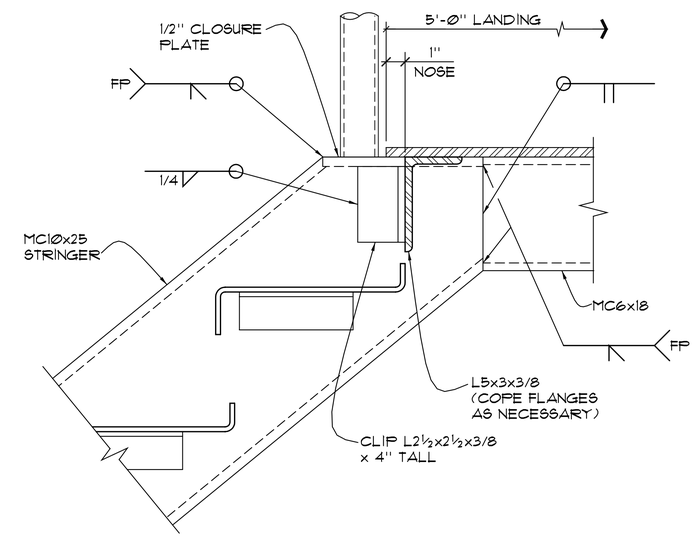


PLAN (A)

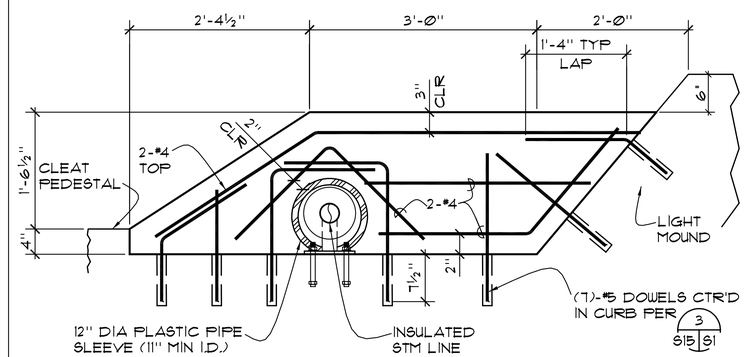


PLAN (X)

HIGH MAST LIGHT FOOTING (5 / S15 | S15)
1/2"=1'-0"

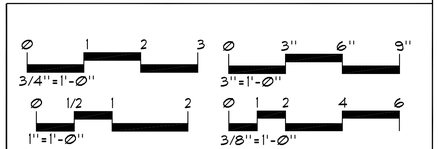


STAIR TO PLATFORM CONNECTION (2 / S15 | S15)
3"=1'-0"



ROPE GUARD @ STM RISER-SECTION (6 / S8,PH1 | S15)
1"=1'-0"

GRAPHIC SCALES



REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

REVISIONS					
SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED	

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER C.D. DUNCAN
DRAFTER H.V.GONZALEZ
CHECKER M.N.MARTINEZ
PROJ. LEADER C.DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO — CALIFORNIA
SOUTHWEST DIVISION

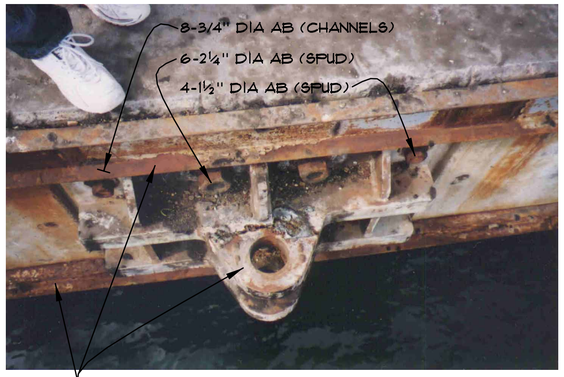
MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
NEW STEEL STEP DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO.
SHEET 19 OF 23

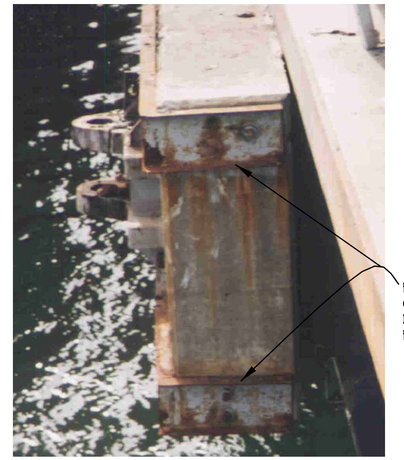
S15

150579
JN 02M003



TENSION SPUD - TOP VIEW 1 S2,S7 PH1

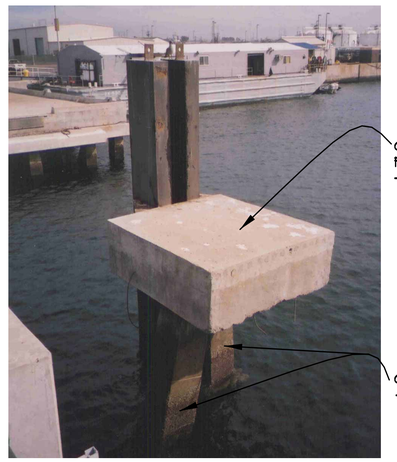
TENSION SPUD - WEST ELEV 2 S2,S7 PH1



TENSION SPUD - EAST ELEV 3 S2,S7 PH1

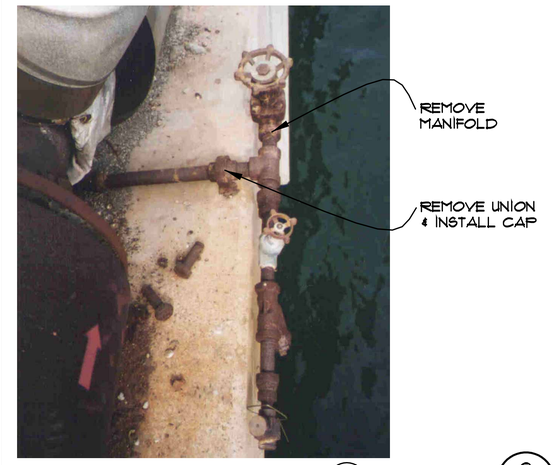
STEAM MANIFOLD AT BENT (5) 4 S2 PH1

OILY WASTE AT BENT (5) 5 S2 PH1



MOORING DOLPHIN - WEST ELEV 6 S2 PH1

MOORING DOLPHIN - EAST ELEV 7 S2 PH1



STEAM BIB BENT (5.2) 8 S2 PH1

CORNER ANCHOR BENT (1) 9 S2 PH1

CORNER ANCHOR BENT (29) 10 S4 PH1

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

SATISFACTORY TO — DATE

DIRECTOR — DATE

APPROVED — DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER	C.D.DUNCAN
DRAFTER	H.V.GONZALEZ
CHECKER	M.N.MARTINEZ
PROJ. LEADER	C.DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
PHOTOGRAPHS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A-E CONTR. NO. N68711-01-D-3017

CONSTR. CONTR. NO. N68711-01-C-

SPEC. 1101

NAVFAC DWG. NO.

SHEET 20 OF 23

PH1

REGISTERED PROFESSIONAL ENGINEER CAMERON D. DUNCAN No. S 4150 EXP.12/31/02 STRUCTURAL STATE OF CALIFORNIA

Blaylock Engineering Group
STRUCTURAL ENGINEERS
SAN DIEGO, CA

150579
JN 02M003

ELECTRICAL LEGEND

GENERAL

③	NOTE REFERENCE

POWER

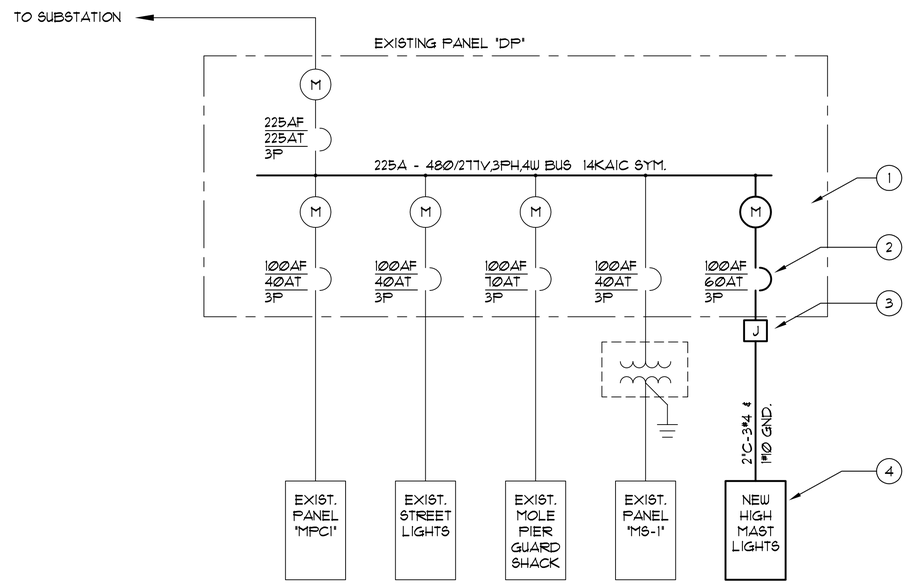
+48'	INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR
PH OR Ø	PHASE
HP	MOTOR CONNECTION WITH HP NOTED
E	ELECTRICAL PULL BOX, UNDERGROUND
	NON-FUSED SAFETY DISCONNECT SWITCH
F	FUSED SAFETY DISCONNECT SWITCH. FUSES PER EQUIPMENT MANUFACTURER RECOMMENDATION OR AS OTHERWISE NOTED.
	FLUSH MOUNTED PANELBOARD
	DISTRIBUTION PANEL OR SWITCHBOARD
J	ELECTRICAL JUNCTION BOX
M	UTILITY METER
3P 225AF 225AT 22KAIC	CIRCUIT BREAKER NUMBER OF POLES AMPS FRAME AMPS TRIP KAIC RATING

RACEWAYS

	WIRING OR CONDUIT CONCEALED IN WALL OR CEILING
	WIRING OR CONDUIT EXPOSED
	WIRING OR CONDUIT CONCEALED UNDERGROUND, OR IN FLOORS ABOVE GRADE LEVEL.
1ELA-1,3,5	CONDUIT HOMERUN TO PANELBOARD. TEXT INDICATES ELECTRICAL PANEL DESIGNATION AND CIRCUIT NUMBERS.

ABBREVIATIONS

A	AMPERE	MCM	THOUSAND CIR MILS
AC	ALTERNATING CURRENT	MTD	MOUNTED
AF	AMP FRAME	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MFR	MANUFACTURER
AIC	AMPERE INTERRUPTING CAPACITY	N	NORTH
AS	AMP SWITCH	NC	NORMALLY CLOSED
AT	AMP TRIP	NO	NORMALLY OPEN
C	CONDUCTOR, CONDUIT	NO.	NUMBER
CB	CIRCUIT BREAKER	NP	NAME PLATE
CKT	CIRCUIT	NTS	NOT TO SCALE
CU	COPPER	NEC	NATIONAL ELECTRIC CODE
DISC	DISCONNECT	PVC	POLYVINLY CHLORIDE
DWG	DRAWING	RGS	RIGID GALVANIZED STEEL
E	EXISTING	SCH	SCHEDULE
ELEC	ELECTRICAL	SHT	SHEET
FAA	FEDERAL AVIATION ADMINISTRATION	SWT	SWITCH
GALV	GALVANIZED	SYM	SYMMETRICAL
GFI	GROUND FAULT INTERRUPTER	SWBD	SWITCHBOARD
GND, G	GROUND	T	TRANSFORMER
HP	HORSEPOWER	TYP	TYPICAL
HTR	HEATER	UL	UNDERWRITER'S LABORATORY
HPS	HIGH PRESSURE SODIUM	UNO	UNLESS NOTED OTHERWISE
HT	HEIGHT	V	VOLTAGE
HV	HIGH VOLTAGE	W	WIRE
K	THOUSAND	WP	WEATHERPROOF
KCMIL	THOUSAND CIRCULAR MILS	W/	WITH
KV	KILOVOLTS	XFMR	TRANSFORMER
KVA	KILOVOLT-AMPERE		
KW	KILOWATT		
LTG	LIGHTING		
LV	LOW VOLTAGE		



ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NOT TO SCALE

NOTES:

1. PROVIDE NEW KWH DEMAND METER.
2. PROVIDE BREAKER SIZE AS NOTED TO MATCH EXISTING PANELBOARD COMPONENTS.
3. PROVIDE NEMA 3R JUNCTION BOX. SEE SHEET E-2 FOR LOCATION.
4. HIGH MAST LIGHTING (TYP. OF 3). SEE SHEET E-2 FOR LOCATIONS.

REVISIONS				
APPROVED	DATE	PREP BY	DESCRIPTION	SYMBOL

SATISFACTORY TO DATE

DIRECTOR DATE

APPROVED DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER L.G.
DRAFTER K.E.S.
CHECKER T. KAN
PROJ. LEADER C. DAVIS
FIRE PROT.
DESIGN MGR.
BRANCH MGR.

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
SINGLE LINE DIAGRAM AND LEGEND

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

GRAPHIC SCALES
NONE

REGISTERED PROFESSIONAL ENGINEER
KWOK WAI KAN
No. 9304
Exp. 9-30-05
ELECTRICAL
STATE OF CALIFORNIA

KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9750 Miramar Rd, Suite 180
San Diego, CA 92126-4561
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

CODE IDENT. NO. 80091
PROJECT NO.
A-E CONTR. NO. N68711-01-D-3017
CONSTR. CONTR. NO. N68711-01-C-
SPEC. 1101
NAVFAC DWG. NO.
SHEET 21 OF 23

E-1

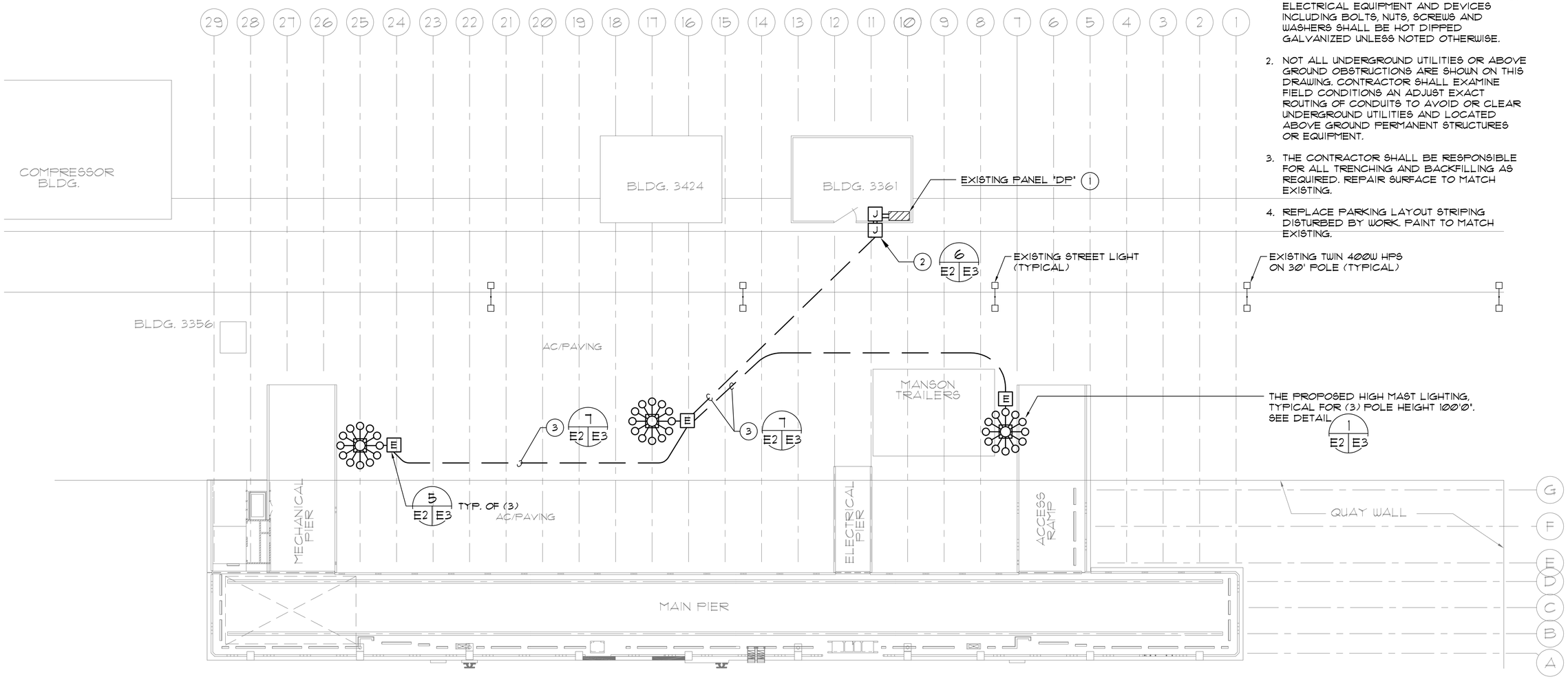
05-01-2002 100% CD

NOTES:

1. EXISTING PANEL 'DP', SEE SINGLE LINE DIAGRAM SHEET E-1.
2. PROVIDE NEMA 3R JUNCTION BOX 12"SQ. x 10" DEEP. CORE THROUGH WALL PER DETAIL 6 / E2 E3
3. PROVIDE 2"C. - 3#4 & 1#10 GND.

GENERAL NOTES:

1. ALL HARDWARE USED FOR INSTALLATION OF ELECTRICAL EQUIPMENT AND DEVICES INCLUDING BOLTS, NUTS, SCREWS AND WASHERS SHALL BE HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
2. NOT ALL UNDERGROUND UTILITIES OR ABOVE GROUND OBSTRUCTIONS ARE SHOWN ON THIS DRAWING. CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AN ADJUST EXACT ROUTING OF CONDUITS TO AVOID OR CLEAR UNDERGROUND UTILITIES AND LOCATED ABOVE GROUND PERMANENT STRUCTURES OR EQUIPMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING AND BACKFILLING AS REQUIRED. REPAIR SURFACE TO MATCH EXISTING.
4. REPLACE PARKING LAYOUT STRIPING DISTURBED BY WORK. PAINT TO MATCH EXISTING.



SITE ELECTRICAL PLAN

SCALE: 1' = 30'-0'

NORTH REFERENCE NORTH

GRAPHIC SCALES

0 15 30 60

1"=30'-0"

REGISTERED PROFESSIONAL ENGINEER KWOK WAI KAN No. 9304 Exp. 9-30-05 ELECTRICAL STATE OF CALIFORNIA

KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9750 Miramar Rd, Suite 180
San Diego, CA 92126-4561
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

REVISIONS

APPROVED	DATE	PREP BY	DESCRIPTION	SYMBOL

SATISFACTORY TO DATE

DIRECTOR DATE

APPROVED DATE

SW DIV FOR COMMANDER NAVFAC

DESIGNER	L.G.
DRAFTER	K.E.S.
CHECKER	T. KAN
PROJ. LEADER	C. DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO CALIFORNIA

MODIFICATIONS TO MOLE PIER SOUTH FOR SS CURTISS

NAVAL STATION - SAN DIEGO, CALIFORNIA

LIGHTING AND POWER PLAN

SIZE D

IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT– SCALE REDUCED ACCORDINGLY

CODE IDENT. NO. 80091

PROJECT NO.

A–E CONTR. NO. N68711–01–D–3017

CONSTR. CONTR. NO. N68711–01–C–

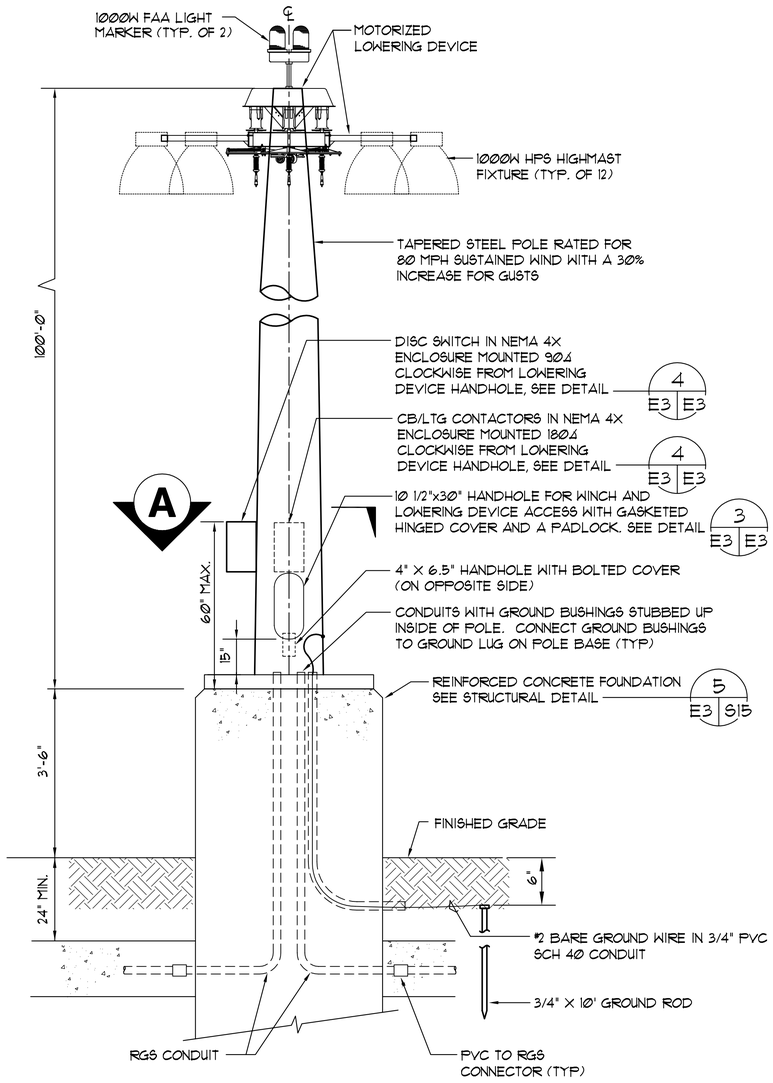
SPEC. 1101

NAVFAC DWG. NO.

SHEET 22 OF 23

E–2

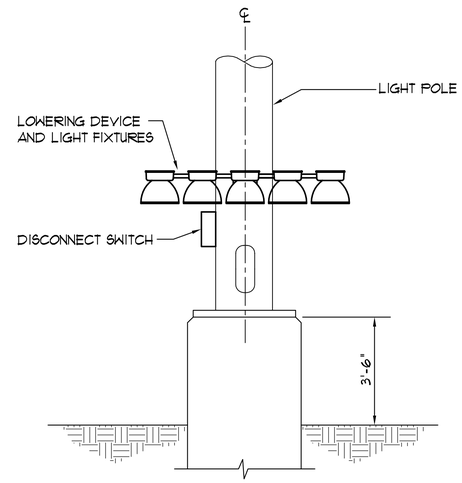
05-01-2002 10:04 AM



POLE BASE SECTION 'A'

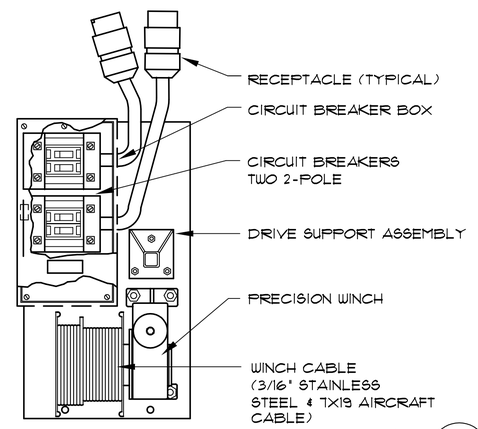
TYPICAL 100' LIGHT POLE ELEVATION 1 E3 E3

SCALE: NOT TO SCALE



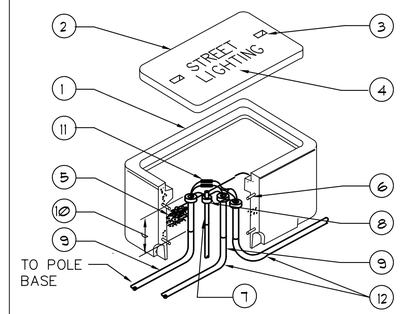
POLE ELEVATION - LIGHTS LOWERED 2 E3 E3

SCALE: NOT TO SCALE



LOWERING DEVICE CONNECTION DETAIL 3 E3 E3

SCALE: NOT TO SCALE

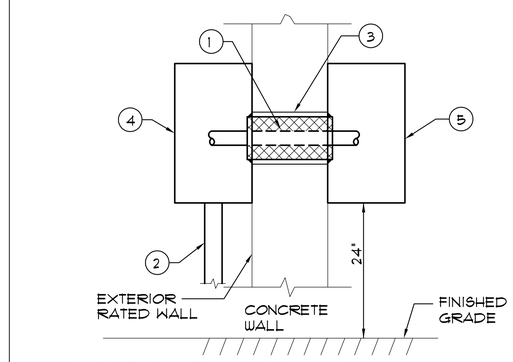


NOTES

1. PRECAST CONC. JUNCTION BOX. SET TOP FLUSH WITH TOP OF FINISHED GRADE, 14"X20" MIN. OUTSIDE DIMENSIONS.
2. FLUSH MOUNTED REINFORCED CONC. TRAFFIC COVER.
3. LIFTING EYE (2) REQUIRED (TYPICAL).
4. 1" HIGH LETTERING, PERMANENTLY STAMPED ON CONC. COVER.
5. PROVIDE 6" GRAVEL FILL BELOW BOTTOM OF BOX FOR DRAINAGE.
6. BOX REINFORCING
7. 3/4" DIA. X 10'-0" COPPER-CLAD GROUND ROD.
8. TYPICAL GROUND CONDUCTORS SHALL BE CLAMPED TO GROUND ROD.
9. U.G. PVC CONDUITS TO STREET LIGHTING FIXTURES.
10. STUB CONDUITS UP 6" ABOVE GRAVEL.
11. WATERPROOF 60A FUSE HOLDER ASSEMBLY WITH FUSES.
12. LIGHTING CIRCUIT, SEE PLANS.

ELECTRICAL PULLBOX DETAIL 5 E2 E3

SCALE: NOT TO SCALE

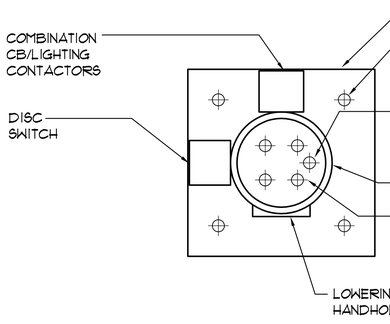


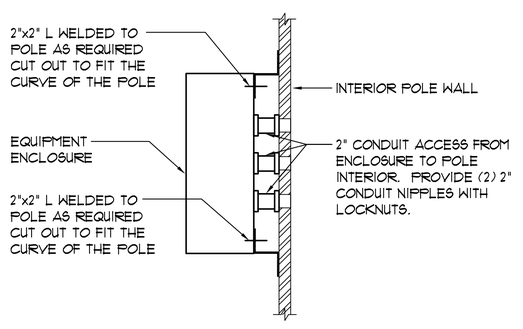
NOTES

1. RIGID STEEL SLEEVE SIZED FOR 3/4" MINIMUM SPACING AROUND CONDUIT. PACK WITH APPROVED FILL, VOID, OR CAVITY MATERIAL.
2. CONDUIT SIZE AS NOTED ON PLANS.
3. PACK WITH APPROVED FIRE STOP MATERIAL.
4. NEMA 3R JUNCTION BOX SIZE AS NOTED ON PLANS.
5. NEMA 1 JUNCTION BOX SIZE AS NOTED ON PLANS.

WALL PENETRATION DETAIL 6 E2 E3

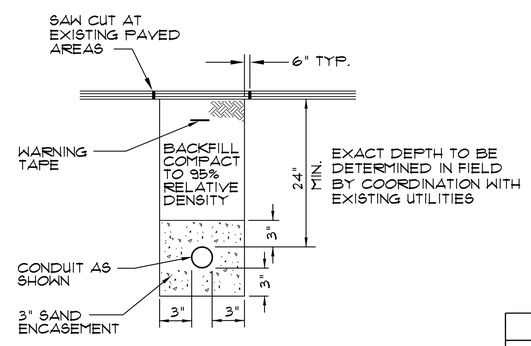
SCALE: NOT TO SCALE





EQUIPMENT ENCLOSURE INSTALLATION DETAIL 4 E3 E3

SCALE: NOT TO SCALE



TYPICAL DUCT SECTION 7 E2 E3

SCALE: NOT TO SCALE

REVISIONS				
APPROVED	DATE	PREP BY	DESCRIPTION	SYMBOL

SATISFACTORY TO — DATE
DIRECTOR — DATE
APPROVED — DATE
SW DIV FOR COMMANDER NAVFAC

DESIGNER	L.G.
DRAFTER	K.E.S.
CHECKER	T. KAN
PROJ. LEADER	C. DAVIS
FIRE PROT.	
DESIGN MGR.	
BRANCH MGR.	

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
SAN DIEGO — CALIFORNIA

MODIFICATIONS TO MOLE PIER
SOUTH FOR SS CURTISS
NAVAL STATION - SAN DIEGO, CALIFORNIA
ELECTRICAL DETAILS

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY

GRAPHIC SCALES
NONE

REGISTERED PROFESSIONAL ENGINEER — KWOK WAI KAN — No. 9304 — Exp. 9-30-05 — ELECTRICAL — STATE OF CALIFORNIA

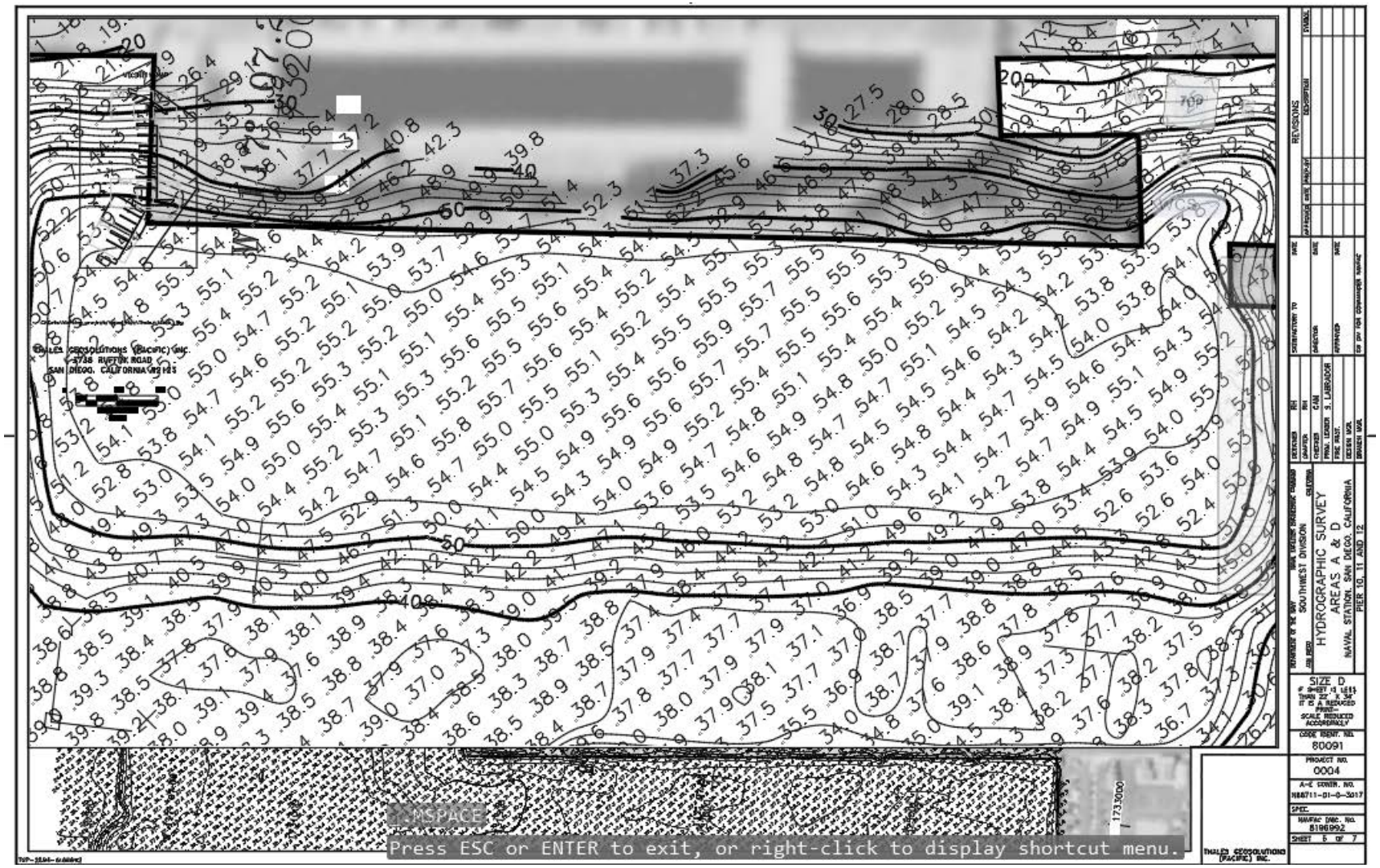
KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9750 Miramar Rd, Suite 180
San Diego, CA 92126-4561
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

CODE IDENT. NO.	80091
PROJECT NO.	
A-E CONTR. NO.	N68711-01-D-3017
CONSTR. CONTR. NO.	N68711-01-C-
SPEC.	1101
NAVFAC DWG. NO.	
SHEET	23 OF 23

E-3

05-01-2002 15:09 "CD"

2003 Hydro Survey



1. Component	FY 2002 MILITARY CONSTRUCTION PROGRAM	2. Date
NAVY		27 Feb 02

3. Installation And Location/UIC: N00245

NAVAL STATION SAN DIEGO

4. Project Title	7. Project Number
MODIFICATIONS TO MOLE PIER SOUTH	C45-02

(Continued)

REQUIREMENT:
Provide an adequate load-out berth for the SS Curtiss at the Naval Station in support of the relocation of SS Curtiss' surface port of embarkation/debarkation (SPOE/D). The SS Curtiss' draft, after fully loaded, cannot be accommodated at its lay berth at Pier 1 and must be moved to the South Mole Pier for load-out exercises and embarkation. The south side of mole pier requires additional fendering to support the SS Curtiss and other flat-hulled ships to prevent damage to ships or pier during mooring/berthing. Four additional buckling fenders and seven additional mooring bollards will be installed on the wharf and on two new mooring platforms adjacent to it. To facilitate load-out operations at night, high mast lighting will be installed.

CURRENT SITUATION:
The service wharf at the south side of mole pier was constructed in 1983 for the purpose of accommodating the "Steadfast" floating drydock. To support the drydock when submerged, a marginal wharf was added, at an elevation of +14 ft MLLW (Mean Lower Low Water), which is 2-3 feet higher than most piers at the Naval Station. In addition to construction of the service wharf, the mooring basin was dredged to a depth of –55 ft MLLW, to accommodate the draft of the floating drydock when submerged. Normal dredge depth at Naval Station piers varies from -30 to -37 ft MLLW. Because the Steadfast had its own fendering system while moored, no fendering was constructed on the wharf at that time.

Mole pier has access to all necessary utility connections. Water, compressed air, ships waste water, oily waste, salt water and communication and electrical lines are available along the wharf.

Following decommisioning of the Steadfast and its removal from the mole pier, operational requirements necessitated relocation of the Hughes Mining Barge (HMB), a different type of floating drydock which supports the Sea Shadow program, to the berth. The HMB had originally been berthed at NAS North Island, but was relocated to the Naval Station during construction of the CVN wharf at NASNI. However, because of the water depth required for submergence, the HMB continued to move to NASNI whenever it needed to submerge. This resulted in unsafe operating conditions and inefficient operations, and Naval Station determined that the HMB needed to move to Mole Pier South, the only location at the Naval Station which had sufficient water depth for submergence. Since the HMB does not have integral fendering, as did the Steadfast, a fendering system of four buckling fenders was installed on the service wharf. The project to construct fendering at the Mole Pier South to support the HMB was initiated in October 2000, funds for construction were obtained from NAVSEA in March 2001, and the construction was completed and accepted by the Navy (for beneficial occupancy) in November 2001. The appropriation used to fund this effort will expire at the end of fiscal year 2002.

The SS Curtiss provides support for Marine aviation in forward areas. The Curtiss can hold 300+ troops, as well as necessary maintenance equipment and parts for the Marine fixed-wing aircraft and helicopters. Loading the Curtiss, therefore, requires significant space for lay down areas, trucks and forklifts. Although the majority of staging will be performed at MCAS Miramar, the current lay berth for the SS Curtiss at Pier 1 has insufficient space for the local staging area required and vehicular loading equipment movement. This would lead to utilizing and blocking other activity areas and access roads. In addition, the water depth at Pier 1 is insufficient for the fully-loaded draft of the SS Curtiss. The only location at Naval Station San Diego which has sufficient area for intermediate staging and vehicle movement is the South Mole Pier.

1. Component **NAVY**	**FY 2002 MILITARY CONSTRUCTION PROGRAM**	2. Date **27 Feb 02**
3. Installation And Location/UIC: **N00245** **NAVAL STATION, SAN DIEGO**		
4. Project Title **MODIFICATIONS TO MOLE PIER SOUTH**		7. Project Number **C45-02**

(Continued)

The lay berth for the SS Curtiss was relocated to San Diego in 1999, to Pier 1 at the Naval Station. In April 2001, at the request of Marine Forces Pacific (MARFORPAC), the Commander Navy Region Southwest (CNRSW) commissioned a study to determine the feasibility of also relocating the surface port of embarkation/debarkation (SPOE/D) of SS Curtiss to San Diego. Since there is no other location at the Naval Station with sufficient water depth and intermediate staging area, the study focussed on the south side of the Mole Pier. This study was completed in December 2001, and presented the facility modifications necessary to accommodate the SS Curtiss at this location. The study determined that a portion of the fendering installed for the HMB could be incorporated into the fendering required by the SS Curtiss, but that additional fendering, as well as mooring platforms, mooring hardware, and high-mast lighting, would be required to accomplish the mission. At that time, the Commanding Officer of Naval Base San Diego gave this project one of the lowest priorities on the MILCON IPL (it exceeded the previous $500,000 threshold for minor construction), and there was no reasonable expectation that the project would be programmed over the next five years. On 8 Jan 02, ADM Fargo decided to grant the request to immediately relocate the SS Curtiss's SPOE/D berth to San Diego from Port Hueneme.

The south mole pier wharf will serve as the main/permanent berth for the Hughes Mining Barge, which would be relocated during the SS Curtiss' biennial load-out exercises, which last approximately 2 weeks. These two projects, the completed HMB project and the current SS Curtiss project, are driven by completely separate and unrelated requirements. The modifications to the mole pier in support of the HMB permanent siting was in support of SURFPAC's RDT&E Sea Shadow program operating requirements, and were exclusive to the requirements of HMB's mooring and ballasting/deballasting operations. Moving SS Curtiss' SPOE/D to Naval Base San Diego was a separate initiative that was driven by MARFORPAC, and resulted in the need for this current project.

AIS Data: Total Deficiency Cost per Installation Readiness Reporting System = $524,710
Replace Fender System Mole Pier South: $131,569
Repair Various Pier Signs: $50,010
Replace Fender System Mole Pier North: $343,131

BASEREP: C-2
Date facility constructed: 1983

IMPACT IF NOT PROVIDED:
The existing fendering system at the mole pier south is insufficient to berth the SS Curtiss without causing damage to the ship and structure. If this project is not provided, the SS Curtiss will not be able to conduct load-out exercises or operations at the Naval Station San Diego, and the SPOE/D will not be relocated to San Diego.

ADDITIONAL:

A. Facility Number: 359

B. Property Record Card Number: 202917

This page intentionally left blank.

APPENDIX B1

VIBRACORE LOGS AND GEOTECHNICAL REPORT

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Appendix B1

Vibracore Logs and Geotechnical Report

wood.

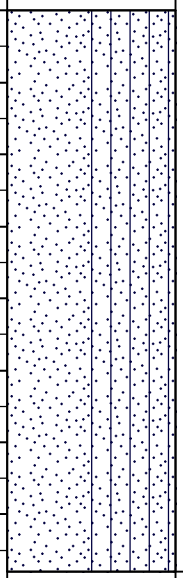
Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C1
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668453
Date:	6/8/2021	**Longitude:**	-117.124745
Time:	11:15	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	36.1	**Mudline Elevation (ft MLLW):**	-32.8
Tide (ft):	3.3	**Target Penetration (ft):**	6.2
Mudline Elevation (ft MLLW):	-32.8	**Actual Penetration (ft):**	6.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILTY SAND (SM)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 2.3' Core coloration is mottled to 1.0', mostly 10YR 3/4 but also contains 10Y 3/1. Gravel size particles = shell hash from 1.0' to 2.3' FDD-A-C1 from 0.0' to 5.2' FDD-A-C1-T from 0.0' to 4.2' Core is liquefied from 1.0' to 2.3'. Difficult to see layers from 1.0' to 2.3' Core is more consolidated after 2.3' FDD-A-C1-B from 4.2' to 5.2' Core appears less consolidated from 4.5' to 6.0'. Bottom is clayey
0.5						
1.0		**SILTY SAND WITH GRAVEL (SM)**	Dark Yellowish Brown	10YR 3/4		
1.5						
2.0						
2.5		**SAND WITH SILT AND CLAY (SP-SM)**				
3.0						
3.5						
4.0						
4.5						
5.0						FDD-A-C1-Z from 5.2' to 5.7'
5.5						
6.0						End at 6.2'
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: No plug. Refusal at 6.2'. Core barrel bent on retrieval. Core location shifted because boom obstructed proposed location. Core appears liquified because technician had to vibrate to extract. Actual core loction for FDD-A-C1 and FDD-A-C4 were swapped compared to the proposed sampling locations because of field miscommunication

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C1
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668452
Date:	6/8/2021	**Longitude:**	-117.124735
Time:	11:50	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	36.0	**Mudline Elevation (ft MLLW):**	-32.9
Tide (ft):	3.1	**Target Penetration (ft):**	6.1
Mudline Elevation (ft MLLW):	-32.9	**Actual Penetration (ft):**	5.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	3.9

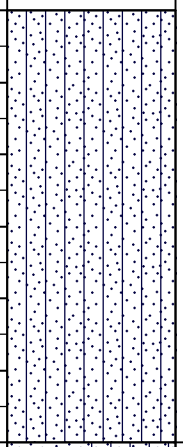
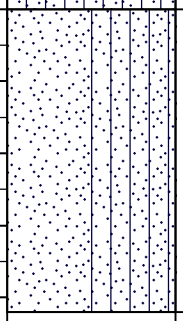
Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4	none	Core is sticky. Appears to be clean native formational material FDD-A-C1 from 0.0' to 3.9; FDD-A-C1-T from 0.0' to 3.1' Core is liquefied below 2.0' FDD-A-C1-B from 3.0' to 3.9' No Z layer sample collected.
4.0						End at 3.9' Refusal at 5.0'

0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Hard refusal at 5.0'; No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C1
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668449
Date:	6/8/2021	**Longitude:**	-117.12474
Time:	12:15	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.9	**Mudline Elevation (ft MLLW):**	-32.9
Tide (ft):	3.0	**Target Penetration (ft):**	6.1
Mudline Elevation (ft MLLW):	-32.9	**Actual Penetration (ft):**	5.1
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILTY SAND(SM)**	Very Dark Greenish Gray	10YR 3/1	none	Core is soft and less consolidated to 3.0'. Core is very homogeneous within the two layers of strata FDD-A-C1 from 0.0' to 5.1' FDD-A-C1-T from 0.0' to 4.1' Core appears more consolidated and native formational below 3.0'
3.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core dries below 3.0' FDD-A-C1-B from 4.1' to 5.1' No Z layer sample collected.
5.0						End at 5.1' Refusal at 5.1'

0.5, 1.0, 1.5, 2.0, 2.5, 3.5, 4.0, 4.5, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Hard refusal at 5.1': Small plug (sand with silt and clay)

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C1
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668445
Date:	6/8/2021	**Longitude:**	-117.12475
Time:	12:40	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.7	**Mudline Elevation (ft MLLW):**	-33.0
Tide (ft):	2.7	**Target Penetration (ft):**	6.0
Mudline Elevation (ft MLLW):	-33.0	**Actual Penetration (ft):**	5.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 1.1' FDD-A-C1 from 0.0' to 4.5' FDD-A-C1-T from 0.0' to 4.0' Core dries with depth Core is very consolidated and sticky below 1.1'
1.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
3.0						No Z-layer sample collected
4.0						FDD-A-C1-B from 4.0' to 4.5' (not collected) Core is liquefied below 4.1'
4.5						End at 4.5' Refusal at 5.0'

Additional Notes: Small clayey plug: Penetrated 5.0'; hard refusal
End of core is very liquefied
Core attempt collected for "top" sediment only

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C2
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668628
Date:	6/4/2021	**Longitude:**	-117.125205
Time:	09:25	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.8	**Mudline Elevation (ft MLLW):**	-33.3
Tide (ft):	2.5	**Target Penetration (ft):**	5.7
Mudline Elevation (ft MLLW):	-33.3	**Actual Penetration (ft):**	5.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10 Y 3/1	none	FDD-A-C2 from 0.0' to 4.7' Core is soft and homogeneous to 2.5' FDD-A-C2-T from 0.0' to 3.7'
2.5		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5 Y 4/1		Gravel = shell hash Shell hash size increases with depth FDD-A-C2-B from 3.7' to 4.7'
4.7		**SAND WITH SILT AND CLAY (SP-SM)**				FDD-A-C2-Z from 4.7' to 5.2' (overpenetration, discarded) Core is more native/formational below 4.7'
5.2						End at 5.2'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Penetration hard at 2.0'. No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C2
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668629
Date:	6/4/2021	**Longitude:**	-117.125207
Time:	09:45	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.7	**Mudline Elevation (ft MLLW):**	-33.4
Tide (ft):	2.3	**Target Penetration (ft):**	5.6
Mudline Elevation (ft MLLW):	-33.4	**Actual Penetration (ft):**	5.6
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.5		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C2 from 0.0' to 4.6' FDD-A-C2-T from 0.0' to 3.6' Core is soft and homogeneous to 2.4'
2.5 – 3.6		**SILTY SAND WITH SHELL HASH**	Dark Gray	2.5Y 4/1		Gravel = shell hash Shell hash increases in size with depth FDD-A-C2-B from 3.6' to 4.6' Core dries with depth
3.6 – 5.6		**SAND WITH SILT AND CLAY**	Dark Yellowish Brown	10YR 3/4		Core is very hard between 4.2' and 4.5' FDD-A-C2-Z from 4.6' to 5.1' Core appears native formational below 5.1' Overpentration; discard between 4.6' to 5.6'
5.6 – 10.0						End at 5.6'

Additional Notes: No refusal. Plug in catcher.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C2
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668626
Date:	6/4/2021	**Longitude:**	-117.125209
Time:	10:00	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.6	**Mudline Elevation (ft MLLW):**	-33.6
Tide (ft):	2.0	**Target Penetration (ft):**	5.4
Mudline Elevation (ft MLLW):	-33.6	**Actual Penetration (ft):**	5.3
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 2.0' FDD-A-C2 from 0.0' to 4.4' FDD-A-C2-T from 0.0' to 3.4'
2.0 – 2.2		**SILTY SAND (SM)**	Dark Gray	2.5Y 4/1		
2.2 – 3.8		**SILTY SAND WITH GRAVEL (SM)**				Gravel = shell hash Shell hash increases in size with depth Core dries with depth FDD-A-C2-B from 3.4' to 4.4'
3.8 – 4.9		**SAND WITH SILT AND SHELL HASH (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core appears native/formational below 3.8' FDD-A-C2-Z from 4.4' to 4.9' Overpenetration, discard 4.4' to 5.0'
5.0 – 10.0						End at 5.0' Refusal at 5.8'

Additional Notes: Sandy Plug. Refusal at 5.8'. There was wake during sampling so the measurement may be slightly off.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C2
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668633
Date:	6/4/2021	**Longitude:**	-117.125211
Time:	10:25	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	35.5	**Mudline Elevation (ft MLLW):**	-33.7
Tide (ft):	1.8	**Target Penetration (ft):**	5.3
Mudline Elevation (ft MLLW):	-33.7	**Actual Penetration (ft):**	5.3
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 2.0' FDD-A-C2 from 0.0' to 4.3' FDD-A-C2-T from 0.0' to 3.3' (tox + chem)
2.0		**SILTY SAND (SM)**				
2.5		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5Y 4/1		Gravel = shell hash FDD-A-C2-B from 3.3' to 4.3' (chem only) shell hash increases with depth
4.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-A-C2-Z from 4.3' to 4.8' (chem only) Core appears native/formational after 4.3' Overpenetration; discard 4.3' to 5.3'
5.5						End at 5.3'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Shifted 1 meter starboard. Attempt collected for additional volume to -35 ft MLLW only

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C3
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668373
Date:	6/4/2021	**Longitude:**	-117.125196
Time:	07:30	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.3	**Mudline Elevation (ft MLLW):**	-33.5
Tide (ft):	3.8	**Target Penetration (ft):**	5.5
Mudline Elevation (ft MLLW):	-33.5	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.5		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is less consolidated and soft to 2.0' FDD-A-C3 from 0.0' to 4.5' Shell Hash from 2.5' to 4.0' FDD-A-C3-T from 0.0' to 3.5'
2.5 – 4.0		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5Y 4/1		Gravel = shell hash Shell hash increases in size with depth Core is more consolidated and dry with depth FDD-A-C3-B from 3.5' to 4.5'
4.0 – 5.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core appears native/formational below 4.0' FDD-A-C3-Z from 4.5' to 5.0' Overpenetration; discarded 4.5' to 5.5'

Additional Notes: Hard at 4.5'; No refusal. Hard plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C3
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668369
Date:	6/4/2021	**Longitude:**	-117.125204
Time:	08:00	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.2	**Mudline Elevation (ft MLLW):**	-33.6
Tide (ft):	3.6	**Target Penetration (ft):**	5.4
Mudline Elevation (ft MLLW):	-33.6	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C3 from 0.0' to 4.4' Core is less consolidated and soft to 2.0' FDD-A-C3-T from 0.0' to 3.9'
0.5						
1.0						
1.5						
2.0		**SILTY SAND (SM)**				Shell hash from 2.0' to 4.0' Shell hash increases in size below 3.0'
2.5		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5Y 4/1		Core dries with depth
3.0						
3.5						FDD-A-C3-B from 3.4' to 4.4'
4.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core appears clean/native below 4.0'
4.5						FDD-A-C3-Z from 4.4' to 4.9' Overpenetration; discarded from 4.5' to 5.5'
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: No refusal. Felt hard at 4.5'; Hard plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C3
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668367
Date:	6/4/2021	**Longitude:**	-117.125192
Time:	08:20	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.0	**Mudline Elevation (ft MLLW):**	-33.6
Tide (ft):	3.4	**Target Penetration (ft):**	5.4
Mudline Elevation (ft MLLW):	-33.6	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C3 from 0.0' to 4.4' FDD-A-C3-T from 0.0' to 3.4' Core is soft and homogeneous to 2.0'
2.0 – 3.5		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5Y 4/1		Gravel = shell hash Shell hash increases in diameter with depth
3.5 – 5.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-A-C3-B from 3.5' to 4.4' Core appears clean/native below 3.5' FDD-A-C3-Z from 4.4' to 4.9' Overpenetration; discarded from 4.4' to 5.4'

Additional Notes: Shifted in towards port for attempt.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C3
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668377
Date:	6/4/2021	**Longitude:**	-117.125200
Time:	08:35	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	36.9	**Mudline Elevation (ft MLLW):**	-33.7
Tide (ft):	3.2	**Target Penetration (ft):**	5.3
Mudline Elevation (ft MLLW):	-33.7	**Actual Penetration (ft):**	5.3
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.5		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and homogeneous to 2.5' FDD-A-C3 from 0.0' to 4.3' FDD-A-C3-T from 0.0' to 3.3'
2.5 – 4.0		**SILTY SAND WITH GRAVEL (SM)**	Dark Gray	2.5Y 4/1		Gravel = shell hash Shell hash increases in diameter with depth Core dries with depth FDD-A-C3-B from 3.3' to 4.3' (chem only)
4.0 – 5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core appears native/formational below 4.0' FDD-A-C3-Z from 4.3' to 4.8' (chem only) Overpenetration; discard 4.3' to 5.3'
5.3 – 10.0						End at 5.3'

Additional Notes: Only collected for "top" volume. Separated in case Navy decides to dredge to -35 ft MLLW vs -36 ft MLLW. Hard plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.666947
Date:	6/7/2021	**Longitude:**	-117.127125
Time:	10:00	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	39.3	**Mudline Elevation (ft MLLW):**	-35.5
Tide (ft):	3.8	**Target Penetration (ft):**	3.5
Mudline Elevation (ft MLLW):	-35.5	**Actual Penetration (ft):**	4.7
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and homogeneous throughout FDD-A-C4 from 0.0' to 2.5' FDD-A-C4-T from 0.0' to 1.5' FDD-A-C4-B from 1.5' to 2.5'
2.5						FDD-A-C4-Z from 2.5' to 3.0'
3.5						Overpenetration; discarded from 2.5' to 4.2'
4.0						End at 4.2'
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Core went in straight. Plug fell out on removal.
*DEVIATION FROM SAP: FDD-A-C1 RELABELED FDD-A-C4

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667001
Date:	6/7/2021	**Longitude:**	-117.127159
Time:	10:20	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.6	**Mudline Elevation (ft MLLW):**	-33.9
Tide (ft):	3.7	**Target Penetration (ft):**	5.1
Mudline Elevation (ft MLLW):	-33.9	**Actual Penetration (ft):**	3.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	3.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C4 from 0.0' to 3.5' FDD-A-C4-T from 0.0' to 3.1' Core is less consolidated from 0.0' to 0.5'
0.5						
1.0						
1.5						
2.0		**SAND WITH SILT AND GRAVEL (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Gravel = shell hash
2.5						
3.0		**SAND WITH SILT AND CLAY (SP-SM)**				Core appears clean/native formational below 3.0'
3.5						FDD-A-C4-B from 3.1' to 3.5' End at 3.5' No Z layer sample collected (4.1' to 4.6')
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Shifted 3 meters back on starboard anchor to be closer to proposed point. Felt hard at 3.0'; Sand plug. Met refusal at 3.5'.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.667008
Date:	6/7/2021	**Longitude:**	-117.127154
Time:	10:40	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.5	**Mudline Elevation (ft MLLW):**	-34.0
Tide (ft):	3.5	**Target Penetration (ft):**	5.0
Mudline Elevation (ft MLLW):	-34.0	**Actual Penetration (ft):**	3.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	3.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C4 from 0.0' to 3.0' FDD-A-C4-T from 0.0' to 3.0' Core is soft and less consolidated to 1.7'
0.5						
1.0						
1.5						
2.0		**SILTY SAND WITH CLAY (SM)**	Dark Yellowish Brown	10YR 3/4		Core is stickier below 1.7' Appears clean/native formational below 1.7'
2.5						
3.0						End at 3.0' No Z layer sample collected (4.0' to 4.5') Refusal at 3.0'
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Refusal at 3.0'. Core penetration felt hard and then began to tip over.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.667002
Date:	6/7/2021	**Longitude:**	-117.127158
Time:	11:00	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.5	**Mudline Elevation (ft MLLW):**	-34.2
Tide (ft):	3.3	**Target Penetration (ft):**	4.8
Mudline Elevation (ft MLLW):	-34.2	**Actual Penetration (ft):**	4.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-A-C4 from 0.0' to 3.8' FDD-A-C4-T from 0.0' to 2.8' Core is soft and less consolidated to 2.6' Minor shell hash at 1.0'
2.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core is more consolidated below 2.8' FDD-A-C4-B from 2.8' to 3.8' Core appears clean/native formational below 2.6'
3.8						FDD-A-C4-Z from 3.8' to 4.3' Overpenetration; discarded from 3.8' to 4.5'
4.5						End at 4.5'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Refusal at 4.5'. Tipping.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	5
Logged and Sampled By:	KG	**Latitude:**	32.667009
Date:	6/7/2021	**Longitude:**	-117.127142
Time:	11:15	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.4	**Mudline Elevation (ft MLLW):**	-34.4
Tide (ft):	3.0	**Target Penetration (ft):**	4.6
Mudline Elevation (ft MLLW):	-34.4	**Actual Penetration (ft):**	4.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to FDD-A-C4 from 0.0' to 3.6' FDD-A-C4-T from 0.0' to 2.6' FDD-A-C4-B from 2.6' to 3.6'
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-A-C4-Z from 3.6' to 4.1' Core appears clean/native formational below 3.4' Overpenetration; discarded from 3.6' to 4.5'
4.5						End at 4.5'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Lots of chop/wake. Core entered 4.5' before refusal.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-A-C4
Project No.	3151187382.3	**Attempt Number:**	6
Logged and Sampled By:	KG	**Latitude:**	32.666999
Date:	6/7/2021	**Longitude:**	-117.127141
Time:	11:40	**Project Depth (ft MLLW):**	-38, -39 (w/Z-layer)
Water Depth (ft):	37.5	**Mudline Elevation (ft MLLW):**	-34.7
Tide (ft):	2.8	**Target Penetration (ft):**	4.3
Mudline Elevation (ft MLLW):	-34.7	**Actual Penetration (ft):**	4.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 4.0' FDD-A-C4 from 0.0' to 3.3' FDD-A-C4-T from 0.0' to 2.3'
0.5						
1.0						
1.5						
2.0						
2.5						Core appears native formational below 4.0' FDD-A-C4-B from 2.3' to 3.3'
3.0						
3.5						FDD-A-C4-Z from 3.3' to 3.8'
4.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Overpenetration/discarded from 3.3' to 4.5'
4.5						End at 4.5'
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Shifted approximately 1 meter starboard (South face). Sandy plug. Attempt collected for "top" volume only.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C1/FDD-C-C4
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.667896
Date:	6/8/2021	**Longitude:**	-117.123464
Time:	07:30	**Project Depth (ft MLLW):**	-39, -40(w/Z-layer)
Water Depth (ft):	-37.3	**Mudline Elevation (ft MLLW):**	-34.5
Tide (ft):	2.8	**Target Penetration (ft):**	5.5
Mudline Elevation (ft MLLW):	-34.5	**Actual Penetration (ft):**	6.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is very soft and homogeneous Core is sticky FDD-B-C1 from 0.0' to 4.5'
3.0		**SILTY SAND (SM)**				No transition layer no native formational material
3.5		**SILT (ML)**				no FDD-C-C4 recovered
4.5					mild	Minor shell hash FDD-B-C1/FDD-C-C4-Z from 4.5' to 5.0'
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		End at 5.4' No refusal Overpenetration; discarded from 4.0' to 4.5'
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Plug had chunks but was generally soft. Very mottled with clay lense at end.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C1/FDD-C-C4
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667912
Date:	6/8/2021	**Longitude:**	-117.123463
Time:	07:45	**Project Depth (ft MLLW):**	-39, -40(w/Z-layer)
Water Depth (ft):	37.5	**Mudline Elevation (ft MLLW):**	-34.5
Tide (ft):	3.0	**Target Penetration (ft):**	5.6
Mudline Elevation (ft MLLW):	-34.5	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	None	Core is very soft and homogeneous Core is sticky FDD-B-C1 from 0.0' to 4.5'
0.5						
1.0						
1.5						
2.0						No transition layer No native formational material in sample No FDD-C-C4 collected
2.5						
3.0		**SILTY SAND (SM)**				Minor shell hash from 3.0' to 4.0'
3.5					moderate	
4.0		**SILT (ML)**			None	
4.5						FDD-B-C1/FDD-C-C4-Z from 4.5' to 5.0' Overpenetration; discarded from 4.5' to 5.3'
		SILTY SAND (SM)				
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
5.5						End at 5.3' No refusal
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Soft plug with minor chunks of native formational material.
Core penetration soft to proposed depth. Plug is very mottled with clay lense at end.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C1/FDD-C-C4
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.667910
Date:	6/8/2021	**Longitude:**	-117.123453
Time:	08:00	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.6	**Mudline Elevation (ft MLLW):**	-34.3
Tide (ft):	3.3	**Target Penetration (ft):**	5.7
Mudline Elevation (ft MLLW):	-34.3	**Actual Penetration (ft):**	5.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C1 from 0.0' to 4.7' Core is soft and homogeneous
0.5						
1.0						
1.5						
2.0						
2.5						
3.0		**SILTY SAND (SM)**				No transition layer Minor shell hash from 3.0' to 4.0' No native formational material recovered
3.5						
4.0					moderate	No-FDD-C-C4 collected Moderate shell hash (worm tubes or byozoans?) from 3.8' to 4.2'
4.5		**SILT (ML)**				FDD-B-C1/FDD-C-C4-Z from 4.7' to 5.0'
5.0						End at 5.0' No refusal
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Soft plug with minor shell hash.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C2/FDD-C-C3
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668321
Date:	6/3/2021	**Longitude:**	-117.122612
Time:	11:15	**Project Depth (ft MLLW):**	-45, -46 (w/Z-layer)
Water Depth (ft):	36.3	**Mudline Elevation (ft MLLW):**	-35.6
Tide (ft):	0.7	**Target Penetration (ft):**	10.4
Mudline Elevation (ft MLLW):	-35.6	**Actual Penetration (ft):**	10.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	9.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core may be slightly compacted at surface
0.5						Core is very soft and homogeneous to 2.4'
						FDD-B-C2 from 0.0' to 3.2'
1.0						
1.5						
2.0		**SANDY SILT WITH CLAY (ML)**				Clay lense from 2.0' to 2.4'
2.5		**SAND WITH SILT (SP-SM)**				
3.0						
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C2/FDD-C-C3-T from 3.2' to 4.2' Transition layer
4.0						
4.5						
5.0						FDD-C-C3 from 3.2 to 9.3'
5.5						
6.0						
6.5						
7.0						
7.5						Core is more dense at depth
8.0						Core appears native formational after 3.2 feet.
						Core dries with depth
8.5						
9.0						
9.5						End at 9.3' Refusal at 10.2'
10.0						

Additional Notes: Sandy Plug

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C2/FDD-C-C3
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668329
Date:	6/3/2021	**Longitude:**	-117.122619
Time:	11:45	**Project Depth (ft MLLW):**	-45, -46 (w/Z-layer)
Water Depth (ft):	36.3	**Mudline Elevation (ft MLLW):**	-35.6
Tide (ft):	0.7	**Target Penetration (ft):**	10.4
Mudline Elevation (ft MLLW):	-35.6	**Actual Penetration (ft):**	10.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is softer and less consolidated to 2.5'
0.5						FDD-B-C2 from 0.0' to 2.5'
						Core is very homogeneous to 2.5'
1.0						
1.5		**SAND WITH CLAY (SP-SC)**				Clay chunk at 1.5'
2.0		**SILT WITH SAND (ML)**				
2.5		**SAND WITH CLAY (SP-SC)**	Dark Yellowish Brown	10YR 3/4		
3.0		**SAND WITH SILT AND CLAY (SP-SM)**				FDD-B-C2/FDD-C-C3-T from 2.5' to 3.5'
3.5						
4.0						FDD-C-C3 from 2.5' to 5.5'
4.5						
5.0						
5.5						End at 5.5' Refusal at 10.2'
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Sandy plug (half full). Refusal at 10.2': Probably entered some boring as last attempt (poor recovery)

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C2/FDD-C-C3
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668330
Date:	6/3/2021	**Longitude:**	-117.122609
Time:	12:05	**Project Depth (ft MLLW):**	-45, -46 (w/Z-layer)
Water Depth (ft):	37.2	**Mudline Elevation (ft MLLW):**	-36.5
Tide (ft):	0.7	**Target Penetration (ft):**	9.5
Mudline Elevation (ft MLLW):	-36.5	**Actual Penetration (ft):**	10.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	9.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and homogeneous to 4.1' (except at 3.5')
0.5						FDD-B-C2 from 0.0' to 5.0'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						Clay lense at 3.5'
4.0		**CLAY LENSE (CL)**				Clay lense from 4.1' to 4.3'
4.5		**SILT WITH SAND (ML)**				
		SAND WITH SILT (SP-SM)				No FDD-B-C2/FDD-C-C3-T sample
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
5.5						
6.0						Core dries with depth
6.5						Core is more consolidated Core appears native formational below 5.0'
7.0						FDD-C-C3 not collected (not needed)
7.5						
8.0						
8.5						
9.0						
9.5						End at 9.3' Refusal at 10.0'
10.0						

Additional Notes: Shifted barrel approximately 1 meter toward the stern. Small sandy plug.
Refusal at 10.0'.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C2/FDD-C-C3
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668327
Date:	6/3/2021	**Longitude:**	-117.122611
Time:	13:25	**Project Depth (ft MLLW):**	-45, -46 (w/Z-layer)
Water Depth (ft):	37.6	**Mudline Elevation (ft MLLW):**	-36.3
Tide (ft):	1.3	**Target Penetration (ft):**	9.7
Mudline Elevation (ft MLLW):	-36.3	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and homogeneous to 2.6'
0.5						FDD-B-C2 from 0.0' to 2.4'
1.0						
1.5						
2.0						
2.5		**CLAY LENSE (CL)**				
		SAND WITH SILT AND CLAY (SP-SM)	Dark Yellowish Brown	10YR 3/4		Core appears native formational below 2.6'
3.0						
3.5						No FDD-B-C2/FDD-C-C3-T sample
4.0						Core is more consolodated at 2.6'
						Core dries with depth
4.5						
5.0						Core is more consolidated at 2.6'
5.5						Core dries with depth
						No FDD-C-C3 sample retained
6.0						
6.5						End at 6.5'
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Only targeted 8.0' to retain upper layers (no native needed). No refusal. No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C3/FDD-D-C1
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668378
Date:	6/1/2021	**Longitude:**	-117.122403
Time:	08:00	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	37.9	**Mudline Elevation (ft MLLW):**	-37.3
Tide (ft):	0.63	**Target Penetration (ft):**	21.7
Mudline Elevation (ft MLLW):	-37.3	**Actual Penetration (ft):**	3.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	3.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is very homogeneous and less consolidated to 0.3'
0.5						FDD-B-C3 from 0.0' to 3.0'
1.0						
1.5						Shell hash from 2.5' to 3.0'
2.0						
2.5		**SILT WITH SAND (ML)**			mild	End at 3.0' No "T" layer
3.0						
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Soft plug. Core penetrated at 3.0', then started to tip over.
Felt "soft" to this depth. No native formational "D" layer in sample.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C3/FDD-D-C1
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668368
Date:	6/1/2021	**Longitude:**	-117.122371
Time:	08:35	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	37.4	**Mudline Elevation (ft MLLW):**	-37.1
Tide (ft):	0.3	**Target Penetration (ft):**	21.9
Mudline Elevation (ft MLLW):	-37.1	**Actual Penetration (ft):**	8.9
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is softer to 3.0' FDD-B-C3 from 0.0' to 3.1'
0.5						
1.0						
1.5						
2.0						
2.5		**SILT WITH SAND (ML)**				
3.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Mixed sample from 3.1' to 4.1' Core is less consolidated to 3.5' Core begins to consolidate at 3.5' FDD-B-C3/FDD-D-C1-T transition from 3.5 to 4.5' Distinct core transition from unconsolidated to native formational material at 3.5'
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						Core is more dry and consolidated with depth
7.5						
8.0						
8.5						End at 8.4' Hard refusal at 8.9' No plug
9.0						
9.5						
10.0						

Additional Notes: Shifted 2 meters towards quay wall. Soft penetration to 3.0'.
Hard stop at 8.9'. No plug

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C3/FDD-D-C1
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668354
Date:	6/1/2021	**Longitude:**	-117.122377
Time:	09:25	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	37.1	**Mudline Elevation (ft MLLW):**	-37.1
Tide (ft):	0.04	**Target Penetration (ft):**	21.9
Mudline Elevation (ft MLLW):	-37.1	**Actual Penetration (ft):**	8.9
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is less consolidated to 3.0' FDD-B-C3 from 0.0' to 3.1'
2.5		**SILT WITH SAND (ML)**	Very Dark Grayish Brown	10 YR 3/2		FDD-B-C3/FDD-D-C1-T from 3.1' to 4.1' Core is unconsolidated between 3.1' to 4.1'
4.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core is more dry and consolidated below 4.1' FDD-D-C1 from 4.1' to 7.1' Core mixed in transition due to liquefaction, so not included with "D" sample Core is very dry and homogeneous
7.0						End at 7.1' No plug Hard refusal

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Hard refusal at 8.9'.
Some sample lost on retrieval. No plug

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C3/FDD-D-C1
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668369
Date:	6/1/2021	**Longitude:**	-117.122384
Time:	10:00	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	37.2	**Mudline Elevation (ft MLLW):**	-37.2
Tide (ft):	-0.03	**Target Penetration (ft):**	21.8
Mudline Elevation (ft MLLW):	-37.2	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is consolidated above 1.8' FDD-B-C3 from 0.0' to 1.8'
1.8		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Transition layer from 1.8' to 2.8' No muddled top and bottom layer Core is more dry and compact below 1.8' Core looks clean/native formational below 1.8' FDD-D-C1 from 1.8' to 6.2'
6.2						End at 6.2' Refusal at 9.0'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Hard refusal at 9.0'. Soft penetration around 3.0'. Felt harder/more compact at approximately 5.5' to 6.0'. No plug. May have lost some sediment on top during retrieval, core not compacted.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C3/FDD-D-C1
Project No.	3151187382.3	**Attempt Number:**	5
Logged and Sampled By:	KG	**Latitude:**	32.668364
Date:	6/1/2021	**Longitude:**	-117.122362
Time:	10:20	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	37.4	**Mudline Elevation (ft MLLW):**	-37.3
Tide (ft):	0.07	**Target Penetration (ft):**	21.7
Mudline Elevation (ft MLLW):	-37.3	**Actual Penetration (ft):**	6.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Less consolidated from 0.0' to 3.0'
0.5						FDD-B-C3 from 0.0' to 2.6'
1.0						
1.5						
2.0						
2.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Transition at 2.6'
3.0						FDD-B-C3/FDD-D-C1-T from 2.6' to 3.6'
3.5						
4.0						
4.5						
						Gap from 4.7' to 5.9'
5.0						No FDD-D-C1 collected (not needed)
5.5						
6.0						Sand is more fine from 6.0' to 6.3'
6.5						End at 6.3'
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: No "D" sample because none needed. No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C4/FDD-D-C5
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668504
Date:	6/2/2021	**Longitude:**	-117.119889
Time:	09:15	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	53.4	**Mudline Elevation (ft MLLW):**	-52.6
Tide (ft):	0.8	**Target Penetration (ft):**	6.4
Mudline Elevation (ft MLLW):	-52.6	**Actual Penetration (ft):**	6.9
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.7

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Sample is very homogeneous Core is very soft to 3.4'
0.5						
1.0						
1.5			Very Dark Gray	10YR 3/1		
2.0						
2.5						
3.0						
3.5		**SAND WITH SILT (SP-SM)**				
		SILT (ML)				No D-sample (no native formational layer)
		SAND WITH SILT (SP-SM)				
4.0		**SILT (ML)**				
4.5						
5.0						
5.5						FDD-B-C4/FDD-D-C5-Z from 5.4' to 5.9' Overpenetration; discard (5.4' to 6.7')
6.0						
6.5						
7.0						End at 6.7' No refusal
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Hard refusal at 6.9'. Overpenetrated to ensure core retrieval. Soft plug. Fell out when pulled at deck. Composed entirely of recent deposits. No native layer retrieved

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C4/FDD-D-C5
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668504
Date:	6/2/2021	**Longitude:**	-117.119867
Time:	09:55	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	53.0	**Mudline Elevation (ft MLLW):**	-52.4
Tide (ft):	0.6	**Target Penetration (ft):**	6.6
Mudline Elevation (ft MLLW):	-52.4	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is all "recent deposits" No native formational sediment Core is very homogeneous FDD-B-C4 from 0.0' to 5.6'
1.5			Very Dark Gray	10YR 3/1		
5.5						FDD-B-C4/FDD-D-C5-Z from 5.6' to 6.1' Over penetration; discard from 5.6' to 8.2'
7.0		**SAND WITH SILT (SP-SM)**				
7.5		**SILT (ML)**				
		SANDY SILT WITH SHELL HASH (ML)	Very Dark Greenish Gray	10Y 3/1		Very dry fine sand at 7.8'
8.0		**SAND (SP)**	Very Dark Gray	10YR 3/1		
						End at 8.2' No refusal

Additional Notes: Attempted to find native at this site. Soft plug, fell out on retrieval. No native formational material to 9.0' below SWI

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C5/FDD-C-C5
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668027
Date:	6/3/2021	**Longitude:**	-117.122563
Time:	09:35	**Project Depth (ft MLLW):**	-46 (-47 w/Z-layer)
Water Depth (ft):	36.4	**Mudline Elevation (ft MLLW):**	-34.9
Tide (ft):	1.5	**Target Penetration (ft):**	12.1
Mudline Elevation (ft MLLW):	-34.9	**Actual Penetration (ft):**	9.8
Temp/Wind:	N/A	**Recovered Core Length (ft):**	9.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is very soft and homogeneous to 4.6'
0.5						FDD-B-C5 from 0.0' to 5.1'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						Clay lense from 4.2' to 4.6'
4.5		**SAND WITH SILT (SP-SM)**				
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C5/FDD-C-C5-T from 5.1' to 6.1'
5.5						Core dries with depth
6.0						Core appears clean/native formational below 5.1'
6.5						FDD-C-C5 from 5.1' to 9.1'
7.0						
7.5						
8.0						End of core seems to have slightly coarser grained sand and a little gravel
8.5						
9.0						End at 9.1' Refusal at 9.8'
9.5						
10.0						

Additional Notes: Refusal at 9.8'. No plug

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C5/FDD-C-C5
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668028
Date:	6/3/2021	**Longitude:**	-117.122564
Time:	10:05	**Project Depth (ft MLLW):**	-46 (-47 w/Z-layer)
Water Depth (ft):	36.7	**Mudline Elevation (ft MLLW):**	-35.5
Tide (ft):	1.2	**Target Penetration (ft):**	11.5
Mudline Elevation (ft MLLW):	-35.5	**Actual Penetration (ft):**	9.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 3.3		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C5 from 0.0' to 3.3' Core is very homogeneous and soft to 3.3'
3.3 – 7.3		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C5/FDD-C-C5-T from 3.3' to 4.3' Core appears clean/native formational below 3.3' Core compacts and dries with depth FDD-C-D-C5 from 3.3' to 7.3'
7.3 – 10.0						End at 7.3' Refusal at 9.5'

Additional Notes: Hard refusal at 9.5'. No plug. Possibly entered first attempt boring (missing 2' of recovery).

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C5/FDD-C-C5
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668045
Date:	6/3/2021	**Longitude:**	-117.122562
Time:	10:20	**Project Depth (ft MLLW):**	-46 (-47 w/Z-layer)
Water Depth (ft):	36.1	**Mudline Elevation (ft MLLW):**	-35.1
Tide (ft):	1.0	**Target Penetration (ft):**	11.9
Mudline Elevation (ft MLLW):	-35.1	**Actual Penetration (ft):**	9.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and very homogeneous to 3.5' FDD-B-C5 from 0.0' to 3.5'
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Mottled slightly between 3.5' to 3.7' FDD-B-C5/FDD-C-C5-T from 3.7' to 4.4' FDD-C-C5 from 3.5' to 8.4' Core dries with depth Core is very homogeneous below 3.5' Core appears native formational below 3.5' Core has minor gravel below 8.0'
8.5						End at 8.4' Refusal at 9.5'

0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 9.0, 9.5, 10.0

Additional Notes: Shifted 1 meter starboard. Core felt harder to penetrate after 4'. Hard refusal at 9.5'. No plug

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C6
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668166
Date:	6/3/2021	**Longitude:**	-117.121993
Time:	07:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	56.1	**Mudline Elevation (ft MLLW):**	-53.1
Tide (ft):	3.0	**Target Penetration (ft):**	5.9
Mudline Elevation (ft MLLW):	-53.1	**Actual Penetration (ft):**	6.9
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C6 from 0.0' to 4.9' Core is soft and very homogeneous to 4.6'
0.5						
1.0						
1.5						
2.0						
2.5						
3.0		**SAND WITH SILT (SP-SM)**				
3.5		**SILT WITH SAND (ML)**				
4.0						
4.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core looks clean/native formational below 4.6'
5.0						
5.5						Bottom of core at 4.9' FDD-B-C6-Z from 4.9' to 5.4'
6.0						Overpenetration; discard from 4.9' to 6.9'
6.5						
7.0						End of Sample at 4.9' Refusal at 6.9'
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Penetration felt hard at about 5.9'. Overpenetrated to achieve core plug/determine depth of native layer at this site.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C6
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668169
Date:	6/3/2021	**Longitude:**	-117.121987
Time:	08:40	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	55.7	**Mudline Elevation (ft MLLW):**	-53.4
Tide (ft):	2.3	**Target Penetration (ft):**	5.6
Mudline Elevation (ft MLLW):	-53.4	**Actual Penetration (ft):**	6.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C6 from 0.0' to 4.6'
0.5						Core is very soft and homogeneous to 3.2'
1.0						
1.5						
2.0						
2.5						
3.0		**SAND WITH SILT (SP-SM)**				Core striated below 3.2'
3.5		**SILT WITH CLAY (ML)**	Dark Yellowish Brown	10YR 3/4		Core dries and consolidates with depth
		SAND WITH SILT (SP-SM)	Very Dark Greenish Gray	10Y 3/1		
4.0		**SILT WITH CLAY (ML)**	Dark Yellowish Brown	10YR 3/4		
4.5		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1		End of sample at 4.6' FDD-B-C6-Z from 4.6' to 5.1'
5.0		**SAND WITH SILT (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Overpenetration; discard from 4.6' to 5.4'
5.5						End of core at 5.4'
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Had to reset stern anchor for site (came loose). Overpenetrated to get plug. Plug lost on retrieval. No refusal.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C6
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668168
Date:	6/3/2021	**Longitude:**	-117.12198
Time:	09:00	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	55.3	**Mudline Elevation (ft MLLW):**	-53.3
Tide (ft):	2.0	**Target Penetration (ft):**	5.7
Mudline Elevation (ft MLLW):	-53.3	**Actual Penetration (ft):**	6.1
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C6 from 0.0' to 4.7'
0.5						Core is very soft and homogeneous to 2.9'
1.0						
1.5						
2.0						
2.5						
3.0		**SAND WITH SILT (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core striated below 2.9'
3.5		**SAND WITH SILT AND CLAY (SP-SM)**				
4.0		**SAND WITH SILT (SP-SM)**				
4.5		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1		End of sample at 4.7'
5.0		**SAND WITH SILT (SP-SM)**				FDD-B-C6-Z from 4.7' to 5.2' Overpenetration; discard from 4.7' to 5.4'
5.5						End at 5.4'
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: No plug. Overpenetrated at approximately 0.4'. No refusal.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C7/FDD-D-C2
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.667888
Date:	6/1/2021	**Longitude:**	-117.122153
Time:	11:05	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	-38.4	**Mudline Elevation (ft MLLW):**	-38.1
Tide (ft):	0.3	**Target Penetration (ft):**	20.9
Mudline Elevation (ft MLLW):	-38.1	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C7 from 0.0' to 3.5' Sand content increases with depth
0.5						
1.0						
1.5						
2.0						
2.5						
3.0		**SILT WITH SAND (ML)**				
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C7/FDD-D-C2-T from 3.5' to 4.5' Clean transition from unconsolidated to consolidated at 3.5'
4.0						
4.5						Core is very dry and homogeneous below 3.5'
		CLAY LENSE (CL)				
5.0		**SAND WITH SILT AND CLAY (SP-SM)**				
5.5						
6.0						FDD-D-C2 from 3.5' to 8.1'
6.5						
7.0						
7.5						
8.0						End at 8.1' Refusal at 9.0'
8.5						
9.0						
9.5						
10.0						

Additional Notes: No plug. Hard refusal at 9.0'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C7/FDD-D-C2
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667891
Date:	6/1/2021	**Longitude:**	-117.12216
Time:	11:40	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	39	**Mudline Elevation (ft MLLW):**	-38.4
Tide (ft):	0.63	**Target Penetration (ft):**	20.6
Mudline Elevation (ft MLLW):	-38.4	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is softer and less consolidated to 3.5' Sand increases with depth FDD-B-C7 from 0.0' to 3.5'
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Clear transition at 3.5' FDD-B-C7/FDD-D-C2-T from 3.5' to 4.5'
4.5		**CLAY LENSE (CL)**				Core is very hard and dry from 4.5' to 5.0'
5.0		**SAND WITH SILT AND CLAY (SP-SM)**				Core is very homogeneous and appears native formational below 3.5' FDD-D-C2 from 3.5' to 6.3' Core is very dry and consolidated below 3.5'
6.5						End at 6.3' Hard refusal at 7.0'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Hard plug. Refusal at 7.0'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C7/FDD-D-C2
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.667886
Date:	6/1/2021	**Longitude:**	-117.122153
Time:	12:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	39.6	**Mudline Elevation (ft MLLW):**	-38.1
Tide (ft):	1.5	**Target Penetration (ft):**	20.9
Mudline Elevation (ft MLLW):	-38.1	**Actual Penetration (ft):**	8.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C7 from 0.0 to 2.8'
0.5						Core is soft to 2.8'
1.0						
1.5						
2.0						Shell hash from 2.1' to 2.2'
2.5						
3.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C7/FDD-D-C2-T from 2.8' to 3.8'
						Core appears native formational after 2.8'
3.5						FDD-D-C2 from 2.8' to 4.8'
						Core is more dry and consolidated
4.0						
4.5		**CLAY LENSE (CL)**				Hard lithofied plug (clay)
5.0						End at 4.8' Refusal at 8.0'
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Hard Plug. Hard refusal at 8.0'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C7/FDD-D-C2
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.667887
Date:	6/1/2021	**Longitude:**	-117.122154
Time:	13:15	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	40.4	**Mudline Elevation (ft MLLW):**	-38.3
Tide (ft):	2.1	**Target Penetration (ft):**	20.7
Mudline Elevation (ft MLLW):	-38.3	**Actual Penetration (ft):**	6.9
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C7 from 0.0' to 3.8' Sand increases with Depth
3.8		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C7/FDD-D-C2-T from 3.8' to 4.8' Core is more consolidated and dry with depth
5.0		**CLAY LENSE (CL)**				Dense consolidatd clay lense from 5.0' to 5.3'
5.3		**SAND WITH SILT AND CLAY (SP-SM)**				No FDD-D-C2 collected (not needed) Core appears native formational below 3.8'
7.0						End at 6.9' No refusal attempted

Additional Notes: No-FDD-D-C2 (not needed). Sandy plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C8/FDD-D-C3
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.667946
Date:	6/1/2021	**Longitude:**	-117.121102
Time:	14:00	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	-41.3	**Mudline Elevation (ft MLLW):**	-38.6
Tide (ft):	2.7	**Target Penetration (ft):**	20.4
Mudline Elevation (ft MLLW):	-38.6	**Actual Penetration (ft):**	8.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 3.1' FDD-B-C8 from 0.0' to 3.8'
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						Sand grains are medium to coarse from 3.3' to 4.5' FDD-B-C8/FDD-D-C3-T from 3.8' to 4.8' Transition layer FDD-D-C3 from 3.8' to 6.3'
4.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
4.5						Sand is more fine after 4.5'
5.0						
5.5		**CLAY LENSE (CL)**				Dry clay lense at 5.4'
		SAND WITH SILT AND CLAY (SP-SM)				Core is more consolidated/native formational and dry below 3.8'
6.0						
6.5						End at 6.3' Refusal at 8.0'
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Hard refusal at 8.0'. Hard plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C8/FDD-D-C3
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667942
Date:	6/1/2021	**Longitude:**	-117.121094
Time:	14:30	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	41.7	**Mudline Elevation (ft MLLW):**	-38.5
Tide (ft):	3.2	**Target Penetration (ft):**	20.5
Mudline Elevation (ft MLLW):	-38.5	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C8 from 0.0' to 1.9'
0.5						
1.0						
1.5						
2.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C8/FDD-D-C3-T from 1.9' to 2.9' Transition layer
2.5						Core appears native formational below 1.9'
						FDD-D-C3 from 1.9' to 4.5'
3.0						
3.5						
4.0						Sand is more fine below 4.0' Core dries with depth
4.5						End at 4.5' Refusal at 7.0'
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Small sandy plug. Slow at 5.0', refusal at 7.0'. No recovery below 4.5'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C8/FDD-D-C3
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.667956
Date:	6/1/2021	**Longitude:**	-117.121096
Time:	14:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	42.4	**Mudline Elevation (ft MLLW):**	-38.9
Tide (ft):	3.5	**Target Penetration (ft):**	20.1
Mudline Elevation (ft MLLW):	-38.9	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is softer and less consolidated to 3.1' FDD-B-C8 from 0.0' to 2.1'
2.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C8/FDD-D-C3-T from 2.1' to 3.1' Transition layer Core is denser/more consolidated below 2.1' Core dries with depth Core appears native formational below 3.1' FDD-D-C3 from 2.1' to 5.2' Unconsolidated (liquefied) from 4.5' to 4.9'
5.0						End at 5.2' Refusal at 7.0'
10.0						

Additional Notes: Refusal at 7.0' (hard). No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C8/FDD-D-C3
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.667955
Date:	6/1/2021	**Longitude:**	-117.121116
Time:	15:20	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	42.8	**Mudline Elevation (ft MLLW):**	-38.9
Tide (ft):	3.9	**Target Penetration (ft):**	20.1
Mudline Elevation (ft MLLW):	-38.9	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.7

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is less consolidated to 0.7'
0.5						FDD-B-C8/FDD-D-C3-T from 0.7' to 1.7'
		SAND WITH SILT AND CLAY (SP-SM)	Dark Yellowish Brown	10YR 3/4		FDD-D-C3 from 0.7' to 8.7'
1.0						
1.5						
2.0						
2.5						Core dries with depth
3.0						
3.5						
4.0						
4.5						
5.0						Core is more consolidated with depth
5.5						
6.0						
6.5						Core appears native formational below 0.7'
7.0						
7.5						
8.0						
8.5						
9.0						End at 8.7' No refusal
9.5						
10.0						

Additional Notes: Went to top of core barrel; no refusal. Likely entered same hole. Core nearly all native formational sediments.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C8/FDD-D-C3
Project No.	3151187382.3	**Attempt Number:**	5
Logged and Sampled By:	KG	**Latitude:**	32.667958
Date:	6/1/2021	**Longitude:**	-117.121111
Time:	15:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	43.6	**Mudline Elevation (ft MLLW):**	-39.4
Tide (ft):	4.2	**Target Penetration (ft):**	19.6
Mudline Elevation (ft MLLW):	-39.4	**Actual Penetration (ft):**	5.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.5		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C8 from 0.0' to 2.5' Core is softer and less consolidated to 2.5' Core is very homogeneous
2.5 – 4.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C8/FDD-D-C3-T from 2.5' to 3.5' Core dries and is more consolidated with depth No FDD-D-C3 collected (not needed)
4.5						End at 4.6' No refusal

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Shifted 1 meter towards pier. Slowed down and stopped, did not wait for refusal because no more FDD-D-C3 needed.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C9
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668201
Date:	6/2/2021	**Longitude:**	-117.120495
Time:	13:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	-54.5	**Mudline Elevation (ft MLLW):**	-52.5
Tide (ft):	2.0	**Target Penetration (ft):**	6.5
Mudline Elevation (ft MLLW):	-52.5	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	8.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and very homogeneous to 4.7'
0.5						FDD-B-C9 from 0.0' to 5.5'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5						
5.0		**SAND WITH SILT (SP-SM)**				
5.5						FDD-B-C9-Z from 5.5' to 6.6'
6.0			Olive Gray	5Y 5/2		Overpenetration; discard from 5.5' to 8.8'
6.5						Gravel = shell hash
7.0		**SAND WITH SILT AND CLAY (SP-SM)**				
7.5		**SAND WITH SILT (SP-SM)**				
8.0						
8.5		**SAND WITH SILT AND GRAVEL (SP-SM)**				
9.0						End at 8.8' No refusal
9.5						
10.0						

Additional Notes: Shell hash plug. Core started to slow but did not stop.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C9
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668209
Date:	6/2/2021	**Longitude:**	-117.120491
Time:	14:05	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	54.8	**Mudline Elevation (ft MLLW):**	-52.4
Tide (ft):	2.4	**Target Penetration (ft):**	6.6
Mudline Elevation (ft MLLW):	-52.4	**Actual Penetration (ft):**	6.6
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 4.4'
0.5						Core is very homogeneous
						FDD-B-C9 from 0.0' to 5.6'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						
4.0						
4.5		**SAND WITH SILT (SP-SM)**	Olive Gray	5Y 5/2		
						Large 0.3' piece of gravel at 4.6'
5.0						Very minor shell hash below 4.4'
5.5						FDD-B-C9-Z from 5.4' to 5.9'
6.0						End at 5.9'
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: No refusal, small plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C9
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668224
Date:	6/2/2021	**Longitude:**	-117.120498
Time:	14:30	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	55.2	**Mudline Elevation (ft MLLW):**	-52.5
Tide (ft):	2.7	**Target Penetration (ft):**	6.5
Mudline Elevation (ft MLLW):	-52.5	**Actual Penetration (ft):**	6.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and homogeneous to 4.5' FDD-B-C9 from 0.0' to 5.5'
4.5		**SAND WITH SILT (SP-SM)**				Core appears more native formational below 4.5'
5.5						FDD-B-C9-Z from 5.5' to 6.0'
6.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10Y 3/4		Overpenetration; discard from 5.5' to 6.3'
6.3						End at 6.3' No refusal

0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: No refusal

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C10/FDD-D-C6
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668110
Date:	6/2/2021	**Longitude:**	-117.119827
Time:	10:35	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	43.0	**Mudline Elevation (ft MLLW):**	-42.6
Tide (ft):	0.4	**Target Penetration (ft):**	16.4
Mudline Elevation (ft MLLW):	-42.6	**Actual Penetration (ft):**	8.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	9.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft to 4.3' and is very homogeneous
0.5						FDD-B-C10 from 0.0' to 4.7'
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						Core is mostly water between 3.3' to 4.3'
4.0						
4.5		**SAND WITH SILT (SP-SM)**	Very Dark Gray	10YR 3/1		
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		FDD-B-C10/FDD-D-C6-T from 4.7' to 5.7' Transition layer
5.5						FDD-D-C6 from 4.7' to 8.5'
6.0						Core is very homogeneous below 4.7'
6.5						Sand is very fine
7.0						Core appears native formational below 4.7'
						Core dries with depth and consolidates
7.5						
8.0						
8.5						End at 8.5' Refusal at 9.0'
9.0						
9.5						
10.0						

Additional Notes: Refusal at 9.0'. No plug. Slow penetration to refusal.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C10/FDD-D-C6
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668113
Date:	6/1/2021	**Longitude:**	-117.119834
Time:	11:15	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	42.6	**Mudline Elevation (ft MLLW):**	-42.2
Tide (ft):	0.4	**Target Penetration (ft):**	16.8
Mudline Elevation (ft MLLW):	-42.2	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core likely true to length Very unconsolidated All recent deposits FDD-B-C10 from 0.0' to 5.3'
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						Clay lense at 3.4'
4.0		**SILTY SAND (SM)**				Gravel at 4.0'
4.5						Sand is coarse 0.2' piece of gravel (photo)
5.0						No FDD-D-C6 sample for this attempt Cobble at 5.0'
5.5						End at 5.3' Refusal at 9.0'
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Hit refusal but no plug. Core appears to be all unconsolidated material. Likely went in the same hole. Retained core for "B-C10" sample. No transition. No "D-sample". Moving vessel for next attempt.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C10/FDD-D-C6
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668131
Date:	6/2/2021	**Longitude:**	-117.119829
Time:	11:35	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	44.5	**Mudline Elevation (ft MLLW):**	-44.1
Tide (ft):	0.42	**Target Penetration (ft):**	14.9
Mudline Elevation (ft MLLW):	-44.1	**Actual Penetration (ft):**	9.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is very homogeneous Core is soft to 4.6' FDD-B-C10 from 0.0' to 4.6'
4.5		**SAND WITH SILT AND CLAY (SP-SM)**	Very Dark Gray	10YR 3/1		FDD-B-C10/FDD-D-C6-T from 4.6' to 5.6' Transition layer Sand is very fine below 4.7' Very consolidated and dense Sand dries with depth FDD-D-C6 from 4.6' to 7.4'
7.5						End at 7.4' Refusal at 9.0'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Moved approximately 1 meter North towards pier. Refusal at 9.0'.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C10/FDD-D-C6
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668137
Date:	6/2/2021	**Longitude:**	-117.119837
Time:	12:00	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	44.7	**Mudline Elevation (ft MLLW):**	-44.1
Tide (ft):	0.6	**Target Penetration (ft):**	14.3
Mudline Elevation (ft MLLW):	-44.1	**Actual Penetration (ft):**	9.3
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1	none	No "B" (unconsolidated) sample collected (not needed) Core is soft and homogeneous to FDD-B-C10 from 0.0' to 4.8' Medium grained sand
2.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
2.5		**SILT WITH SAND ((ML)**	Very Dark Greenish Gray	10Y 3/1		
4.8		**SAND WITH SILT (SP-SM)**	Very Dark Gray	10YR 3/1		FDD-B-C10/FDD-D-C6-T from 4.8' to 5.5' Medium grained sand from 4.8' to 5.5'
5.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Sand is very fine from 5.5' to 7.4' FDD-D-C6 from 4.8' to 7.4'
6.7		**SAND WITH SILT, CLAY AND GRAVEL (SP-SM)**				Gravel is approximately 0.1' in size
7.4						End at 7.4' Refusal at 9.3'

Additional Notes: "Easy" penetration to last foot before refusal at 9.3'.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668279
Date:	6/4/2021	**Longitude:**	-117.123329
Time:	11:45	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	36.9	**Mudline Elevation (ft MLLW):**	-35.8
Tide (ft):	1.1	**Target Penetration (ft):**	4.2
Mudline Elevation (ft MLLW):	-35.8	**Actual Penetration (ft):**	4.7
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.7

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10YR 3/1	none	Core is soft and less consolidated to 4.2' FDD-B-C11 from 0.0' to 3.2' *Added sample B-C11 because core has no native formational layers Clam at 2.7'
3.5						FDD-B-C11-Z from 3.2' to 3.7' Overpenetration; discard from 3.2' to 4.7'
4.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		Core dries with depth Core appears clean/native formational below 3.8'
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Sandy Plug. See log FDD-C-C2 attempt 1 for notes. Photos say FDD-C-C2 attempt 1 changed to FDD-B-C11 because core is all "unconsolidated"/recent deposits. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668284
Date:	6/4/2021	**Longitude:**	-117.123290
Time:	13:00	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.0	**Mudline Elevation (ft MLLW):**	-35.9
Tide (ft):	1.1	**Target Penetration (ft):**	4.1
Mudline Elevation (ft MLLW):	-35.9	**Actual Penetration (ft):**	4.1
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.1

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is very soft and homogeneous to 2.9'
0.5						FDD-B-C11 from 0.0' to 2.9'
1.0						
1.5						
2.0						
2.5						
3.0		**SAND WITH SILT AND CLAY (SP-SM)**	Molted with Top Color and Bottom Color			FDD-C-C2 from 2.9' to 3.1'
						Core appears native formational below 3.1'
3.5						FDD-C-C2-Z from 3.1' to 3.6'
4.0			Dark yellowish Brown	10YR 3/4		
						End at 4.1'
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Sandy plug. Overpenetrated to get native. Sample collected is not a true "native"C-layer as it appeared very mixed with unconsolidated surface (B) sediments. Renamed sample FDD-B-C11.Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668275
Date:	6/4/2021	**Longitude:**	-117.123294
Time:	13:45	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.2	**Mudline Elevation (ft MLLW):**	-35.7
Tide (ft):	1.5	**Target Penetration (ft):**	4.3
Mudline Elevation (ft MLLW):	-35.7	**Actual Penetration (ft):**	4.3
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and less consolidated to 3.3' FDD-B-C11 from 0.0' to 3.3'
3.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark yellowish Brown	10YR 3/4		No native formational material observed in core to dredge depth FDD-C-C2-Z from 3.3' to 3.8' Core appears native formational below 3.3'
4.5						No "C" sample collected Overpenetration; discard from 3.3' to 4.3'
5.0						End at 4.3'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: No refusal. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668286
Date:	6/4/2021	**Longitude:**	-117.123279
Time:	14:05	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.4	**Mudline Elevation (ft MLLW):**	-35.8
Tide (ft):	1.6	**Target Penetration (ft):**	4.2
Mudline Elevation (ft MLLW):	-35.8	**Actual Penetration (ft):**	4.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and unconsolidated to 2.8' FDD-B-C11 from 0.0' to 2.8'
0.5						
1.0						
1.5						
2.0						
2.5		**SANDY SILT (ML)**				FDD-C-C2 from 2.8' to 3.2'
3.0		**SAND WITH SILT AND CLAY (SP-SM)**	Dark yellowish Brown	10YR 3/4		Not really "native formational material", mixed above 3.2' FDD-C-C2-Z from 3.2' to 3.7' Overpenetration; discard from 3.2' to 4.2'
3.5						
4.0						
4.5						End at 4.2'
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Sample is very mixed with surface layers. Not a "clean" native formational layer. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	5
Logged and Sampled By:	KG	**Latitude:**	32.668285
Date:	6/4/2021	**Longitude:**	-117.123269
Time:	14:25	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.7	**Mudline Elevation (ft MLLW):**	-35.8
Tide (ft):	1.9	**Target Penetration (ft):**	4.2
Mudline Elevation (ft MLLW):	-35.8	**Actual Penetration (ft):**	4.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	3.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	Core is soft and very homogeneous FDD-B-C11 0.0' to 3.2'
0.5						
1.0						
1.5						
2.0						
2.5						
3.0						
3.5						No Z-layer recovered End at 3.6' No "C" layer sample collected
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Soft plug. Lost on retrieval. Likely entered same hole as lost. Not true native formational/Z-layer. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C11/FDD-C-C2
Project No.	3151187382.3	**Attempt Number:**	6
Logged and Sampled By:	KG	**Latitude:**	32.668267
Date:	6/4/2021	**Longitude:**	-117.123268
Time:	14:35	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	38	**Mudline Elevation (ft MLLW):**	-35.9
Tide (ft):	2.11	**Target Penetration (ft):**	4.1
Mudline Elevation (ft MLLW):	-35.9	**Actual Penetration (ft):**	4.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.2

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C11 from 0.0' to 3.1'
0.5						
1.0						
1.5						
2.0						
2.5						
					moderate	Shell hash at 2.7'
3.0						FDD-C-C2-Z from 3.1' to 3.6' Shell hash at 3.2'
3.5						Overpenetrated; discard from 3.1' to 4.2'
4.0						
4.5						End at 4.2'
5.0						
5.5						
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Shifted approximately 1 meter. No plug. Sample from mudline to overdredge is considered as "FDD-B-C11" for volume calculations.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C12/FDD-C-C1
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668201
Date:	6/7/2021	**Longitude:**	-117.123992
Time:	13:45	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	36.9	**Mudline Elevation (ft MLLW):**	-35.1
Tide (ft):	1.8	**Target Penetration (ft):**	4.9
Mudline Elevation (ft MLLW):	-35.1	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C12 from 0.0' to 3.9' Core is very homogeneous and soft to 4.8' No FDD-C-C1 collected No native formational material
4.0						FDD-B-C12/FDD-C-C1-Z from 3.9' to 4.4' Overpenetration; discard from 3.9' to 5.5'
4.8		**SILTY SAND (SM)**				More sand between 4.8' to 5.1'
5.5						End at 5.5'

Additional Notes: Felt hard at end. Soft plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C12/FDD-C-C1
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668209
Date:	6/7/2021	**Longitude:**	-117.124001
Time:	14:00	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	36.9	**Mudline Elevation (ft MLLW):**	-35.1
Tide (ft):	1.8	**Target Penetration (ft):**	4.9
Mudline Elevation (ft MLLW):	-35.1	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	4.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C12 from 0.0' to 3.9' No native formational material No FDD-C-C1 Core is soft and very homogeneous
4.0						FDD-C-C1/FDD-B-C12-Z from 3.9' to 4.4' Overpenetration; discard from 3.9' to 4.5'
4.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark yellowish Brown	10YR 3/4		Hard native formational material found at 4.3' (below Z) End at 4.5'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Overpenetrated to find native formational layer.
Hit hard at 7.0'. No refusal. No recovery below 4.5'. Small hard plug but may have entered same hole.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C12/FDD-C-C1
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.668176
Date:	6/7/2021	**Longitude:**	-117.123971
Time:	14:30	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.1	**Mudline Elevation (ft MLLW):**	-35.3
Tide (ft):	1.8	**Target Penetration (ft):**	4.3
Mudline Elevation (ft MLLW):	-35.3	**Actual Penetration (ft):**	6.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C12 from 0.0' to 3.3'
0.5						Minor shell hash at surface
						Core is very soft and homogeneous
1.0						
1.5						
2.0						
2.5						0.2' Gravel piece (concrete) at 2.4'
3.0		**SILTY SAND (SM)**				No native formational material in core
		SILT (ML)				No FDD-C-C1 collected
3.5						FDD-C-C1/FDD-B-C12-Z from 3.3' to 3.8'
		CLAY LENSE (CL)				Overpenetration; discard from 3.3' to 6.0'
		SILT (ML)				
4.0						
4.5						
5.0						
		SILTY SAND (SM)				
5.5						
6.0						End at 6.0'
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Moved about 3 meters forward. No refusal. No plug.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-B-C12/FDD-C-C1
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.668176
Date:	6/7/2021	**Longitude:**	-117.123972
Time:	14:50	**Project Depth (ft MLLW):**	-39, -40 (w/Z-layer)
Water Depth (ft):	37.2	**Mudline Elevation (ft MLLW):**	-35.3
Tide (ft):	1.9	**Target Penetration (ft):**	4.7
Mudline Elevation (ft MLLW):	-35.3	**Actual Penetration (ft):**	5.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT (ML)**	Very Dark Greenish Gray	10Y 3/1	none	FDD-B-C12 from 0.0' to 3.7' Core is very soft and homogeneous to 3.7'
0.5						
1.0						
1.5						
2.0		**SILTY SAND (SM)**				No FDD-C-C1
		SILT (ML)				No native formational material in core
2.5		**SAND WITH SILT AND SHELL HASH (SP-SM)**				FDD-C-C1/FDD-B-C12-SUB from 2.6' to 3.5'
3.0			Dark yellowish Brown	10YR 3/4		
3.5		**SILTY SAND (SM)**	Very Dark Greenish Gray	10Y 3/1		Minor shell hash from 3.7' to 4.0' FDD-B-C12/FDD-C-C1-Z from 3.7' to 4.2'
4.0		**SILT (ML)**				Overpenetration; discard from 3.7' to 5.4'
4.5						
5.0		**SAND WITH SILT AND CLAY (SP-SM)**	Molted Colors			
5.5						End at 5.4' Small chunk of native formational material in plug at 5.5'
6.0						
6.5						
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Soft plug with some clay.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-C-C6
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.667942
Date:	6/8/2021	**Longitude:**	-117.122506
Time:	08:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	-41.4	**Mudline Elevation (ft MLLW):**	-37.6
Tide (ft):	3.8	**Target Penetration (ft):**	21.4
Mudline Elevation (ft MLLW):	-37.6	**Actual Penetration (ft):**	7.2
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.3

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILTY SAND (SM)**	Very Dark Grayish Brown	10YR 3/2	none	Core is less consolidated to 0.6'
0.5		**SAND WITH SILT AND CLAY (SP-SM)**	Dark Yellowish Brown	10YR 3/4		
1.0						Core surface is sandy and darker in color then immediately underlain by a native formational layer.
1.5		**SAND (SP)**				FDD-C-C6-T from 1.0' to 2.0' (archive)
2.0						
2.5						FDD-C-C6 from 1.0' to 6.3'
3.0						
3.5						
4.0						Core grain size increases with depth
4.5						Entire core appears native formational except surface to 0.6'
5.0						
5.5						
6.0			Dark Grayish Brown	10YR 4/2		Core darkens at end, likely because catcher sediment mixed with top layer
6.5						End at 6.3' Refusal at 7.2'
7.0						
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Penetration was easy until around 6.0', tried to penetrate for about 5 minutes. Hit refusal at 7.2'. Core barrel bent on retrieval. No plug. Some sediment may have fell out on retrieval.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-C-C6
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667933
Date:	6/8/2021	**Longitude:**	-117.122508
Time:	09:25	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	41.4	**Mudline Elevation (ft MLLW):**	-37.4
Tide (ft):	4.0	**Target Penetration (ft):**	21.6
Mudline Elevation (ft MLLW):	-37.4	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.4

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SANDY SILT (ML)**	Very Dark Grayish Brown	10YR 3/2	none	Core is soft and less consolidated to 1.0' FDD-C-C6-T from 0.0' to 1.3'
1.0		**SAND (SP)**	Dark Yellowish Brown	10YR 3/4		Transition to unconsolidated sediment FDD-C-C6-T from 1.3' to 2.3' (archive) FDD-C-C6 from 1.3' to 5.4'
5.5						End at 5.4' Refusal at 7.0'

0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

Additional Notes: Moved 3 meter toward port. Penetration slowed at around 6.0' below mudline. Refusal at 7.0'. Core barrel bent on extraction.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-C-C6
Project No.	3151187382.3	**Attempt Number:**	3
Logged and Sampled By:	KG	**Latitude:**	32.667913
Date:	6/8/2021	**Longitude:**	-117.122513
Time:	09:55	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	42.5	**Mudline Elevation (ft MLLW):**	-38.5
Tide (ft):	4.0	**Target Penetration (ft):**	20.5
Mudline Elevation (ft MLLW):	-38.5	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SAND (SP)**	Dark Yellowish Brown	10YR 3/4	none	No obvious/unconsolidated sediment at surface Medium sand to 0.9'
0.5						
1.0		**SILTY SAND (SM)**	Dark Grayish Brown	10YR 3/2		FDD-C-C6-B from 0.9' to 1.0'
		SAND (SP)	Dark Yellowish Brown	10YR 3/4		Medium sand below 1.8'
1.5		**SAND WITH SILT AND CLAY (SP-SM)**				
		SAND (SP)				
2.0						Transition FDD-C-C6-T from 2.1' to 3.1' (archive)
2.5						FDD-C-C6 from 0.0' to 7.0'
3.0						
3.5						
4.0						
4.5						
5.0						
5.5						
6.0						
6.5						
7.0						End at 7.0' Refusal at 7.0'
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Core penetrated slowly, but reached 7.0' before refusal. Plug is medium sand. Core barrel bent on retrieval.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-C-C6
Project No.	3151187382.3	**Attempt Number:**	4
Logged and Sampled By:	KG	**Latitude:**	32.667914
Date:	6/8/2021	**Longitude:**	-117.122527
Time:	10:20	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	42.4	**Mudline Elevation (ft MLLW):**	-38.5
Tide (ft):	3.9	**Target Penetration (ft):**	20.5
Mudline Elevation (ft MLLW):	-38.5	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.0

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SAND (SP)**	Dark Yellowish Brown	10YR 3/4	none	FDD-C-C6 from 0.0' to 7.0'
0.5						Core is very homogeneous
1.0						FDD-C-C6-T from 1.0' to 2.0' (archive)
1.5						
2.0			Black streak			
2.5			Dark Yellowish Brown	10YR 3/4		
3.0						
3.5						
4.0						
4.5						
5.0						Sand is more coarse below 5.0'
5.5						
6.0						Core appears extremely clean/native formational
6.5						
7.0						End at 7.0' Refusal at 7.0'
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Plug fell out on retrieval. Refusal at 7.0'. Core barrel bent on retrieval.

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-D-C3 Redo
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.667943
Date:	6/7/2021	**Longitude:**	-117.121102
Time:	15:50	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	40.0	**Mudline Elevation (ft MLLW):**	-37.4
Tide (ft):	2.6	**Target Penetration (ft):**	21.6
Mudline Elevation (ft MLLW):	-37.4	**Actual Penetration (ft):**	9.7
Temp/Wind:	N/A	**Recovered Core Length (ft):**	5.6

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.0		**SANDY SILT (ML)**	Very Dark Greenish Gray	10Y 3/1		Core is less consolidated to 2.0' No unconsolidated retained
2.0 – 3.0		**SAND (SP)**	Very Dark Grayish Brown	10Y 3/2		Transition from 2.0' to 3.0'
3.0 – 5.5			Dark Yellowish Brown	10YR 3/4		FDD-D-C3 from 3.0' to 5.6' Core appears very clean/native formational below 3.0' Sand is more coarse below 2.0'
5.5 – 10.0						End at 5.6' Refusal at 9.7'

Additional Notes: Original sample FDD-D-C3 lost by FedEx (One bag). Re-sampled for volume.
Just native formational materials retained; no unconsolidated layer. Core barrel bent and broke on extraction. No plug. Core liner is very abraded (stretched at the end).

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-D-C3 Redo
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.667863
Date:	6/7/2021	**Longitude:**	-117.121097
Time:	16:20	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	40.6	**Mudline Elevation (ft MLLW):**	-37.5
Tide (ft):	3.1	**Target Penetration (ft):**	21.5
Mudline Elevation (ft MLLW):	-37.5	**Actual Penetration (ft):**	8.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	7.8

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.2		**SILTY SAND (SM)**	Very Dark Greenish Gray	10Y 3/1		Core is less consolidated to 2.2' No unconsolidated retained
2.2 – 7.8		**SAND (SP)**	Dark Yellowish Brown	10YR 3/4		FDD-D-C3 Redo from 2.2' to 7.8' Core is very homogeneous Core looks clean/native formational from 2.2' to end Core dries with depth
7.0 – 7.2		**CLAY LENSE (CL)**				Clay lense was in catcher, maybe displaced from bottom
7.2 – 7.8		**SAND (SP)**				
7.8 – 10.0						End at 7.8' Refusal at 8.0'

Additional Notes: Refusal at 8.0'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-D-C4
Project No.	3151187382.3	**Attempt Number:**	1
Logged and Sampled By:	KG	**Latitude:**	32.668070
Date:	6/2/2021	**Longitude:**	-117.120345
Time:	07:45	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	-40.6	**Mudline Elevation (ft MLLW):**	-38.6
Tide (ft):	+2.0	**Target Penetration (ft):**	20.4
Mudline Elevation (ft MLLW):	-38.6	**Actual Penetration (ft):**	7.0
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.5

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0 – 2.8		**SILT WITH SAND (ML)**	Very Dark Gray	10YR 3/1		Core is unconsolidated to 0.6' Core is more soft to 1.8' No unconsolidated sample above 2.8' (discarded) Proportion of sand increases with depth
2.8 – 3.8		**SAND WITH SILT (SP-SM)**	Very Dark Grayish Brown	10YR 3/2		FDD-D-C4-T Transition layer from 2.8' to 3.8'
3.8 – 6.5			Dark Yellowish Brown	10YR 3/4		Sand is more fine after 4.6' Core is more dry and consolidated at end Core appears clean/native formational below 3.8'
6.5 – 10.0						End at 6.5' Hard refusal at 7.0'

Additional Notes: Hard plug. Refusal at 7.0'

wood.

Project:	NBSD Mole Pier Floating Dry Dock Maintenance Dredging	**Log of Station ID:**	FDD-D-C4
Project No.	3151187382.3	**Attempt Number:**	2
Logged and Sampled By:	KG	**Latitude:**	32.668068
Date:	6/2/2021	**Longitude:**	-117.120336
Time:	08:25	**Project Depth (ft MLLW):**	-58, -59 (w/Z-layer)
Water Depth (ft):	40.3	**Mudline Elevation (ft MLLW):**	-38.7
Tide (ft):	1.6	**Target Penetration (ft):**	20.3
Mudline Elevation (ft MLLW):	-38.7	**Actual Penetration (ft):**	7.5
Temp/Wind:	N/A	**Recovered Core Length (ft):**	6.9

Depth in Feet	Lithology	Sediment Description	Color	Munsell Color Notation	Odor	Remarks
0.0		**SILT WITH SAND (ML)**	Very Dark Gray	10Y 3/1	none	Unconsolidated to 0.6'
0.5						Less consolidated to 1.5'
						FDD-D-C4-U = Unconsolidated archive
1.0						Proportion of sand increases with depth No unconsolidated layer retained for tox
1.5						
2.0						
2.5		**SAND WITH SILT (SP-SM)**	Very Dark Grayish Brown	10Y 3/2		
3.0						Sand becomes more fine with depth
3.5			Dark Yellowish Brown	10YR 3/4		trace clay above 3.4'
4.0						Core is very homogeneous/looks native formational below 3.4'
4.5						Core dries with depth
5.0						
5.5						
6.0						
6.5						
7.0						End at 6.9' Hard refusal at 7.5'
7.5						
8.0						
8.5						
9.0						
9.5						
10.0						

Additional Notes: Hard Plug. Refusal at 7.5'.
Core refusal is a slow stop. Begins at about 5.0' and continues to full stop.

GEOTECHNICAL INVESTIGATION
MOLE PIER SOUTH BERTH
MOORING FACILITY MODERNIZATION
FY 23 MCON PROJECT P-508
NAVAL BASE SAN DIEGO, CA

Prepared for
COWI NORTH AMERICA
San Diego, California

Prepared by
TERRACOSTA CONSULTING GROUP, INC.
AN ENGEO COMPANY
San Diego, California

Project No. 18988.000.001
September 24, 2021

September 24, 2021

Project No.
18988.000.001

Mr. James Connelly
COWI NORTH AMERICA
c/o Aannestad Andelin & Corn LLP
160 Chesterfield Drive, Suite 201
Cardiff-by-the-Sea, California 92101

GEOTECHNICAL INVESTIGATION
MOLE PIER SOUTH BERTH
MOORING FACILITY MODERNIZATION
FY 23 MCON PROJECT P-508
NAVAL BASE SAN DIEGO, CA

Dear Mr. Connelly:

TerraCosta Consulting Group, an ENGEO Company (TerraCosta), is pleased to submit the accompanying report of geotechnical investigation for the Mole Pier South Berth Mooring Facility Modernization (FY 2023 MCON Project P-508) located at Naval Base San Diego, California.

This report is prepared in general accordance with our June 1, 2021, proposal. It includes data collected during our field and laboratory investigations, as well as from other nearby projects. This report presents our conclusions and recommendations pertaining to the geologic and geotechnical aspects of the project site.

We appreciate the opportunity to be of service and trust this information meets your needs. If you have any questions regarding our investigation, or any geologic/geotechnical aspect of the subject project, please give us a call.

Sincerely,
TERRACOSTA CONSULTING GROUP, INC.
An ENGEO Company

REGISTERED PROFESSIONAL ENGINEER
KEVIN JOHN MCFADDEN
No. 92194
CIVIL
STATE OF CALIFORNIA

Kevin McFadden, P.E.

CERTIFIED ENGINEERING GEOLOGIST
GREGORY A. SPAULDING
No. 1863
STATE OF CALIFORNIA

Gregory A. Spaulding, P.G., C.E.G.

REGISTERED PROFESSIONAL ENGINEER
JEFFREY A. FIPPIN
No. 58935
CIVIL
STATE OF CALIFORNIA

Jeff Fippin, P.E.

km/gas/jf/jg/ar

TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 Background and Project Description 1
1.2 Scope of Work 2
2 PREVIOUS STUDIES 2
3 FIELD AND LABORATORY INVESTIGATIONS 2
3.1 Field Investigation 2
3.2 Laboratory Testing 3
4 SITE AND SUBSURFACE CONDITIONS 3
4.1 Geologic and Geomorphic Setting 3
4.2 Development History 5
4.3 Site Geology 5
4.4 Stratigraphy (Soil Conditions) 6
4.5 Faulting and Seismicity 8
4.5.1 Regional Geology and Seismicity 8
4.5.2 Local Tectonics 9
4.5.3 Local Faults 10
5 GEOLOGIC HAZARDS 10
5.1 Introduction 10
5.2 Geologic Hazards Associated with Earthquakes 11
5.2.1 General 11
5.2.2 Ground Rupture 11
5.2.3 Ground Shaking 11
5.2.4 Tsunamis and Seiches 12
5.2.5 Liquefaction 12
5.2.6 Lateral Spreading 13
5.2.7 Seismic-Induced Slope Movement 13
5.3 Landslides 14
5.4 Collapsible Soils 14
5.5 Expansive Soil 14
5.6 Corrosive Soil 14
5.7 Groundwater 14
6 DISCUSSION AND RECOMMENDATIONS 14
6.1 General 14
6.2 Axial Capacity of Piles 15
6.3 Lateral Capacity of Piles 15
6.4 Seismic Hazard Analysis 16
6.4.1 Ground-Motion Models and Site Parameters 16
6.4.2 Probabilistic Seismic-Hazard Analysis 17
6.4.3 Deterministic-Seismic Hazard Analysis 18
6.4.4 Resulting Response Spectra 19
7 LIMITATIONS 19

TABLE OF CONTENTS
(continued)

REFERENCES

TABLE 1 RECOMMENDED PILE DESIGN PARAMETERS FOR DETERMINATION OF AXIAL PILE CAPACITIES

TABLE 2 T-Z SPRINGS FOR DETERMINATION OF TOP OF PILE AXIAL DISPLACEMENT – MUDLINE AT -36 FEET (MLLW)

TABLE 3 T-Z SPRINGS FOR DETERMINATION OF TOP OF PILE AXIAL DISPLACEMENT – MUDLINE AT -48 FEET (MLLW)

TABLE 4 RECOMMENDED PILE DESIGN PARAMETERS FOR DETERMINATION OF LATERAL PILE DISPLACEMENT

TABLE 5 SUMMARY OF DISAGGREGATION OF THE 2,475-YEAR RETURN PERIOD SEISMIC HAZARD

TABLE 6 DE, CLE, AND OLE RESPONSE SPECTRA SURFACE CONDITION (FOR STRUCTURAL DESIGN)

TABLE 7 DE, CLE, AND OLE RESPONSE SPECTRA BASE CONDITION (FOR SLOPE STABILITY)

TABLE 8 PEAK GROUND VELOCITIES AT THE BASE CONDITION FOR THE DE, CLE, AND OLE SEISMIC-HAZARD LEVELS

EXHIBIT 1 ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE MUDLINE AT -36 FEET (MLLW) PLUMB

EXHIBIT 2 ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE MUDLINE AT -36 FEET (MLLW) PLUMB

EXHIBIT 3 ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE MUDLINE AT -36 FEET (MLLW) BATTER

EXHIBIT 4 ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE MUDLINE AT -36 FEET (MLLW) BATTER

EXHIBIT 5 ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE MUDLINE AT -48 FEET (MLLW) PLUMB

TABLE OF CONTENTS
(continued)

EXHIBIT 6 ULTIMATE AXIAL PILE CAPACITY 24-INCH CONCRETE SQUARE PILE MUDLINE AT -48 FEET (MLLW) PLUMB

EXHIBIT 7 ULTIMATE AXIAL PILE CAPACITY 24-INCH CONCRETE OCTAGONAL PILE MUDLINE AT -48 FEET (MLLW) BATTER

EXHIBIT 8 ULTIMATE AXIAL PILE CAPACITY 24-INCH CONCRETE SQUARE PILE MUDLINE AT -48 FEET (MLLW) BATTER

EXHIBIT 9 DE, CLE, AND OLE RESPONSE SPECTRA SURFACE CONDITION

EXHIBIT 10 DE, CLE, AND OLE RESPONSE SPECTRA BASE CONDITION

FIGURE 1 SITE LOCATION & GEOLOGY MAP

FIGURE 2 BORING LOCATION MAP

FIGURE 3 REGIONAL GEOLOGY/FAULT MAP

FIGURE 4 SAN DIEGO BAY - 1891

FIGURE 5 SAN DIEGO BAY - 1938

FIGURE 6a GEOTECHNICAL CROSS SECTION A

FIGURE 6b GEOTECHNICAL CROSS SECTION B

FIGURE 6c GEOTECHNICAL CROSS SECTION C

FIGURE 7 PAEUDO STATIC SEISMIC COEFFICIENT

APPENDIX A SELECT LOGS OF TEST BORINGS FROM PREVIOUS STUDIES AT NEARBY SITES

APPENDIX B LOGS OF TEST BORINGS

APPENDIX C ReMi REPORT PREPARED BY ATLAS TECHNICAL CONSULTANTS

APPENDIX D LABORATORY TEST RESULTS

GEOTECHNICAL INVESTIGATION
MOLE PIER SOUTH BERTH
MOORING FACILITY MODERNIZATION
FY 23 MCON PROJECT P-508
NAVAL BASE SAN DIEGO, CA

1 INTRODUCTION

1.1 Background and Project Description

This report presents the results of our geotechnical investigation for the modernization of the Mole Pier South berthing facility at Naval Base San Diego in San Diego, California (see Site Location Map, Figure 1). The existing structure comprises a mooring wharf of approximately 600 feet in length adjacent and parallel to the south side of Mole Pier. The mooring wharf is connected to the Mole Pier by a mechanical pier, electrical pier, and access pier. The berthing facility also includes a vehicle wharf east of, but not attached to, the mooring wharf. We understand all structures are supported by 24-inch square concrete piers driven to elevations between approximately -65 feet to -90 feet MLLW.

The purpose of this report is to provide geotechnical information and input for use in design of a permanent floating dry dock at the Mole Pier South berthing facility. This investigation considers an evaluation of the existing pier-supported structures upgrades to allow for mooring of a new dry dock. We understand that the project will require dredging to remove sediment to conform to the new dry dock design operational depth (ballast down depth).

This report provides input for the modifications and upgrades to the existing pier, and does not consider any landside improvements adjacent to the pier. As such, our services pertain to the pier structure only. An assessment of the landward area of the pier would require a separate investigation.

1.2 Scope of Work

Based on our understanding of the proposed modifications to the structures and the likely subsurface conditions at the site, we performed the following scope of work:

- Task 1 – Document and Literature Review;
- Task 2 – Field Exploration;
- Task 3 – Laboratory Testing;
- Task 4 – Site Characterization;
- Task 5 – Development of Design Earthquake Ground Motions;
- Task 6 – Assessment of Seismically Induced Slope Instability
- Task 7 – Development of Soil-Structure Interaction Parameters; and
- Task 8 – Preparation of Findings Report.

2 PREVIOUS STUDIES

To assist with our analysis, we reviewed previous reports related to the Mole Pier and other projects in the vicinity. A partial list of those reports is presented in the References section at the end of this report. We also reviewed logs of borings that were performed for those investigations.

Copies of select logs of test borings from those reports are provided in Appendix A.

3 FIELD AND LABORATORY INVESTIGATIONS

3.1 Field Investigation

Our field investigation consisted of advancing a total of three auger test borings and performing a geophysical refraction microtremor (ReMi™) test to assess the underlying shear wave velocity profile of the project area. The approximate locations of our test borings and the ReMi test are shown on the Boring Location Map (Figure 2). Locations of borings advanced by others are also shown on Figure 2 (see Appendix A for the logs of borings prepared by others).

The auger borings were advanced by Pacific Drilling of San Diego, California, using a Marl MTXD drill rig to depths of up to approximately -104.5 feet MLLW. We obtained samples from the borings using both a 2-inch O.D. Standard Penetration Test sampler and a 3-inch O.D. “California Sampler.” We advanced the samplers by driving them into the soil at the bottom of the drill hole using a 140-pound auto hammer falling 30 inches. Samples obtained from the borings were sealed in the field to preserve in-situ moisture, and transported to the laboratory for additional inspection and testing. A geologist from our firm observed the drilling operations, and logged and classified the borings. We prepared field logs of the materials encountered in the test borings based on a visual examination of the materials, and on the action of the drilling and sampling equipment. The descriptions on the logs are based on our field observations, sample inspection, and laboratory test results. A Key to Exploration Logs is presented in Appendix B as Figure B-1, and the final logs of test borings are presented as Figures B-2 through B-4.

The geophysical evaluation of the subsurface shear wave velocity profile was performed by Atlas Technical Consultants of San Diego, California. The ReMi technique uses recorded surface waves (Rayleigh waves) that are contained as background noise to develop a shear wave velocity profile of the site. The data collected is processed using SeisOpt® ReMi software. The interpreted depth of the study was approximately 100 feet. A copy of their report is provided in Appendix C.

3.2 Laboratory Testing

Laboratory tests performed for this project included grain size distribution, ring density, and moisture content tests. Results of the laboratory tests are presented in Appendix D.

4 SITE AND SUBSURFACE CONDITIONS

4.1 Geologic and Geomorphic Setting

The project site is located on the central east side of San Diego Bay at Naval Base San Diego near the western end of Mole Road at Lat. 32.668722, Lon -117.120721. From a geomorphic standpoint, the site is located within the Peninsular Ranges

Geomorphic Province. East of the site lies the dissected San Diego coastal plain, which abuts the San Ysidro and Jamul Mountains. Carved out along the westerly margin of Otay Mesa (and San Diego coastal plain) is a series of coastal terraces formed during various sea level still stands during Pleistocene time. Regional uplift by faulting and erosion has modified these distinctive geomorphic features. Over the last million years, the San Diego region has risen at an average rate of about 5.5 inches per 1,000 years (Abbott, 1999). In the last 80,000 years, the rate of uplift has increased to nearly 12 inches per 1,000 years northwest of the Rose Canyon fault zone, and approximately 18 inches per 1,000 years southwest of the Rose Canyon fault zone.

Conversely, these tectonic forces have also caused down-dropping of the region within San Diego Bay. Following the Rose Canyon fault zone south, tectonic forces spread across three major faults (and quite possibly other unidentified faults) that underlie San Diego Bay (Figure 3). These faults (the Silver Strand, Coronado, and Spanish Bight) are believed to transfer tectonic forces to the Descanso Fault, which lies offshore of Point Loma and continues southerly into Mexico. The right step, which occurs between the Rose Canyon and the Descanso fault zones, creates a releasing bend that causes the rocks underlying San Diego Bay to be stretched and down-dropped to accommodate the movement caused by these tectonic forces. Typical movements along the faults that underlie the bay are observed to experience a significant vertical or normal component to their movement.

From the standpoint of the overall geologic structure, San Diego Bay is a down-dropped faulted trough lying just west of a stable hinterland-coastal plain. Bedrock east of the zone has been slightly deformed as opposed to that on the west side. Faults to the east (i.e., La Nacion-Sweetwater Faults) display down-to-the-west normal displacement. The Rose Canyon system has been suggested to principally have a right-slip (lateral) displacement and is believed to represent a portion of the motion between the North American and Pacific Tectonic Plates. The normal faults that parallel the bay to the east are likely a result of subsidence and compaction along the margin of the Pliocene-age San Diego Embayment (Figure 3).

4.2 Development History

Starting in the 1850s, development of portions of the eastern margins of San Diego Bay began. The first significant development in the local area was a wharf built in 1871 by Frank Kimball at the end of 17th Street. This wharf collapsed in 1877, and a 500-foot-long wharf was built by the Santa Fe Railroad in 1881; the railroad wharf was dismantled in 1894 (Figure 4). After World War I, the Navy began additional expansion along the bay front and built a series of piers for the Naval Repair Base. As of the late 1930s, the general area of the project had remained as it was in the 1890s (see Figure 5). More extensive development, consisting of extensive dredging and filling south of 7th Street, created the shoreline configuration as it is generally shown today on the Geologic Map, Figure 1. Prior to reclamation, the area was a tidal marsh and consisted of interbedded fine- and coarse-grained sediments flushed from the local drainages.

4.3 Site Geology

As shown on the Geologic Map (Figures 1 and 3), an approximately 2,000-foot-wide strip of artificial fill was placed adjacent to the bayshore, inclusive of the area of the existing and proposed Pier 508. Although not documented, the fill was likely derived from dredging of the harbor floor. The thickness of the fill is estimated to be very thin at its distal eastern edge, but thickness reaches 15 feet near the quay wall and pier bulkheads (Figure 6a through 6c). The fill was placed over young Holocene-age unconsolidated bay sediments that extend to a depth of approximately 25 feet (approximately elevation -13 feet MLLW) near the quay wall. As subsidence occurred in the bay, sediment was flushed out of the uplands and was slowly deposited over older Pleistocene-age paralic sediments, locally referred to as the Bay Point Formation, which mantles the coastal terraces to the east.

The Bay Point Formation consists of both nearshore marine and non-marine (paralic) deposits. This unit is composed of interbedded fine- to medium-grained, poorly to moderately consolidated interbedded silt, sand, clay, and conglomerate that have a distinctive pale brown to reddish-brown color. The sand varies from well to poorly sorted.

The Bay Point Formation was deposited on wave-cut terraces eroded into the underlying Pliocene-age San Diego Formation. This old surface is estimated to extend offshore to a depth locally in excess of 100 feet below present sea level. Where exposed inland, the San Diego Formation consists of semi-consolidated fossiliferous fine-grained yellow-white/gray marine sandstone, with lenses of well-rounded cobble conglomerate. Reportedly, as the San Diego Formation extends southerly to Mexico, it reaches an estimated thickness of 300 feet. On the basis of shear wave velocity profiles and geomorphic projections of the formation, we estimate that the top of the San Diego Formation is near elevation -123 feet. Also, from our review of nearby CPTs and the material descriptions on logs of borings for nearby projects, sand and gravel deposits may be encountered around this depth. These materials are consistent with soil either found in, or derived from, the San Diego Formation. For project design purposes, we used the lower sharp shear wave velocity contrast used in the 2009 study for the Pier 12 project to mark the stratigraphic boundary of the San Diego Formation.

4.4 Stratigraphy (Soil Conditions)

A generalized geologic representation of the stratigraphic conditions within the Mole Pier area is shown on Figures 6a through 6c. The materials encountered within the depths explored consist of a thin veneer of recent bay deposits over Holocene and Pleistocene paralic deposits, which in turn overlie the San Diego Formation. In general, the soil encountered consists of loose to dense and soft to hard sand and clay, with lenses of interbedded gravel.

A more detailed description of the soil units encountered is presented below from oldest to youngest.

San Diego Formation: Based on previous explorations, we estimate the top of the San Diego Formation in the project site area is at or near elevation -123 feet. The San Diego Formation consists predominantly of yellow-brown to gray-brown, fine to medium-grained, poorly to moderately indurated sands and siltstone, with occasional gravel and cobble lenses. The San Diego Formation is described in the literature as being late Pliocene to early Pleistocene in age, covering an area from

the southerly flanks of Mount Soledad south to Rosarito Beach in Baja California, Mexico.

Paralic Deposits: The paralic deposits (referred to as Bay Point Formation in previous documents) cover much of San Diego's coastline and generally include a series of Holocene- and Pleistocene-age deposits derived from the local formational soil. Within the area of the Mole Pier, this soil generally consists of interbedded, medium dense to dense, red-brown to gray sand, silty fine sand, and fine sandy to clayey silt. These deposits are generally encountered between elevations -13 and -123 feet in the area of the Mole Pier.

Bay Deposits: Bay deposits encountered in the area of the Mole Pier generally consist of loose, dark gray, micaceous silty to sandy clay with occasional shell fragments and gravel. We encountered bay deposits in the upper 8 to 11 feet of our borings. Offshore within the bay, bay deposits generally form a relatively thin 3- to 8-foot-thick veneer covering the previously dredged surface of the bay floor. Previous dredging operations in the vicinity of the Mole Pier have excavated through the recent bay deposits and Holocene-age paralic deposits and into the underlying older paralic deposits. It is our belief that the more recent bay deposits within the bay are recent sediments that have accumulated since the dredging operations that created this berthing area.

Fill: Fill soil can be divided into hydraulic fill and fill. Encountered behind the quay wall, hydraulic fill consists of loose to medium dense, gray-brown, silty sands with shell fragments and occasional gravels. Hydraulic fill exists generally below elevation 4 feet. Fill soil encountered during other explorations in the area generally consists of mechanically placed and compacted, medium dense, yellow-brown, clayey sand with up to 15 percent gravel.

Riprap: Riprap was encountered in all of our borings and is estimated to be on the order of 50- to 200-pound stone, and to be between 3- and 8-feet thick.

Pavements: Earlier studies indicate that pavements in the area consist of 4 inches of asphalt concrete over 6 inches of Class II base.

4.5 Faulting and Seismicity

4.5.1 *Regional Geology and Seismicity*

Movement between the North American and Pacific plates makes Southern California one of the more seismically active regions in the United States. Strain, caused by movement between the North American plate and the Pacific plate, is spread across an over 150-mile-wide zone between the San Andreas fault zone, approximately 100 miles east of San Diego, out to and beyond the San Clemente fault zone located approximately 50 miles west of San Diego.

Nearing the end of the Miocene, approximately 5.5 million years ago, the boundary between the North American and Pacific plates moved eastward to its present-day position in the Gulf of California (Abbott, 1999). The resultant extension and stretching of the North American continental crust formed a rift between the two plates, creating the Gulf of California, which continues opening through the present day. The San Andreas, San Jacinto, Elsinore, Rose Canyon/Newport-Inglewood, and San Clemente fault zones are just a few of the resultant strain features (faults) created by this tectonic movement. Today, there is an estimated 55 to 60 centimeters per year of relative plate motion between the North American and Pacific plates, spread across the faults within this over 150-mile-wide zone, of which the Rose Canyon fault zone is estimated to contribute 1.5 mm/year (±0.5mm).

Naval Base San Diego is located at the western edge of the approximately 10-mile-wide terraced coastal plain, which bounds the Peninsular Ranges geomorphic province of California (Figure 3). The Peninsular Ranges are a northwest/southeast-oriented complex of tectonic-related blocks separated by generally parallel fault zones (Norris and Webb, 1990). Geomorphically, this province is known for its long, low mountain ranges separated by alluvial-filled valleys. Geologically, the Peninsular Ranges province extends from the Los Angeles Basin to the north, through Baja California to the south.

Offshore from Southern California is an area known as the Continental Borderland. While this area is not officially designated as a geomorphic province, many of those who study the area consider it a separate province due to its complexity. The

Continental Borderland is composed of elevated blocks and ridges, which form islands and banks separated by deep, often enclosed, basins (Legg and Kennedy, 1991). The Continental Borderland extends from the Santa Barbara Basin to the north, south along the coastline into Mexico, and offshore approximately 160 miles out to the Patton Escarpment.

4.5.2 *Local Tectonics*

The topography for most of the San Diego coastal metropolitan area is relatively simple, consisting of uplifted ancient sea floors and shore platforms that have become the present-day westerly sloping terraces. These terraces are in turn dissected by westerly flowing rivers, which have incised significant canyons (Abbott, 1999).

Of the major active fault systems in Southern California, the Rose Canyon/Newport-Inglewood fault zone has impacted the local San Diego region the most. In addition, the La Nacion fault zone to the east of the project has contributed to the local tectonic state of the project site. Together with the offshore fault zones, these two faults have formed the San Diego Bay. South of La Jolla, the Rose Canyon fault zone changes its orientation from a northwest/southeast trend to a more north/south trend, creating a left bend in the fault zone. This left bend locally creates a locking mechanism within the predominantly right-lateral Rose Canyon fault zone. The compressional forces within this zone have caused folding, uplift, and tilting of the overlying sedimentary rocks, creating Mount Soledad and the down-dropped Mission Bay area. In San Diego Bay, the Rose Canyon fault zone separates into a “horsetail splay,” spreading movement across the Silver Strand, Coronado, and Spanish Bight Faults (as well as several smaller faults) as it trends offshore toward the Descanso Fault. The Descanso Fault lies offshore from Point Loma, where it extends southerly toward the Agua Blanca fault zone in northern Baja (Legg and Kennedy, 1991). This right step, between movement along the Descanso and Rose Canyon fault zones, creates a releasing bend, causing the rocks to be stretched and down-dropped. In response, the rocks have not deformed elastically, but instead have responded with brittle fault failure (Abbott, 1999). The eastern boundary of this releasing bend is formed by the La Nacion fault zone, which consists of generally normal faults that have been down-dropped to the west.

4.5.3 *Local Faults*

The Mole Pier project area is located along the eastern margins of San Diego Bay and east of the Silver Strand Fault segment of the Rose Canyon Fault system. There are numerous other secondary fault strands that have been identified within this portion of the bay, including fault strands near the Mole Pier. A study by Fugro West delineated the limits of two fault strands as passing through Pier 12. Results of CPTs from the 2009 Pier 12 report confirm the general location of this fault, as well as a significant vertical offset within the dense sand layer of approximately 15 to 20 feet.

Previous studies (Fugro, 2005) have considered this fault likely active based on interpretation of fault offsets within the Holocene deposits. However, when one considers the historical development of the site, it is not clear that the interpreted offsets are related to fault activity or the product of sedimentation onto a previously excavated surface that contains faults within it. The activity of this fault strand is indeterminate, given the fact that the historic Holocene-age bay deposits were removed by previous dredging operations and the recent bay deposits are younger than the late 1930s.

5 GEOLOGIC HAZARDS

5.1 Introduction

Each project may be exposed to risks associated with various geologic hazards. Many of those hazards are related to the actions of earthquakes and faulting. In addition to geologic hazards associated with earthquakes and faulting, there are other potential geologic hazards that may impact the proposed project. These include: landslides, expansive soil, collapsible soil, corrosive soil, and groundwater. A brief description of the various geologic hazards and their impact on the project site is presented below.

5.2 Geologic Hazards Associated with Earthquakes

5.2.1 *General*

Geologic hazards generally associated with earthquakes include ground rupture, ground shaking, tsunamis, seiches, seismic-induced flooding, liquefaction, seismic-induced ground settlement, and seismic-induced slope instability. With respect to these hazards, we have the following comments.

5.2.2 *Ground Rupture*

The California Geological Survey (CGS) has identified much of the San Diego Bay as being an earthquake fault zone having numerous late Quaternary active or potentially active faults mapped within the bay. There are two fault strands that pass adjacent to the project area. These fault strands are considered to be secondary faults within the Rose Canyon-San Diego Bay fault system. The most westerly fault strand has evidence of upwards of 15 to 20 feet of vertical displacement. The easterly fault strand has displacements that are estimated to be on the order of a few feet or less. The activity of these two strands is unknown. Some investigators concluded that these fault strands were active. The area has been dredged with the result that likely all of the historic Holocene-age deposits have been removed by the dredging. As such, we consider the activity of these fault strands to be indeterminate and, considering evidence found in other parts of the San Diego Bay, to be potentially active. Our review of reports, maps, and data did not reveal evidence of faulting passing through the project site. An assessment of the potential risk and magnitude of potential fault rupture is beyond the scope of this report.

5.2.3 *Ground Shaking*

It has been estimated that approximately ten low magnitude earthquakes (Magnitude 2.5 to 3.5) have occurred within the immediate vicinity of the project site. In addition, four earthquakes with Magnitude 5.5 or greater have occurred within 50 km of the project site. The closest historically documented earthquake is reported to have occurred approximately 13 km from the site. This earthquake is reported to have occurred on May 27, 1862, and had an interpreted Magnitude of 6.2.

On the basis of the above information and the results of our site-specific assessment of ground motion for the project (see Section 6.4), the risk to the site from ground shaking is very high.

5.2.4 *Tsunamis and Seiches*

On May 24, 1960, February 2010, and March 11, 2011, tsunamis generated off the coast of Japan and Chile caused damage along the California coastline, including damage within San Diego Bay. Tsunamis and seiches should be considered likely hazards at this project site. However, the evaluation and quantification of their risk is beyond the scope of this study.

5.2.5 *Liquefaction*

Three key ingredients are required for liquefaction to occur: liquefaction-susceptible soil, groundwater, and strong earthquake shaking. Soil susceptible to liquefaction is generally loose to medium dense sand and non-plastic silt deposits below the water table. The soil deposits below the site include loose to medium dense sand and non-plastic silt deposits, bay deposits, and both Quaternary- and Tertiary-age deposits, all of which exist below the water table.

We conducted a liquefaction analysis of the borings based on the analysis framework published by Seed, et al. in 2003. This framework is an extension of the original simplified method first proposed by Seed and Idriss in 1971. We included corrections to the recorded SPT blow count resistance (N-value) to account for sampler, overburden pressure, and fines content. The results identify that the older paralic deposits and San Diego Formation soil are not liquefiable. We did identify potentially liquefiable soil within the younger paralic deposits at Boring B-3 beneath the vehicle wharf at approximate elevation -53 feet. Blow counts obtained within this geologic unit at other boring locations did not indicate liquefaction. Because this liquefiable layer was not encountered elsewhere, it is our opinion that the liquefiable layer is an isolated pocket. Isolated pockets of liquefiable material may be present elsewhere within the project area. However, we did not see evidence that a continuous layer is present. The fill landward of the quay wall is generally loose to medium dense and potentially liquefiable below the groundwater table.

5.2.6 *Lateral Spreading*

Because of the lack of continuous layers of liquefiable sand in the younger paralic deposit, the risk of lateral spreading below the wharf is very low. We anticipate that the site could experience lateral spreading of the fill depending upon the strength and integrity of the existing quay wall. It was beyond the scope of this study to assess the stability of the quay wall. We understand that portions of the quay wall have been improved and strengthened over the years, which may have mitigated the threat of lateral spreading. A separate study would be required to evaluate the level of risk to the existing quay wall as it relates to lateral spreading and other impacts associated with liquefaction.

5.2.7 *Seismic-Induced Slope Movement*

In evaluating the potential movement the slope under seismic conditions, we used the methodology presented in the report, “Seismic Analysis and Design of Retaining Walls, Buried Structures, Slopes, and Embankments; Report 611,” published by the National Cooperative Highway Research Program (Anderson et al., 2009) to estimate seismically induced lateral displacement. We utilized the computer program Slide2 Version 9.018 (Rocsicence, 2020) using Spencer’s method of slices to estimate the yield acceleration for Cross Section B-B’ (Figure 7). We calculated a yield acceleration of 0.24g for an approximately 250-foot-long failure surface. We then estimated displacement using Anderson et. al., 2009 and the design earthquake response spectrum (presented later in this report). On the basis of this estimation, our estimate of the mean displacement is approximately 0.5 inch. Based on this range of potential lateral movement, kinematic loads should be nominal.

To model the effect of the lateral soil movement acting against the pile as a displacement field, we recommend assuming that the soil displacement is equal to zero at the base of the slide and linearly increases to the full value of 0.5 inches at the ground surface.

5.3 Landslides

A review of aerial photographs, published reports and geologic maps, and our site reconnaissance, did not reveal any features indicative of ancient natural landslides on or adjacent to the proposed project site limits. The risk associated with landslides at the site is negligible

5.4 Collapsible Soils

No collapsible soil is reported in the literature reviewed or encountered during our site investigation. As such, the potential for collapsible soil is low.

5.5 Expansive Soil

No expansive soil is reported in the literature reviewed or encountered during our investigation. As such, the potential for expansive soil is low.

5.6 Corrosive Soil

A corrosion study was performed by Group Delta Consultants, Inc. in 2000 for the replacement of Piers 10 and 11 (FY 2001, MCON P-321). In general, marine environments are very corrosive by nature. The corrosion study found the soil to be moderately to severely corrosive.

5.7 Groundwater

Depths to groundwater are likely directly related to the level of water within the bay and, as such, are expected to vary with tides.

6 DISCUSSION AND RECOMMENDATIONS

6.1 General

The results of our investigation indicate that from a geotechnical viewpoint, it is feasible to construct the facilities as proposed.

Geotechnical recommendations are needed for three different facets of the wharf performance evaluation and design of proposed construction: 1) axial compression and tension capacity and load-deflection behavior for vertical loads; 2) input for the lateral load behavior of piles; and 3) seismic response spectra input for characterization of ground motions. A brief discussion of each of these issues is presented below.

6.2 Axial Capacity of Piles

We understand this study includes an evaluation of the capacity of existing concrete 24-inch square piers and the addition of concrete 24-inch octagonal piers. In order to provide design input for the assessment of the axial capacities of existing and proposed piles, we developed a subsurface model for the site. The parameters we recommend for modeling subsurface conditions for piles are presented in Table 1.

We developed estimates of compression and tensile capacity versus depth for the existing and proposed piles. We developed our estimates of vertical capacity based on the soil parameters provided in Table 1. Axial capacities are presented in Exhibits 1 through 8. The values presented are for ultimate and allowable capacities.

For the purposes of estimating axial pile displacements, we used the previously discussed generalized stratigraphy and developed axial soil-structure load-deflection “springs” (T-Z springs) representing the top of pile. We developed the springs for the two concrete pile types discussed above and for various mudline elevation conditions. The results of this analysis are presented in Tables 2 and 3. We used the computer software APile Version 2019.9.5 by Ensoft Inc. to develop these springs for various mudline levels assuming a top of pile at elevation 14 feet. Pile tips for existing and proposed piles are assumed to be at elevation -90 feet.

6.3 Lateral Capacity of Piles

For the purposes of estimating the soil reaction to lateral loads, we developed lateral design parameters for the same pile conditions discussed in the axial capacity section of this report. The parameters we recommend for modeling subsurface conditions for pile lateral analyses are presented in Table 4.

6.4 Seismic Hazard Analysis

We performed a site-specific seismic hazard analysis (SHA) for the project site. We performed our analysis in accordance with the 2014 version of the American Society of Civil Engineers document titled, "Seismic Design of Piers and Wharves" (ASCE 61-14). We understand from our conversations with the project structural engineer that the Mole Pier has a "High" performance requirement as defined in ASCE 61-14. Accordingly, we developed the following response spectra:

- Design Earthquake (DE) response spectrum in accordance with the ASCE 7-05 standard.
- Contingency Level Earthquake (CLE) corresponding to a 10-percent probability of exceedance in 50 years (i.e., 475-year return period).
- Operating Level Earthquake (OLE) corresponding to a 50-percent probability of exceedance in 50 years (72-year return period).

We performed probabilistic and deterministic seismic hazard analyses in order to develop these response spectra, as described below. We developed "surface" response spectra for use in the structural design and "base" response spectra at the base of the sliding mass for use in our slope stability analyses.

6.4.1 *Ground-Motion Models and Site Parameters*

We used four semi-empirical ground-motion models (GMMs) from the Next Generation Attenuation West 2 (NGA West 2) project (Ancehta et al., 2014) in the seismic hazard analysis for this project. These include Abrahamson et al. (2014) [ASK], Boore et al. (2014) [BSSA], Campbell and Bozorgnia (2014) [CB], and Chiou and Youngs (2014) [CY]. We performed our analysis using all four GMMs for a spectral damping of 5 percent of critical damping. We used a logic-tree approach and assigned equal weight (0.25) to the four GMMs in our analysis.

The ground-motion models incorporate "site parameters" to model how subsurface soil will amplify or attenuate ground motions as they propagate from underlying bedrock. These site parameters include:

- Time-averaged shear-wave velocity over the top 100 feet or 30 meters (V_{S30}).
- Depth at which the shear-wave velocity (VS) reaches 3,330 feet/sec or 1.0 kilometers/sec ($z_{1.0}$).
- Depth at which VS reaches 8,200 feet/sec or 2.5 kilometers/sec ($z_{2.5}$).

We assigned V_{S30} values of 900 feet per second (ft/s) and 985 ft/s for the surface and base conditions, respectively, based on our review of the subsurface data and correlations between blow count and SPT N values. Both conditions correspond to Site Class D. We assigned $z_{1.0}$ values of 200 feet and 160 feet for the surface and base conditions, respectively, based on the SCEC Community Velocity Model as implemented in the OpenSHA software (www.opensha.org). Using this same model, we estimated $z_{2.5}$ values of 880 and 840 feet for the surface and base conditions, respectively.

6.4.2 *Probabilistic Seismic-Hazard Analysis*

We performed a probabilistic seismic hazard analysis (PSHA) to develop a uniform hazard response spectrum (UHS) for return periods of 2,475, 475, and 72 years in order to develop the DE, CLE, and OLE response spectra, respectively, for the project site. Additionally, we performed PHSA to develop peak ground velocities for the base condition for each return period. We utilized the Third California Earthquake Rupture Forecast model (UCERF3). This is the most up-to-date rupture forecast model for the state of California. We calculated the seismic hazard using the standard methodology for hazard analysis (McGuire, 2004). The seismic hazard calculations can be represented by the following equation, which is an application of the total-probability theorem.

$$H(a) = \sum_i v_i \iint P[A > a|m,r]\, f_{Mi}(\mathrm{m})\, f_{Ri|Mi}(\mathrm{r},\mathrm{m})\, dr\, dm$$

In this equation, the hazard ***H(a)*** is the annual frequency of earthquakes that produce a ground motion amplitude ***A*** higher than **a**. Amplitude ***A*** may represent peak ground acceleration, velocity, or it may represent spectral pseudo-spectral acceleration (PSa) at a given frequency. The summation in the equation shown extends over all sources

(i.e., over all faults and areas). In the above equation, v_i is the annual rate of earthquakes (with magnitude higher than some threshold M_i) in source i, and $f_{Mi}(m)$ and $f_{Ri|Mi}(r,m)$ are the probability density functions on magnitude and distance, respectively. $P[A > a|m, r]$ is the probability that an earthquake of magnitude m at distance r produces a ground-motion amplitude A at the site that is greater than a. Seismic sources may be either faults or area sources; the specification of source geometries and the calculation of $f_{Ri|Mi}$, are performed differently for these two types of sources.

We disaggregated the seismic hazard associated with the 2,475-year return period at the peak ground acceleration and at spectral periods of 0.5 and 1.0 second. We performed this disaggregation to facilitate the deterministic seismic hazard analysis, as described below. We summarize the disaggregation results in Table 5. Mean moment magnitudes (M_W) and rupture distances (R_{RUP}) associated with the sources contributing significantly to the hazard are shown.

6.4.3 *Deterministic-Seismic Hazard Analysis*

We performed deterministic seismic hazard analysis (DSHA) in order to develop the DE response spectra. The DSHA involves developing the 84th percentile (i.e., lognormal mean plus one standard deviation) response spectrum for a spectral damping of 5 percent of critical damping considering characteristic magnitudes of significant faults, without background seismicity, and the aforementioned ground-motion models. However, it is important to note that the definition of the characteristic magnitude is ambiguous when using the UCERF3 model due to its complexity. Based on our communications with developers of ASCE 7-16 and the 2020 NEHRP Provisions, in deterministic analyses, “scenario” earthquakes with significant contribution to hazard should be used in lieu of “characteristic” earthquakes when using UCERF3. We identified the scenario earthquakes by considering the results of the disaggregation of the PSHA results. Accordingly, we considered the scenarios in Table 5. The DSHA response spectra are governed by the Rose Canyon Fault at spectral periods less than approximately 0.4 second, and the Oceanside Fault at longer periods. We did not permit the DSHA results to be lower than the deterministic lower limit defined in Section 21.1.2 of ASCE 7-05.

6.4.4 *Resulting Response Spectra*

Per ASCE 7-05, we developed the DE response spectra for each condition (surface and base) by taking the lesser of the 2,475-year UHS and the 84th percentile deterministic and multiplying this value by two-thirds. Additionally, we did not permit the DE to be less than 80 percent of the general response spectrum for Site Class D. As noted earlier, the CLE and OLE response spectra are defined by the 475- and 72-year UHS, respectively. We tabulate the DE, CLE, and OLE response spectra in Tables 6 and 7, and present them in Exhibits 9 and 10. We summarize the peak ground velocities for the various seismic-hazard levels for the base condition in Table 8.

7 LIMITATIONS

This report is intended to serve as input to a design package for the solicitation of a design-build contract. As such, this report provides information and recommendations for parameters that will be used in the engineering evaluation and design of the project.

Professional judgments presented herein are based partly on our evaluation of the technical information gathered, partly on our understanding of the proposed construction, and partly on our general experience in the geotechnical field. We have observed only a small portion of the pertinent soil and subsurface conditions at the proposed project site. The recommendations made herein are based on the assumption that soil conditions do not deviate appreciably from those found during our field investigation. If the plans for site development are changed, or if variations or undesirable geotechnical conditions are encountered during construction, the geotechnical engineer should be consulted for further recommendations.

This firm does not practice or consult in the field of safety engineering. We do not direct the contractor's operations, and we cannot be responsible for the safety of other than our own personnel on the site. Therefore, the safety of others is the responsibility of the contractor. The contractor should notify the owner if he considers any of the recommended actions presented herein to be unsafe.

Our investigation and evaluations were performed using generally accepted engineering approaches and principles available at this time and the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical engineers practicing in this area. No other representation, either express or implied, is included or intended in our report.

REFERENCES

California Building Code, 2019.

Fugro West, Inc., April 12, 2005, Pier 12 Replacement and Dredging Project, Subbottom Profiling and Multibeam Bathymetry Survey, San Diego, California.

Group Delta Consultants, Inc., 2000, Log of Test Borings for the MCON P-326 Navy Pier Project.

Kennedy, M.P., and E.E. Welday, 1980, Recency and Character of Faulting Offshore Metropolitan San Diego, California, California Department of Conservation, Division of Mines and Geology, Map Sheet 40.

Kennedy, M.P., et al, 1975, Geology of the San Diego Metropolitan Area, California, California Department of Conservation, Division of Mines and Geology, Bulletin 200.

Kennedy and Tang, 2005, Geologic Map of the San Diego 30'x60' Quadrangle, California, USGS.

National Cooperative Highway Research Program (NCHRP), 2008, Report 611, Seismic Analysis and Design of Retaining Walls, Buried Structures, Slopes, and Embankments.

Seed, et al, 2003, Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework, Earthquake Engineering Research Center, Report No. EERC 2003-06

Spencer, E., 1967, A method of analysis of the stability of embankments assuming parallel inter-slice forces, Geotechnique, V. 17(1), pp. 11–26.

TerraCosta Consulting Group, April 27, 2009, Geotechnical Investigation, Pier 12 Replacement Project, FY 2010 MCON Project P-327, Naval Base San Diego, San Diego, California, Project No. 2645.

U.S. Department of Defense, November 1, 2012, UFC 3-220-01 Deep Foundations.

U.S. Department of Defense, January 24, 2017, UFC 4-152-01 Design: Piers and Wharves.

TABLE 1

RECOMMENDED PILE DESIGN PARAMETERS FOR ESTIMATION OF AXIAL PILE CAPACITIES

Elevation (1) (Feet)	Description	Unit Weight (psf)	Submerged Unit Weight (psf)	Friction Angle (deg)	Ko (compression)	Ko (tension)	fs (lim) (ksf)	Nq	Tip resistance (lim) (ksf)
Mudline(2)	Near Surface Deposits (Qb or Qyp)	108	45.6			NEGLECT			
5' Below Mudline(2)	Qyp – Younger Paralic deposits	120	57.6	31	1.25	1	1.4	15	60
-65	Qop – Older Paralic deposits	125	62.6	35	1.5	1	2	25	100

Notes:

1. Elevation denotes top of layer. Datum reference taken to be MLLW.
2. Ground surface as shown on Geologic Cross Section (Figures 6a through 6c).
3. Design values are for ultimate condition and is unit value. A factor of safety needs to be applied.

TABLE 2

T-Z SPRINGS
FOR ESTIMATION OF TOP OF PILE AXIAL DISPLACEMENT
MUDLINE AT -36 FEET (MLLW)

NOMINAL			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	474	0.41	547	0.75	592	1.27	663	2.91	663	3.31
		Tension	0	0	122	0.10	291	0.33	324	0.64	341	2.75	341	3.15
	Batter (18 degrees)	Compression	0	0	476	0.42	549	0.76	593	1.28	665	2.92	665	3.32
		Tension	0	0	121	0.10	288	0.33	320	0.65	338	2.76	338	3.16
Concrete Square 24"	Plumb	Compression	0	0	519	0.39	651	0.75	757	2.29	800	3.51	800	4.31
		Tension	0	0	127	0.10	317	0.32	389	0.64	412	3.35	412	4.15
	Batter (18 degrees)	Compression	0	0	522	0.40	653	0.75	759	2.30	803	3.52	803	4.32
		Tension	0	0	126	0.10	314	0.32	385	0.64	408	3.36	408	4.16

UPPER BOUND			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	948	0.41	1093	0.75	1183	1.27	1326	2.91	1326	3.31
		Tension	0	0	245	0.10	582	0.33	647	0.64	683	2.75	683	3.15
	Batter (18 degrees)	Compression	0	0	952	0.42	1097	0.76	1187	1.28	1330	2.92	1330	3.32
		Tension	0	0	242	0.10	576	0.33	640	0.65	676	2.76	676	3.16
Concrete Square 24"	Plumb	Compression	0	0	1039	0.39	1301	0.75	1514	2.29	1601	3.51	1601	4.31
		Tension	0	0	254	0.10	634	0.32	778	0.64	824	3.35	824	4.15
	Batter (18 degrees)	Compression	0	0	1044	0.40	1306	0.75	1519	2.30	1605	3.52	1605	4.32
		Tension	0	0	251	0.10	627	0.32	770	0.64	816	3.36	816	4.16

LOWER BOUND			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	237	0.41	273	0.75	296	1.27	332	2.91	332	3.31
		Tension	0	0	61	0.10	145	0.33	162	0.64	171	2.75	171	3.15
	Batter (18 degrees)	Compression	0	0	238	0.42	274	0.76	297	1.28	333	2.92	333	3.32
		Tension	0	0	61	0.10	144	0.33	160	0.65	169	2.76	169	3.16
Concrete Square 24"	Plumb	Compression	0	0	260	0.39	325	0.75	378	2.29	400	3.51	400	4.31
		Tension	0	0	63	0.10	159	0.32	195	0.64	206	3.35	206	4.15
	Batter (18 degrees)	Compression	0	0	261	0.40	326	0.75	380	2.30	401	3.52	401	4.32
		Tension	0	0	63	0.10	157	0.32	192	0.64	204	3.36	204	4.16

Notes:

1. T-Z Springs denote axial displacement at the pile top.
2. T-Z Springs valid for pile with tip elevation of -90 feet MLLW.

TABLE 3

T-Z SPRINGS
FOR ESTIMATION OF TOP OF PILE AXIAL DISPLACEMENT
MUDLINE AT -48 FEET (MLLW)

NOMINAL			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	325	0.35	383	0.68	418	1.20	474	2.83	474	3.23
		Tension	0	0	77	0.09	183	0.28	208	0.60	227	2.71	227	3.11
	Batter (18 degrees)	Compression	0	0	319	0.35	377	0.68	411	1.20	467	2.83	467	3.23
		Tension	0	0	76	0.09	179	0.28	203	0.60	222	2.71	222	3.11
Concrete Square 24"	Plumb	Compression	0	0	356	0.34	455	0.68	491	1.19	573	3.43	573	4.23
		Tension	0	0	80	0.08	199	0.28	249	0.60	274	3.31	274	4.11
	Batter (18 degrees)	Compression	0	0	349	0.34	447	0.68	530	2.22	563	3.43	563	4.23
		Tension	0	0	78	0.08	195	0.28	244	0.60	268	3.31	268	4.11

UPPER BOUND			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	650	0.35	767	0.68	837	1.20	949	2.83	949	3.23
		Tension	0	0	154	0.09	366	0.28	416	0.60	454	2.71	454	3.11
	Batter (18 degrees)	Compression	0	0	638	0.35	753	0.68	823	1.20	933	2.83	933	3.23
		Tension	0	0	151	0.09	358	0.28	407	0.60	445	2.71	445	3.11
Concrete Square 24"	Plumb	Compression	0	0	711	0.34	911	0.68	981	1.19	1145	3.43	1145	4.23
		Tension	0	0	160	0.08	399	0.28	499	0.60	548	3.31	548	4.11
	Batter (18 degrees)	Compression	0	0	698	0.34	895	0.68	1059	2.22	1127	3.43	1127	4.23
		Tension	0	0	157	0.08	390	0.28	488	0.60	528	2.50	537	4.11

LOWER BOUND			T0 (kips)	Z0 (in)	T1 (kips)	Z1 (in)	T2 (kips)	Z2 (in)	Tt3 (kips)	Z3 (in)	T4 (kips)	Z4 (in)	T5 (kips)	Z5 (in)
Concrete Octagonal 24"	Plumb	Compression	0	0	163	0.35	192	0.68	209	1.20	237	2.83	237	3.23
		Tension	0	0	39	0.09	91	0.28	104	0.60	113	2.71	113	3.11
	Batter (18 degrees)	Compression	0	0	160	0.35	188	0.68	206	1.20	233	2.83	233	3.23
		Tension	0	0	38	0.09	89	0.28	102	0.60	111	2.71	111	3.11
Concrete Square 24"	Plumb	Compression	0	0	178	0.34	228	0.68	245	1.19	286	3.43	286	4.23
		Tension	0	0	40	0.08	100	0.28	125	0.60	137	3.31	137	4.11
	Batter (18 degrees)	Compression	0	0	175	0.34	224	0.68	265	2.22	282	3.43	282	4.23
		Tension	0	0	39	0.08	97	0.28	122	0.60	132	2.50	134	4.11

Notes:

1. T-Z Springs denote axial displacement at the pile top.
2. T-Z Springs valid for pile with tip elevation of -90 feet MLLW.

TABLE 4

RECOMMENDED PILE DESIGN PARAMETERS FOR ESTIMATION OF LATERAL PILE DISPLACEMENT

Elevation(1) (Feet)	Description	LPILE P-Y Curve Soil Model(3)	Unit Weight (psf)	Submerged Unit Weight (psf)	Friction Angle (deg)	k(4) (pci)
Mudline(2)	Near Surface Deposits (Qb or Qyp)	API Sand	108	45.6	NEGLECT	
5' Below Mudline(2)	Qyp – Younger Paralic deposits	API Sand	120	57.6	31	38
-65	Qop – Older Paralic deposits	API Sand	125	62.6	35	86

Notes:

1. Elevation denotes top of layer. Datum reference taken to be MLLW.
2. Ground surface as shown on Geologic Cross Section (Figures 6a through 6c).
3. P-Y soil model used in the computer program LPILE.
4. Soil modulus parameter.

TABLE 5

SUMMARY OF DISAGGREGATION OF THE 2,475-YEAR RETURN PERIOD SEISMIC HAZARD

	R_{RUP}			Percent Contribution		
Source	(km)	(miles)	M_W	PGA	0.5 Seconds	1 Second
Rose Canyon [3]	4.16	2.58	6.65	62.2	61.7	64.2
Rose Canyon [2]	5.44	3.37	5.98	9.3	7.2	5.6
Rose Canyon [4]	4.16	2.58	6.71	5.7	5.4	5.5
Rose Canyon [5]	5.37	3.33	6.70	4.8	4.7	4.7
Oceanside alt2 [0]	12.72	7.89	7.43	< 1.0	2.4	2.7
Coronado Bank alt1 [9]	20.05	12.43	7.41	3.9	2.8	2.9
Coronado Bank alt2 [20]	20.04	12.42	7.49	1.9	2.8	3.2

TABLE 6

DE, CLE, AND OLE RESPONSE SPECTRA
SURFACE CONDITION (FOR STRUCTURAL DESIGN)

Period (seconds)	DE (ASCE 7-05) (g)	CLE (475-year UHS) (g)	OLE (72-year (UHS) (g)
0.010	0.444	0.343	0.113
0.020	0.447	0.345	0.113
0.030	0.460	0.356	0.117
0.050	0.524	0.407	0.136
0.075	0.647	0.508	0.175
0.100	0.751	0.599	0.212
0.116	0.803	0.644	0.230
0.150	0.890	0.720	0.260
0.200	0.978	0.787	0.281
0.250	1.026	0.811	0.287
0.300	1.049	0.809	0.283
0.400	1.011	0.750	0.259
0.500	0.935	0.677	0.233
0.582	0.850	0.606	0.208
0.750	0.707	0.489	0.166
1.000	0.522	0.350	0.116
1.500	0.307	0.207	0.068
2.000	0.217	0.136	0.044
3.000	0.145	0.076	0.024
4.000	0.109	0.050	0.016
5.000	0.087	0.036	0.011
7.500	0.058	0.021	0.006
8.000	0.054	0.019	0.006
10.000	0.035	0.014	0.004

TABLE 7

DE, CLE, AND OLE RESPONSE SPECTRA
BASE CONDITION (FOR SLOPE STABILITY)

Period (seconds)	DE (ASCE 7-05) (g)	CLE (475-year UHS) (g)	OLE (72-year (UHS) (g)
0.010	0.456	0.345	0.110
0.020	0.460	0.347	0.110
0.030	0.478	0.361	0.115
0.050	0.550	0.417	0.135
0.075	0.680	0.522	0.173
0.100	0.788	0.614	0.209
0.116	0.841	0.658	0.226
0.150	0.932	0.734	0.254
0.200	1.008	0.797	0.273
0.250	1.063	0.813	0.275
0.300	1.072	0.800	0.269
0.400	1.015	0.730	0.244
0.500	0.928	0.652	0.217
0.582	0.838	0.582	0.194
0.750	0.689	0.465	0.154
1.000	0.498	0.329	0.107
1.500	0.290	0.191	0.063
2.000	0.217	0.125	0.041
3.000	0.145	0.070	0.022
4.000	0.109	0.046	0.015
5.000	0.087	0.033	0.011
7.500	0.058	0.019	0.006
8.000	0.054	0.018	0.006
10.000	0.035	0.013	0.004

TABLE 8

PEAK GROUND VELOCITIES AT THE BASE CONDITION FOR THE DE, CLE, AND OLE SEISMIC-HAZARD LEVELS

Seismic Hazard Level	PGV (cm/s)
OLE	10.6
CLE	34.0
DE	49.8

EXHIBIT 1
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE
MUDLINE AT -36 FEET (MLLW)
PLUMB

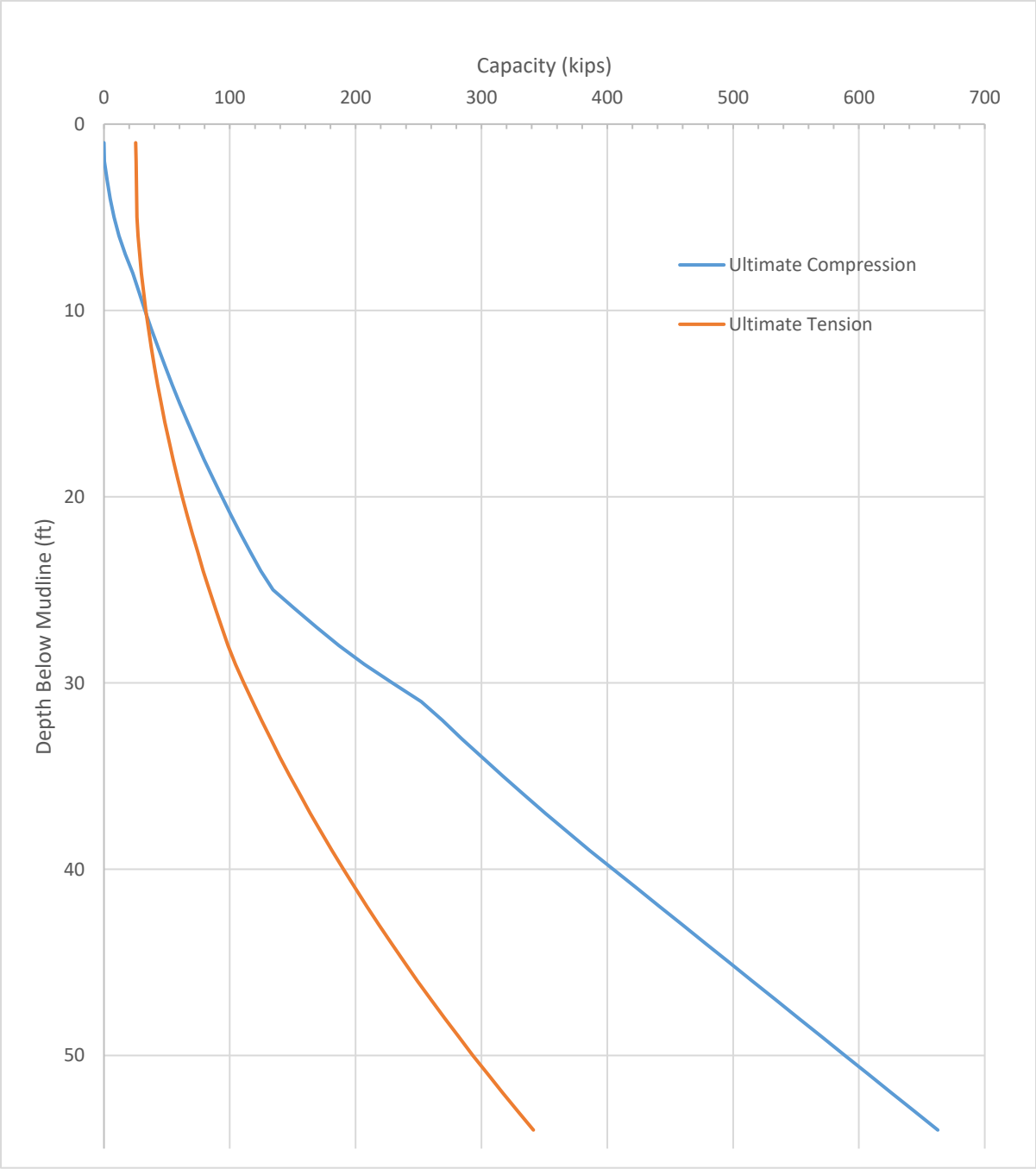


EXHIBIT 2
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE
MUDLINE AT -36 FEET (MLLW)
PLUMB

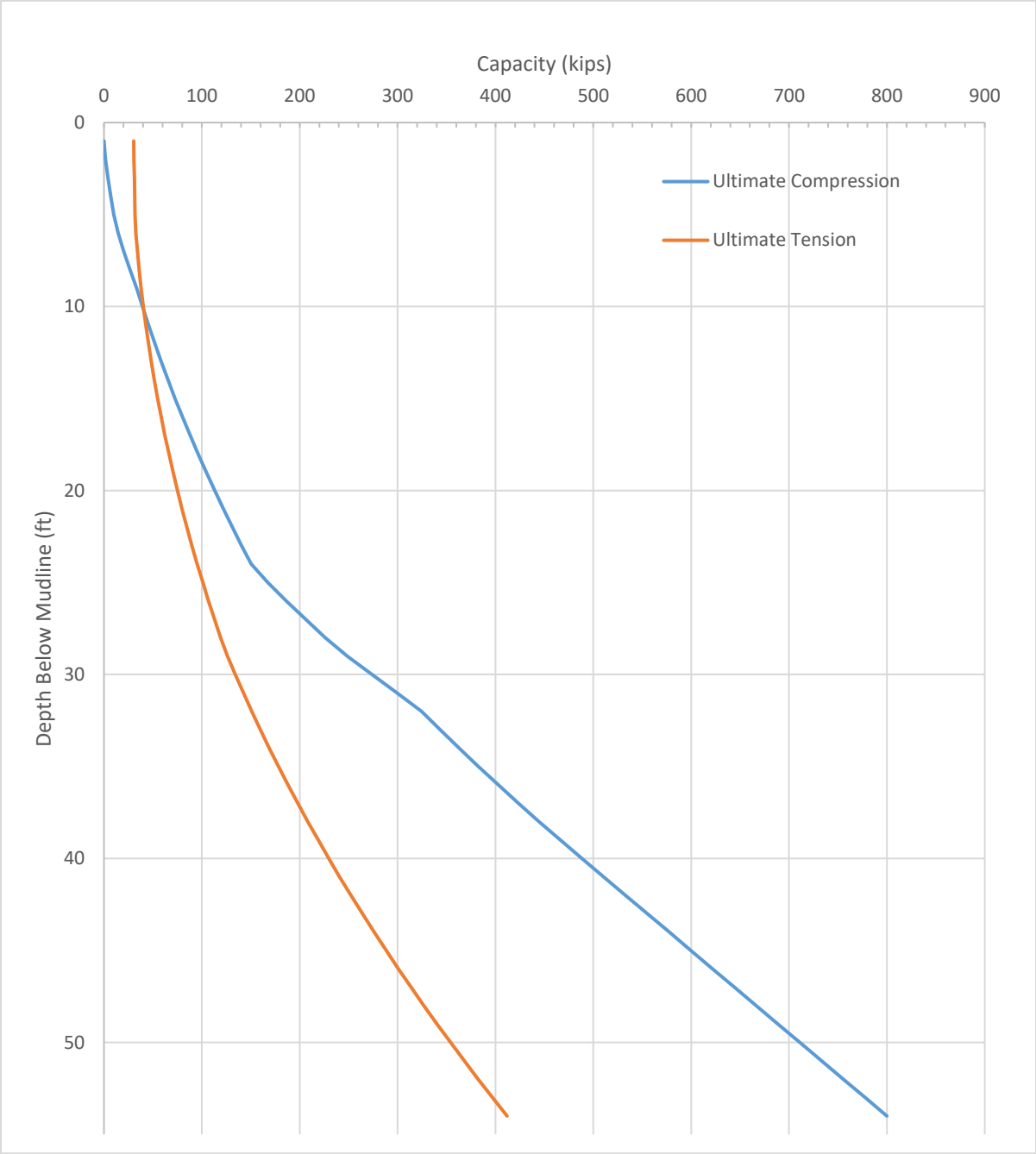


EXHIBIT 3
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE
MUDLINE AT -36 FEET (MLLW)
BATTER (18 DEGREES)

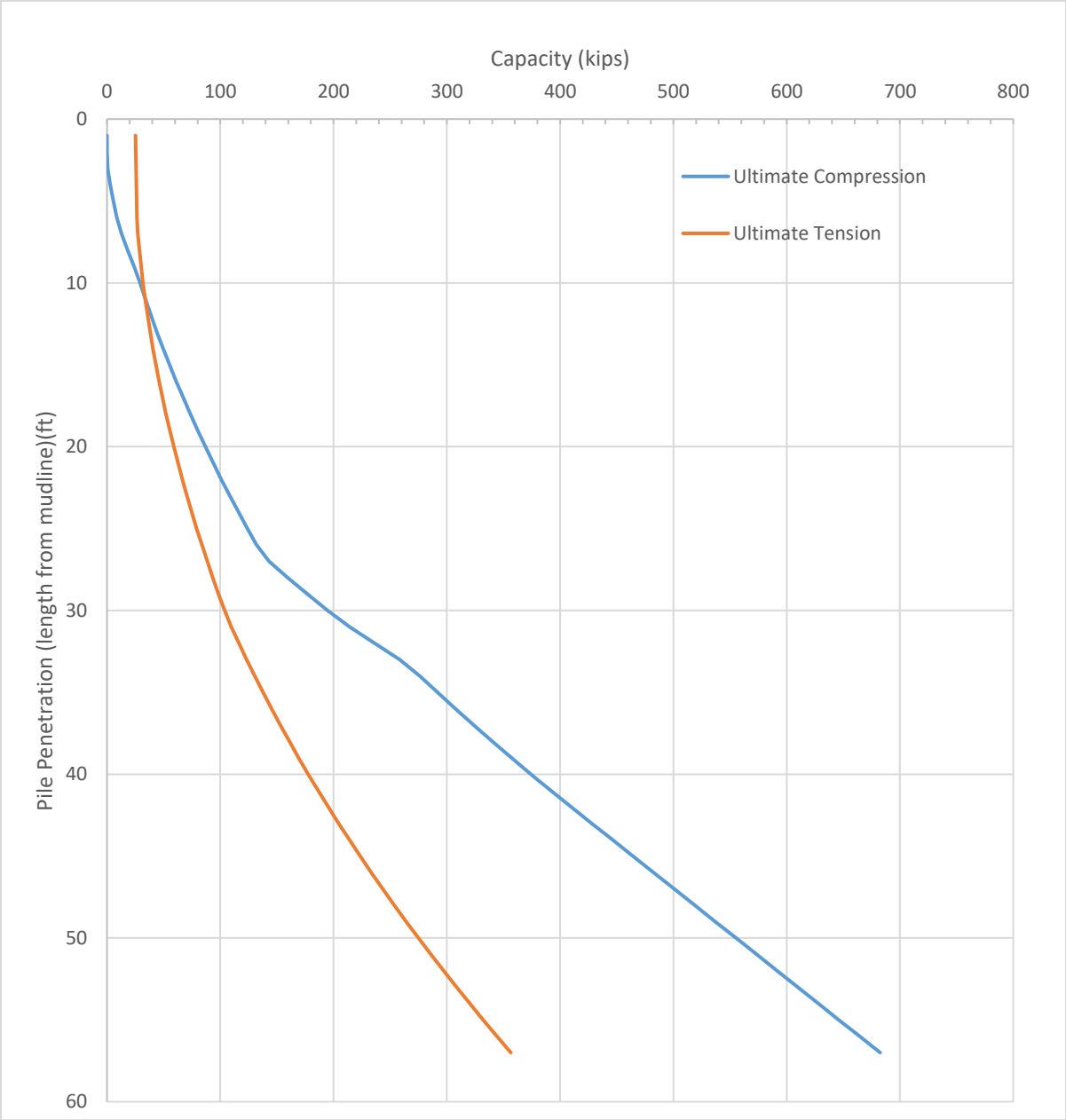


EXHIBIT 4
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE
MUDLINE AT -36 FEET (MLLW)
BATTER (18 DEGREES)

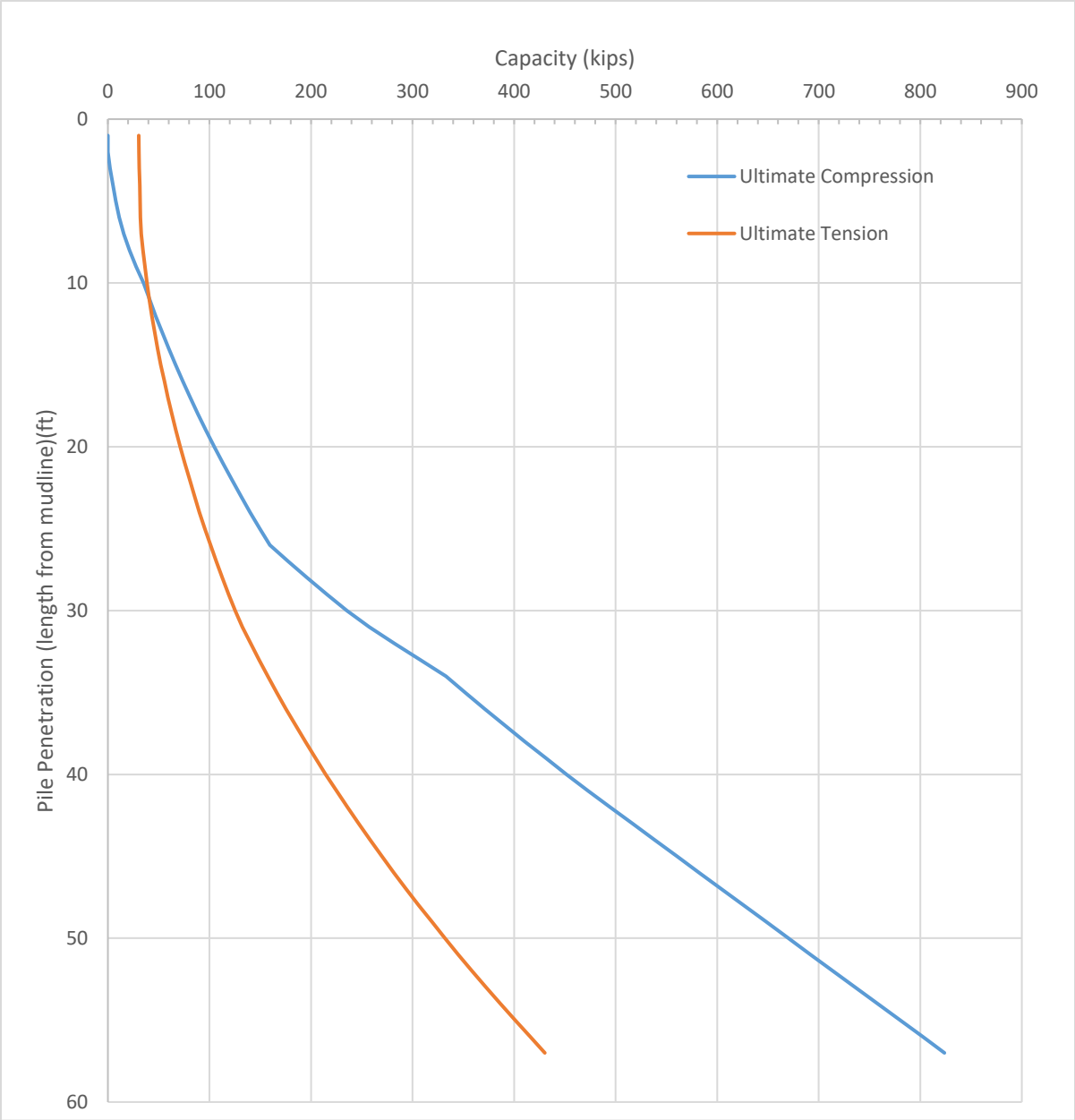


EXHIBIT 5
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE
MUDLINE AT -48 FEET (MLLW)
PLUMB

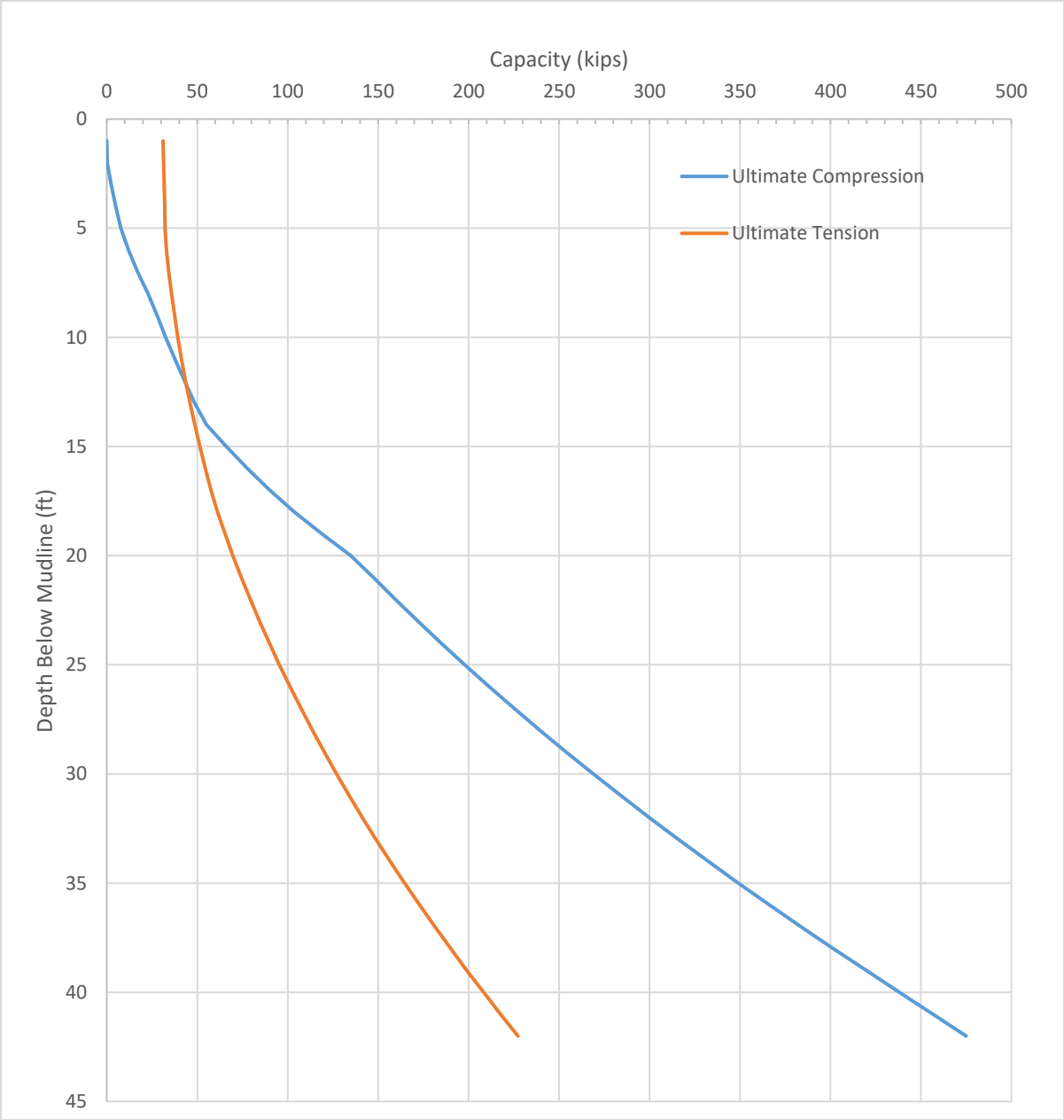


EXHIBIT 6
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE
MUDLINE AT -48 FEET (MLLW)
PLUMB

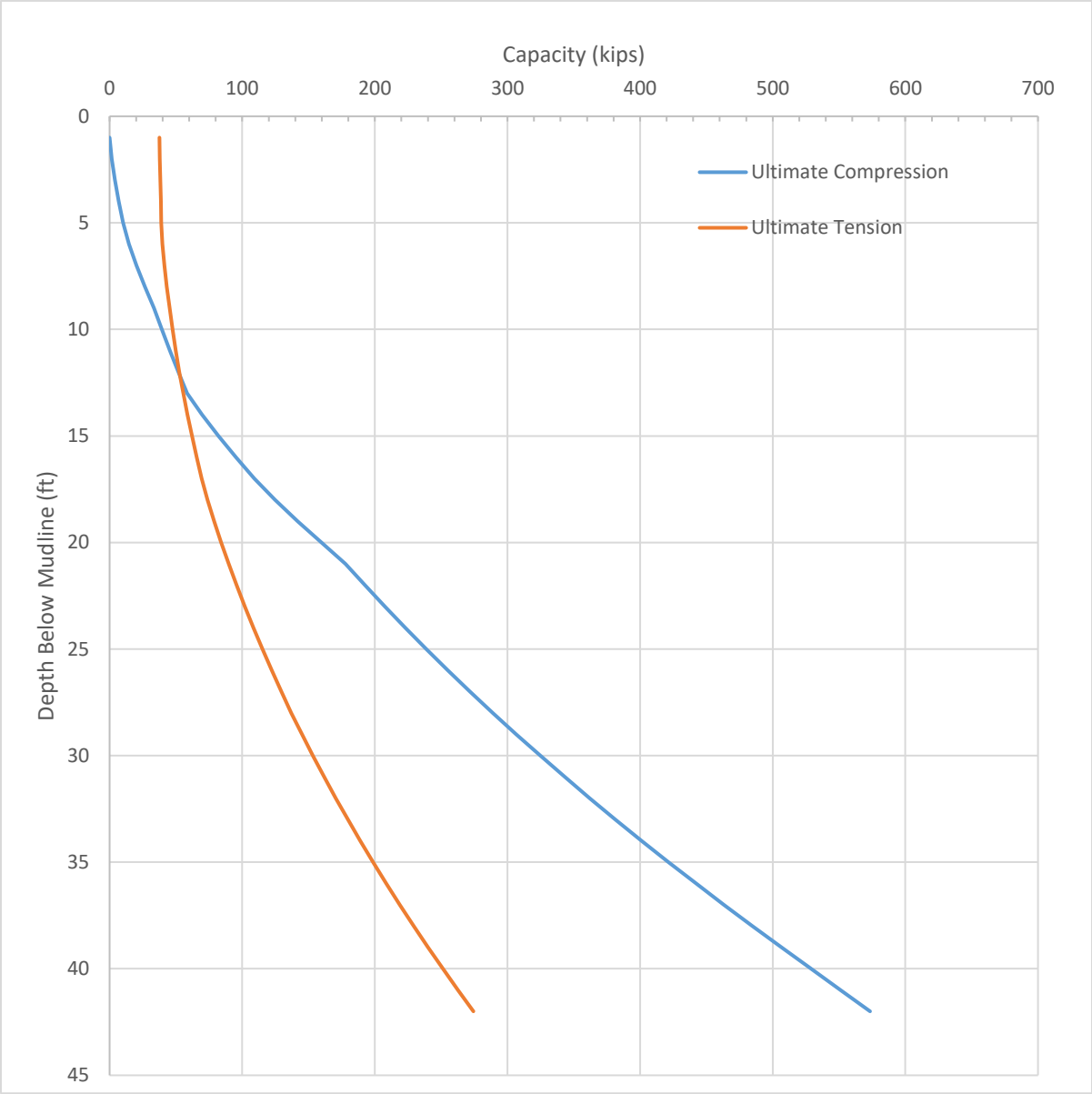


EXHIBIT 7
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE OCTAGONAL PILE
MUDLINE AT -48 FEET (MLLW)
BATTER (18 DEGREES)

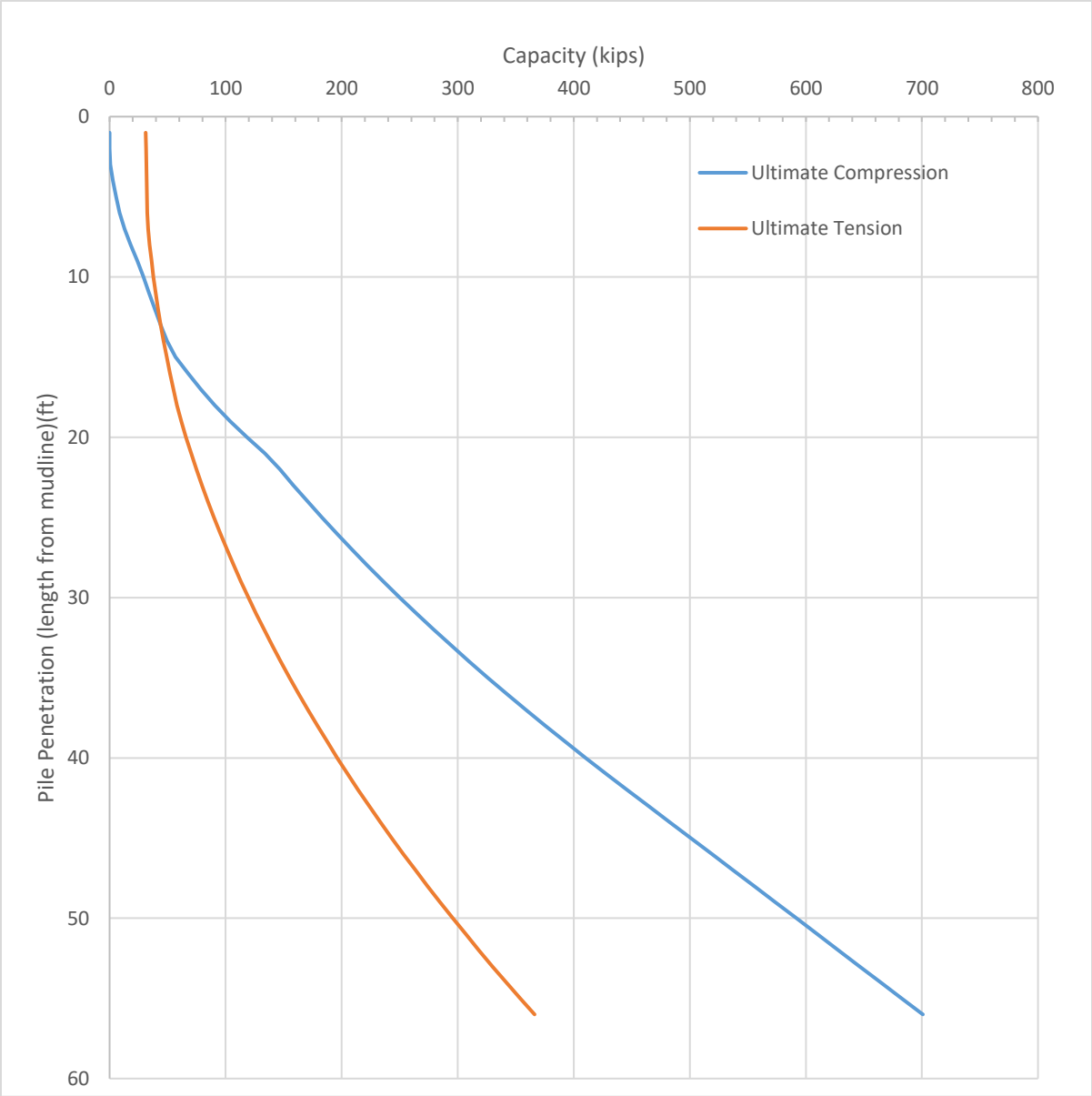


EXHIBIT 8
ULTIMATE AXIAL PILE CAPACITY
24-INCH CONCRETE SQUARE PILE
MUDLINE AT -48 FEET (MLLW)
BATTER (18 DEGREES)

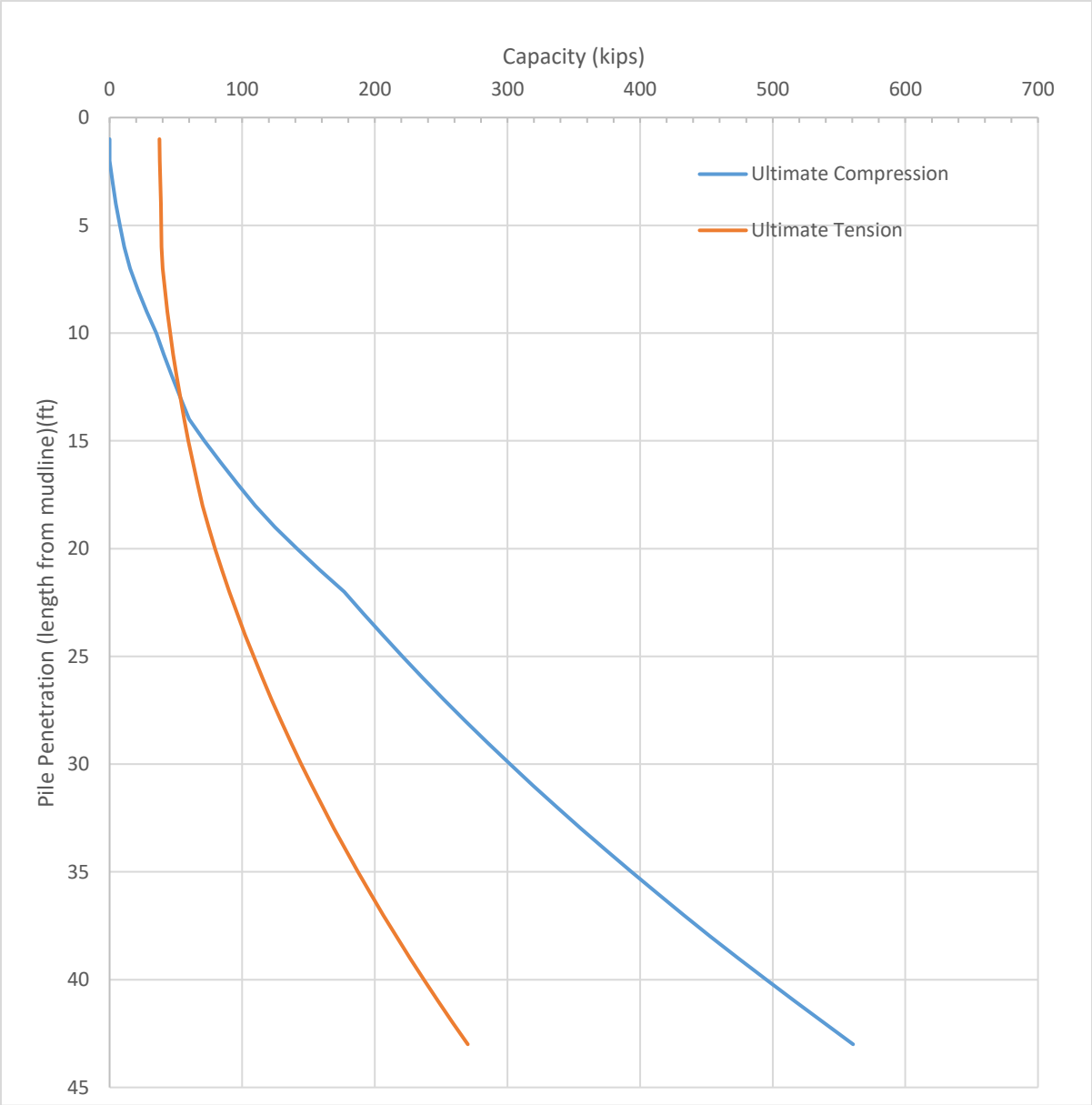


EXHIBIT 9

DE, CLE, AND OLE RESPONSE SPECTRA
SURFACE CONDITION (FOR STRUCTURAL DESIGN)

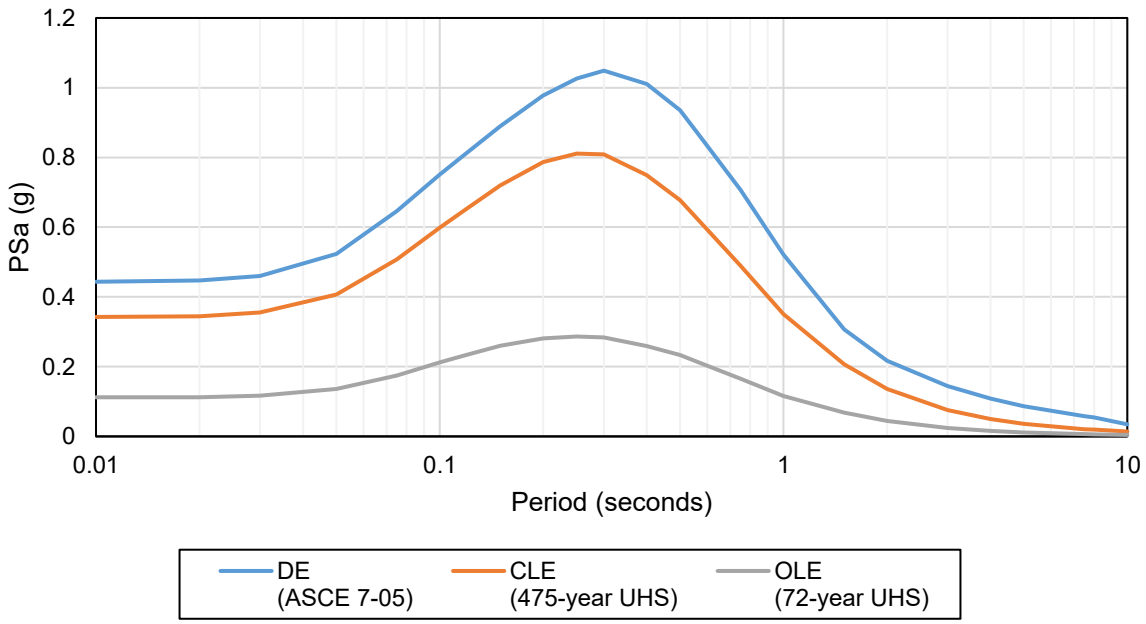
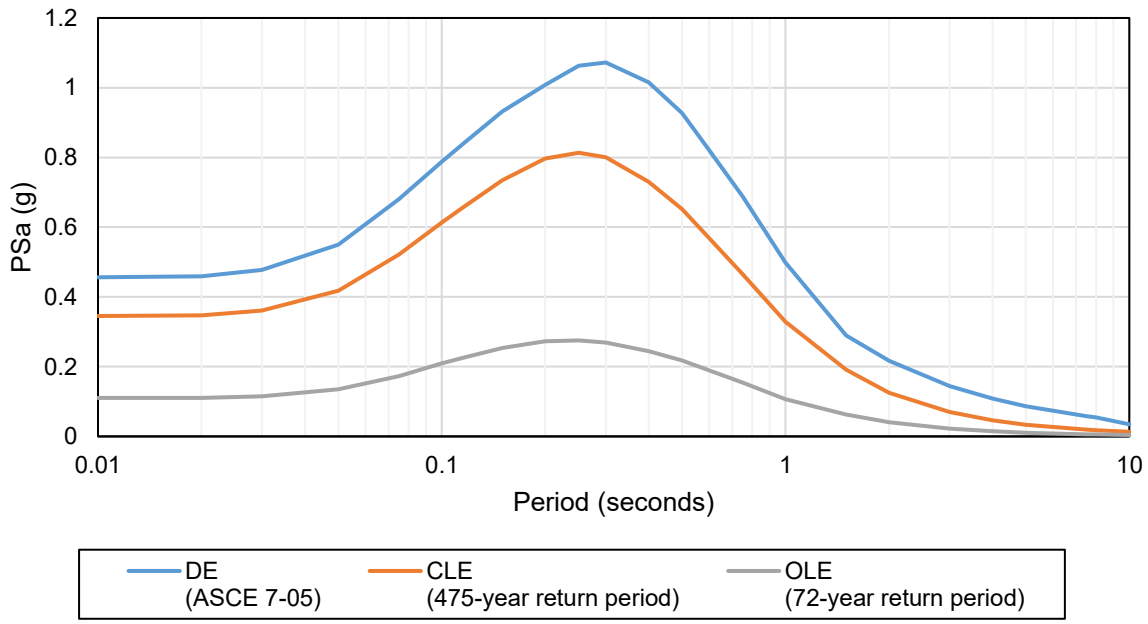


EXHIBIT 10

DE, CLE, AND OLE RESPONSE SPECTRA
BASE CONDITION (FOR SLOPE STABILITY)



0 1000 2000
FEET

REFERENCES:

Geology of the National City, Imperial Beach, and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California, Kennedy & Tan, 1977.

and: "Geology of the San Diego Metropolitan Area, California," Point Loma Quadrangle, M.P. Kennedy and G.L. Peterson, 1975, Calfornia Dept. of Conservation, Division of Mines & Geology, Bulletin 200

LEGEND:

Qaf

Artificial Fill

Qal+Qsw

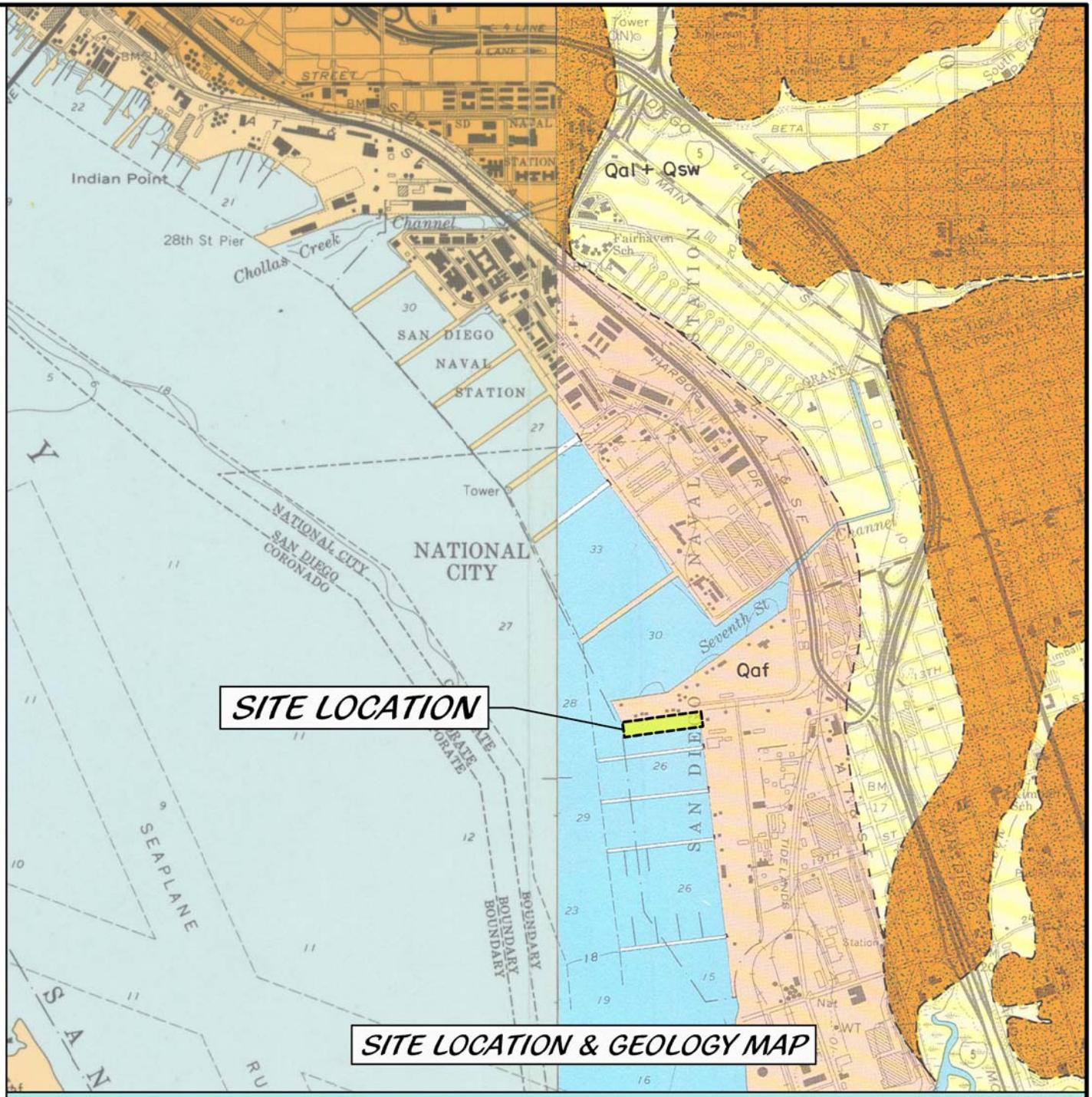
Alluvium & Slope Wash

Qbp | Qn
Qbp + Qn

Baypoint Formation & unnamed nearshore marine sandstone

TerraCosta
an ENGEO company

TERRACOSTA CONSULTING GROUP
3890 MURPHY CANYON RD. SAN DIEGO, CA 92123



SITE LOCATION & GEOLOGY MAP

Project: NBSD Mole Pier Floating Dry Dock • Project No.: 18988.000.001 • Figure 1

SCALE: 1"=100'
0 50 100 200
FEET
B
FIG 6b
C
FIG 6c
A
FIG 6a
MOLE ROAD
RL-1
230
0
WC-B1
WC-B2
WC-B3
WC-B4
WC-B5
WC-B6
WC-B7
WC-B8
WC-B9
WC-B10
WC-B11
WC-B13
WC-B14
WC-B16
WC-B17
WC-B18
WC-B19
WC-B20
B-1
B-2
B-3
LEGEND
B-3
APPROXIMATE LOCATION OF ENGEO SOIL BORING
WC-B6
APPROXIMATE LOCATION OF WOODWARD-CLYDE BORING
APPROXIMATE LOCATION OF ATLAS ReMi LINE
SOURCE: GOOGLE EARTH
TerraCosta
an ENGEO company
TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900
FIGURE NUMBER
2
PROJECT NAME
NBSD MOLE PIER
FLOATING DRY DOCK
PROJECT NUMBER
18988.000.001
BORING LOCATION MAP

SCALE: 1"=6,000'

0 3,000 6,000 12,000

FEET

DESCRIPTION OF MAP UNITS

af Artificial fill (late Holocene) - Deposits of fill resulting from human construction, mining, or quarrying activities; includes compacting engineered and non-compacted, non-engineered fill. Some large deposits are mapped, but in some areas no deposits are shown.

Qmo Undivided marine deposits in offshore region (late Holocene) - Unconsolidated, often ponded marine sediments. Composed mostly of very fine- to medium-grained sand and silt.

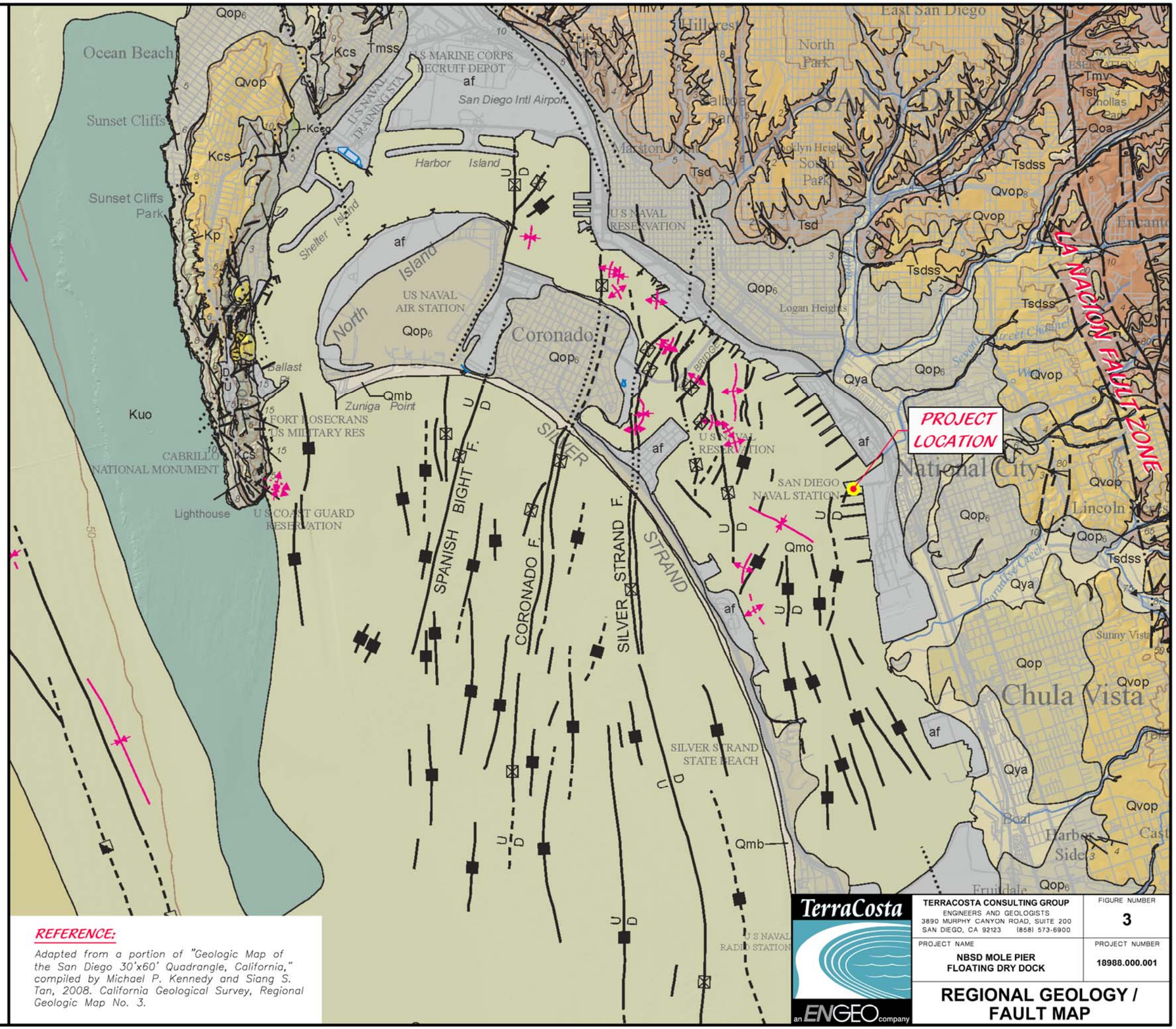
Qya Young alluvial flood-plain deposits (Holocene and late Pleistocene) - Poorly consolidated, poorly sorted, permeable flood-plain deposits of sandy, silty or clay-bearing alluvium.

Qop6 Old paralic deposits, Unit 6 (late to middle Pleistocene) - Poorly sorted, moderately permeable, reddish-brown, interfingered strandline, beach, estuarine and colluvial deposits composed of siltstone, sandstone and conglomerate. These deposits rest on the 22-23 m Nestor terrace.

Faults

Fault - Solid where well defined; dashed where approximately located; short dash where inferred; dotted where concealed; queried where uncertain. Where fault offsets sea floor, age symbol is shown on bar on downthrown side. Where age was determined, age symbol is shown astride fault and relative offset, if known, is shown by "D" and "U" on downthrown and upthrown sides. Ages of faults are indicated as follows:

- cuts strata of Holocene age
- cuts strata of late Quaternary age
- cuts strata of Quaternary age
- cuts Miocene or older strata



REFERENCE:

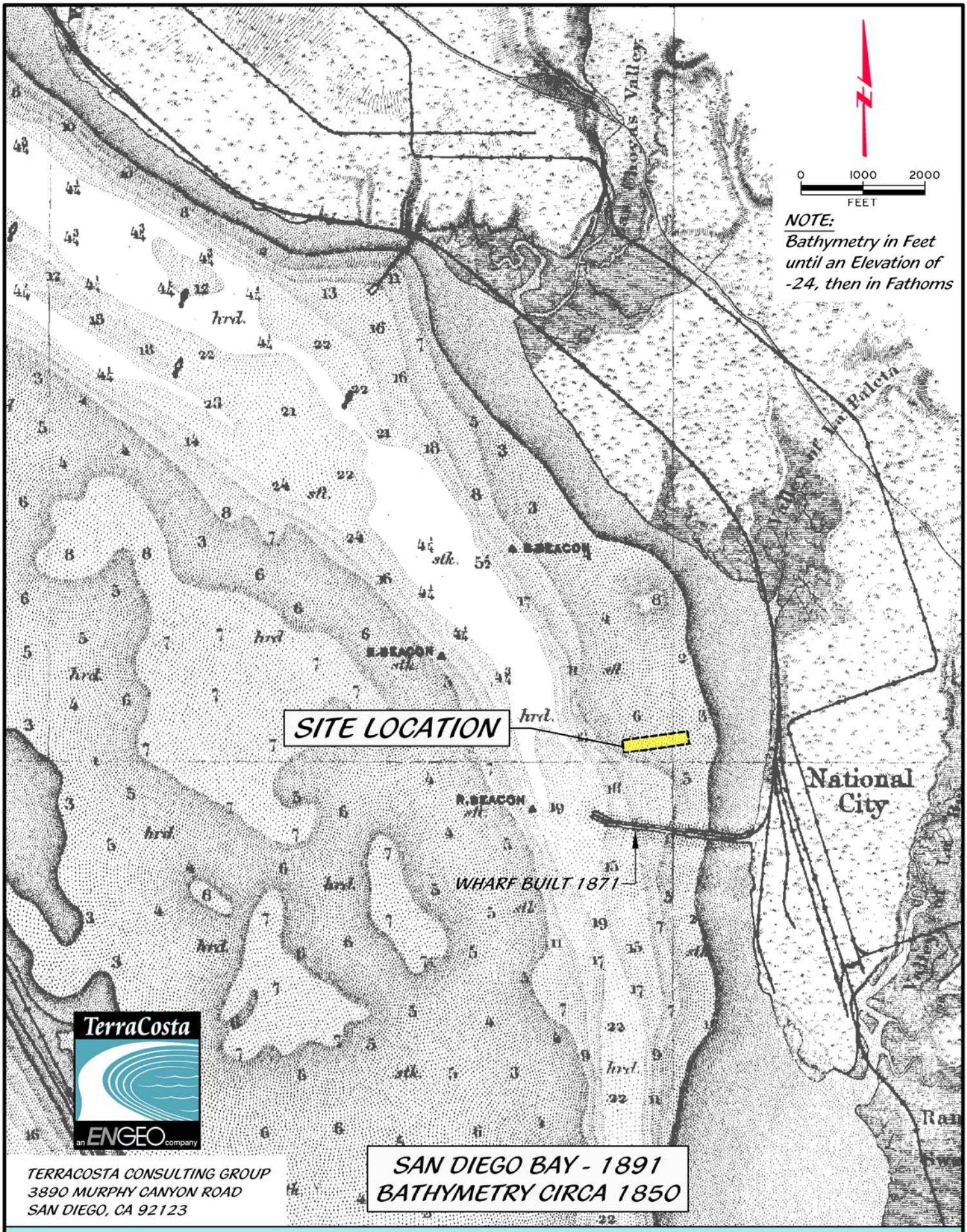
Adapted from a portion of "Geologic Map of the San Diego 30'x60' Quadrangle, California," compiled by Michael P. Kennedy and Siang S. Tan, 2008. California Geological Survey, Regional Geologic Map No. 3.

TerraCosta

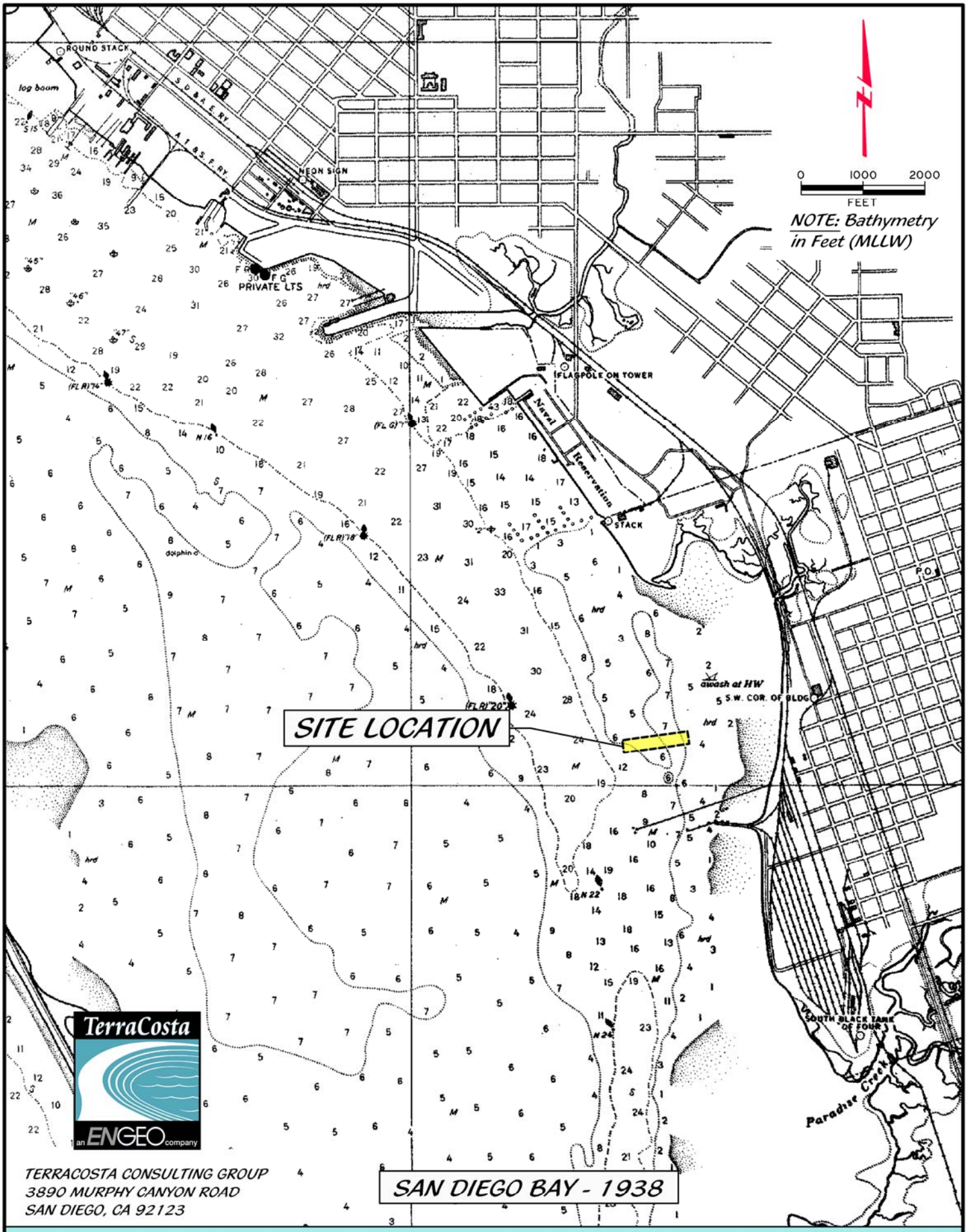
an ENGEO company

TERRACOSTA CONSULTING GROUP ENGINEERS AND GEOLOGISTS 3890 MURPHY CANYON ROAD, SUITE 200 SAN DIEGO, CA 92123 (858) 573-6900	FIGURE NUMBER 3
PROJECT NAME NBSD MOLE PIER FLOATING DRY DOCK	PROJECT NUMBER 18988.000.001

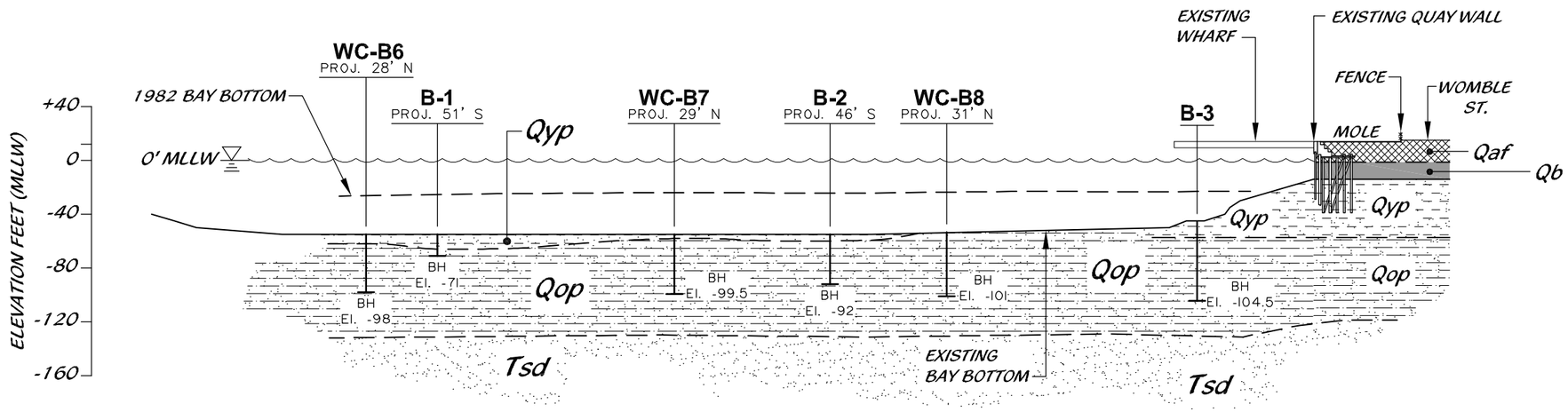
REGIONAL GEOLOGY / FAULT MAP



Project: NBSD Mole Pier Floating Dry Dock • Project No.: 18988.000.001 • Figure 4



Project: NBSD Mole Pier Floating Dry Dock • Project No.: 18988.000.001 • Figure 5



LEGEND

- - - - - -	APPROXIMATE GEOLOGIC CONTACT
Qaf	FILL (COMPACTED)
Qb	RECENT BAY DEPOSITS
Qyp	YOUNGER PARALIC DEPOSITS
Qop	OLDER PARALIC DEPOSITS
Tsd	SAN DIEGO FORMATION

GEOTECHNICAL CROSS SECTION A

SCALE: 1"=100'

TerraCosta an ENGEO company

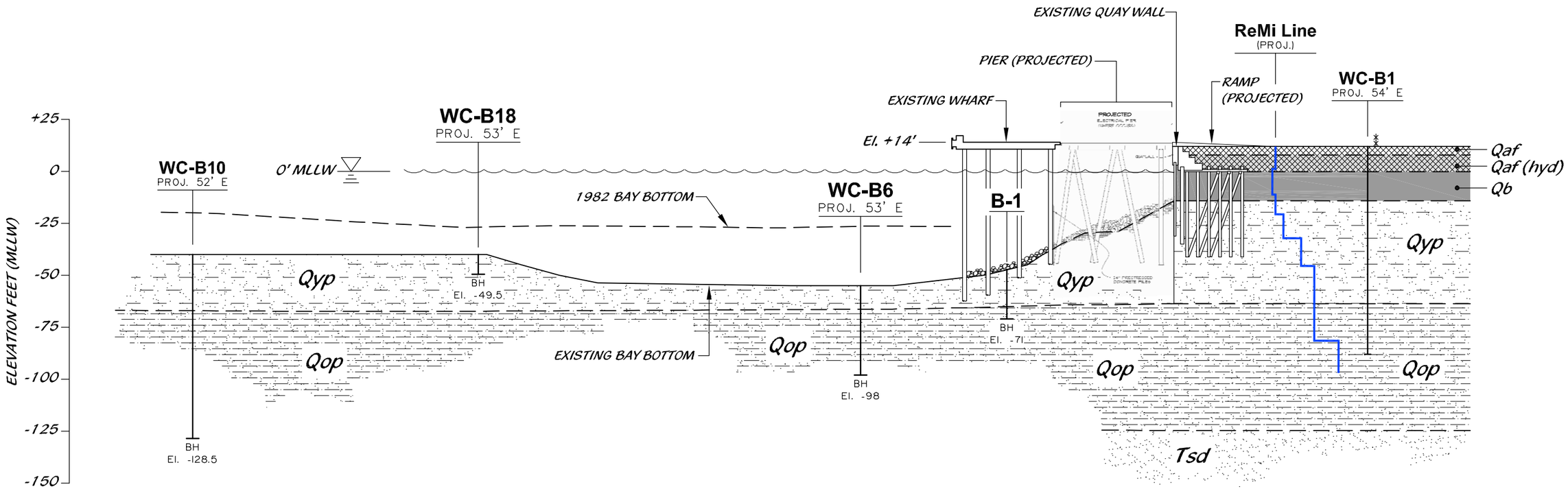
TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

FIGURE NUMBER: 6a

PROJECT NAME: NBSD MOLE PIER FLOATING DRY DOCK

PROJECT NUMBER: 18988.000.001

CROSS SECTION



LEGEND

— — —	APPROXIMATE GEOLOGIC CONTACT
Qaf	FILL (COMPACTED)
Qaf (hyd)	FILL (HYDRAULIC)
Qb	RECENT BAY DEPOSITS
Qyp	YOUNGER PARALIC DEPOSITS
Qop	OLDER PARALIC DEPOSITS
Tsd	SAN DIEGO FORMATION

GEOTECHNICAL CROSS SECTION B

SCALE: 1"=50'

TerraCosta an ENGEO company

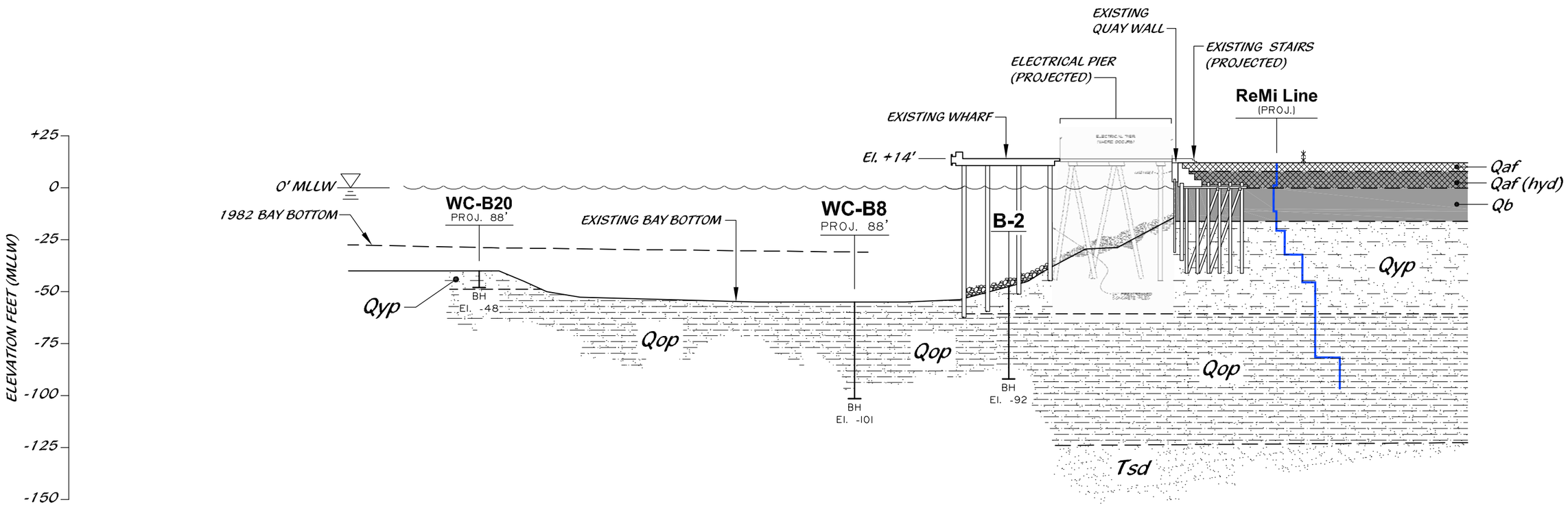
TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

FIGURE NUMBER: 6b

PROJECT NAME: NBSD MOLE PIER FLOATING DRY DOCK

PROJECT NUMBER: 18988.000.001

CROSS SECTION



LEGEND

— — —	APPROXIMATE GEOLOGIC CONTACT
Qaf	FILL (COMPACTED)
Qaf (hyd)	FILL (HYDRAULIC)
Qb	RECENT BAY DEPOSITS
Qyp	YOUNGER PARALIC DEPOSITS
Qop	OLDER PARALIC DEPOSITS
Tsd	SAN DIEGO FORMATION

GEOTECHNICAL CROSS SECTION C

SCALE: 1"=50'

TerraCosta
an ENGEO company

TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

FIGURE NUMBER
6c

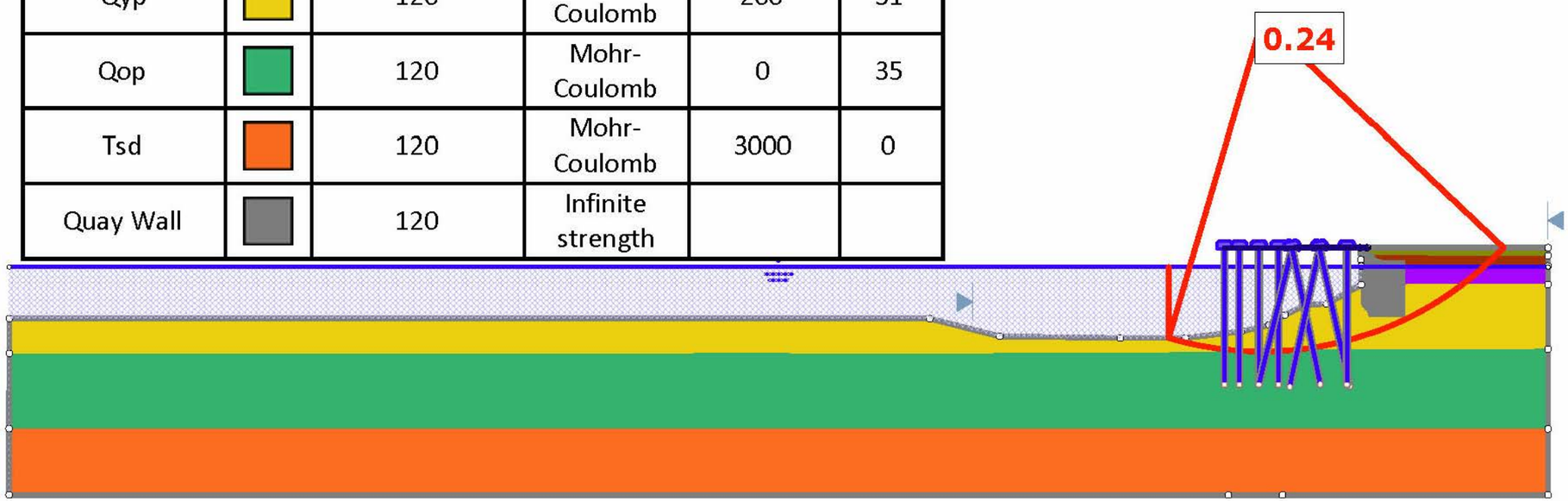
PROJECT NAME
NBSD MOLE PIER
FLOATING DRY DOCK

PROJECT NUMBER
18988.000.001

CROSS SECTION

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Qaf (quay wall)		120	Mohr-Coulomb	100	32
Qaf (hyd)(quay wall)		120	Mohr-Coulomb	0	30
Qb (quay wall)		120	Mohr-Coulomb	1000	0
Qyp		120	Mohr-Coulomb	200	31
Qop		120	Mohr-Coulomb	0	35
Tsd		120	Mohr-Coulomb	3000	0
Quay Wall		120	Infinite strength		

Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (ft)	Failure Mode	Pile Shear Strength (lbs)
Support 1		Pile/ Micro Pile	Active (Method A)	21	Shear	18000



GEOTECHNICAL CROSS SECTION B

SCALE: 1"=100'

0 50 100 200
FEET

TerraCosta
an ENGEO company

TERRACOSTA CONSULTING GROUP
ENGINEERS AND GEOLOGISTS
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123 (858) 573-6900

FIGURE NUMBER 7

PROJECT NAME
NBSD MOLE PIER
FLOATING DRY DOCK

PROJECT NUMBER
18988.000.001

PSEUDO STATIC SEISMIC COEFFICIENT

APPENDIX A

SELECT LOGS OF TEST BORINGS
FROM PREVIOUS STUDIES
AT NEARBY SITES

TerraCosta
an ENGEO company

Location | Boring Number | Elevation

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
	12	110	65		1	Very dense, damp, brown silty sand (SM)
					2	

WATER LEVEL
At time of drilling or as indicated.

SOIL CLASSIFICATION
Soil Classifications are based on the Unified Soil Classification System and include color, moisture and consistency. Field descriptions have been modified to reflect results of laboratory analyses where appropriate.

DISTURBED SAMPLE LOCATION
Obtained by collecting the auger cuttings in a plastic or cloth bag.

DRIVE SAMPLE LOCATION
MODIFIED CALIFORNIA SAMPLER
Sample with recorded blows per foot was obtained with a Modified California drive sampler (2" inside diameter, 2.5" outside diameter) lined with sample tubes. The sampler was driven into the soil at the bottom of the hole with a 140 pound hammer falling 30 inches.

STANDARD PENETRATION SAMPLER (*)
Sample with recorded blows per foot was obtained using a standard split spoon sampler (1⅜" inside diameter, 2⅜" outside diameter). The sampler was driven into the soil at the bottom of the hole with a 140 pound hammer falling 30 inches and the sample placed in a plastic bag.

INDICATES SAMPLE TESTED FOR OTHER PROPERTIES

GS – Grain Size Distribution	CT – Consolidation Test
LC – Laboratory Compaction Test	UCS – Unconfined Compression Test
	SDS – Slow Direct Shear Test
PI – Atterberg Limits Test	DS – Direct Shear Test
ST – Loaded Swell Test	TX – Triaxial Compression Test
CC – Confined Compression Test	'R' – R-Value

NOTE: In this column the results of these tests may be recorded where applicable.

BLOW COUNT
Number of blows needed to advance sampler one foot or as indicated. See Note 2.

DRY DENSITY
Pounds per Cubic Foot

MOISTURE CONTENT
Percent of Dry Weight

NOTES ON FIELD INVESTIGATION

1. REFUSAL indicates the inability to extend excavation, practically, with equipment being used in the investigation.

   Blow counts for Standard Penetration Test are indicated by an asterisk (*), all other blow counts are for the Modified California Sampler.

KEY TO LOGS FLOATING DRY DOCK FACILITY P-242				
DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-14-82	FIGURE NO: A-1

WOODWARD-CLYDE CONSULTANTS

Boring 1

Approximate El. +12' MLLW

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Moist, dark gray, silty clay with asphalt fragments FILL
5						Wet to saturated, light gray, silty fine to medium sand with shell fragments HYDRAULIC FILL
10			20		1-1	Becomes saturated
15			18		1-2	Color change in mud
20	31		11		1-3	Loose to medium dense, saturated, dark gray, clayey silt (ML-CL) interbedded with silty fine sand to fine sandy silt (SM-ML) with shells BAY DEPOSITS
25	28	96	9		1-4	
30	28	96	8	UCS= 1120 psf	1-5	Firm, saturated, black. silty clay (CH) BAY DEPOSITS
35	18	114	42	PI, UCS = 5570 psf	1-6	Hard, saturated, dark brown gray mottled, fine sandy clay (CL) BAY POINT FORMATION
						Grading to
40	18	114	33		1-7	Dense to very dense, saturated, dark brown, clayey fine sand (SC-SM) BAY POINT FORMATION

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 1

FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 12-9-81	FIGURE NO: A-2

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) dense to very dense, saturated, dark brown, clayey fine sand (SC-SM) BAY POINT FORMATION
45						
50	22	116	37	GS,PI, TX	1-8	
55						
						Very dense, saturated, light gray, medium to coarse sand (SP) BAY POINT FORMATION
60	15	112	57		1-9	
65						
						Very stiff, saturated, dark brown, silty clay (CL-CH) BAY POINT FORMATION
70	39	115	24	GS,PI, TX	1-10	
75						
						Very dense, saturated, light yellow gray, silty fine sand (SM) BAY POINT FORMATION
80	23	99	50/4"		1-11	

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 1 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY:	PROJECT NO: 51249V-SI02	DATE: 12-9-81	FIGURE NO: A-3

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) very dense, saturated, light yellow gray, silty fine sand (SM) BAY POINT FORMATION
85						← Gravel layer
90	29	90	50/ 4"		1-12	
95	24	104	50/ 4"		1-13	Hard, saturated, dark gray, silty clay to fine sandy clay (CL) BAY POINT FORMATION
100						Bottom of Hole
105						
110						
115						
120						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 1 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LC	PROJECT NO: 51249V-SIO2	DATE: 12-9-81	FIGURE NO: A-4

WOODWARD-CLYDE CONSULTANTS

Boring 2

Approximate El. -17' MLLW

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black, silty clay (CH) BAY DEPOSITS
5	15	120	29		2-1	Medium dense, saturated, light gray brown, clayey sand (SC) with occasional 6"-8" lens of clay (CL) BAY POINT FORMATION
10	19	115	25		2-2	
15	21	109	37		2-3	Dense, saturated, brown, coarse to fine sand (SW) to silty fine sand (SM) BAY POINT FORMATION
20			16*		2-4	Medium dense, saturated, brown, silty fine sand (SM) BAY POINT FORMATION
25	21	107	70		2-5	Very dense, saturated, brown, coarse to fine sand (SW) BAY POINT FORMATION
30			32		2-6	Dense, saturated, brown, coarse to medium sand (SP) BAY POINT FORMATION
35	32	91	36		2-7	Dense, saturated, brown, silty fine sand (SM) BAY POINT FORMATION
40						Stiff to very stiff, saturated, brown, clayey to sandy silt (ML) BAY POINT FORMATION

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 2
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-5

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			13*		2-8	(Continued) stiff to very stiff, saturated, brown, sandy silt (ML) BAY POINT FORMATION
45						Dense to very dense, saturated, light gray with red stains, silty fine sand (SM) with occasional thin claye lenses BAY POINT FORMATION
						Gravels
50	27	99	50		2-9	
55						Gravels
60			93/ 9"*		2-10	Very dense, saturated, brown gray, silty fine sand (SM) BAY POINT FORMATION
70			104	TX	2-11	Hard, saturated, brown, sandy to silty clay (CL) BAY POINT FORMATION
75						Very dense, saturated, light gray red stained, silty fine sand (SM) with occasional clay lenses BAY POINT FORMATION
80			77		2-12	Very dense, saturated, brown, coarse sand (SP) BAY POINT FORMATION
85						Bottom of Hole

*For description of symbols, see Figure A-1

LOG OF TEST BORING 2 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 52149V-SI02	DATE: 3-30-82	FIGURE NO: A-6

WOODWARD-CLYDE CONSULTANTS

Boring 3

Approximate El. -17' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black and gray, silty clay (CL) interbedded with silty fine to medium sand (SM) BAY DEPOSITS
5						
	20	113	15		3-1	
10						
			20 *		3-2	Medium dense, saturated, brown gray, silty medium sand (SM) BAY POINT FORMATION
15						
			28 *		3-3	Dense, saturated, brown gray coarse to medium sand (SW) BAY POINT FORMATION
20						
	23	104	33		3-4	
25						
	17	112	40		3-5	
30						
			28 *		3-6	Very stiff, saturated, brown, fine sandy to silty clay (CL) BAY POINT FORMATION
35						
			29		3-7	
40						Medium dense, saturated, brown gray, coarse to medium sand (SW) BAY POINT FORMATION

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 3
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-7

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) medium dense, saturated, brown gray, coarse to medium sand (SW)
	20	111	32		3-8	BAY POINT FORMATION
45						Very dense, saturated, light gray, silty sand (SM) with numerous small shells Cemented nodules BAY POINT FORMATION
50						Shells
			53 *		3-9	
55						
60						
	28	97	55		3-10	
65						Very dense, saturated, gray silty clay (CH) with lenses of silty sand (SM) BAY POINT FORMATION
70						Very dense, saturated, reddish brown, silty coarse to medium sand (SM) with lens of silty clay (CL-CH)
			50/* 6"		3-11	BAY POINT FORMATION
75						
80						

Continued on next page

*For description of symbols, see Figure A-1

LOG OF TEST BORING 3 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-30-82	FIGURE NO: A-8

WOODWARD-CLYDE CONSULTANTS

Boring 3 (Cont'd)

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
	19	107	107		3-12	(Continued) very dense, saturated, reddish brown, silty coarse to medium sand (SM) with lens of silty clay (CL-CH) BAY POINT FORMATION
85						Stiff, saturated, brown, silty to sandy clay (CL) BAY POINT FORMATION
90						Very dense, saturated, light brown and gray, silty coarse to medium sand (SM-SP) BAY POINT FORMATION
			80 *		3-13	
95						
100						
	26	107	50/3"		3-14	Very dense, saturated, red brown, fine sand (SP) BAY POINT FORMATION
105						
110						
			50/3"*		3-15	Dense, saturated, light gray, silty medium to coarse sand (SW-SM) BAY POINT FORMATION
115						Bottom of Hole
120						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 3 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: ZE	PROJECT NO: 51249V-SI02	DATE: 3-30-82	FIGURE NO: A-9

WOODWARD-CLYDE CONSULTANTS

Boring 4

Approximate El.-15' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Medium dense, saturated, gray, silty fine sand (SM) interbedded with layers of fine to medium sand (SP) BAY POINT FORMATION
5			21 *		4-1	
10	22	105	43		4-2	
						Medium dense, saturated, light brown, slightly silty fine sand (SP-SM) BAY POINT FORMATION
15			27 *		4-3	
20			50		4-4	Dense, saturated, gray brown, slightly silty fine sand (SP) BAY POINT FORMATION
25			22 *	UCS= 4030 psf	4-5	Medium dense to dense, saturated, brown, very silty fine sand (SM-ML) interbedded with stiff, saturated, brown, silty clay (CL) BAY POINT FORMATION
30	30		38		4-6	
35	19	112	42		4-7	
						Dense, saturated, light gray with red stains, silty fine sand (SM) BAY POINT FORMATION
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 4
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LC	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-10

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			39 *		4-8	(Continued) dense, saturated, light gray with red stains, silty fine sand (SM) BAY POINT FORMATION
						Possible thin silt and clay lenses
45						
50						
	29	93	58/ 6"		4-9	Very dense, saturated, light gray, slightly silty sand (SP-SM) BAY POINT FORMATION
55						
60						Dense, saturated, brown gray, very clayey sand (SC) BAY POINT FORMATION
			88/* 10"		4-10	
						Dense, saturated, red brown, silty medium sand (SM) BAY POINT FORMATION
65						
						Very dense, saturated, red brown, clayey fine to medium sand (SC) BAY POINT FORMATION
70						
	21 22	109 105	70		4-11	
75						Possible thin clay lens
						Possible thin clay lens
80						

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 4 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-11

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			30 *		4-12	(Continued) very dense, saturated, red brown, clayey fine to medium sand (SC)
						Dense, saturated, brown gray, very clayey fine sand (SC) BAY POINT FORMATION
85						
90			79 *		4-13	
95						Very dense, saturated, gray, slightly silty medium to coarse sand (SP-SM) BAY POINT FORMATION
100	14	116	50/ 6"		4-14	
105						
110			54 *		4-15	Stiff, saturated, red brown very silty fine sand to fine sandy clay (SC-CL) BAY POINT FORMATION
						Bottom of Hole
115						
120						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 4 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-30-82	FIGURE NO: A-12

WOODWARD-CLYDE CONSULTANTS

Boring 5

Approximate El. -28' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, dark gray, silty clay (CH) BAY DEPOSITS
	18	113	14		5-1	
5						Interbedded layers of dense to very dense, saturated, brown, silty sand (SM) and hard silty clay (CL) (material grades between silty fine sand, silty medium sand and silty sandy clay) BAY POINT FORMATION
10	20	111	45		5-2	
15	17	116	56		5-3	
20	19	109	67		5-4	
25			46		5-5	Coarse to medium sand
30					5-6	Stiff to hard, saturated, light brown, silty clay (CL) occasional pebbles BAY POINT FORMATION
35	28	96	48	GS,PI UCS = 160 psf	5-7	
40						Very dense, saturated, light gray, slightly silty sand (SP-SM) with reddish brown stains

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 5
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 57249V-SI02	DATE: 2-14-82	FIGURE NO: A-13

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
	22	104	74	GS	5-8	(Continued) very dense, saturated, light gray, slightly silty sand (SP-SM) with brown stains BAY POINT FORMATION
45						
						Possible clay lens
50						Gravels
	28	94	50/6"	GS	5-9	
55						
60	24	103	51	UCS = 4520 psf	5-10	
						Hard, saturated, gray, silty clay (CH) BAY POINT FORMATION
65						
70			50/6"		5-11	Very dense, saturated, gray, clayey sand (SC) BAY POINT FORMATION
						Bottom of Hole
75						
80						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 5 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-24-82	FIGURE NO: A-14

WOODWARD-CLYDE CONSULTANTS

Boring 6

Approximate El. -26' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft to firm, saturated, gray black, silty clay (CH) BAY DEPOSITS
5	24	105	52	GS	6-1	Hard, saturated, gray brown, sandy silt (ML) to very dense, silty fine sand (SM) BAY POINT FORMATION
10	16	116	37	GS	6-2	Dense to very dense, saturated, brown, silty medium to coarse sand (SM) BAY POINT FORMATION
15			35		6-3	
20			50/ 4"		6-4	
25	28	102	51	GS, UCS= 1480 psf	6-5	Very dense, saturated, light brown, silty fine sand (SM) to hard, fine sandy silt (ML) interbedded layers approximately 1" thick, occasional thin clay layers (CH) BAY POINT FORMATION
30	38	84	50	PI	6-6	
35						Possible clay lens
	16	112	66	GS	6-7	Very dense, saturated, light gray brown, slightly silty medium sand (SP-SM) BAY POINT FORMATION
40						

Continued on next page

*For description of symbols, see Figure A-1

LOG OF TEST BORING 6
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY:	PROJECT NO: 51249V-SIO2	DATE: 3-14-82	FIGURE NO: A-15

WOODWARD-CLYDE CONSULTANTS

Boring 6 (Cont'd)

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) very dense, saturated, light gray brown, slightly silty medium sand (SP-SM) BAY POINT FORMATION
			50/ 4"		6-8	
						Very dense, saturated, light brown, slightly silty coarse sand and small gravels to medium sand (SP-SM) BAY POINT FORMATION
45						
50						
						Gravel layer, hole caving prevented sampling below 52'
55						
						Possible clay layer ?
60						
						Gravel
65						
						Gravel
70						
						Clay layer
						Bottom of Hole
75						
80						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 6 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-16

WOODWARD-CLYDE CONSULTANTS

Boring 7

Approximate El. -28'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
	113	106	16	GS,PI	7-1	Soft to firm, saturated, dark gray, silty clay (CH) slight odor BAY DEPOSITS
						Very dense, saturated, light gray, slightly silty medium to coarse sand (SP-SM) BAY POINT FORMATION
5						
10	20	105	87	GS	7-2	
15	17	114	67	GS	7-3	Very dense, saturated, light gray, silty medium sand (SM) BAY POINT FORMATION
20			64		7-4	
						Very stiff to hard, saturated, light brown, silty clay (CH) BAY POINT FORMATION
25	24	92	31	UCS =194 psf	7-5	
30			101/10"		7-6	Very dense, saturated, light gray, slightly silty fine to medium sand (SP-SM), occasional clay partings BAY POINT FORMATION
35	16	114	60/6"	GS	7-7	
40						

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 7
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY:	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-17

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			86		7-8	(Continued) very dense, saturated, light gray, slightly silty fine to medium sand (SP-SM) occasional clay partings BAY POINT FORMATION
45						
50	29	94	15	PI, TX, UCS = 2260 psf	7-9	Stiff, saturated, gray, silty clay (CL) BAY POINT FORMATION
55						Very dense, saturated, light gray, silty medium to coarse sand (SM) BAY POINT FORMATION
60	14	119	82	GS	7-10	
65						
70					7-11	Fall-in prevented sampling
						Bottom of Hole
75						
80						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 7 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: TE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-18

WOODWARD-CLYDE CONSULTANTS

Boring 8

Approximate El. -29'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			15		8-1	Firm, saturated, dark gray, fine sandy silt (ML) to medium dense, saturated, silty fine sand (SM) BAY DEPOSITS
5			42		8-2	Dense to very dense, saturated, light gray coarse sand (SP) BAY POINT FORMATION Lost samples and drilling fluid
10			64		8-3	
15	30	95	33	GS,PI UCS = 2180 psf	8-4	Hard, saturated, light brown, silty clay (CL) to silty sand (SM) BAY POINT FORMATION
20			80		8-5	Very dense, saturated, light gray, silty fine to medium sand (SM) BAY POINT FORMATION Stiff, saturated, light brown, silty clay (CH) BAY POINT FORMATION
25			70		8-6	Very dense, saturated, light gray brown, silty sand with occasional cementation (SM) BAY POINT FORMATION
	21	107	58	GS	8-7	
30			68		8-8	Some shells present Becomes slightly clayey
35	19	112	63/6"	GS	8-9	
40						Gravel layer

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 8
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY:	PROJECT NO: 51249V-SIO2	DATE: 3-14-82	FIGURE NO: A-19

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) very dense, saturated, light gray brown, silty sand with occasional cementation (SM) BAY POINT FORMATION
45	16	120	50	GS,PI UCS = 3780 psf	8-10	Hard, saturated, light brown, silty clay (CL) BAY POINT FORMATION
50						
55	15	120	50/ 4"		8-11	Very dense, saturated, light gray, silty sand (SM) BAY POINT FORMATION
60						
65						
70			50/ 5"		8-12	Very dense, saturated, light red brown, clayey sand (SC) with occasional clay lenses BAY POINT FORMATION
						Bottom of Hole
75						
80						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 8 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: ZB	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-20

WOODWARD-CLYDE CONSULTANTS

Boring 9

Approximate El. -18' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black, silty clay and clayey silt (CH-ML) BAY DEPOSITS
5						Stiff, saturated, brown, very clayey sand to sandy clay (SC-CL) BAY POINT FORMATION
			13 *		9-1	
10						
	26	100	42		9-2	
15						
			48 *		9-3	
20						Very dense, saturated, gray brown, silty medium sand (SM) BAY POINT FORMATION
						Dense, saturated, brown, clayey fine sand (SC) BAY POINT FORMATION
25	32	92	39		9-4	
						Dense, saturated, gray brown, slightly silty fine sand (SP-SM) BAY POINT FORMATION
						Stiff, saturated, brown, silty clay (CL) BAY POINT FPRMATION
30			18 *		9-5	
						Dense, saturated, light gray, silty fine sand (SM) BAY POINT FORMATION
35	15	120	36		9-6	
			53 *		9-7	Occasional shell and gravel lenses Shells
40						

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 9
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: ZE	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-21

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) dense, saturated, light gray, silty fine sand (SM) BAY POINT FORMATION
						Grading to
						Dense, saturated, light gray, slightly silty fine sand (SP-SM) BAY POINT FORMATION
45						Gravels
50	25	100	50/5"		9-8	
55						Clay
						Dense, saturated, red brown, clayey medium to coarse sand (SC) BAY POINT FORMATION
60			56/6"*		9-9	Lost sample
70	14	122	82		9-10	
						Stiff, saturated, brown, silty clay (CL) BAY POINT FORMATION
						Very dense, saturated, red brown, silty medium to coarse sand (SM) BAY POINT FORMATION
80			59		9-11	
						Bottom of Hole
85						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 9 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-30-82	FIGURE NO: A-22

WOODWARD-CLYDE CONSULTANTS

Boring 10

Approximate El.-20' MLLW

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black, silty clay (CH) interbedded with loose, black, silty sand (SM) BAY DEPOSITS
5						
	23	106	6		10-1	
						Firm, saturated, brown, sandy silt (ML) BAY DEPOSITS
10						
						Dense, saturated, brown to light gray, silty fine sand (SM) BAY POINT FORMATION
			38		10-2	
15						
			17*		10-3	Stiff to very stiff, gray brown, sandy clay (CL) BAY POINT FORMATION
20						
	25	102	28		10-4	Medium dense, saturated, brown gray, silty fine sand (SM) BAY POINT FORMATION
25						
			36*		10-5	Dense, saturated, brown gray, silty fine sand to coarse sand (SM) BAY POINT FORMATION
30						
	29	94	25		10-6	Stiff to very stiff, saturated, brown, silty to fine sandy clay (CH-CL) BAY POINT FORMATION
35						
			19		10-7	
40						Dense, saturated, light gray brown, slightly silty fine sand (SP-SM) BAY POINT FORMATION

*For description of symbols, see Figure A-1

Continued on next page

LOG OF TEST BORING 10
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: ZE	PROJECT NO: 51249V-SI02	DATE: 3-30-82	FIGURE NO: A-23

WOODWARD-CLYDE CONSULTANTS

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) dense, saturated, light gray brown, slightly silty fine sand (SP-SM) BAY POINT FORMATION
45						
					10-8	Shell layer; Gravels
50						
55						
			77 *		10-9	Very dense, saturated, gray brown, silty fine sand (SM) BAY POINT FORMATION
60						
65						
			81		10-10	Very stiff, saturated, gray, sandy clay to clayey sand (CL-SC) BAY POINT FORMATION
70						
75						Dense, saturated, light brown to gray, silty to clayey fine sand (SM-SC) BAY POINT FORMATION
			49 *		10-11	
80						

Continued on next page

*For description of symbols, see Figure A-1

LOG OF TEST BORING 10 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 52149V-SI02	DATE: 3-30-82	FIGURE NO: A-24

WOODWARD-CLYDE CONSULTANTS

Boring 10 (Cont'd)

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						(Continued) dense, saturated, light brown to gray, silty to clayey fine sand (SM-SC) BAY POINT FORMATION
85						
	19	109	50/ 4"		10-12	Very dense, saturated, gray brown, silty sand (SM) BAY POINT FORMATION
90						
95						Cemented layer
			97 *		10-13	Very dense, saturated, brown gray, coarse to fine sand (SW) BAY POINT FORMATION
100						
105						
	22	106	50/ 5"		10-14	Very dense, saturated, gray brown, silty sand (SM) BAY POINT FORMATION
110						Bottom of Hole
115						
120						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 10 (CONT'D)
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-30-82	FIGURE NO: A-25

WOODWARD-CLYDE CONSULTANTS

Boring 11

Approximate El. -28'MLLW

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, dark gray, silty clay (CH) BAY DEPOSITS
						Very dense, saturated, light gray, medium to coarse silty sand (SM) BAY POINT FORMATION
5						
10	14	117	50		11-1	
15	32	91	36		11-2	
						Hard, saturated, light brown, silty clay (CH) to clayey silt (ML) BAY POINT FORMATION
20	30	92	68		11-3	
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 11
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: ZE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-26

WOODWARD-CLYDE CONSULTANTS

Boring 12

Approximate El. -30'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			62		12-1	Soft, saturated, black silty clay (CH) BAY DEPOSITS
						Dense, saturated, brown, clayey sand (SC) grading to hard, fine sandy silt (ML) BAY POINT FORMATION
5	29	94	55	UCS = 1340 psf	12-2	
10	32 22	92 105	48	GS,PI UCS= 2380 psf	12-3	Hard, saturated, brown, silty clay (CL-CH) BAY POINT FORMATION
15			56		12-4	
						Very dense, saturated, gray, slightly silty sand (SP-SM) some cementation BAY POINT FORMATION
20			75		12-5	
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 12
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-12-82	FIGURE NO: A-27

WOODWARD-CLYDE CONSULTANTS

Boring 13

Approximate El. -30 'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			30		13-1	Soft, saturated, dark gray, silty clay (CH) and loose saturated, gray, silty sand (SM) BAY DEPOSITS
5			7		13-2	Interbedded layers of hard, saturated, light brown, silty clay (CH) and dense silty sand (SM) BAY POINT FORMATION
10	34	89	45	UCS = 2180 psf	13-3	Dense clayey sand
15			85		13-4	
20	29	94	75/ 6"	UCS = 950 psf	13-5	Very dense, saturated, light gray, slightly silty sand (SP-SM) some red staining and cementations, occasional lenses of silty clay (CL-CH) BAY POINT FORMATION
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 13
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-12-82	FIGURE NO: A-28

WOODWARD-CLYDE CONSULTANTS

Boring 14

Approximate El.-27'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			20		14-1	Soft, saturated, dark gray, silty clay (CH) BAY DEPOSITS
						Medium dense, saturated, gray, silty fine to medium sand (SM) with some clay partings and shells BAY DEPOSITS
5	18	112	39	GS	14-2	Dense to very dense, saturated, light brown, silty fine to medium sand (SM) BAY POINT FORMATION
10			46		14-3	Hard, saturated, brown, silty clay (CH-CL) interbedded with layers of silty fine sand (SM) occasional pebbles BAY POINT FORMATION
15	28	98	40	GS	14-4	
20			71		14-5	
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 14
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-29

WOODWARD-CLYDE CONSULTANTS

Boring 15

Approximate El. -30'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black, silty clay (CL-CH)
	41	81	12		15-1	Stiff, saturated, brown, sandy to silty clay (CL-CH) interbedded with layers of dense, silty sand (SM)
5	24	105	38	GS	15-2	BAY POINT FORMATION
10	23	96	28	PI	15-3	
						Refusal
15						
20						
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 15
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-30

WOODWARD-CLYDE CONSULTANTS

Boring 16

Approximate El. -28' MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			8		16-1	Soft, saturated, black, silty clay (CH) and loose, silty sand (SM) BAY DEPOSITS
5	21	107	9		16-2	Firm, saturated, brown, silty clay (CL-CH) interbedded layers of firm to very stiff, sandy silt and medium dense to very dense, silty fine sand (SM-ML) BAY POINT FORMATION
10	18	111	29		16-3	
15			46		16-4	
20	25	98	98		16-5	Dense to very dense, saturated, light brown to very, slightly silty fine sand (SP-SM) BAY POINT FORMATION
25						Bottom of Hole
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 16
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-31

WOODWARD-CLYDE CONSULTANTS

Boring 17

Approximate El. -27'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
	21	109	30		17-1	Very stiff to hard, saturated, light brown, silty clay (CL-CH) BAY POINT FORMATION
5			49		17-2	
10	23	104	46	UCS = 800 psf	17-3	
15	19	113	45	GS	17-4	Dense, saturated, reddish brown to gray, silty sand (SM) BAY POINT FORMATION
20			50/6"		17-5	
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 17
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-32

WOODWARD-CLYDE CONSULTANTS

Boring 18

Approximate El. -28'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						Soft, saturated, black, silty clay (CH)
	20	108	28	GS	18-1	Medium dense to very dense, saturated, light brown, silty medium sand (SM) BAY POINT FORMATION
5			18		18-2	Becomes slightly clayey
10	18	113	51		18-3	Thin lens of cleaner, coarser sand
15			62		18-4	
20			50/3"		18-5	Coarse sand
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 18
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SIO2	DATE: 3-14-82	FIGURE NO: A-33

WOODWARD-CLYDE CONSULTANTS

Boring 19

Approximate El. -28'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			12		19-1	Soft, saturated, black, silty clay (CH)
						Medium dense to very dense, saturated, light brown, silty fine to medium sand (SM) BAY POINT FORMATION
5	20	109	39	GS	19-2	
10			42		19-3	
15	15	116	59		19-4	
20			51		19-5	Hard, saturated, light brown, silty clay (CH) BAY POINT FORMATION
						Bottom of Hole
25						
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 19
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-34

WOODWARD-CLYDE CONSULTANTS

Boring 20

Approximate El. -27'MLLW

DEPTH IN FEET	TEST DATA *MC	*DD	*BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
			9		20-1	Soft, saturated, black, silty clay (CH) slight odor BAY DEPOSITS
5	18	109	71		20-2	Very dense, saturated, light brown, silty fine to medium sand (SM) BAY POINT FORMATION
10	19	110	88		20-3	
15	20	94	46		20-4	Dense, saturated, light brown, silty fine sand (SM) to hard, sandy silt (ML) BAY POINT FORMATION
20	41	82	21	PI	20-5	Very stiff, saturated, light brown, silty clay (CL) BAY POINT FORMATION
25						Bottom of Hole
30						
35						
40						

*For description of symbols, see Figure A-1

LOG OF TEST BORING 20
FLOATING DRY DOCK FACILITY P-242

DRAWN BY: ch	CHECKED BY: LE	PROJECT NO: 51249V-SI02	DATE: 3-14-82	FIGURE NO: A-35

WOODWARD-CLYDE CONSULTANTS

APPENDIX B

LOGS OF TEST BORINGS

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**LEGEND**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	7/1/2021	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	40		▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION

5

10

15

KEY TO EXCAVATION LOGS

WATER TABLE MEASURED AT TIME OF DRILLING

OTHER TESTS

CC	Confined Compression	ppm	parts per million of VOCs*
CL	Chloride Content	R	Resistivity
CS	Consolidation	RV	R-Value
DS	Direct Shear	SA	Sieve Analysis
EI	Expansion Index	SE	Sand Equivalent
GS	Grain Size Analysis	SF	Sulfate
LC	Laboratory Compaction	SG	Specific Gravity
pH	Hydrogen Ion	SW	Swell
PI	Plasticity Index		

PENETRATION RESISTANCE (BLOWS/ft)

Number of blows required to advance the sampler 1 foot.

California Sampler blow counts can be converted to equivalent SPT blow counts by using an end-area conversion factor of 0.67 when using a 140-pound hammer and a 30-inch drop.

SAMPLE TYPE

C ("California Sampler") - An 18-inch-long, 2-1/2-inch I.D., 3-inch O.D., thick-walled sampler. The sampler is lined with eighteen 2-3/8-inch I.D. brass rings. Relatively undisturbed, intact soils samples are retained in the brass rings.

S ("SPT") - a.k.a. Standard Penetration Test, an 18-inch-long, 2-inch O.D., 1-3/8-inch I.D. drive sampler.

ENV - Sample collected for testing by Wood Environmental

(CONTINUED)

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-1 a

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**LEGEND**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	7/1/2021	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	40		▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION

25

30

35

KEY TO EXCAVATION LOGS

(CONTINUED)

NOTES ON FIELD INVESTIGATION

Borings were advanced using a truck-mounted Marl MTDX drill rig with a 8-inch hollow-stem auger.

Standard Penetration Tests (SPT) and California Samplers (CAL) were used to obtain soil samples. The SPT were driven into the soil at the bottom of the borings with a 140-pound hammer falling 30 inches. When the samplers were withdrawn from the boring, the samples were removed, visually classified, sealed in plastic containers, and taken to the laboratory for detailed inspection.

Classifications are based upon the Unified Soil Classification System and include color, moisture, and consistency. Field descriptions have been modified to reflect results of laboratory inspection where deemed appropriate. At the completion of drilling, all borings were sealed per state and local standards.

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-1 b

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-1**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	7/1/2021	7/1/2021	1 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	26	-45	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 59' below deck, deck at +14; 32.668646, -117.121657

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									MUD LINE
									BAY DEPOSITS **SILTY CLAY (CL)**, soft, saturated, dark gray, with occasional fine sand
									- Rip-rap
5	-50								- Hard drilling on rip-rap
		S		7		24.6	GS ENV		- Poor recovery, gravel in sampler
									- Hard drilling on rip-rap
									YOUNGER PARALIC DEPOSITS **SILTY CLAY (CL) AND FINE SANDY SILT (ML)**, soft, saturated, brown, interbedded
10	-55								
		C		9	84.1	36.5	GS ENV		
15	-60								
		S		36	110.6	19.2	GS ENV		**FINE SILTY SAND TO SANDY SILT (SM/ML)**, dense, moist, gray, interbedded

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-2 a

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-1**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	7/1/2021	7/1/2021	2 of 2

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	26	-45	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 59' below deck, deck at +14; 32.668646, -117.121657

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									- Layer of sand, fine to coarse grained
				51			GS ENV		OLDER PARALIC DEPOSITS **SILTY SAND (SM)**, medium dense, moist, reddish-brown to brown
25	-70								
									Boring terminated at 26 feet below mud line.
30	-75								
35	-80								

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-2 b

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-2**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/30/2021	6/30/2021	1 of 3

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	49.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 57' below deck, deck at +14; 32.668722, -117.120721

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									MUD LINE
									BAY DEPOSITS **SILTY CLAY (CL)**, soft, saturated, dark gray
	-45								
									SILTY CLAY (CL), soft, saturated, dark gray
		S	1	13			ENV		- Poor recovery, rock in sampler
5									
	-50								- Hard drilling on rip-rap
									- Becomes clayey gravel (GP)
		C	2	21		21.0	GS		- Rock, fine gravel, rip-rap
10									
									YOUNGER PARALIC DEPOSITS **FINE SILTY SAND TO SANDY SILT (SM/ML)**, medium dense, moist, gray, interbedded
	-55								
		S	3	22		22.4	GS ENV		
15									
	-60								
									OLDER PARALIC DEPOSITS **FINE SILTY SAND TO SANDY SILT (SM/ML)**, medium dense, moist, gray, interbedded w/ shell fragments
		C	4	66	109.2	20.8	GS ENV		

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-3 a

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-2**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/30/2021	6/30/2021	2 of 3

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	49.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 57' below deck, deck at +14; 32.668722, -117.120721

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									FINE SILTY SAND TO SANDY SILT (SM/ML), dense, moist, gray, interbedded w/ shell fragments
	-65								
		S	5	48		19.8	GS		
25									
	-70								**FINE SILTY SAND (SM)**, medium dense, moist, gray
		C	6	57	96.1	28.4	GS		
30									
	-75								
35									
	-80								**CLAYEY SAND TO FINE SANDY CLAY (CL)**, very stiff, moist, reddish-brown
		S	7	23		14.7	GS		

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-3 b

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-2**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/30/2021	6/30/2021	3 of 3

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	49.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 57' below deck, deck at +14; 32.668722, -117.120721

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									Continued
	-85								**FINE SILTY SAND TO SANDY SILT (SM/ML)**, dense, moist, reddishbrown to brown, fine grained
45									
	-90								
		S	8	37					
50									Boring terminated at 49.5 feet below mud line.
	-95								
55									
	-100								

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-3 c

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-3**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	6/29/2021	1 of 4

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	61.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 55' below deck, deck +12; 32.668692, -117.119833

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									MUD LINE
									BAY DEPOSITS **SILTY CLAY (CL)**, soft, saturated, dark gray
	-45								
5									- Rip-rap
			1	44			ENV		- Poor recovery, rock in sampler
	-50								
									- Rip-rap
									YOUNGER PARALIC DEPOSITS **FINE SILTY SAND TO SANDY SILT (SM/ML)**, medium dense, moist, gray, interbedded
10									
			2	12		20.1	GS ENV		
	-55								
15									OLDER PARALIC DEPOSITS **FINE SILTY SAND TO SANDY SILT (SM/ML)**, dense to very dense, moist, gray, interbedded w/ shell fragments
			3	63	105.3	22.6	GS ENV		
	-60								

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-4 a

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	B-3

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	6/29/2021	2 of 4

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	61.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 55' below deck, deck +12; 32.668692, -117.119833

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									Continued
		S	4	17		25.1	GS ENV		
	-65								
									FINE SILTY SAND (SM), dense, moist, gray, interbedded
25									
		C	5	53	94.6	29.1	GS ENV		
	-70								
30									
		S	6	21		14.5	GS		**FINE SILTY SAND TO CLAYEY SAND (SM/SC)**, very stiff, moist, reddish-brown to brown
	-75								
									- Hard drilling
									FINE SILTY SAND (SM), dense, moist, brown-gray, interbedded
35									
	-80								

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-4 b

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	B-3

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	6/29/2021	3 of 4

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	61.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 55' below deck, deck +12; 32.668692, -117.119833

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									Continued
			7	44		16.6	GS		
	-85								
45									
	-90								
50									
									- Hard drilling
	-95								
55									
	-100								

TCG_METRIC_LOG(3) 18988.000.001.GPJ GDCLOGMT.GDT 8/20/21

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-4 c

LOG OF TEST BORING

PROJECT NAME	PROJECT NUMBER	BORING
NBSD Mole Pier Floating Dry Dock	18988.000.001	**B-3**

SITE LOCATION	START	FINISH	SHEET NO.
NAVAL BASE SAN DIEGO	6/29/2021	6/29/2021	4 of 4

DRILLING COMPANY	DRILLING METHOD	LOGGED BY	CHECKED BY
Pacific Drilling	Hollow Stem Auger	J. Knipper	G. Spaulding

DRILLING EQUIPMENT	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GROUND WATER (ft)
Marl MTXD	8"	61.5	-43	▼ n/a

SAMPLING METHOD	NOTES
CAL/SPT	Mudline at 55' below deck, deck +12; 32.668692, -117.119833

DEPTH (ft)	ELEVATION (ft)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS/ft)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
									Continued
			8	30		15.5	GS		**SILTY CLAY (CL)**, very stiff, damp, mottled red-brown/gray
	-105								Boring terminated at 61.5 feet below mud line.
65									
	-110								
70									
	-115								
75									
	-120								

TerraCosta Consulting Group, Inc.
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-4 d

APPENDIX C

REMI REPORT
Prepared By
Atlas Technical Consultants

TerraCosta
an ENGEO company

6280 Riverdale Street
San Diego, CA 92120
(877) 215-4321 | oneatlas.com

July 7, 2021

Atlas No. 121254SWG
Report No. 1

MR. GREG SPAULDING
ENGEO, INC
3890 MURPHY CANYON ROAD, SUITE 200
SAN DIEGO, CA 92123

Subject: Geophysical Evaluation
Mole Pier ReMi Study
San Diego, California

Dear Mr. Spalding:

In accordance with your authorization, Atlas Technical Consultants has performed a geophysical evaluation pertaining to the Mole Pier project located in San Diego, California (Figure 1). Specifically, one refraction microtremor (ReMi) profile (RL-1) was performed at the end of Mole Road at the 32nd Street Naval Base in San Diego, California. The ReMi line was conducted north of the pier along the pier access fence (Figure 2). The purpose of our study was to develop a one-dimensional (1-D) shear-wave velocity profile to be used for the formulation of design and construction parameters at the project site. Our services were conducted on June 23, 2021. This report presents the survey methodology, equipment used, analysis, and findings from our study.

Our scope of services for the project included the performance of one ReMi profile (RL-1) at the project site (Figure 2). The ReMi technique uses recorded surface waves (specifically Rayleigh waves) that are contained in background noise to develop a 1-D shear-wave velocity sounding of the study area down to a depth, in this case, of approximately 100 feet below ground surface (bgs). The depth of exploration is dependent on the length of the line and the frequency content of the background noise. The results of the ReMi method are displayed as a 1-D profile which represents the average condition across the length of the line. The ReMi method does not require an increase of material velocity with depth; therefore, low velocity zones (velocity inversions) are detectable with the ReMi method.

Our ReMi evaluation included the use of a 24-channel Geometrics Geode seismograph and 24, 4.5-Hz vertical component geophones. The geophones were spaced 10 feet apart for a total line length of 230 feet for each line. A total of 15 records, 32 seconds in duration for each line, were recorded and then downloaded to a field computer. The data was later processed using Surface Plus 9.1 - Advanced Surface Wave Processing Software (Geogiga Technology Corp., 2020), which uses the refraction microtremor method (Louie, 2001), and other surface wave analysis methods. The program generates phase-velocity dispersion curves for each record and provides

an interactive dispersion modeling tool where the users determine the best fitting model. The result is a 1-D shear-wave velocity model of the site with roughly 85 to 95 percent accuracy.

Figure 3 and Table 1 present the results from our evaluation. Based on our analysis of the collected data, the average characteristic site shear-wave velocity down to a depth of 100 feet below ground surface is 884 feet per second for RL-1. This value corresponds to IBC seismic Site Class `**D**` (IBC, 2018). It should be noted the ReMi results represent the average condition across the length of the line.

Table 1 – ReMi Results

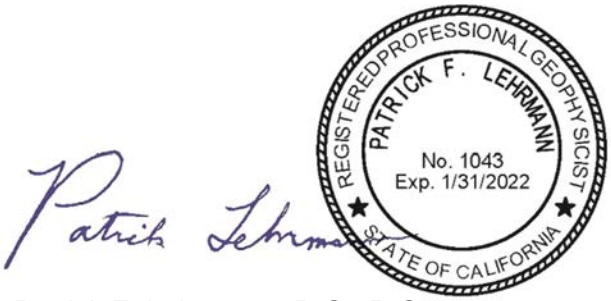
Line No.	Depth (feet)	Shear Wave Velocity (feet/second)
RL-1 (E-W)	0 – 9.98	658.5
	9.98 – 21.13	627.7
	21.13– 29.96	654.5
	29.96 – 40.45	753.4
	40.45 – 52.76	959.5
	52.76 – 67.44	1111
	67.44 – 85.71	1112.3
	85.71 – 100	1395.3

The field evaluation and geophysical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. No warranty, express or implied, is made regarding the conclusions and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be present. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluating will be performed upon request.

This document is intended to be used only in its entirety. No portions of the document, by itself, is designed to completely represent any aspect of the project described herein. Atlas should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document. This report is intended exclusively for use by the client. Any use of or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service on this project. Should you have questions related to this report, please contact the undersigned at your convenience.

Respectfully submitted,
Atlas Technical Consultants, LLC



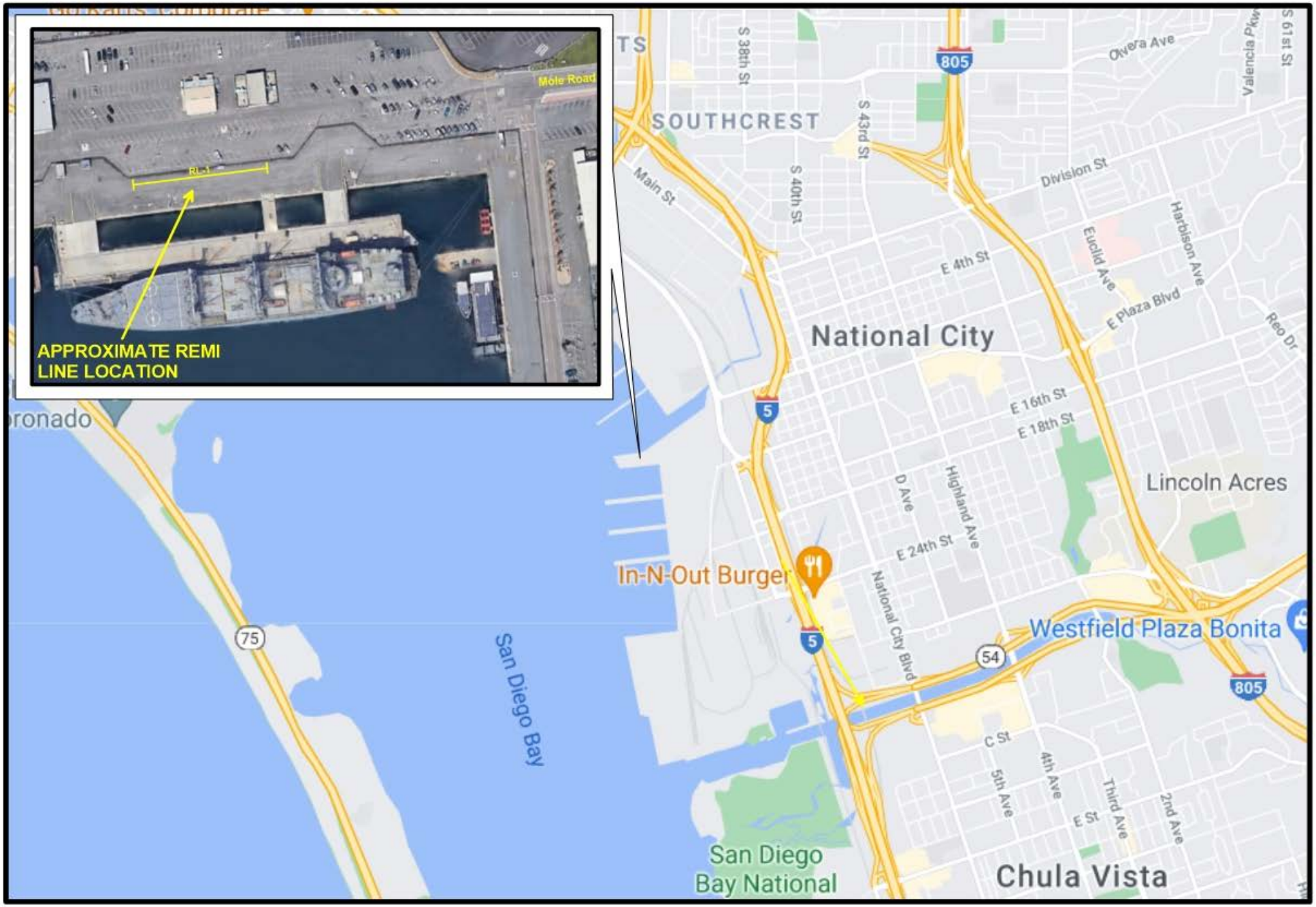
Kyle J. Armendariz, G.I.T.
Staff Geophysicist

Patrick F. Lehrmann, P.G., P.Gp.
Principal Geologist/Geophysicist

KJA:pfl:ds

Attachments: Figure 1 – Site Location Map
Figure 2 – Seismic Line Location Map
Figure 3 – ReMi Results (RL-1)

Distribution: Mr. Greg Spalding at gspaulding@engeo.com



SITE LOCATION MAP

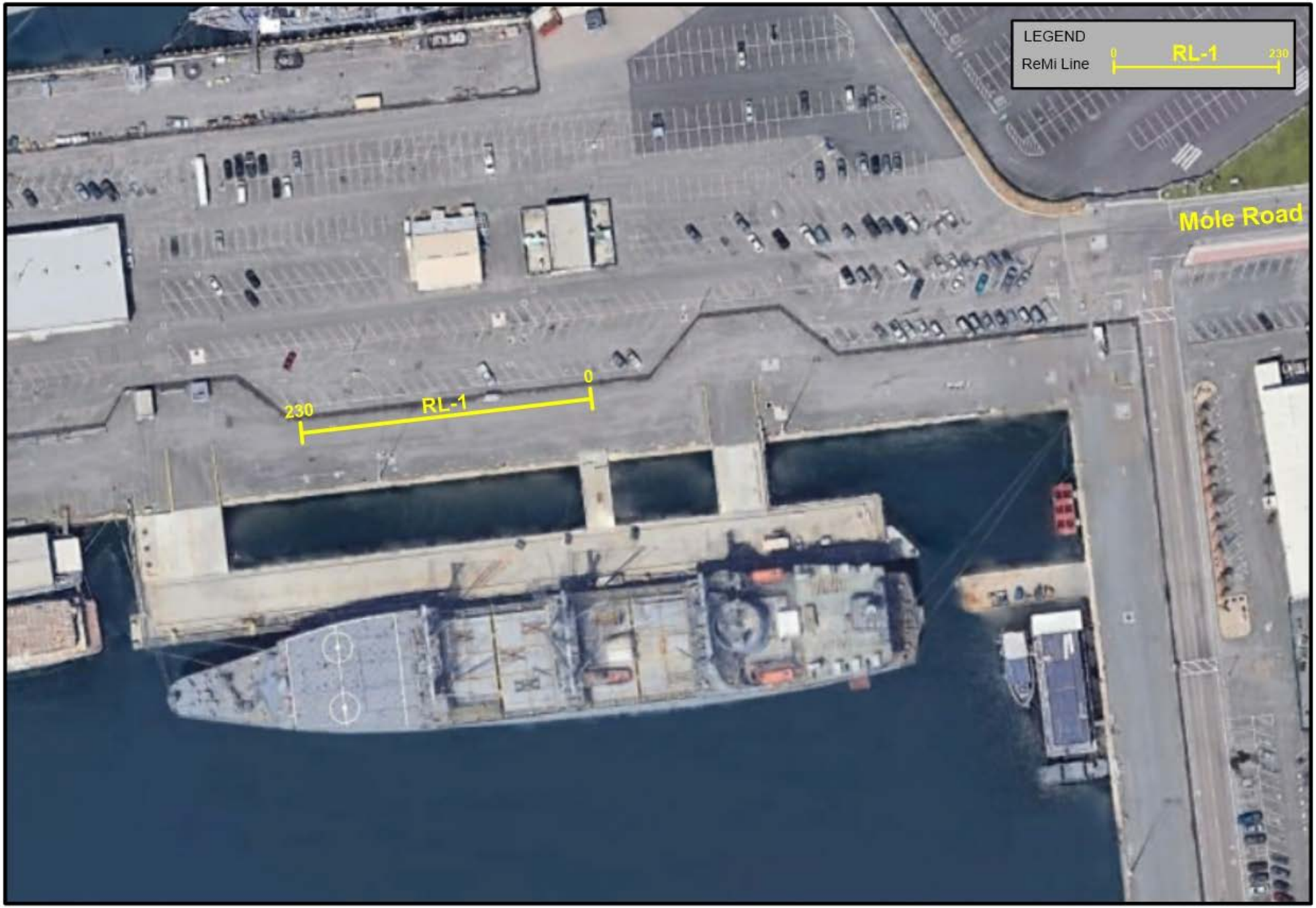
N

Mole Pier ReMi Study
San Diego, California

Project No.: 121254SWG | Date: 07/21

ATLAS

Figure 1



SEISMIC LINE LOCATION MAP

N

Mole Pier ReMi Study
San Diego, California

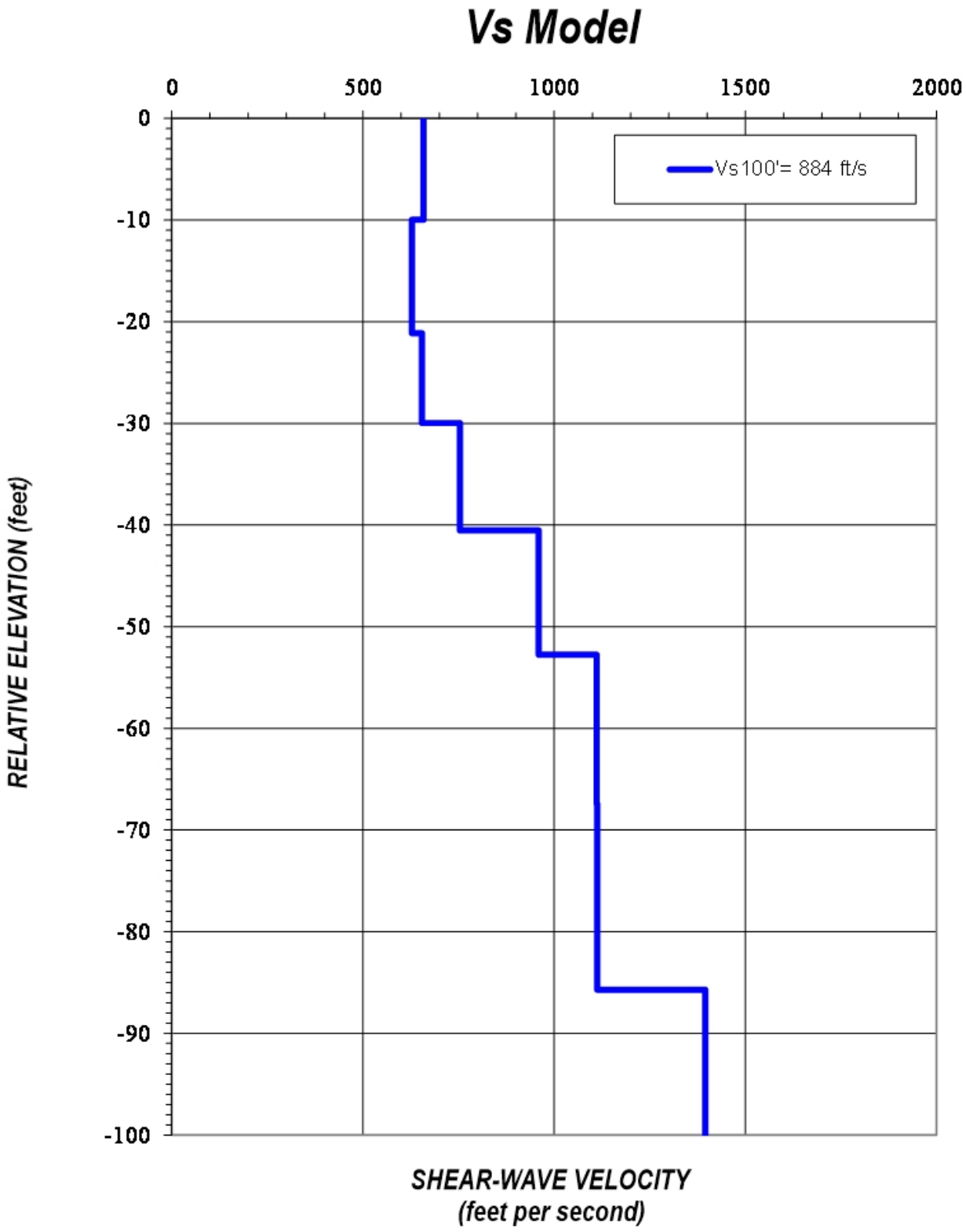
Project No.: 121254SWG | Date: 07/21

ATLAS

Figure 2

0 100 200

approximate scale in feet



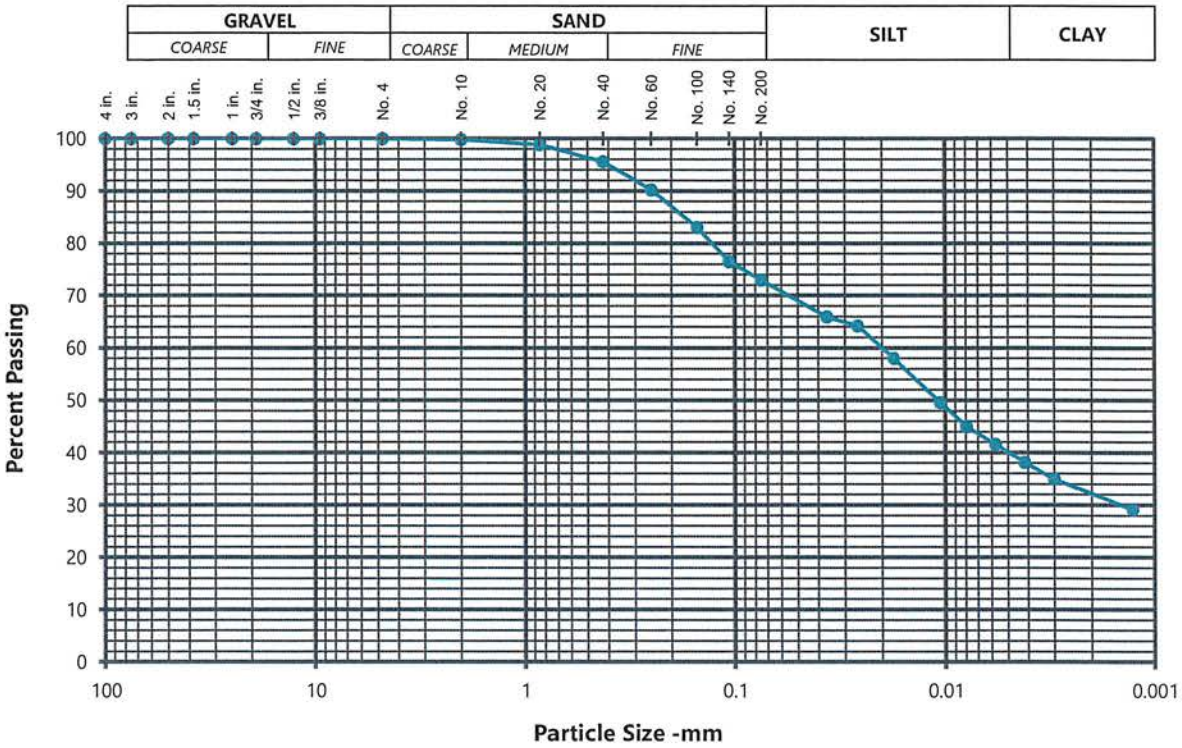
ReMi RESULTS **RL-1**	Mole Pier ReMi Study San Diego, California Project No.: 121254SWG Date: 07/21	ATLAS Figure 3

APPENDIX D

LABORATORY TEST RESULTS

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.2	4.2	22.6	73.0	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.03640	65.93
	3 in.	75	100	No. 10	2.00	100	0.02618	64.23
	2 in.	50	100	No. 20	0.85	99	0.01754	58.00
	1.5 in.	38.1	100	No. 40	0.425	96	0.01051	49.54
	1 in.	25	100	No. 60	0.250	90	0.00794	44.97
	3/4 in.	19	100	No. 100	0.150	83	0.00575	41.57
	1/2 in.	12.7	100	No. 140	0.106	76	0.00416	38.14
	3/8 in.	9.5	100	No. 200	0.075	73	0.00300	34.94
							0.00127	29.12

Material Description

Lab No.: 34181

Fine Soil (Silt or Clay) w/ Sand

Sample/Boring Number: B1-1

Depth: 6'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.2469 D_{-85} = 0.1774

D_{-60} = 0.0203 D_{-50} = 0.0109

D_{-30} = 0.0015 D_{-15} = N/A

D_{-10} = N/A

C_U = N/A C_c = N/A

Moisture & Density Results

As-Received Moisture %:	24.6
Wet Density (pcf):	---
Dry Density (pcf):	---

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

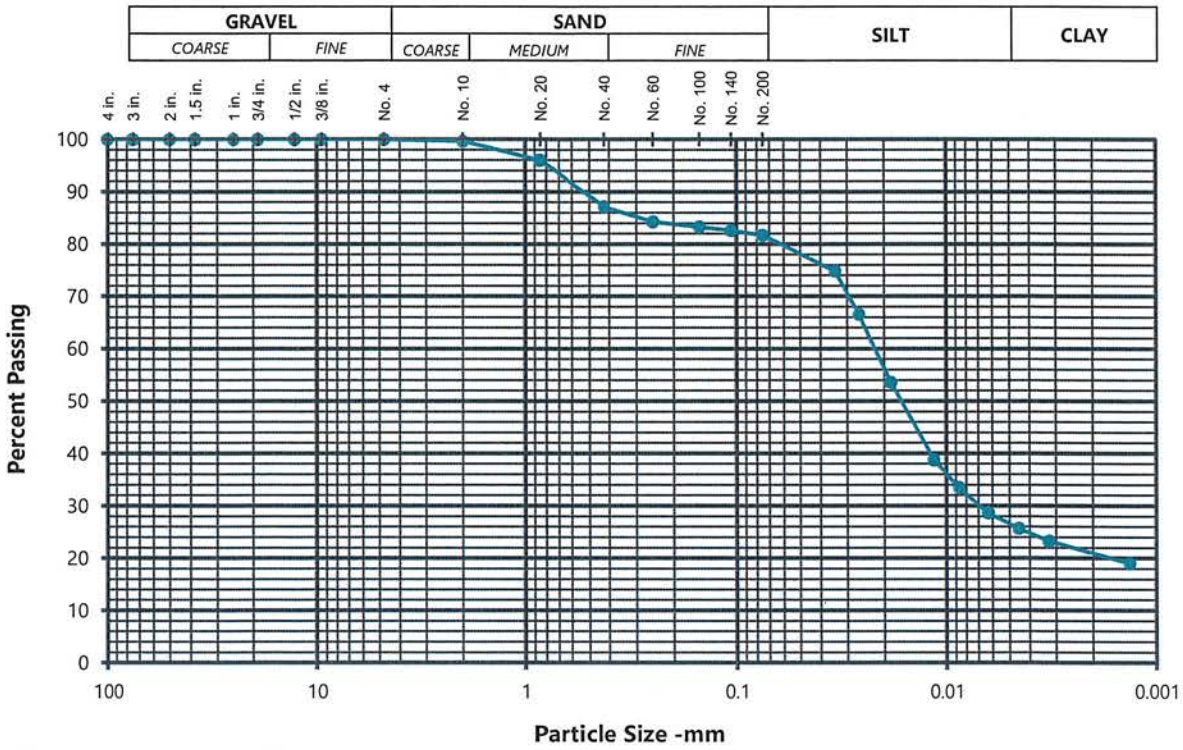
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.3	12.5	5.5	81.7	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.03421	74.85
	3 in.	75	100	No. 10	2.00	100	0.02631	66.57
	2 in.	50	100	No. 20	0.85	96	0.01855	53.56
	1.5 in.	38.1	100	No. 40	0.425	87	0.01146	38.77
	1 in.	25	100	No. 60	0.250	84	0.00864	33.45
	3/4 in.	19	100	No. 100	0.150	83	0.00627	28.63
	1/2 in.	12.7	100	No. 140	0.106	83	0.00451	25.67
	3/8 in.	9.5	100	No. 200	0.075	82	0.00323	23.22
							0.00135	19.00

Material Description

Lab No.: 34182

Silt With Sand, ML

Sample/Boring Number: B1-2

Depth: 11'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	36.5
Wet Density (pcf):	114.8
Dry Density (pcf):	84.1

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.5610	D_{-85} = 0.2956
D_{-60} = 0.0224	D_{-50} = 0.0168
D_{-30} = 0.0069	D_{-15} = N/A
D_{-10} = N/A	
C_u = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

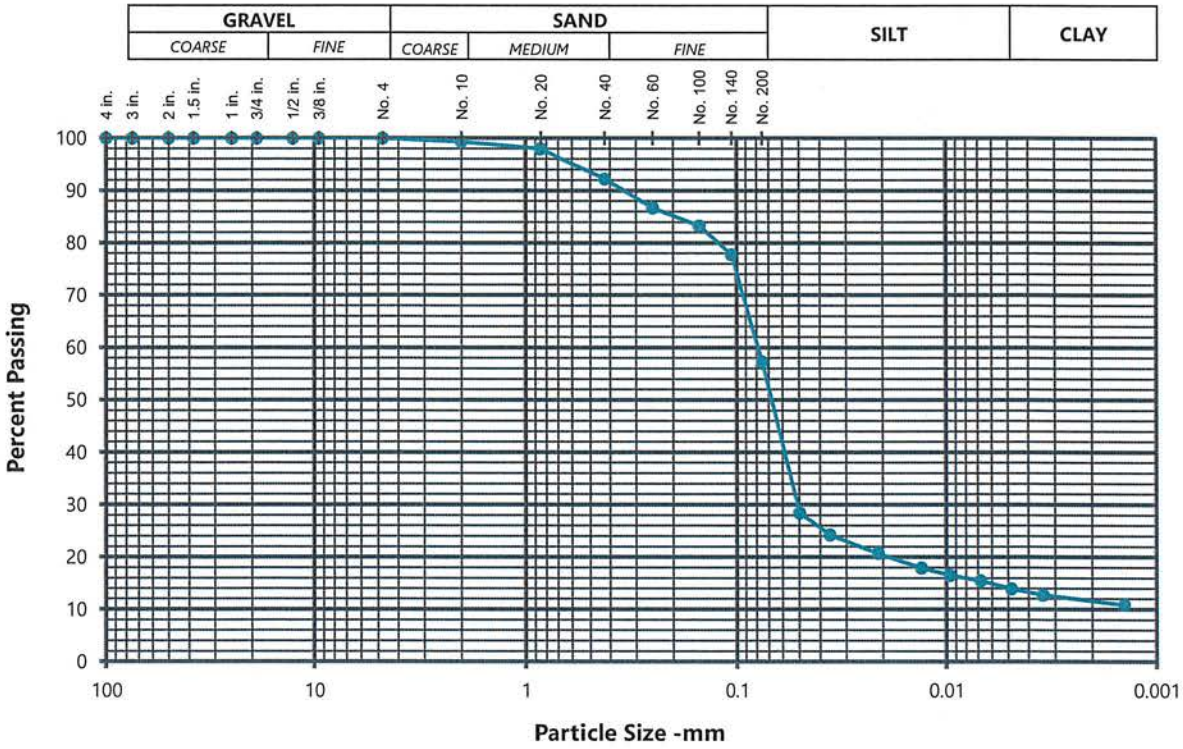
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.6	7.2	34.9	57.3	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.04984	28.42
	3 in.	75	100	No. 10	2.00	99	0.03588	24.22
	2 in.	50	100	No. 20	0.85	98	0.02102	20.71
	1.5 in.	38.1	100	No. 40	0.425	92	0.01302	17.91
	1 in.	25	100	No. 60	0.250	87	0.00956	16.51
	3/4 in.	19	100	No. 100	0.150	83	0.00679	15.45
	1/2 in.	12.7	100	No. 140	0.106	78	0.00483	13.95
	3/8 in.	9.5	100	No. 200	0.075	57	0.00343	12.75
							0.00141	10.90

Material Description

Lab No.: 34183

Sandy Silt, ML

Sample/Boring Number: B1-3

Depth: 16'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	19.2
Wet Density (pcf):	131.9
Dry Density (pcf):	110.6

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.3544	D_{-85} = 0.2004
D_{-60} = 0.0791	D_{-50} = 0.0686
D_{-30} = 0.0512	D_{-15} = 0.0062
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

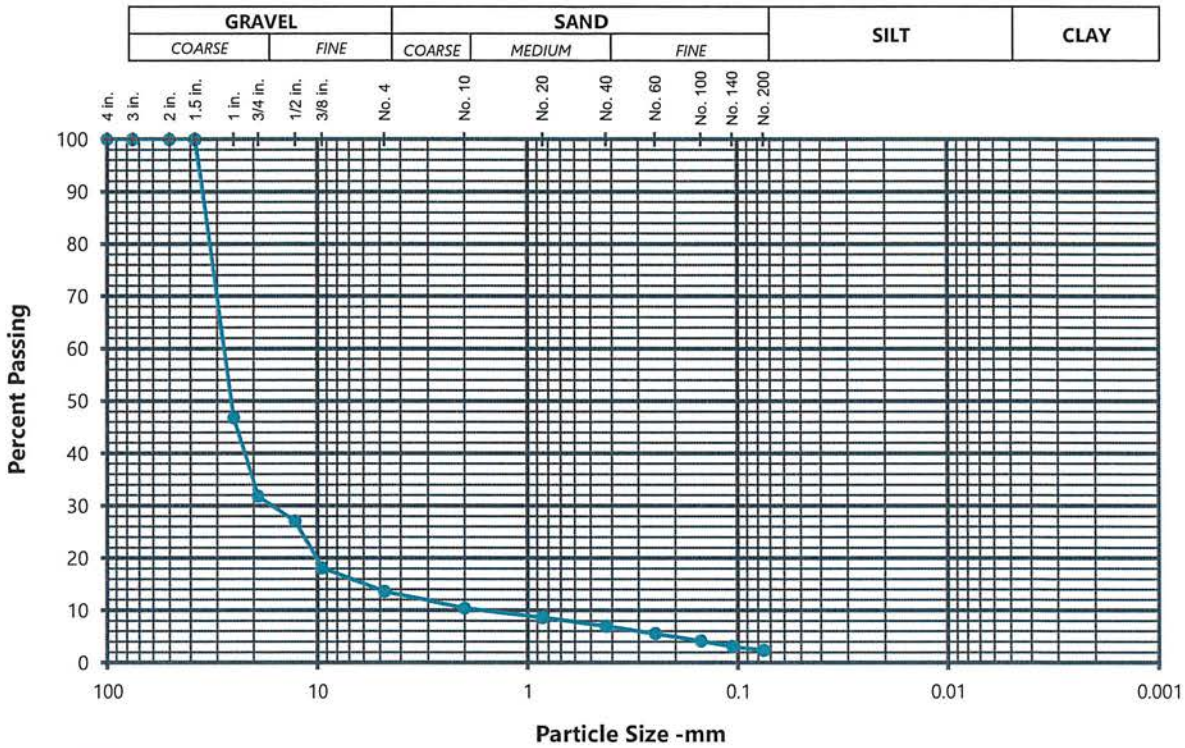
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	73.0	13.4		3.2	3.4	4.6	2.4	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	14		
	3 in.	75	100	No. 10	2.00	10		
	2 in.	50	100	No. 20	0.85	9		
	1.5 in.	38.1	100	No. 40	0.425	7		
	1 in.	25	47	No. 60	0.250	6		
	3/4 in.	19	32	No. 100	0.150	4		
	1/2 in.	12.7	27	No. 140	0.106	3		
	3/8 in.	9.5	18	No. 200	0.075	2		

Material Description

Lab No.: 34184

Poorly Graded Gravel, GP

Sample/Boring Number: B2-2

Depth: 8'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	12.0
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/16/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 35.6364	D_{-85} = 34.4047
D_{-60} = 28.2458	D_{-50} = 25.7822
D_{-30} = 16.6320	D_{-15} = 6.1988
D_{-10} = 1.7199	
C_U = 16.42	C_c = 5.6941

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

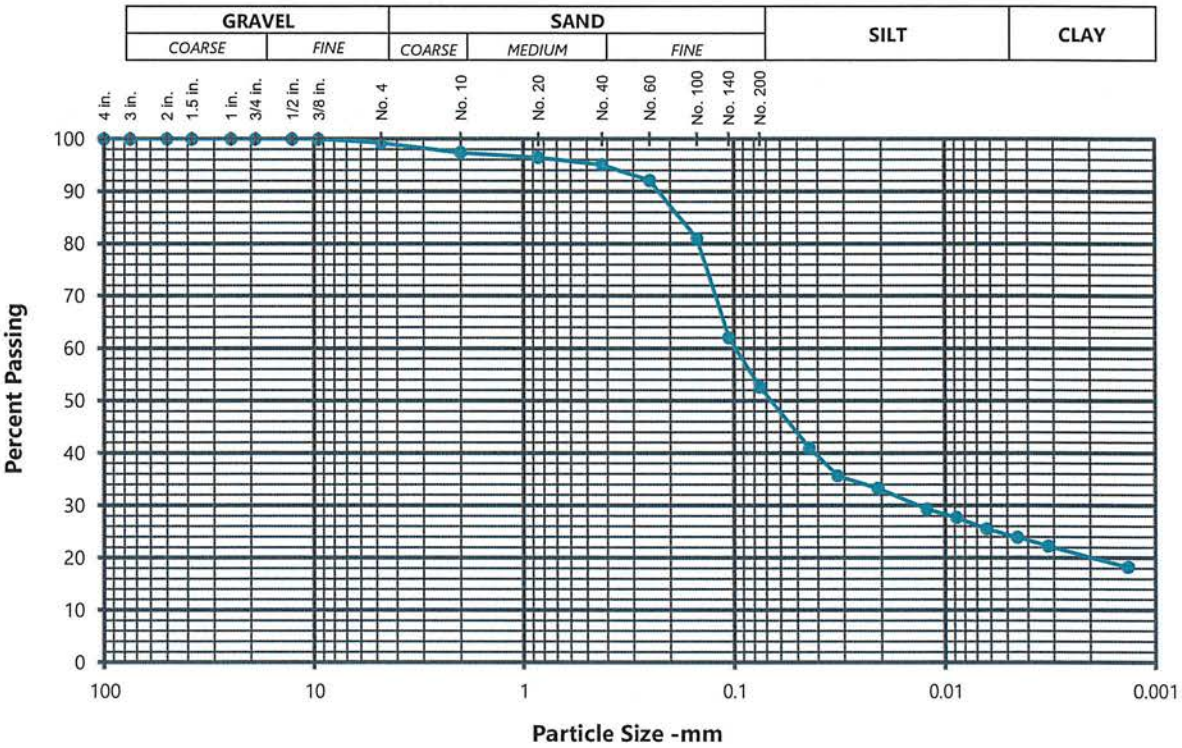
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.7		1.8	2.3	42.5	52.6	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	99	0.04383	40.94
	3 in.	75	100	No. 10	2.00	97	0.03220	35.66
	2 in.	50	100	No. 20	0.85	96	0.02070	33.28
	1.5 in.	38.1	100	No. 40	0.425	95	0.01227	29.32
	1 in.	25	100	No. 60	0.250	92	0.00876	27.69
	3/4 in.	19	100	No. 100	0.150	81	0.00628	25.54
	1/2 in.	12.7	100	No. 140	0.106	62	0.00448	23.92
	3/8 in.	9.5	100	No. 200	0.075	53	0.00320	22.26
							0.00134	18.26

Material Description

Lab No.: 34185

Sandy Silt, ML

Sample/Boring Number: B2-3

Depth: 13'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients	
D_{-90} = 0.2311	D_{-85} = 0.1862
D_{-60} = 0.0992	D_{-50} = 0.0680
D_{-30} = 0.0137	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

Moisture & Density Results

As-Received Moisture %:	22.4
Wet Density (pcf):	---
Dry Density (pcf):	---

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

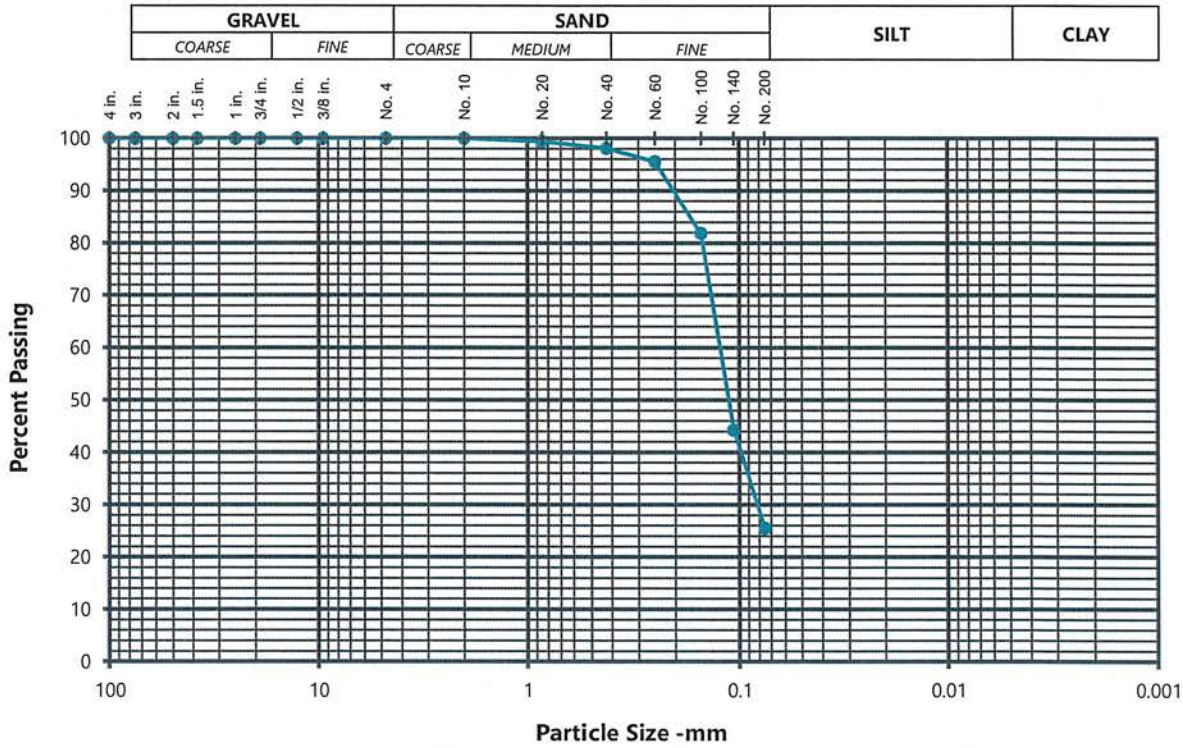
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.0	1.9	72.6	25.5	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100		
	3 in.	75	100	No. 10	2.00	100		
	2 in.	50	100	No. 20	0.85	99		
	1.5 in.	38.1	100	No. 40	0.425	98		
	1 in.	25	100	No. 60	0.250	96		
	3/4 in.	19	100	No. 100	0.150	82		
	1/2 in.	12.7	100	No. 140	0.106	44		
	3/8 in.	9.5	100	No. 200	0.075	26		

Material Description

Lab No.: 34186

Fine Silty Sand, SM

Sample/Boring Number: B2-4

Depth: 18'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	20.8
Wet Density (pcf):	131.9
Dry Density (pcf):	109.2

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.2094	D_{-85} = 0.1730
D_{-60} = 0.1244	D_{-50} = 0.1127
D_{-30} = 0.0824	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

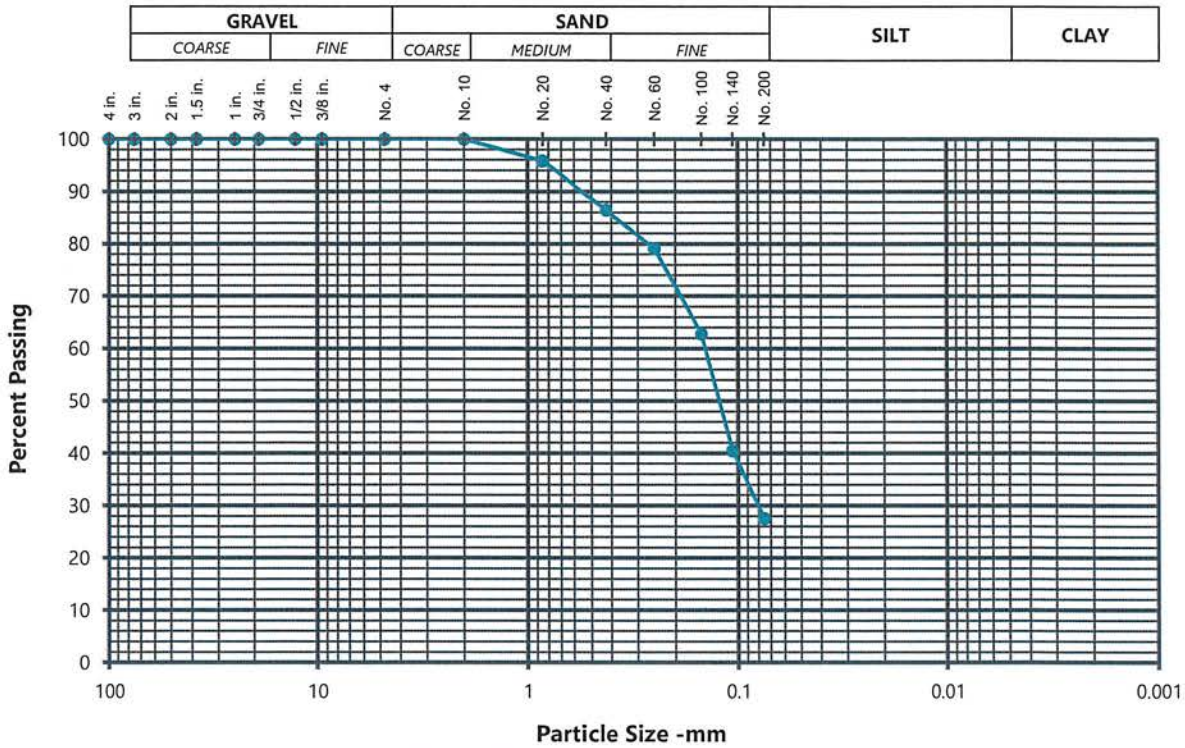
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.0	13.6	58.9	27.5	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100		
	3 in.	75	100	No. 10	2.00	100		
	2 in.	50	100	No. 20	0.85	96		
	1.5 in.	38.1	100	No. 40	0.425	86		
	1 in.	25	100	No. 60	0.250	79		
	3/4 in.	19	100	No. 100	0.150	63		
	1/2 in.	12.7	100	No. 140	0.106	41		
	3/8 in.	9.5	100	No. 200	0.075	28		

Material Description

Lab No.: 34187

Fine Silty Sand, SM

Sample/Boring Number: B2-5

Depth: 23'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	19.8
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/15/2021

Tested By: HA

Checked By: M. Gibson

Coefficients

D_{-90} = 0.5857	D_{-85} = 0.3904
D_{-60} = 0.1445	D_{-50} = 0.1247
D_{-30} = 0.0809	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

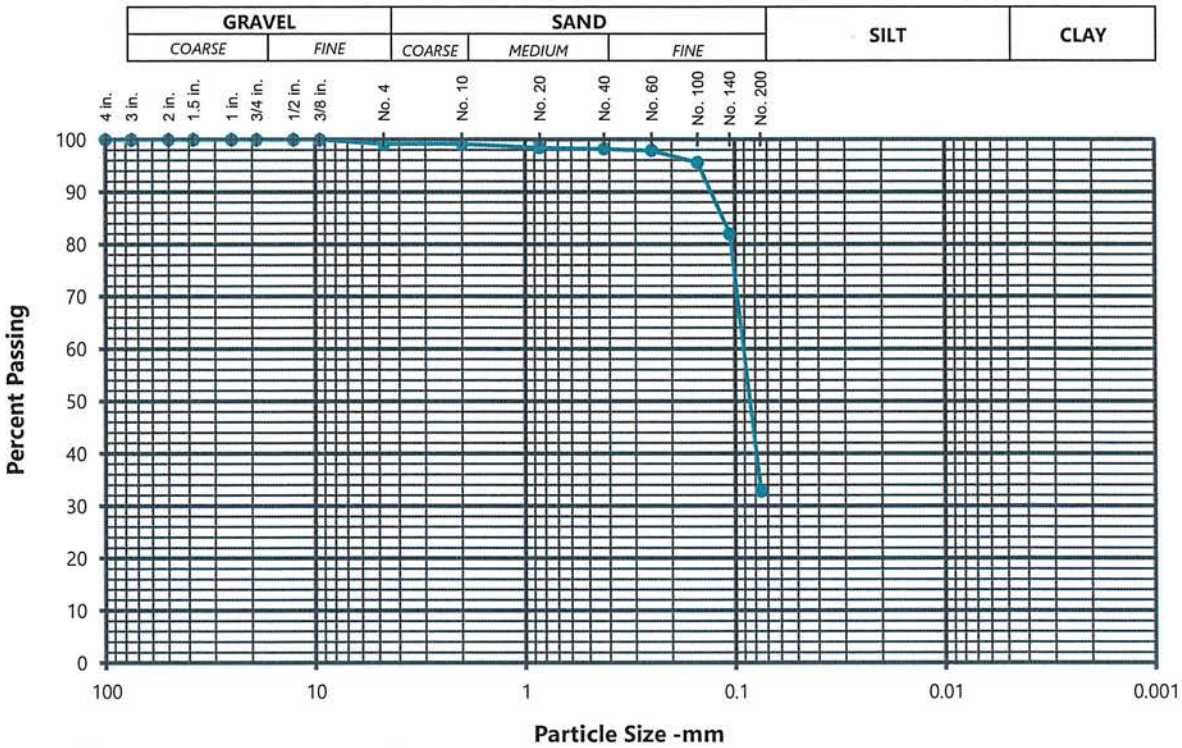
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.8		0.0	1.0	65.4	32.8	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	99		
	3 in.	75	100	No. 10	2.00	99		
	2 in.	50	100	No. 20	0.85	98		
	1.5 in.	38.1	100	No. 40	0.425	98		
	1 in.	25	100	No. 60	0.250	98		
	3/4 in.	19	100	No. 100	0.150	96		
	1/2 in.	12.7	100	No. 140	0.106	82		
	3/8 in.	9.5	100	No. 200	0.075	33		

Material Description

Lab No.: 34188

Fine Silty Sand, SM

Sample/Boring Number: B2-6

Depth: 28'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	28.4
Wet Density (pcf):	123.3
Dry Density (pcf):	96.1

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.1320	D_{-85} = 0.1159
D_{-60} = 0.0922	D_{-50} = 0.0858
D_{-30} = N/A	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

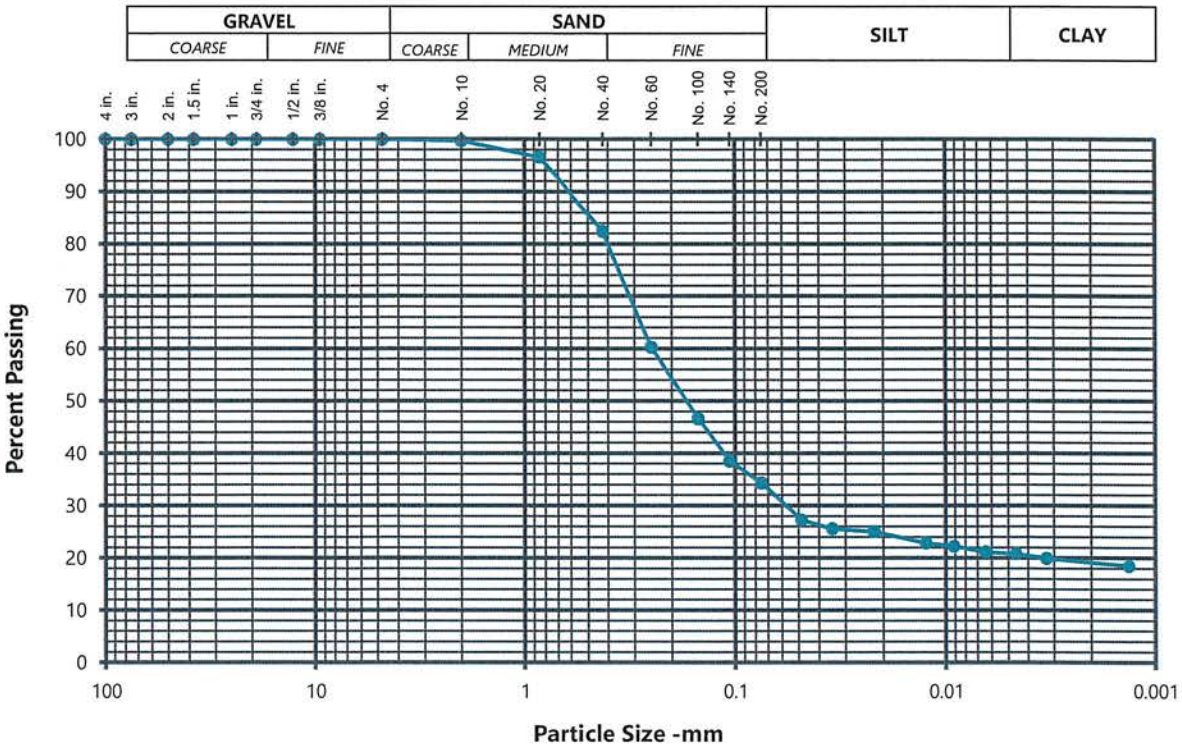
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.3	17.3	48.1	34.3	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.04846	27.24
	3 in.	75	100	No. 10	2.00	100	0.03460	25.59
	2 in.	50	100	No. 20	0.85	97	0.02195	25.04
	1.5 in.	38.1	100	No. 40	0.425	82	0.01243	22.84
	1 in.	25	100	No. 60	0.250	60	0.00910	22.25
	3/4 in.	19	100	No. 100	0.150	47	0.00637	21.15
	1/2 in.	12.7	100	No. 140	0.106	39	0.00459	20.84
	3/8 in.	9.5	100	No. 200	0.075	34	0.00326	19.93
							0.00134	18.48

Material Description

Lab No.: 34189

Clayey Sand, SC

Sample/Boring Number: B2-7

Depth: 38'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	14.7
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.6519	D_{-85} = 0.5022
D_{-60} = 0.2478	D_{-50} = 0.1747
D_{-30} = 0.0588	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

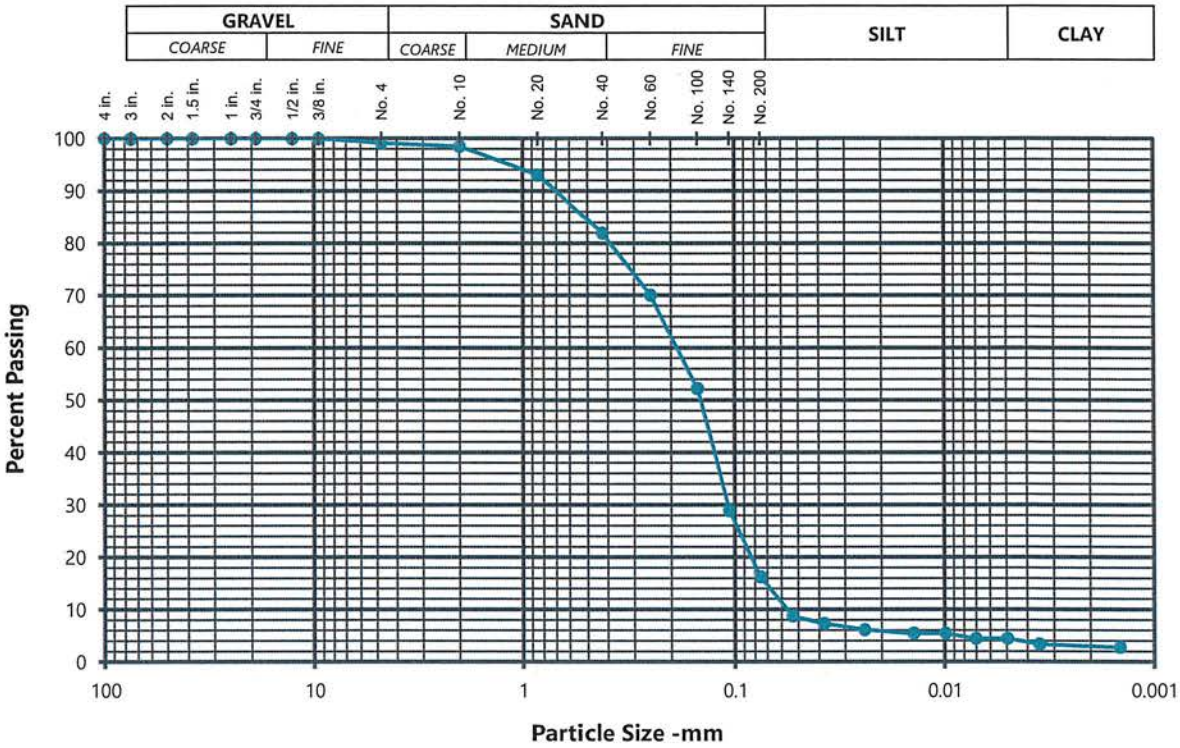
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.9		0.6	16.6	65.7	16.2	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	99	0.05310	8.74
	3 in.	75	100	No. 10	2.00	99	0.03785	7.32
	2 in.	50	100	No. 20	0.85	93	0.02410	6.14
	1.5 in.	38.1	100	No. 40	0.425	82	0.01397	5.43
	1 in.	25	100	No. 60	0.250	70	0.00988	5.43
	3/4 in.	19	100	No. 100	0.150	52	0.00702	4.45
	1/2 in.	12.7	100	No. 140	0.106	29	0.00496	4.45
	3/8 in.	9.5	100	No. 200	0.075	16	0.00351	3.40
							0.00144	2.80

Material Description

Lab No.: 34190

Fine Silty Sand, SM

Sample/Boring Number: B3-2

Depth: 10'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	20.1
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.7336	D_{-85} = 0.5426
D_{-60} = 0.1937	D_{-50} = 0.1458
D_{-30} = 0.1081	D_{-15} = 0.0714
D_{-10} = 0.0568	
C_U = 3.41	C_c = 1.0621

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

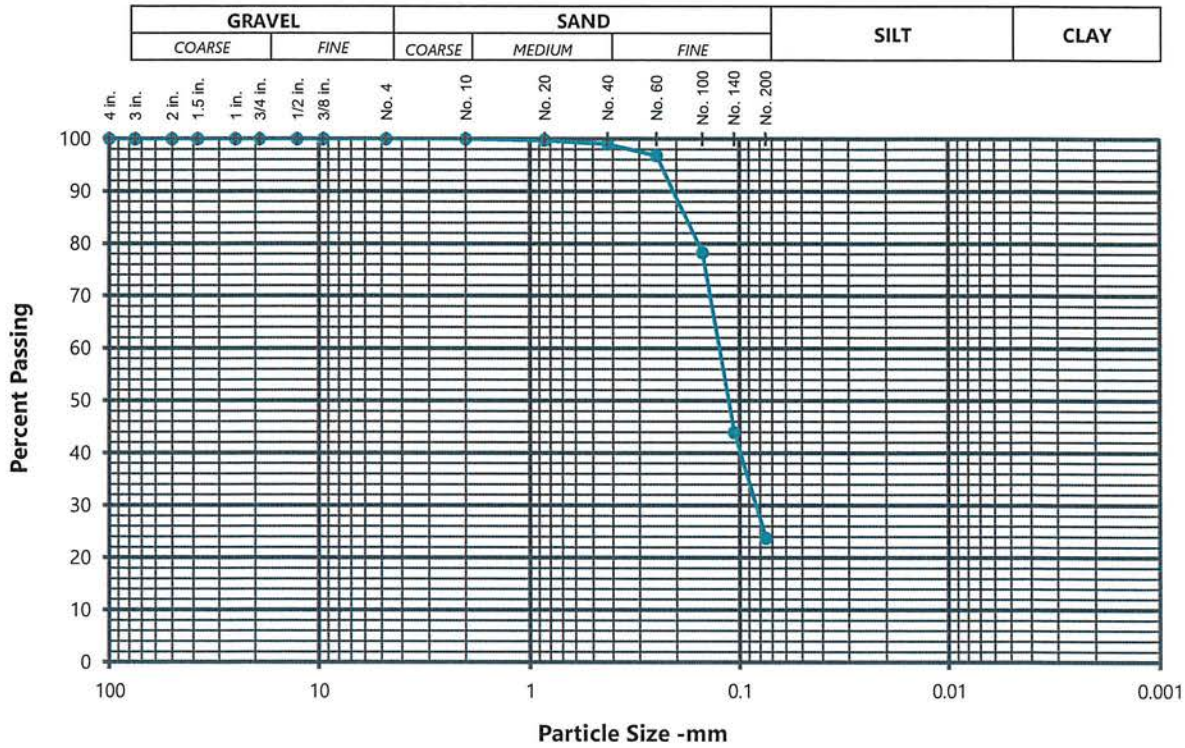
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.0	0.9	75.3	23.7	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100		
	3 in.	75	100	No. 10	2.00	100		
	2 in.	50	100	No. 20	0.85	100		
	1.5 in.	38.1	100	No. 40	0.425	99		
	1 in.	25	100	No. 60	0.250	97		
	3/4 in.	19	100	No. 100	0.150	78		
	1/2 in.	12.7	100	No. 140	0.106	44		
	3/8 in.	9.5	100	No. 200	0.075	24		

Material Description

Lab No.: 34191

Fine Silty Sand, SM

Sample/Boring Number: B3-3

Depth: 15'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	22.6
Wet Density (pcf):	129
Dry Density (pcf):	105.3

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.2132	D_{-85} = 0.1862
D_{-60} = 0.1266	D_{-50} = 0.1137
D_{-30} = 0.0846	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

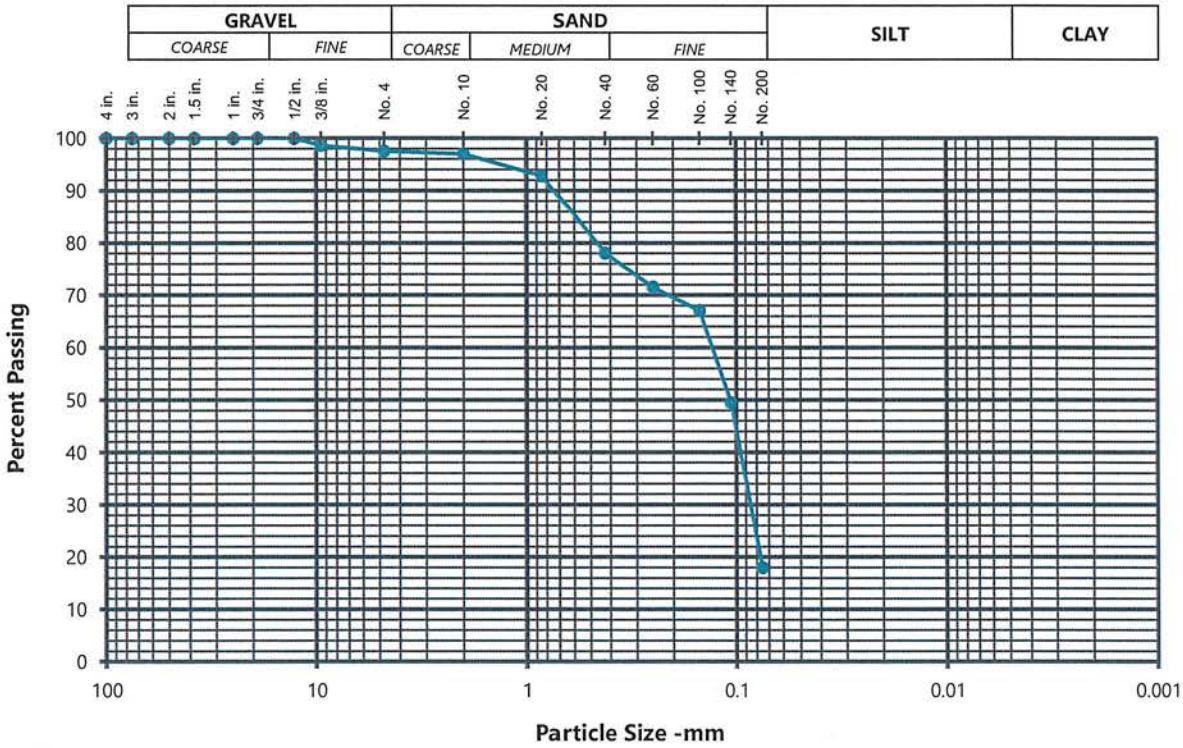
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL		% SAND			% FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	2.4	0.6	18.9	60.1	18.0	

Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
4 in.	100	100	No. 4	4.75	98		
3 in.	75	100	No. 10	2.00	97		
2 in.	50	100	No. 20	0.85	93		
1.5 in.	38.1	100	No. 40	0.425	78		
1 in.	25	100	No. 60	0.250	72		
3/4 in.	19	100	No. 100	0.150	67		
1/2 in.	12.7	100	No. 140	0.106	50		
3/8 in.	9.5	99	No. 200	0.075	18		

Material Description

Lab No.: 34192

Fine Silty Sand, SM

Sample/Boring Number: B3-4

Depth: 20'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	25.1
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.7683	D_{-85} = 0.6245
D_{-60} = 0.1323	D_{-50} = 0.1072
D_{-30} = 0.0868	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

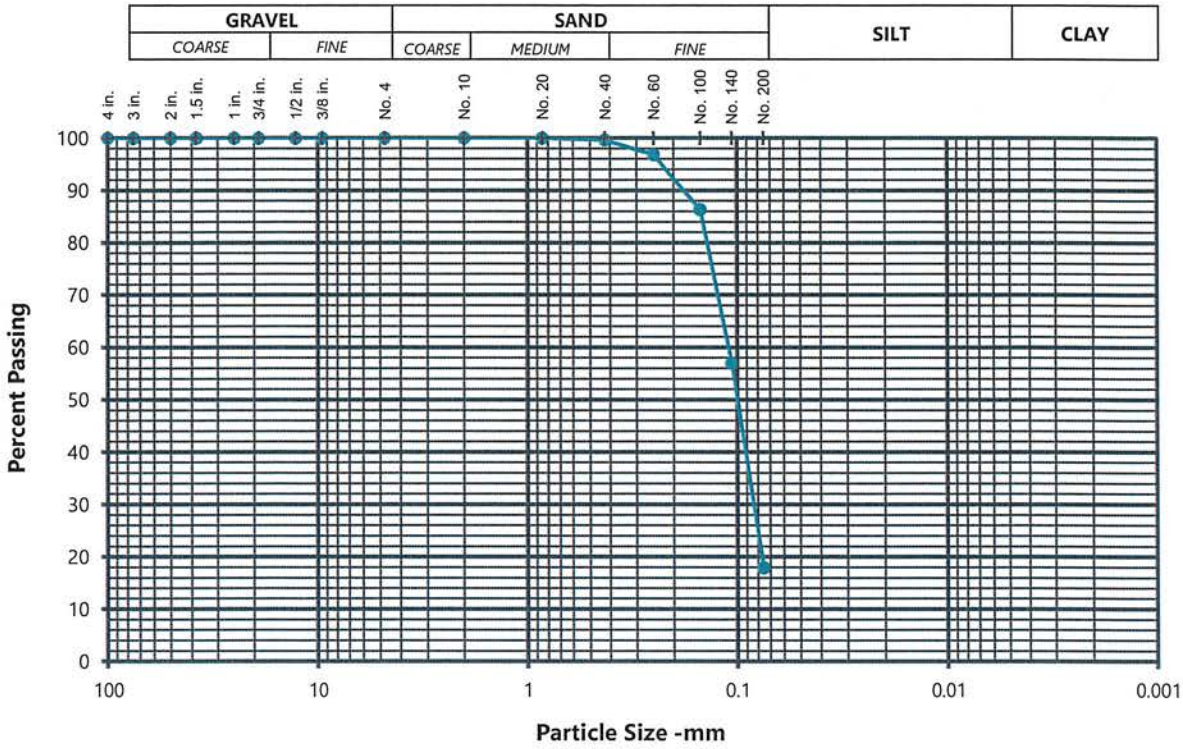
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL		% SAND		% FINES
	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay
0.0	0.0	0.0	0.0	0.4	81.7	17.9

Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
4 in.	100	100	No. 4	4.75	100		
3 in.	75	100	No. 10	2.00	100		
2 in.	50	100	No. 20	0.85	100		
1.5 in.	38.1	100	No. 40	0.425	100		
1 in.	25	100	No. 60	0.250	97		
3/4 in.	19	100	No. 100	0.150	86		
1/2 in.	12.7	100	No. 140	0.106	57		
3/8 in.	9.5	100	No. 200	0.075	18		

Material Description

Lab No.: 34193

Fine Silty Sand, SM

Sample/Boring Number: B3-5

Depth: 25'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	29.1
Wet Density (pcf):	122.1
Dry Density (pcf):	94.6

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.1848	D_{-85} = 0.1480
D_{-60} = 0.1106	D_{-50} = 0.1005
D_{-30} = 0.0846	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

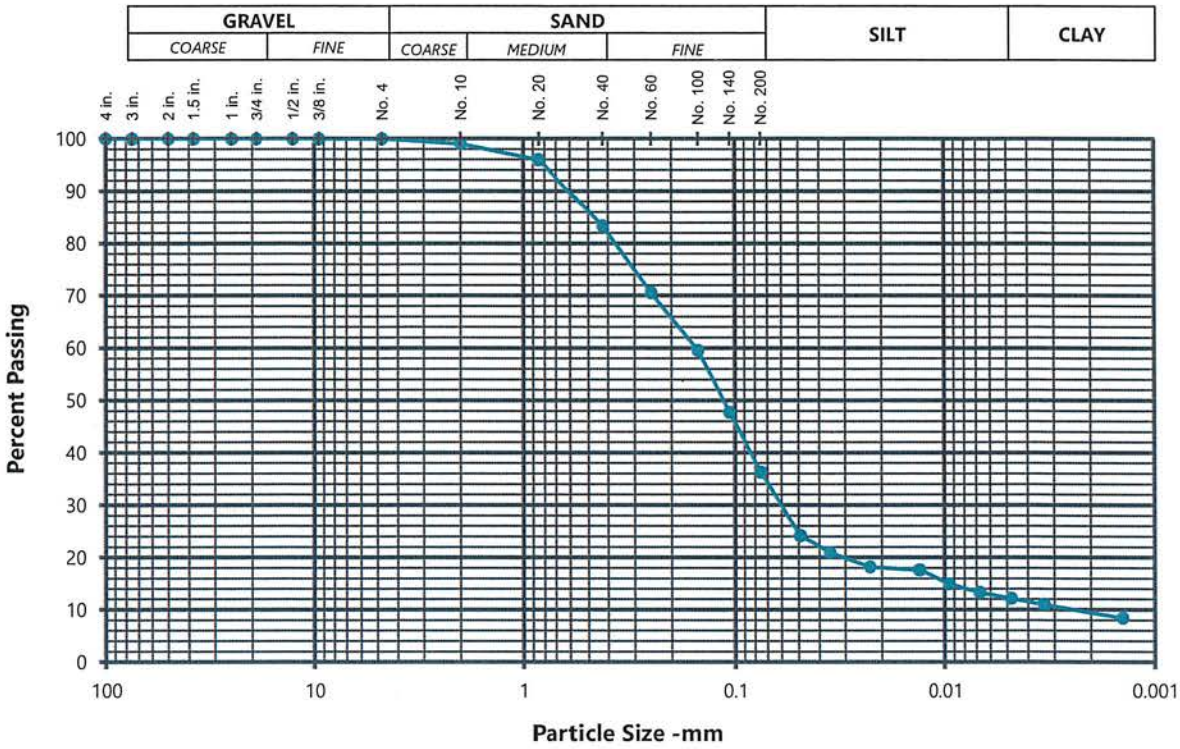
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.9	15.8	47.0	36.3	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.04925	24.17
	3 in.	75	100	No. 10	2.00	99	0.03548	20.91
	2 in.	50	100	No. 20	0.85	96	0.02278	18.19
	1.5 in.	38.1	100	No. 40	0.425	83	0.01319	17.60
	1 in.	25	100	No. 60	0.250	71	0.00946	14.92
	3/4 in.	19	100	No. 100	0.150	60	0.00675	13.32
	1/2 in.	12.7	100	No. 140	0.106	48	0.00480	12.20
	3/8 in.	9.5	100	No. 200	0.075	36	0.00336	11.03
							0.00141	8.43

Material Description

Lab No.: 34194

Fine Silty Sand, SM

Sample/Boring Number: B3-6

Depth: 30'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	14.5
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.6492	D_{-85} = 0.4815
D_{-60} = 0.1542	D_{-50} = 0.1145
D_{-30} = 0.0616	D_{-15} = 0.0096
D_{-10} = 0.0026	
C_U = 59.55	C_c = 9.5107

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

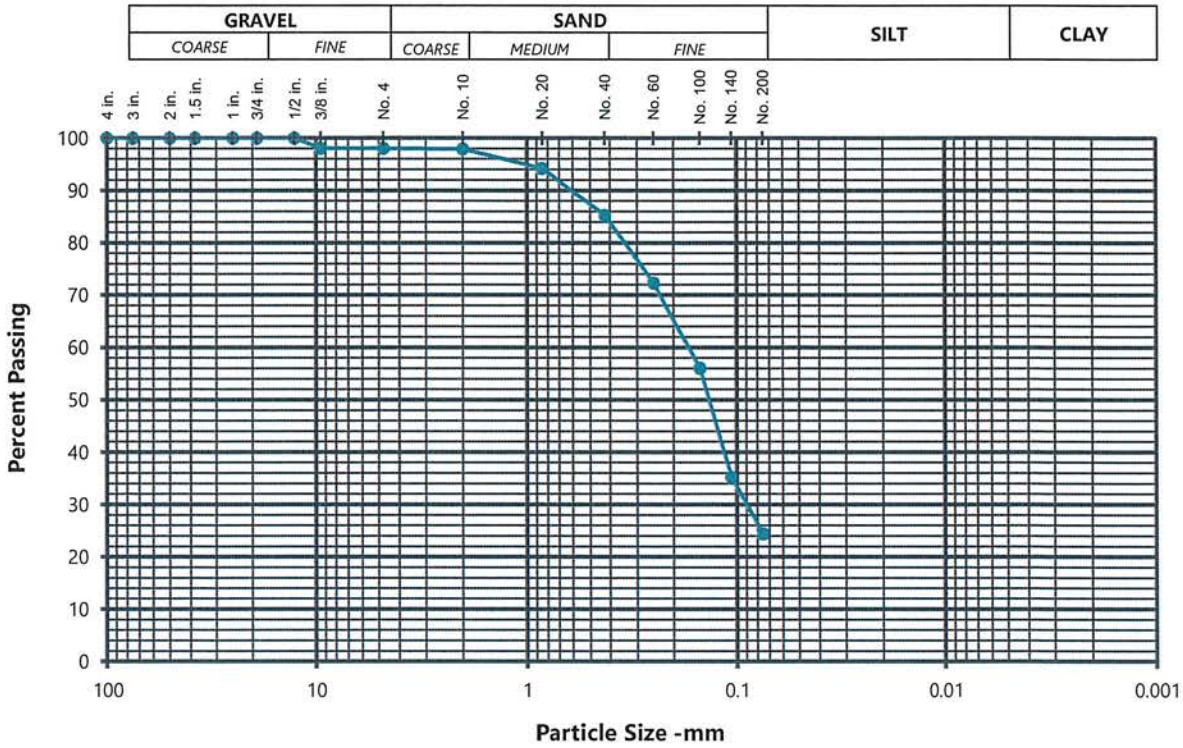
Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	2.0		0.1	12.7	60.9	24.4	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	98		
	3 in.	75	100	No. 10	2.00	98		
	2 in.	50	100	No. 20	0.85	94		
	1.5 in.	38.1	100	No. 40	0.425	85		
	1 in.	25	100	No. 60	0.250	72		
	3/4 in.	19	100	No. 100	0.150	56		
	1/2 in.	12.7	100	No. 140	0.106	35		
	3/8 in.	9.5	98	No. 200	0.075	24		

Material Description

Lab No.: 34195

Fine Silty Sand, SM

Sample/Boring Number: B3-7

Depth: 40'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	16.6
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.6496	D_{-85} = 0.4214
D_{-60} = 0.1743	D_{-50} = 0.1372
D_{-30} = 0.0911	D_{-15} = N/A
D_{-10} = N/A	
C_U = N/A	C_c = N/A

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

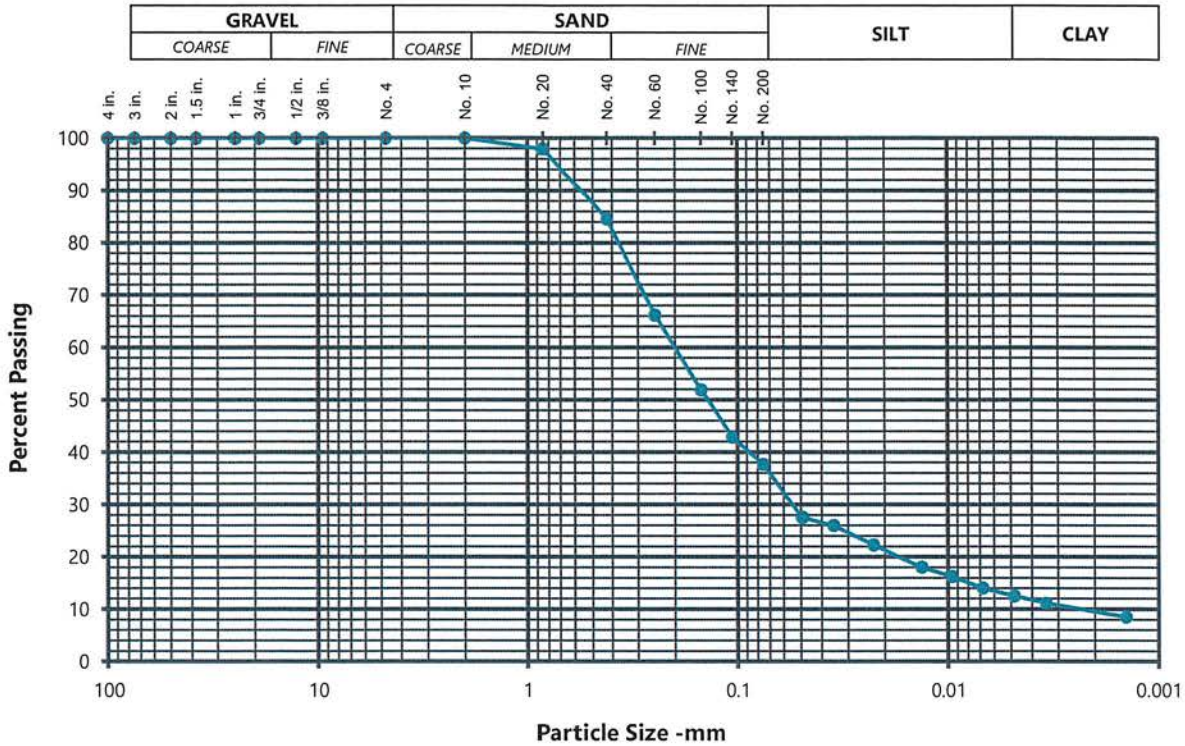
Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

Sample Summary Report

ASTM D6913



%+3"	% GRAVEL			% SAND			% FINES	
	Coarse	Fine		Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0		0.0	15.4	46.9	37.6	
	Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer	Opening (mm)	Percent Finer
	4 in.	100	100	No. 4	4.75	100	0.04919	27.51
	3 in.	75	100	No. 10	2.00	100	0.03506	25.98
	2 in.	50	100	No. 20	0.85	98	0.02258	22.30
	1.5 in.	38.1	100	No. 40	0.425	85	0.01331	18.01
	1 in.	25	100	No. 60	0.250	66	0.00949	16.22
	3/4 in.	19	100	No. 100	0.150	52	0.00678	14.03
	1/2 in.	12.7	100	No. 140	0.106	43	0.00483	12.50
	3/8 in.	9.5	100	No. 200	0.075	38	0.00343	11.14
							0.00142	8.52

Material Description

Lab No.: 34196

Fine Silty Sand, SM

Sample/Boring Number: B3-8

Depth: 60'

Testing Remarks:

Atterberg Limits

Liquid Limit =

Plastic Limit =

Plasticity Index =

Moisture & Density Results

As-Received Moisture %:	15.5
Wet Density (pcf):	---
Dry Density (pcf):	---

Date Sampled: 6/29-7/1/2021

Date Tested: 7/19/2021

Tested By: RM

Checked By: M. Gibson

Coefficients

D_{-90} = 0.5975	D_{-85} = 0.4387
D_{-60} = 0.2067	D_{-50} = 0.1409
D_{-30} = 0.0555	D_{-15} = 0.0080
D_{-10} = 0.0026	
C_U = 81.03	C_c = 5.8492

wood.

9177 Sky Park Court, San Diego, CA 92123

(858)278-3600

Client: ENGEO/Terracosta

Project: NBSD MOLE Pier Floating Dry-Dock (ENGEO #18988.000.001)

Project No.: 5015-16-0013.19

Reviewed By: _____

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

wood.

Environment & Infrastructure Solutions, Inc.
9177 Sky Park Court, San Diego, CA

Moisture & Density of ASTM Rings

Lab #	34182	34183	34186	34188	34191	34193						
Boring #	B1-2	B1-4	B2-4	B2-6	B3-3	B3-5						
Depth	11'	21'	18'	28'	15'	25'						
Soil Type												
Wt. Soil + Ring	353.01	410.77	596.28	568.68	591.99	564.82						
Wt. Ring	78.72	92.94	119.95	127.02	127.86	127.86						
Wt. of Soil	274.29	317.83	476.33	441.66	464.13	436.96						
Wet + Pan	349.25	392.88	689.77	622.09	687.51	509.37						
Dry + Pan	276.16	341.77	584.35	501.60	574.73	411.53						
Pan Wt.	76.03	75.95	76.68	77.04	74.85	74.96						
Dia 1	2.433	2.413	2.430	2.406	2.409	2.401						
Dia 2	2.406	2.415	2.416	2.402	2.405	2.403						
Dia 3			2.421	2.398	2.401	2.412						
Dia 4												
Dia 5												
Ht 1	0.975	1.003	0.989	1.006	0.998	1.000						
Ht 2	1.005	1.003	1.001	0.997	1.010	0.999						
Ht 3			0.996	1.008	1.009	1.001						
Ht 4												
Ht 5												
Volume of Rings	0.00527	0.00531	0.00796	0.00790	0.00793	0.00789						
Moisture Content	36.5	19.2	20.8	28.4	22.6	29.1						
Wet Density, pcf	114.8	131.9	131.9	123.3	129.0	122.1						
Dry Density, pcf	84.1	110.6	109.2	96.1	105.3	94.6						

Project: NBSD MOLE Pier
Project #: 5015160013

Sampled: 6/29-7/1/2021
Tested By: JI/HA

Date Tested: 7/13 - 7/15/2021

This page intentionally left blank.

APPENDIX B2

VIBRACORE PHOTOGRAPH LOGS

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

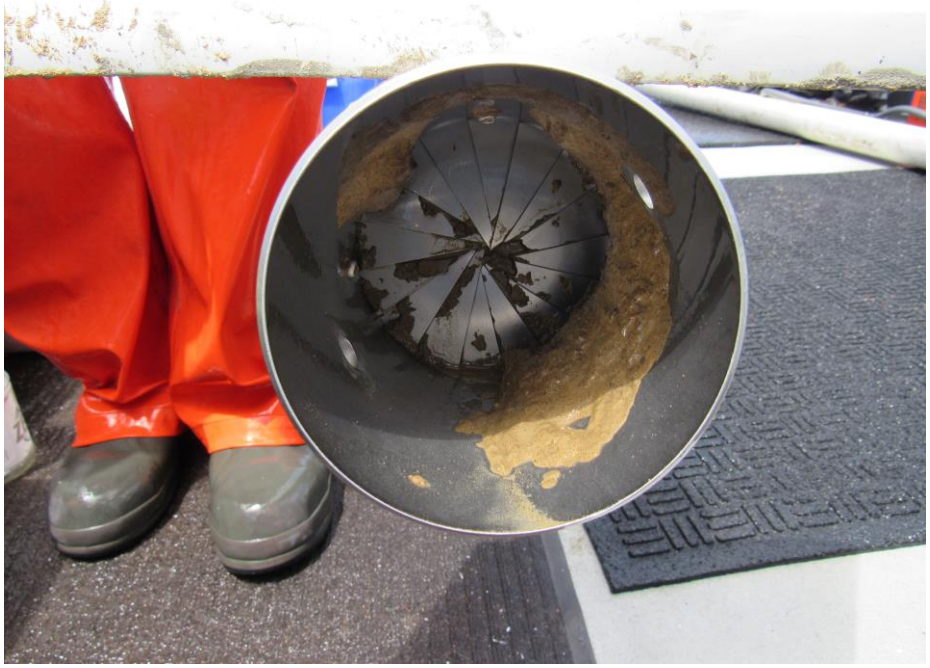
Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C1
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/8/2021 1115

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C1
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/8/2021 1115

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C1
Attempt #: 1
Core Length: 4.0 to 6.2 feet
Sample Date and Time: 6/8/2021 1115

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C1
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/8/2021 1115



Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C1
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/8/2021 1115

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

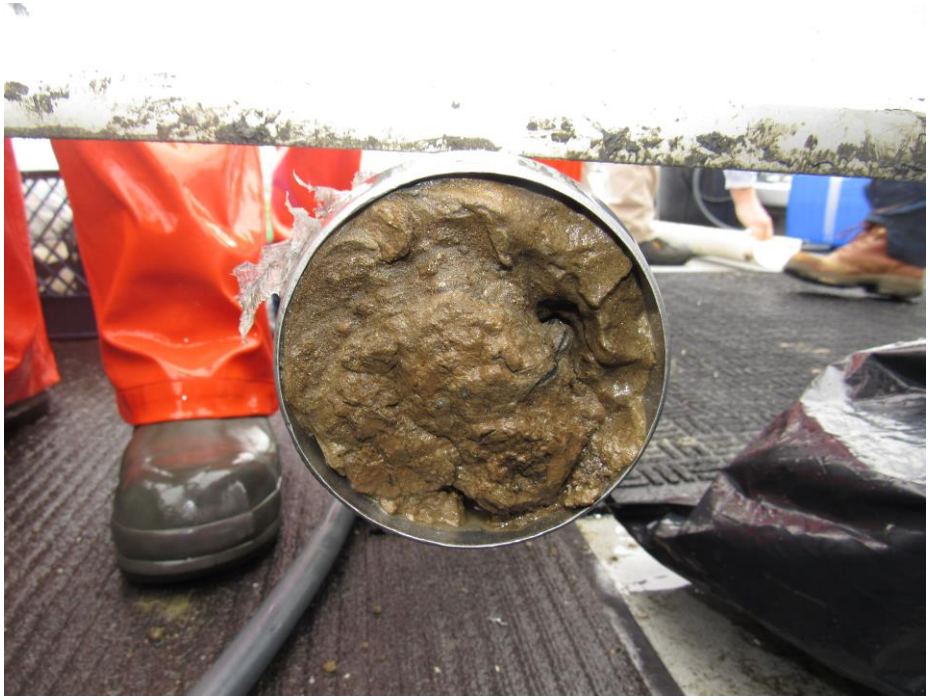
Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C2
Attempt #: 2
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/4/2021 0945

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C2
Attempt #: 2
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/4/2021 0945

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C2
Attempt #: 2
Core Length: 4.0 – 5.6 feet
Sample Date and Time: 6/4/2021 0945

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C2
Attempt #: 2
Core Length: Plug
Sample Date and Time: 6/4/2021 0945



Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C2
Attempt #: 2
Core Length: Plug closeup
Sample Date and Time: 6/4/2021 0945

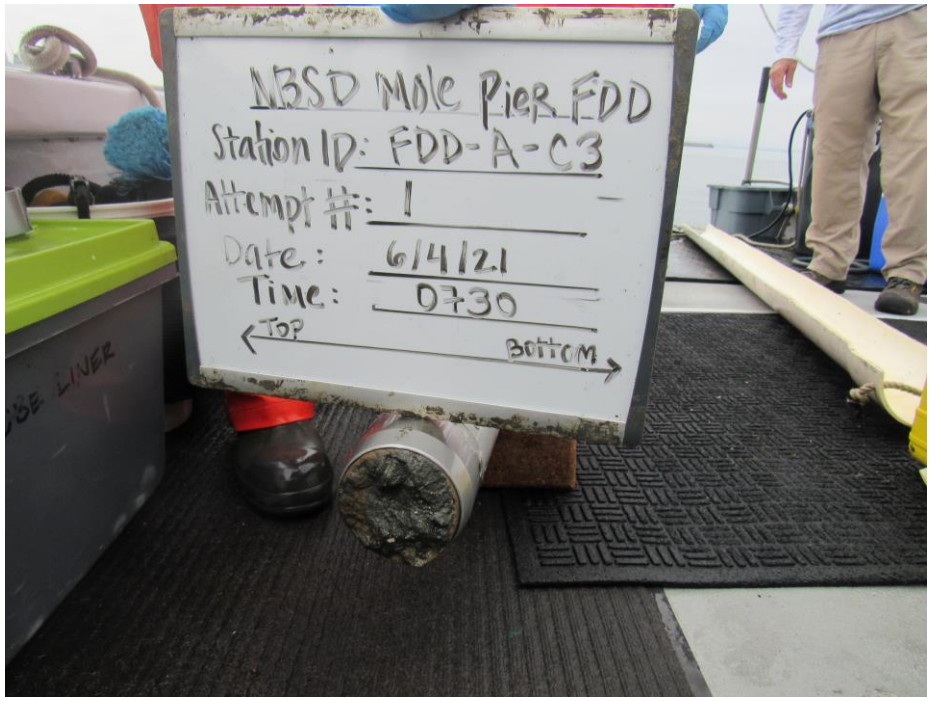
Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C3
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/4/2021 0730

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C3
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/4/2021 0730

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

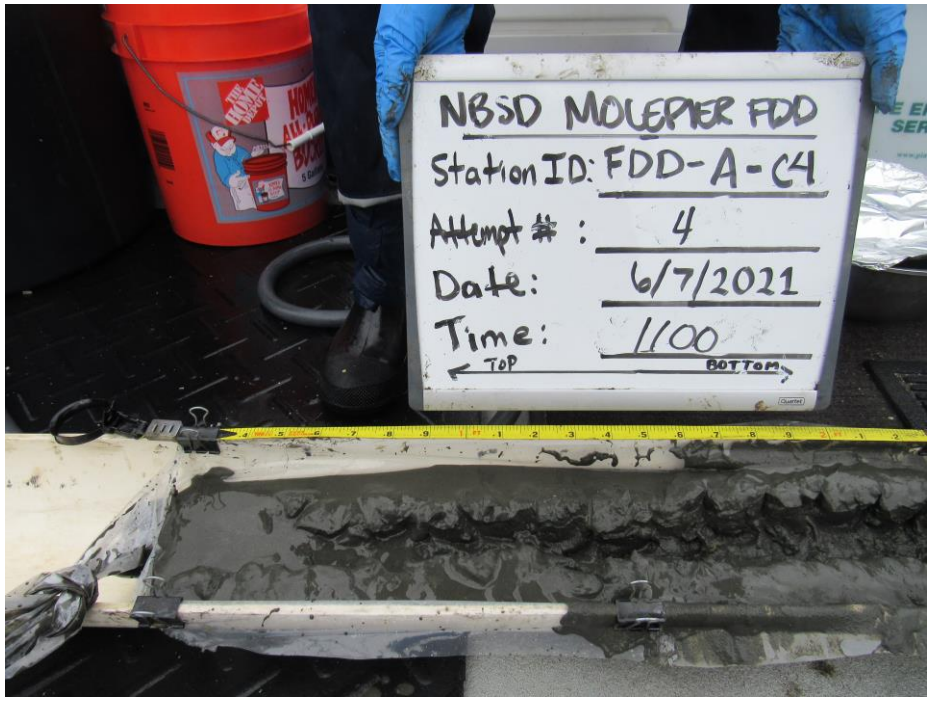
Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C3
Attempt #: 1
Core Length: 4.0 – 5.5 feet
Sample Date and Time: 6/4/2021 0730

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C3
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/4/2021 0730

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C3
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/4/2021 0730

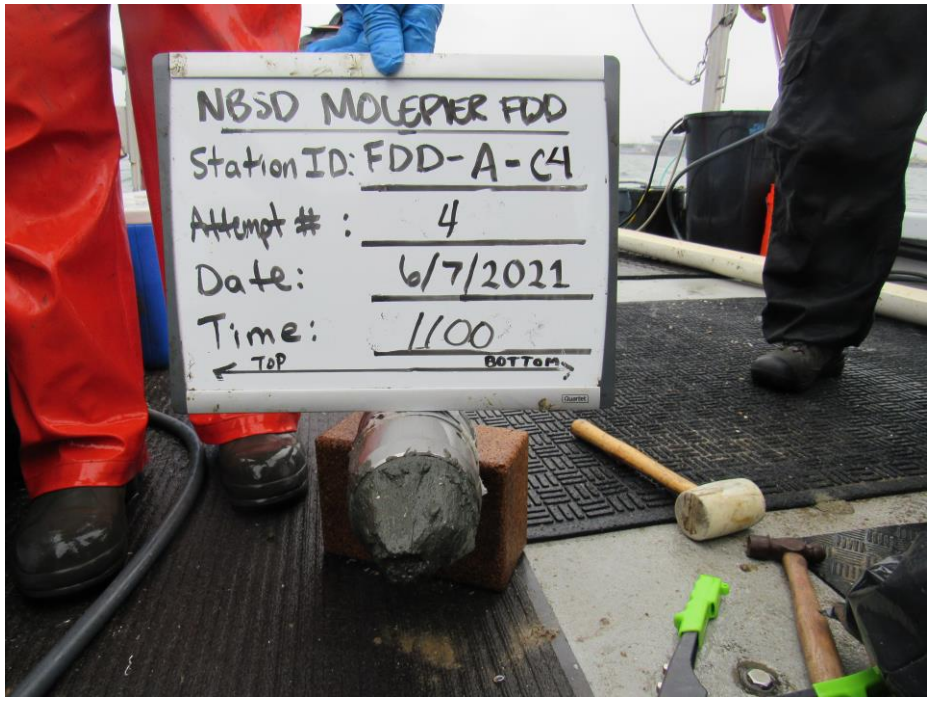


Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C4
Attempt #: 4
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/7/2021 1100

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C4
Attempt #: 4
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/7/2021 1100

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C4
Attempt #: 4
Core Length: 4.0 – 4.5 feet
Sample Date and Time: 6/7/2021 1100

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C4
Attempt #: 4
Core Length: Plug
Sample Date and Time: 6/7/2021 1100

Location: NBSD – Mole Pier FDD Turning Basin
Sample ID: FDD-A-C4
Attempt #: 4
Core Length: Plug closeup
Sample Date and Time: 6/7/2021 1100

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

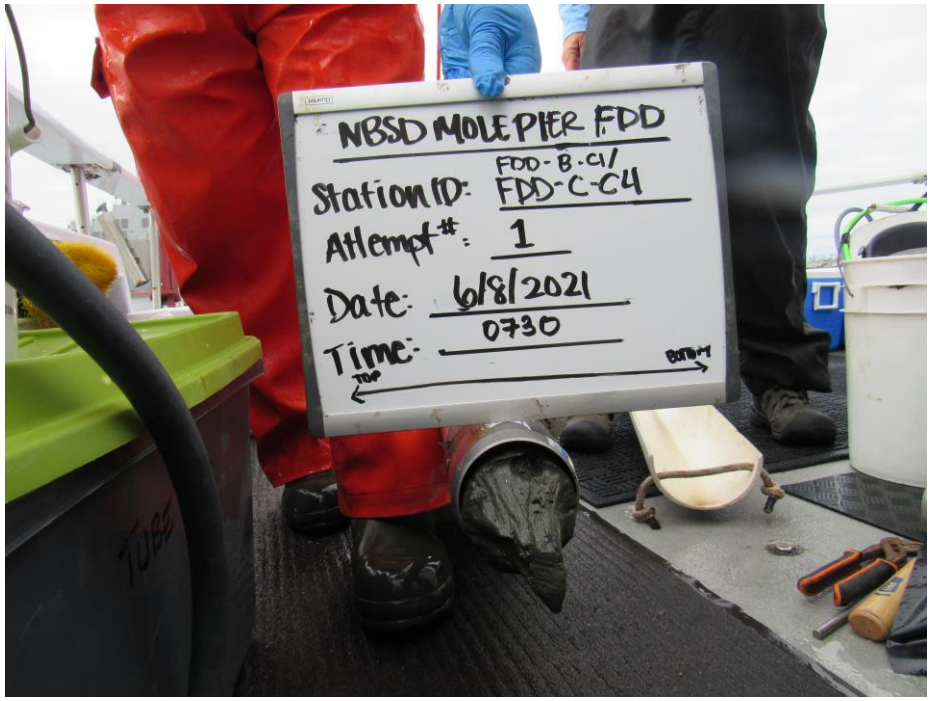
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C1/FDD-C-C4
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/8/2021 0730

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C1/FDD-C-C4
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/8/2021 0730

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C1/FDD-C-C4
Attempt #: 1
Core Length: 4.0 – 5.4 feet
Sample Date and Time: 6/8/2021 0730

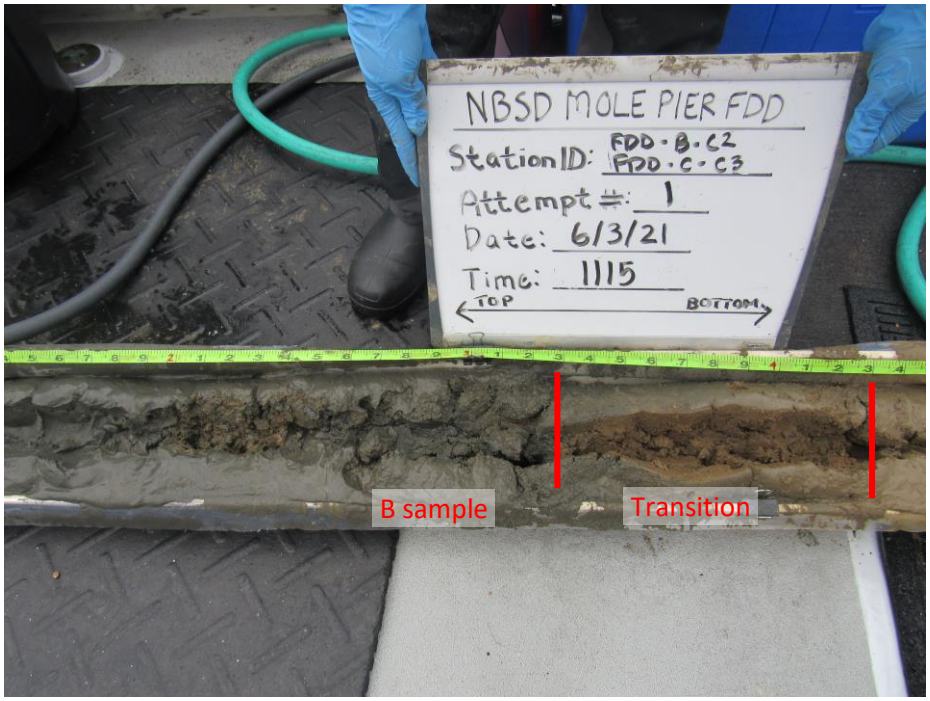
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C1/FDD-C-C4
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/8/2021 0730

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C1/FDD-C-C4
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/8/2021 0730

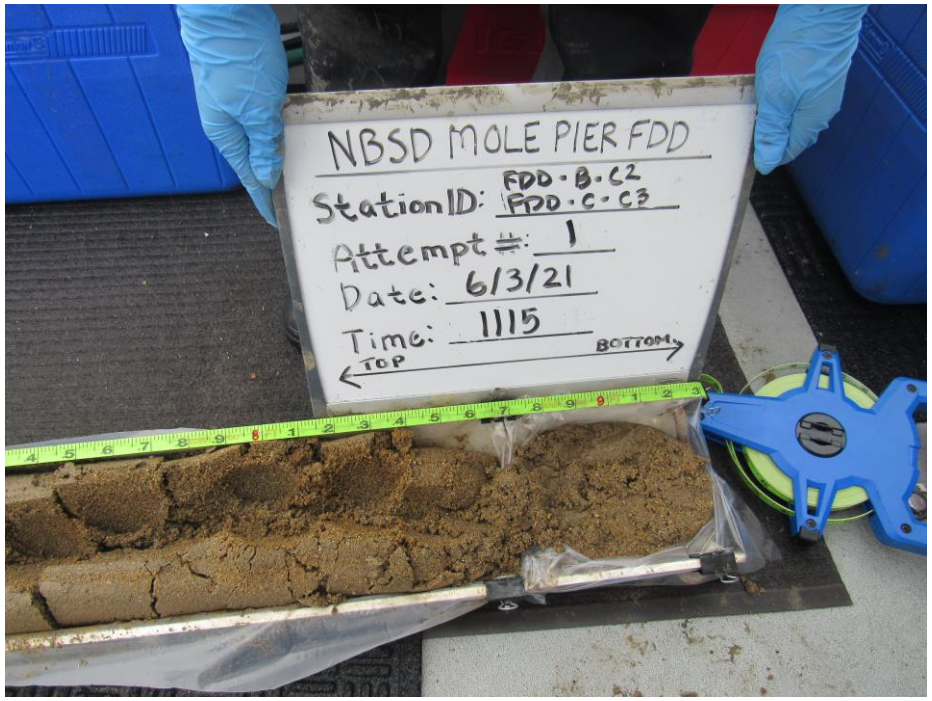
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/3/2021 1115



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/3/2021 1115

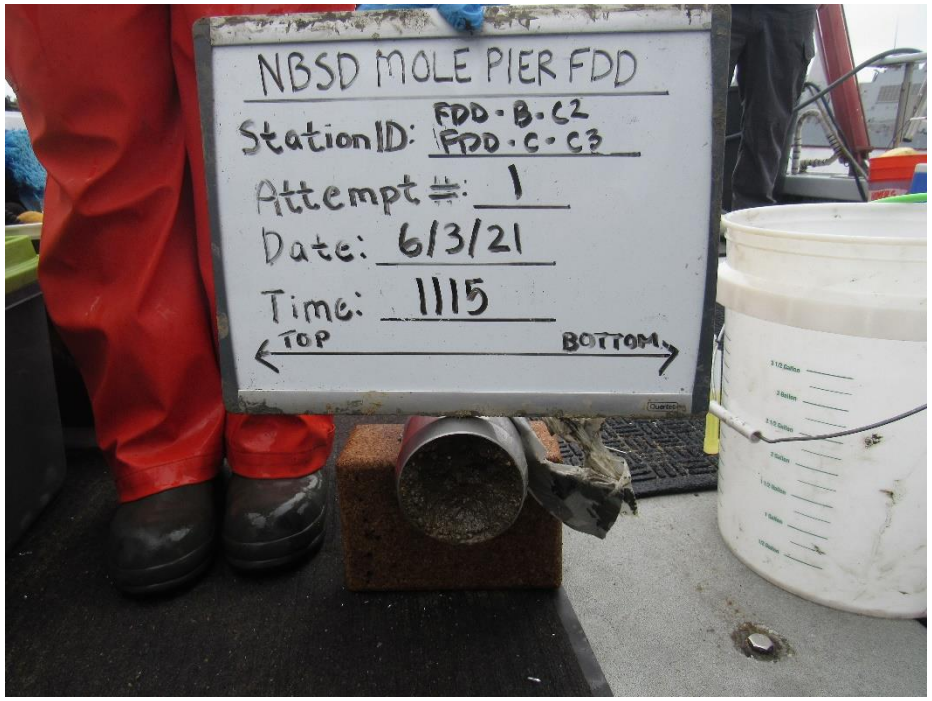
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/3/2021 1115

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: 6.0 – 8.0 feet
Sample Date and Time: 6/3/2021 1115



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: 8.0 – 9.3 feet
Sample Date and Time: 6/3/2021 1115

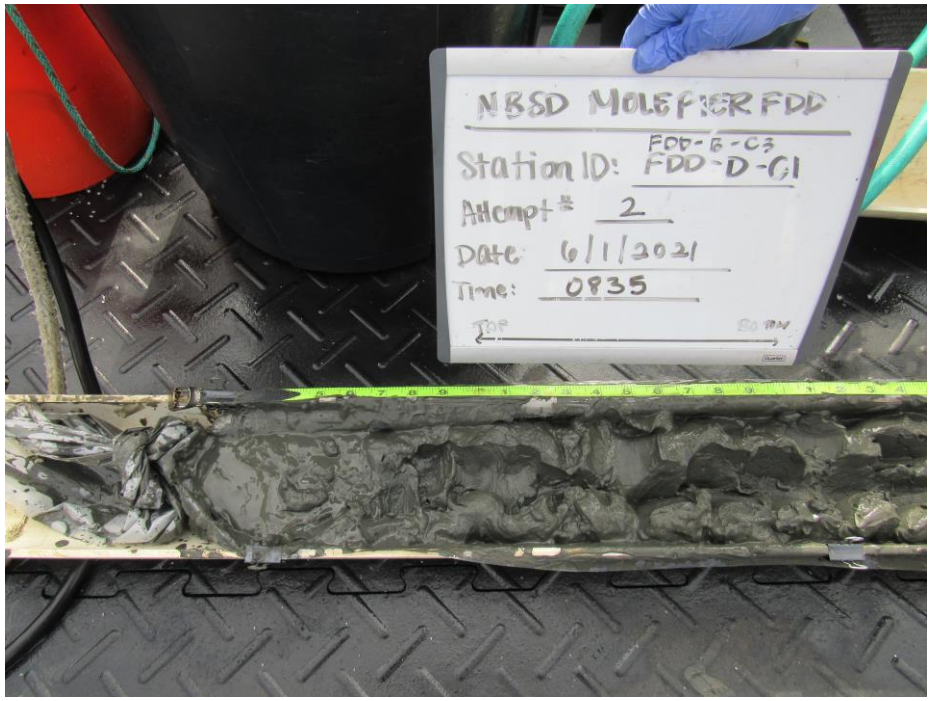
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



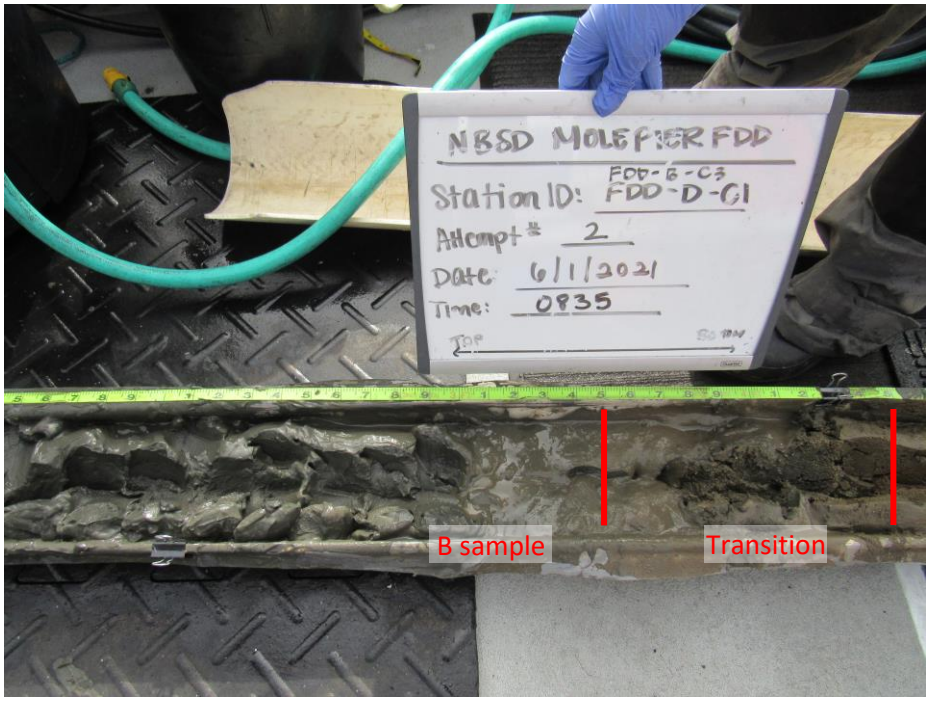
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/3/2021 1115

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C2/FDD-C-C3
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/3/2021 1115

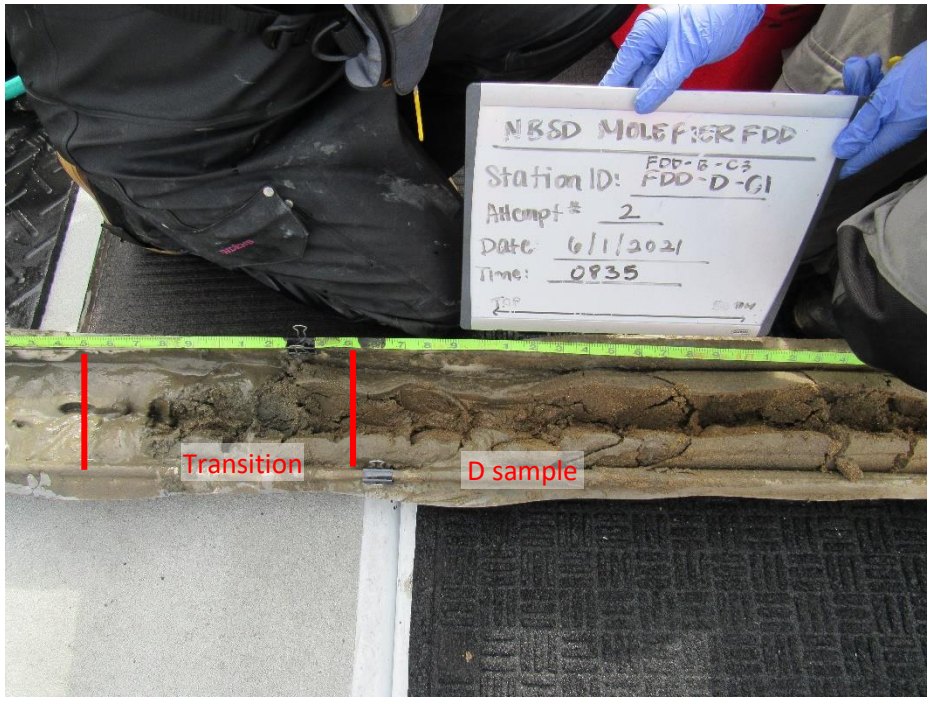
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/1/2021 0835

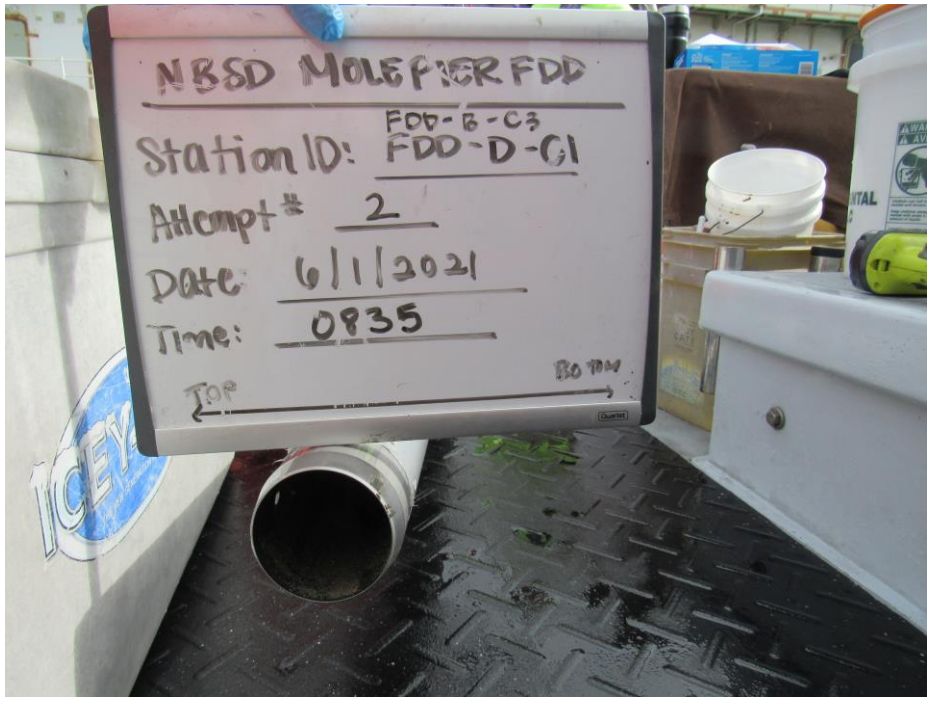


Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/1/2021 0835



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/1/2021 0835

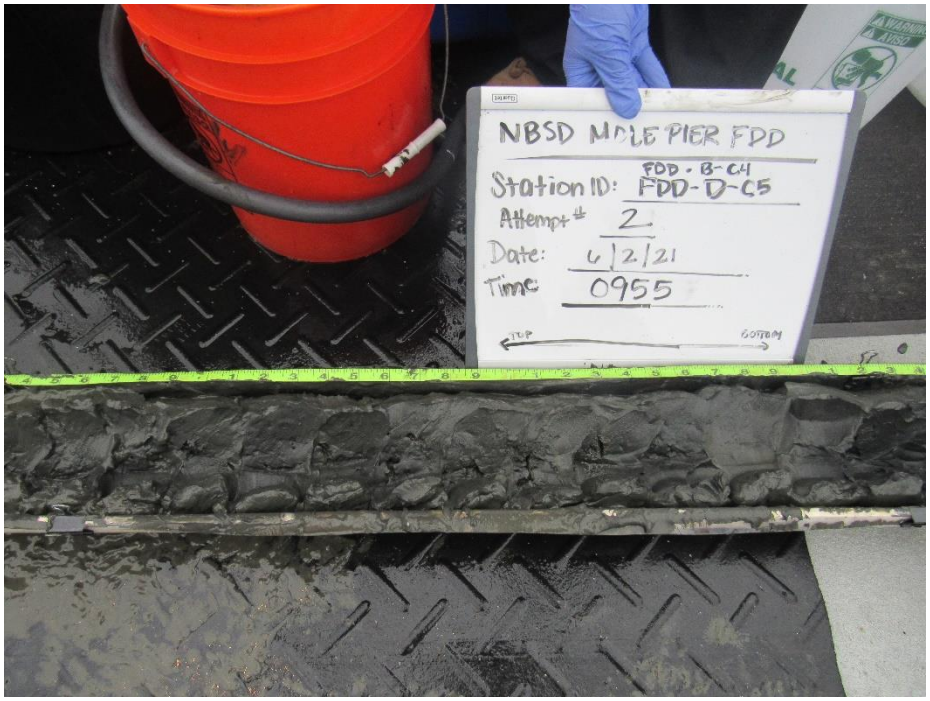
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: 6.0 – 8.4 feet
Sample Date and Time: 6/1/2021 0835



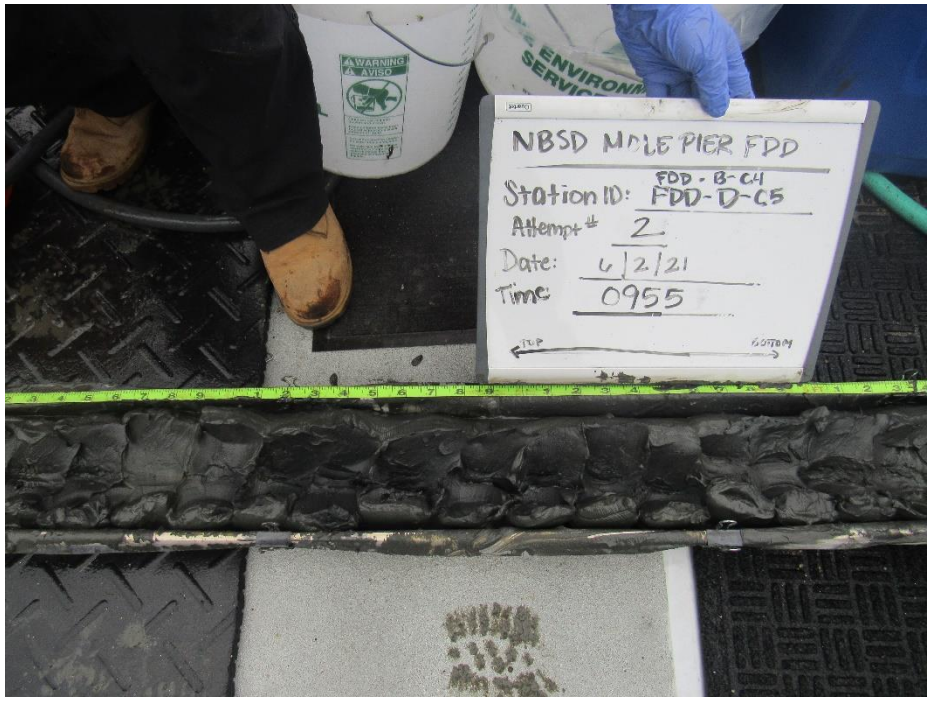
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: Plug
Sample Date and Time: 6/1/2021 0835

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C3/FDD-D-C1
Attempt #: 2
Core Length: Plug closeup
Sample Date and Time: 6/1/2021 0835

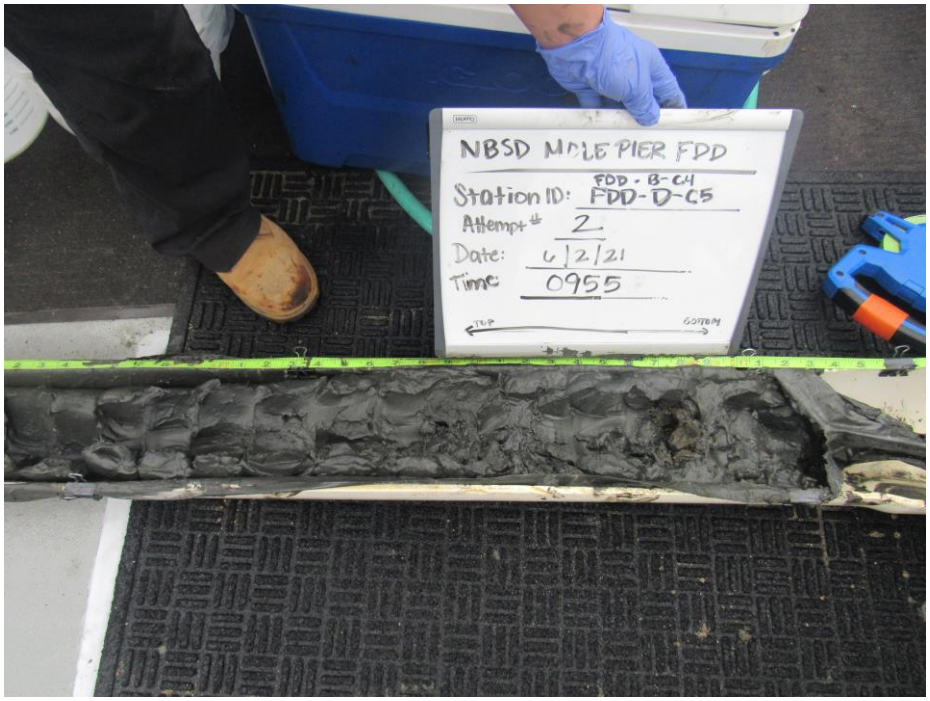
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/2/2021 0955



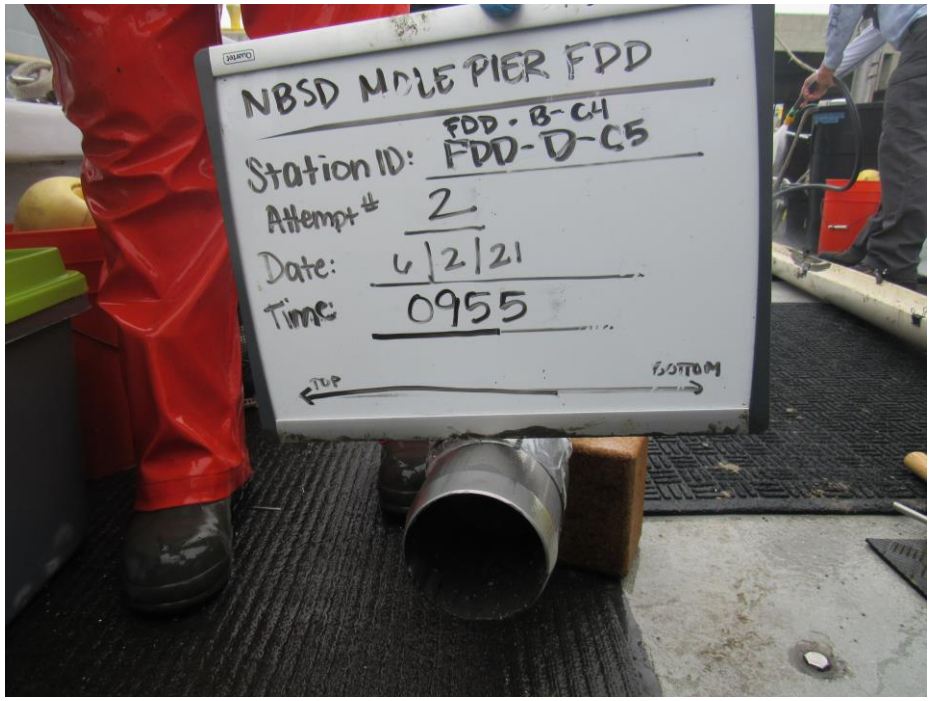
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/2/2021 0955



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/2/2021 0955



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: 6.0 – 8.2 feet
Sample Date and Time: 6/2/2021 0955

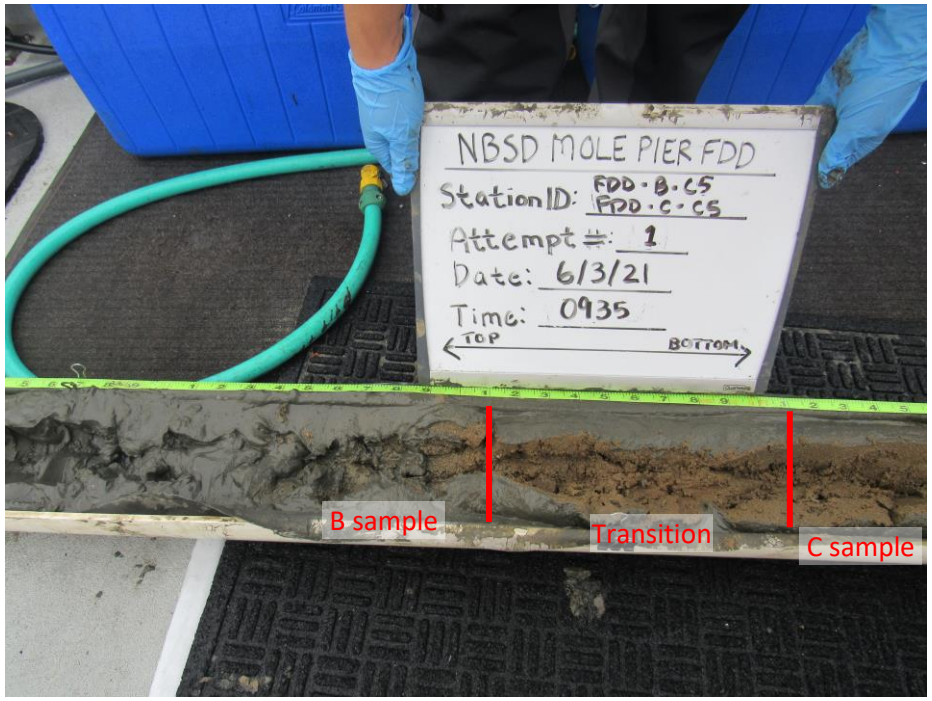


Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: Plug
Sample Date and Time: 6/2/2021 0955

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C4/FDD-D-C5
Attempt #: 2
Core Length: Plug closeup
Sample Date and Time: 6/2/2021 0955

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/3/2021 0935

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/3/2021 0935



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/3/2021 0935

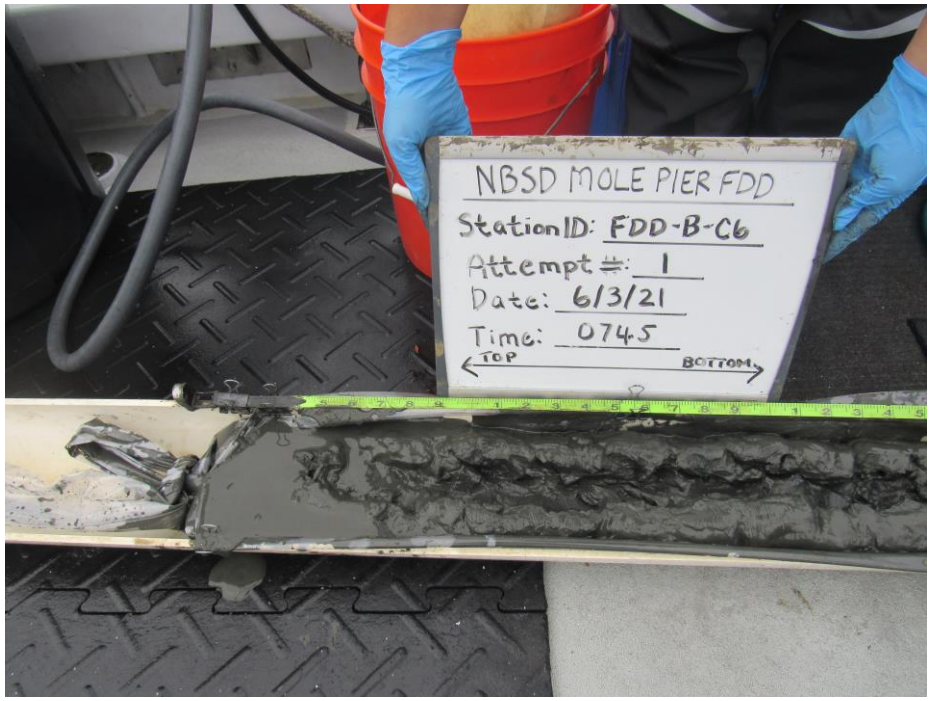
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: 6.0 – 8.0 feet
Sample Date and Time: 6/3/2021 0935

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: 8.0 – 9.1 feet
Sample Date and Time: 6/3/2021 0935

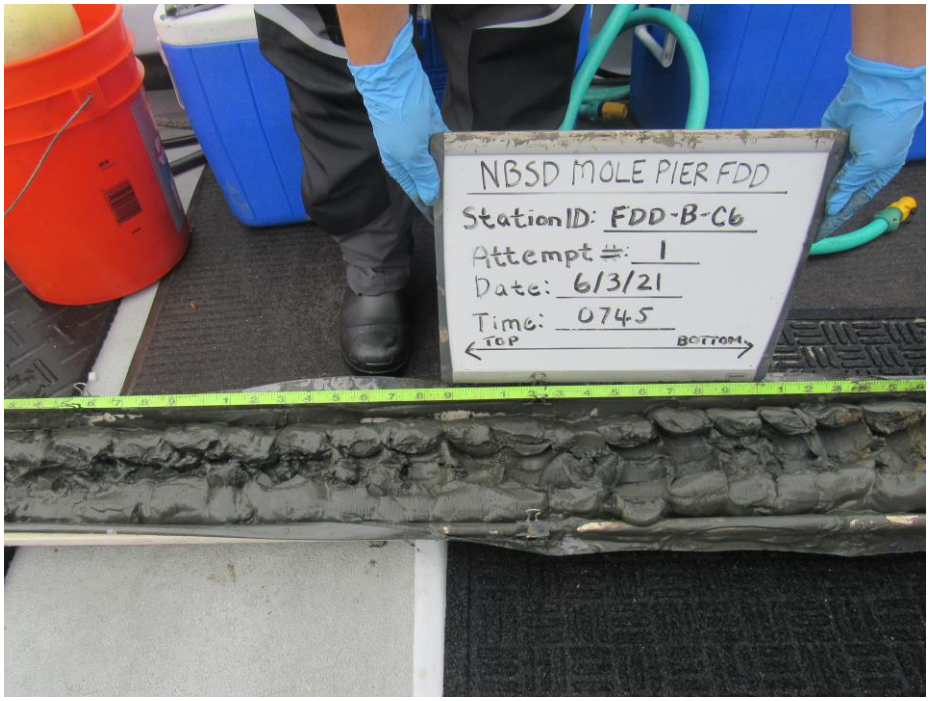
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/3/2021 0935

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C5/FDD-C-C5
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/3/2021 0935



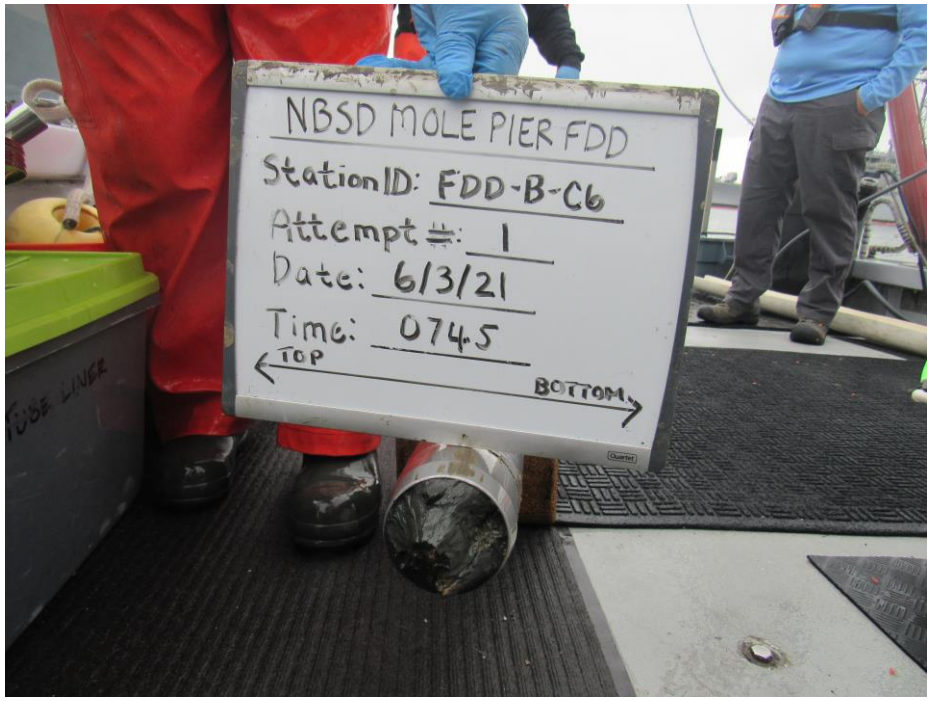
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C6
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/3/2021 0745



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C6
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/3/2021 0745

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C6
Attempt #: 1
Core Length: 4.0 – 6.9 feet
Sample Date and Time: 6/3/2021 0745

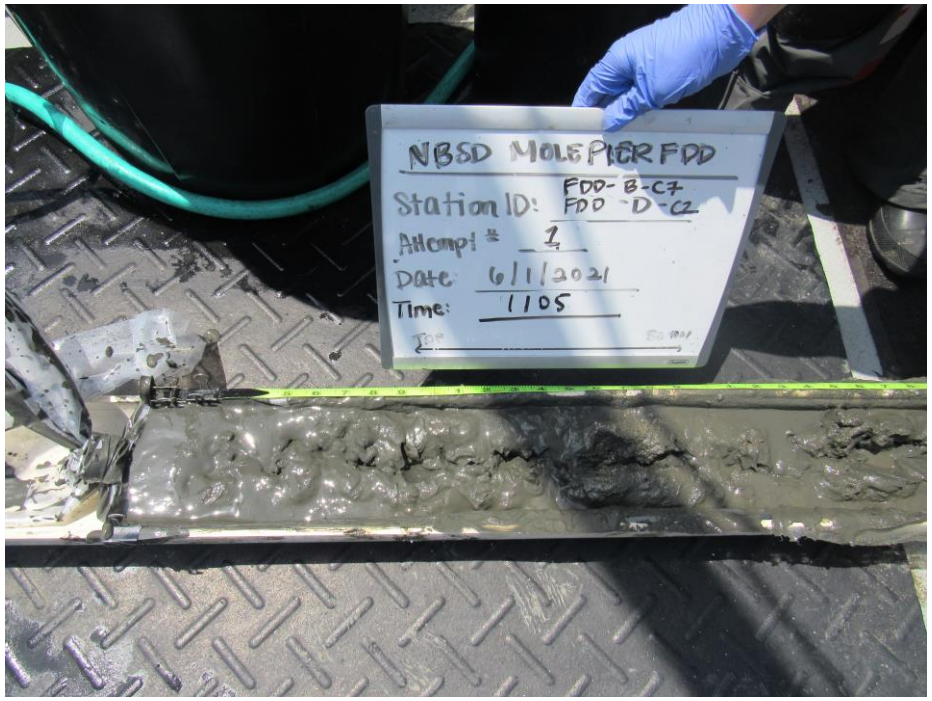
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C6
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/3/2021 0745

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C6
Attempt #: 1
Core Length: Plug Closeup
Sample Date and Time: 6/3/2021 0745

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

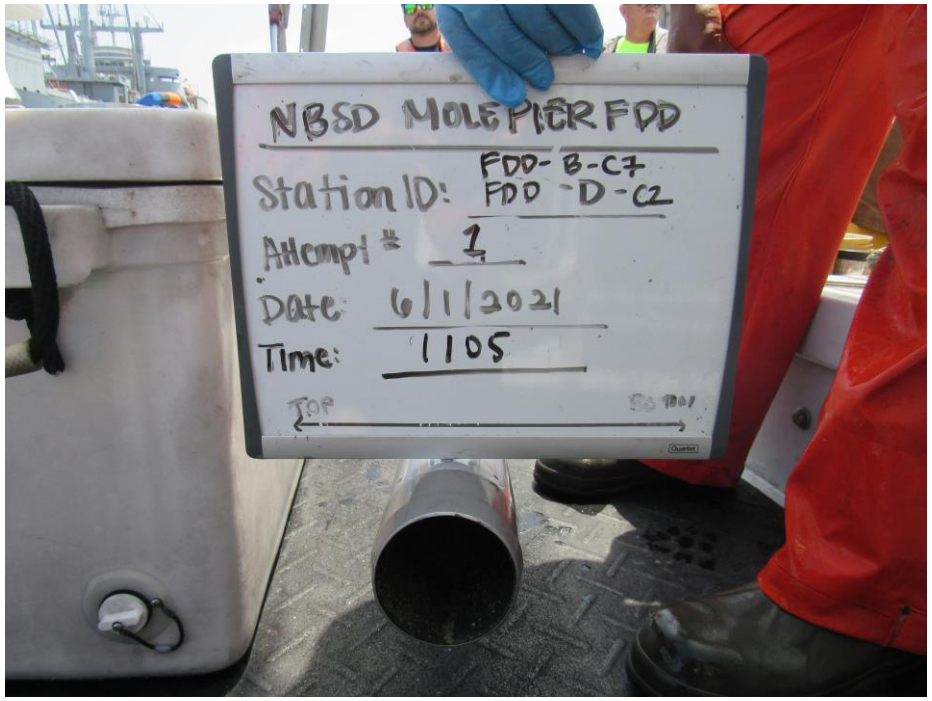


Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/1/2021 1105

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/1/2021 1105

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/1/2021 1105

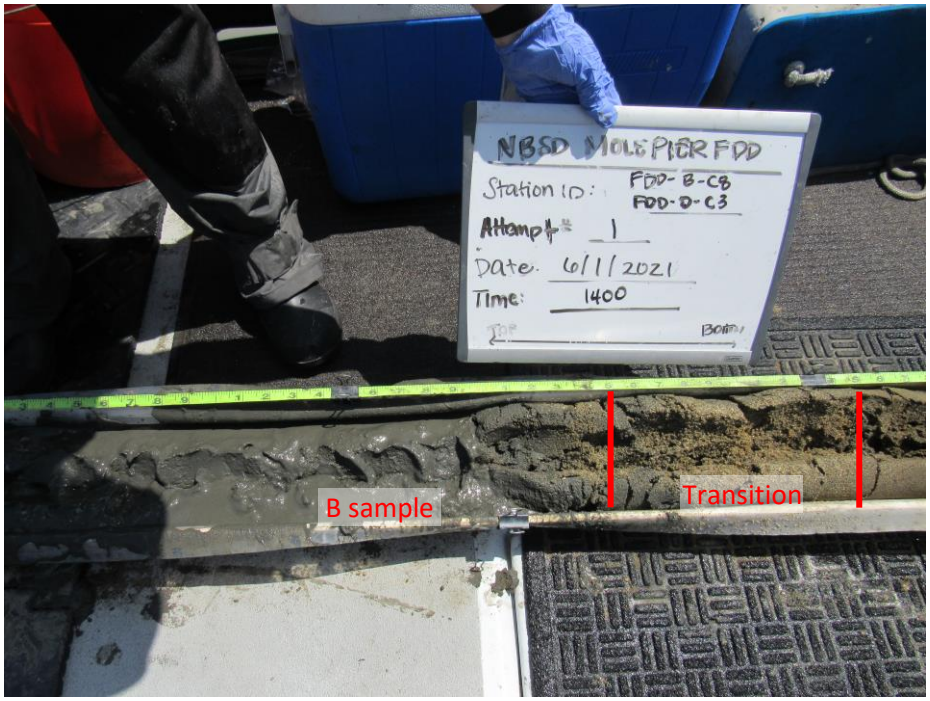
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: 6.0 – 8.1 feet
Sample Date and Time: 6/1/2021 1105



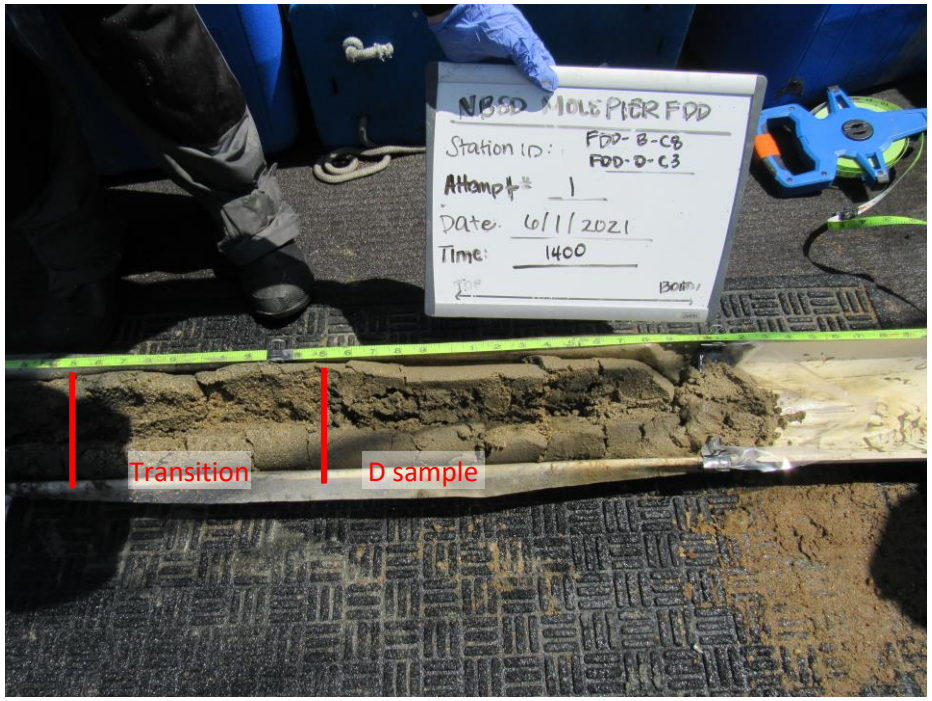
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/1/2021 1105

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C7/FDD-D-C2
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/1/2021 1105

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C8/FDD-D-C3
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/1/2021 1400



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C8/FDD-D-C3
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/1/2021 1400



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C8/FDD-D-C3
Attempt #: 1
Core Length: 4.0 – 6.3 feet
Sample Date and Time: 6/1/2021 1400

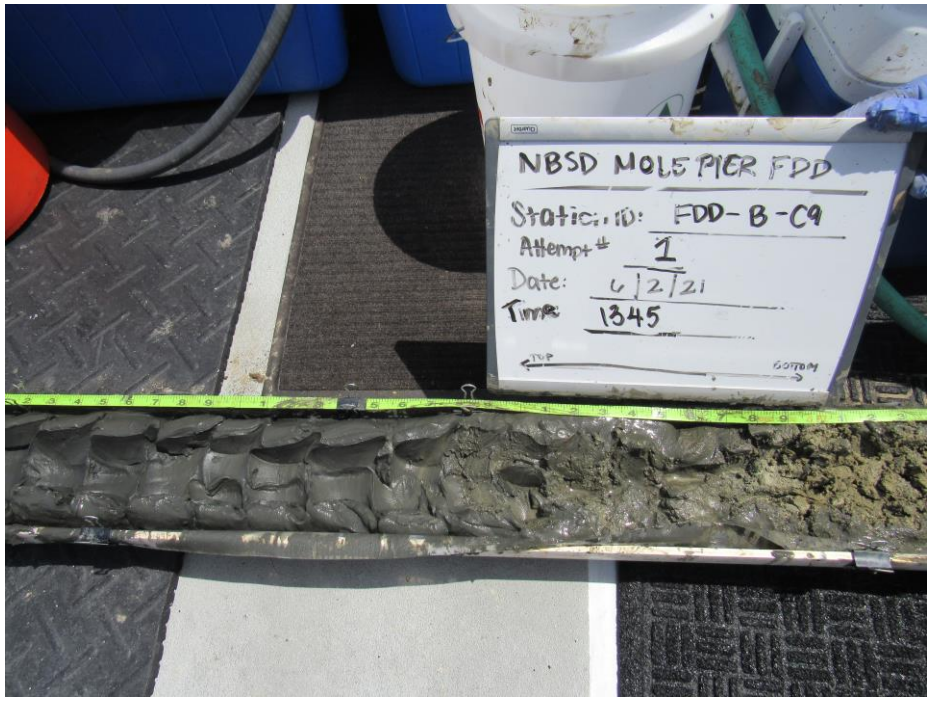
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C8/FDD-D-C3
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/1/2021 1400

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C8/FDD-D-C3
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/1/2021 1400

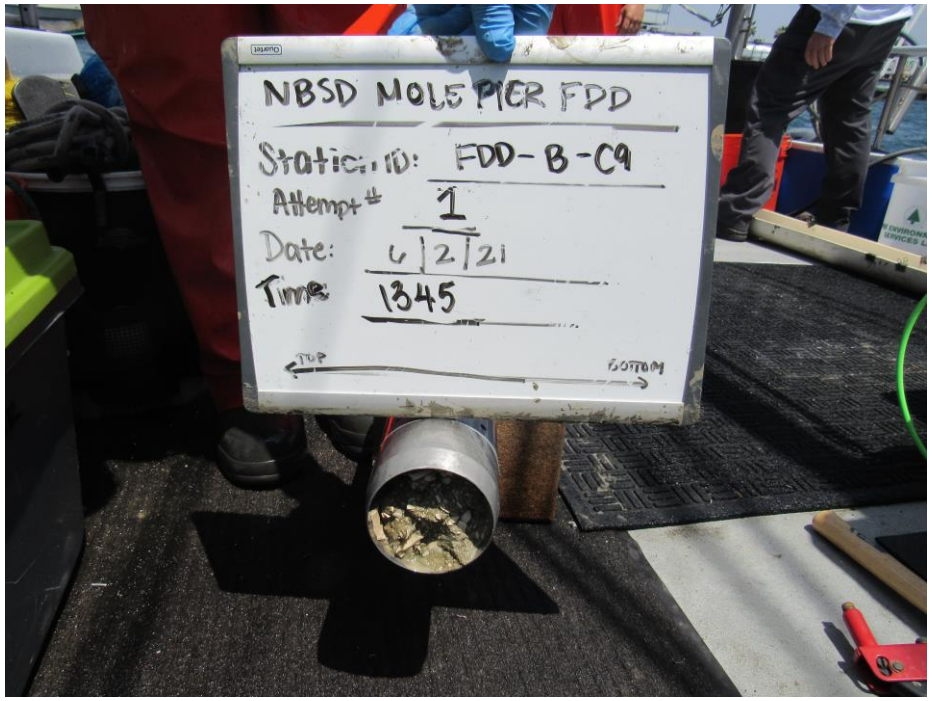
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: 0.0 – 2.0 feet
Sample Date and Time: 6/2/2021 1345

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: 2.0 – 4.0 feet
Sample Date and Time: 6/2/2021 1345



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: 4.0 – 6.0 feet
Sample Date and Time: 6/2/2021 1345

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: 6.0 – 8.8 feet
Sample Date and Time: 6/2/2021 1345



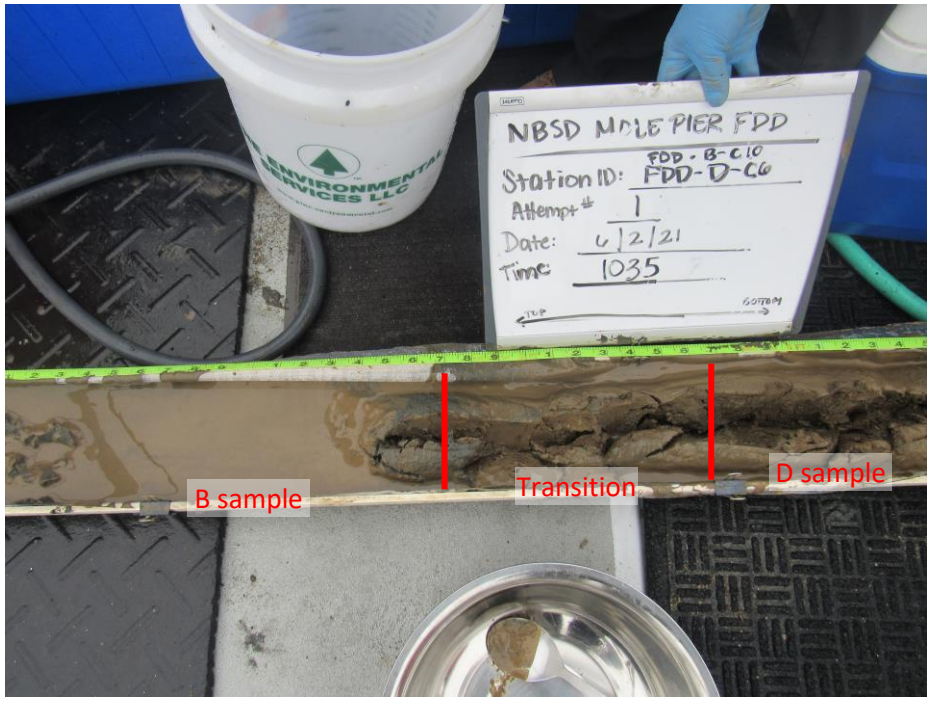
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/2/2021 1345

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C9
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/2/2021 1345

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

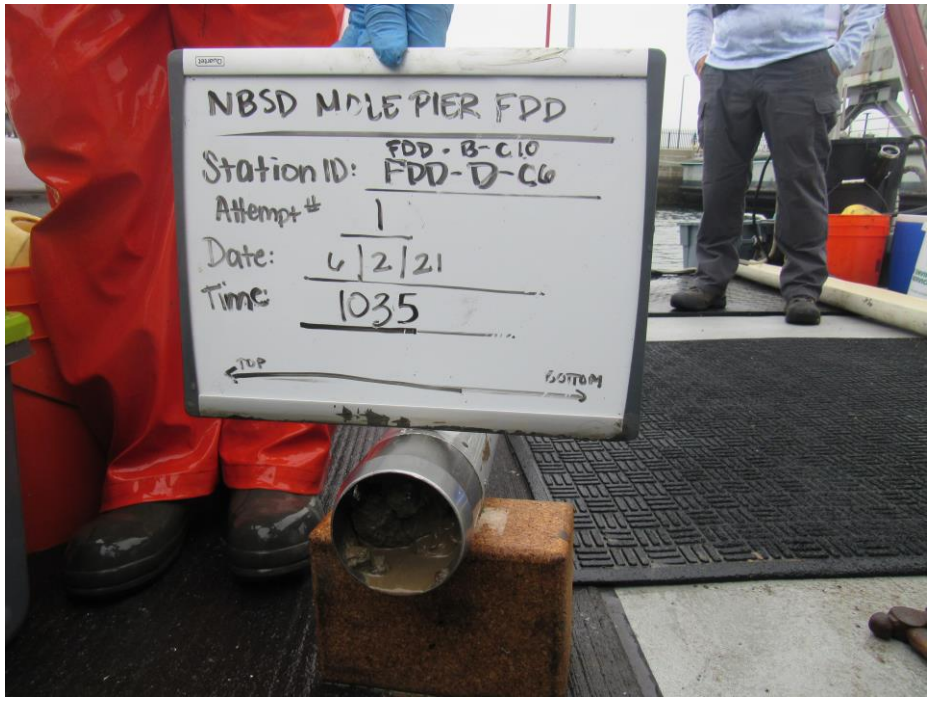
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: 0.0 to 2.0 feet
Sample Date and Time: 6/2/2021 1035

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: 2.0 to 4.0 feet
Sample Date and Time: 6/2/2021 1035



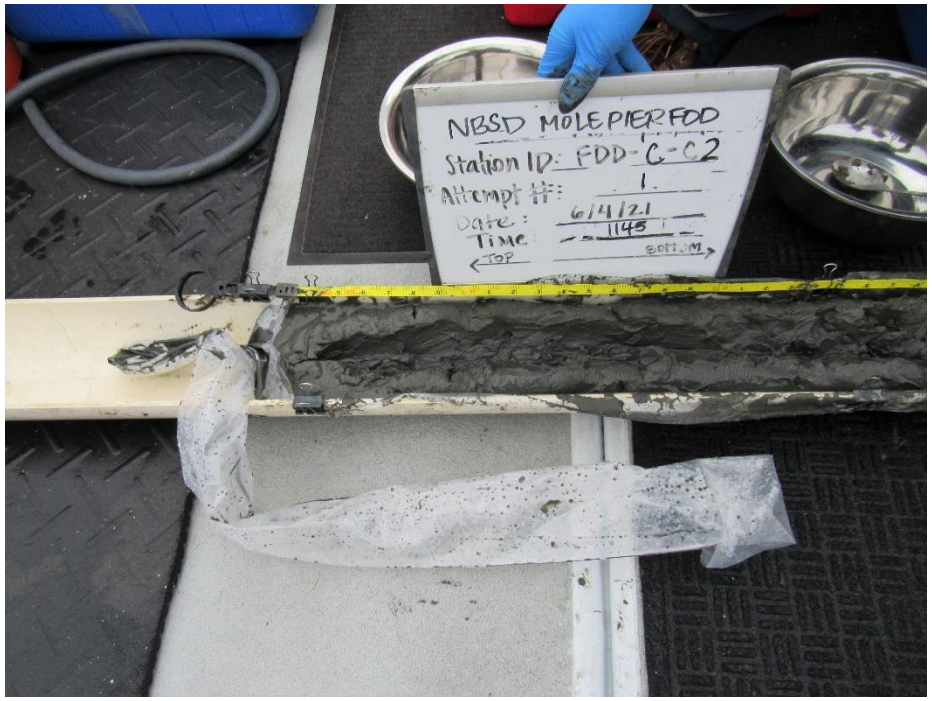
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: 4.0 to 6.0 feet
Sample Date and Time: 6/2/2021 1035

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: 6.0 to 8.5 feet
Sample Date and Time: 6/2/2021 1035



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/2/2021 1035

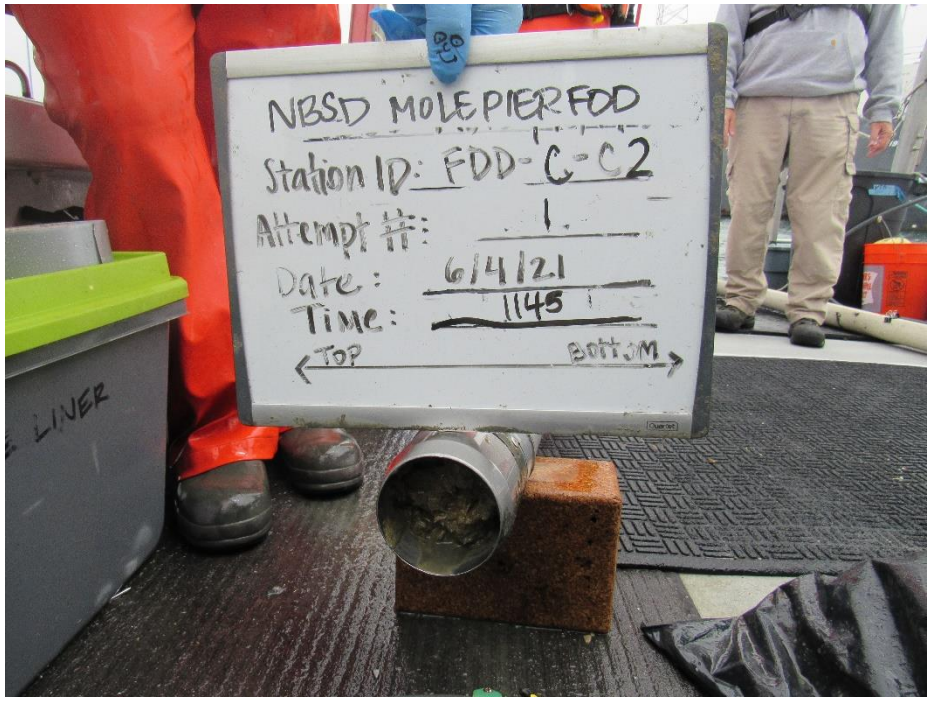
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-B-C10/FDD-D-C6
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/2/2021 1035



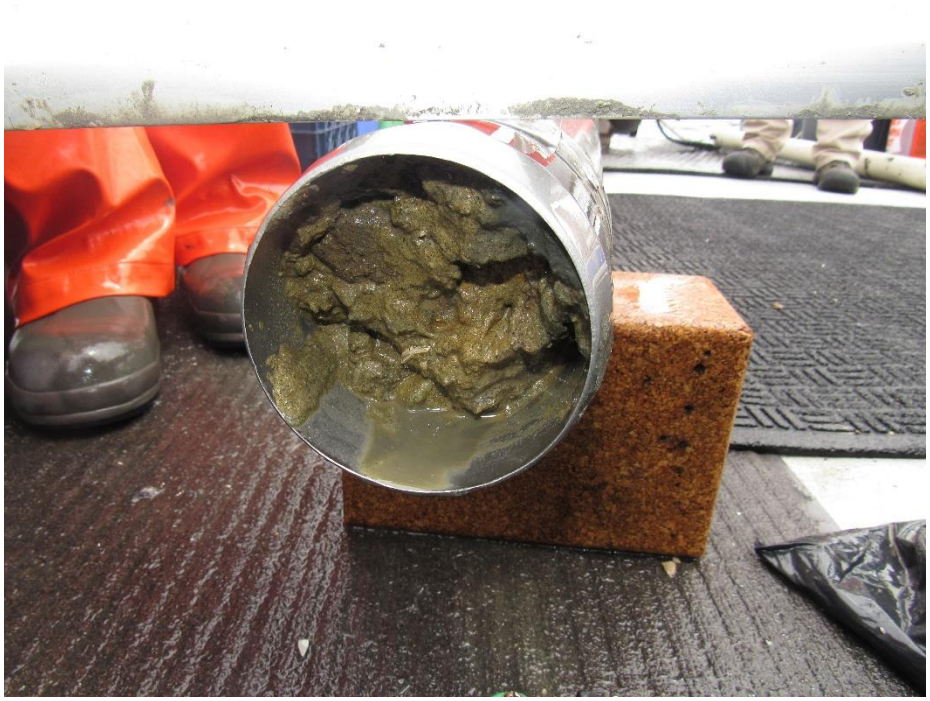
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C11/FDD-C-C2
Attempt #: 1
Core Length: 0.0 to 2.0 feet
Sample Date and Time: 6/4/2021 1145

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C11/FDD-C-C2
Attempt #: 1
Core Length: 2.0 to 4.7 feet
Sample Date and Time: 6/4/2021 1145

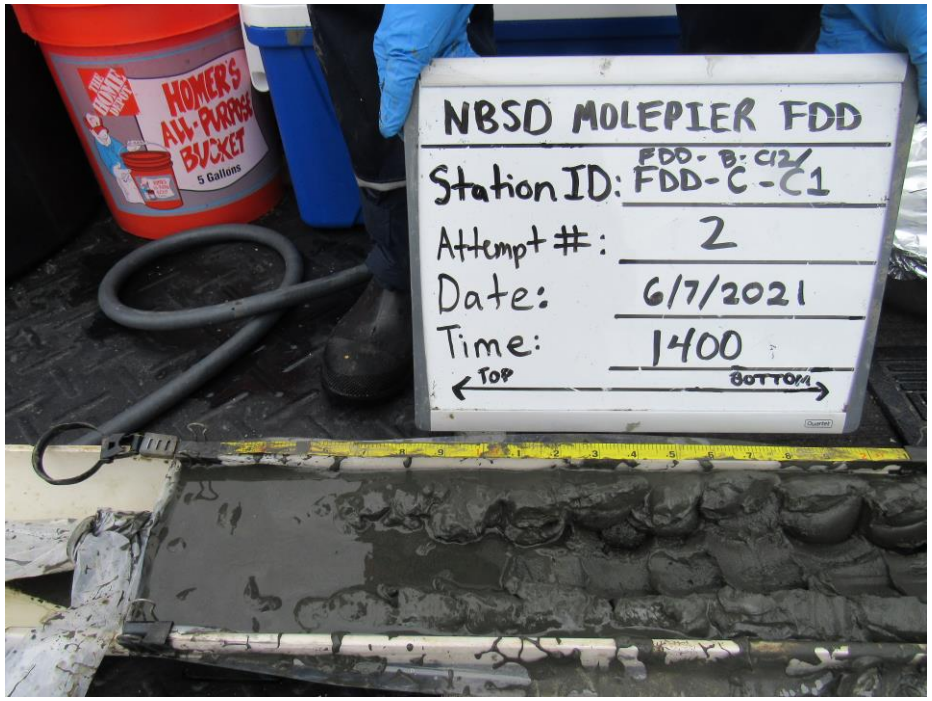
NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C11/FDD-C-C2
Attempt #: 1
Core Length: Plug
Sample Date and Time: 6/4/2021 1145



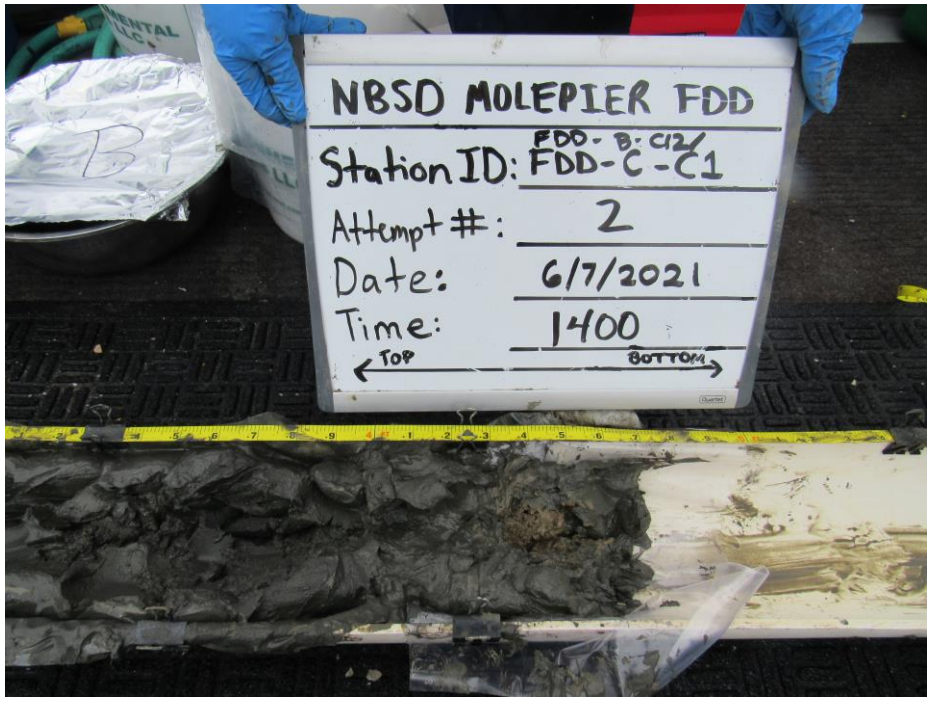
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C11/FDD-C-C2
Attempt #: 1
Core Length: Plug closeup
Sample Date and Time: 6/4/2021 1145



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C12/FDD-C-C1
Attempt #: 2
Core Length: 0.0 to 2.0 feet
Sample Date and Time: 6/7/2021 1400

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C12/FDD-C-C1
Attempt #: 2
Core Length: 2.0 to 4.0 feet
Sample Date and Time: 6/7/2021 1400

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C12/FDD-C-C1
Attempt #: 2
Core Length: 4.0 to 4.5 feet
Sample Date and Time: 6/7/2021 1400

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C12/FDD-C-C1
Attempt #: 2
Core Length: Plug
Sample Date and Time: 6/7/2021 1400

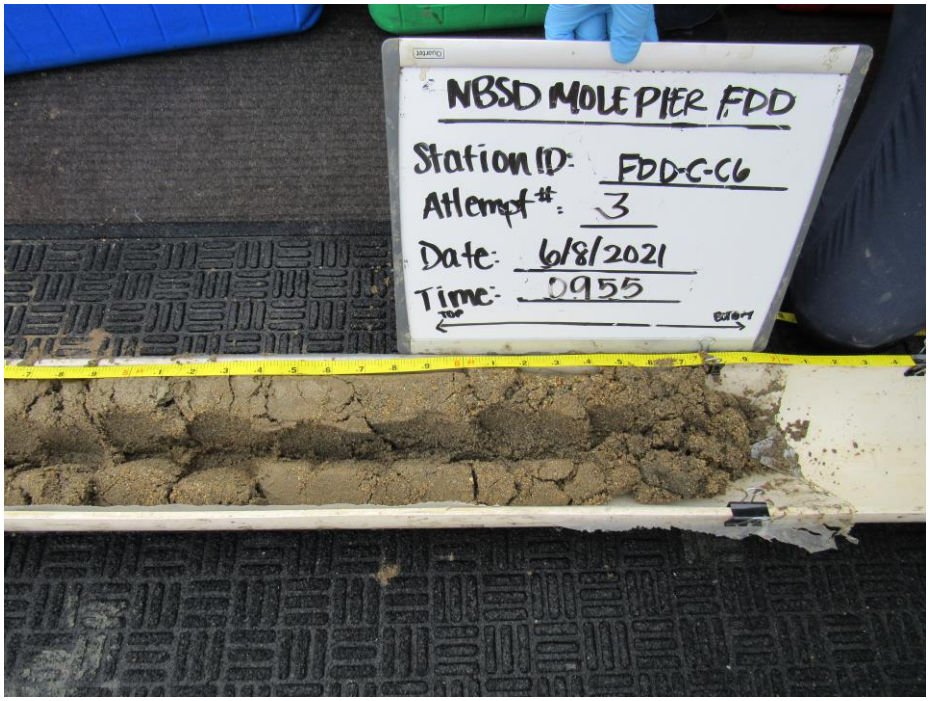
Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-B-C12/FDD-C-C1
Attempt #: 2
Core Length: Plug closeup
Sample Date and Time: 6/7/2021 1400

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: 0.0 to 2.0 feet
Sample Date and Time: 6/8/2021 0955

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: 2.0 to 4.0 feet
Sample Date and Time: 6/8/2021 0955

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: 4.0 to 6.0 feet
Sample Date and Time: 6/8/2021 0955



Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: 6.0 to 7.0 feet
Sample Date and Time: 6/8/2021 0955

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: Plug
Sample Date and Time: 6/8/2021 0955

Location: NBSD – Mole Pier FDD Approach
Sample ID: FDD-C-C6
Attempt #: 3
Core Length: Plug closeup
Sample Date and Time: 6/8/2021 0955

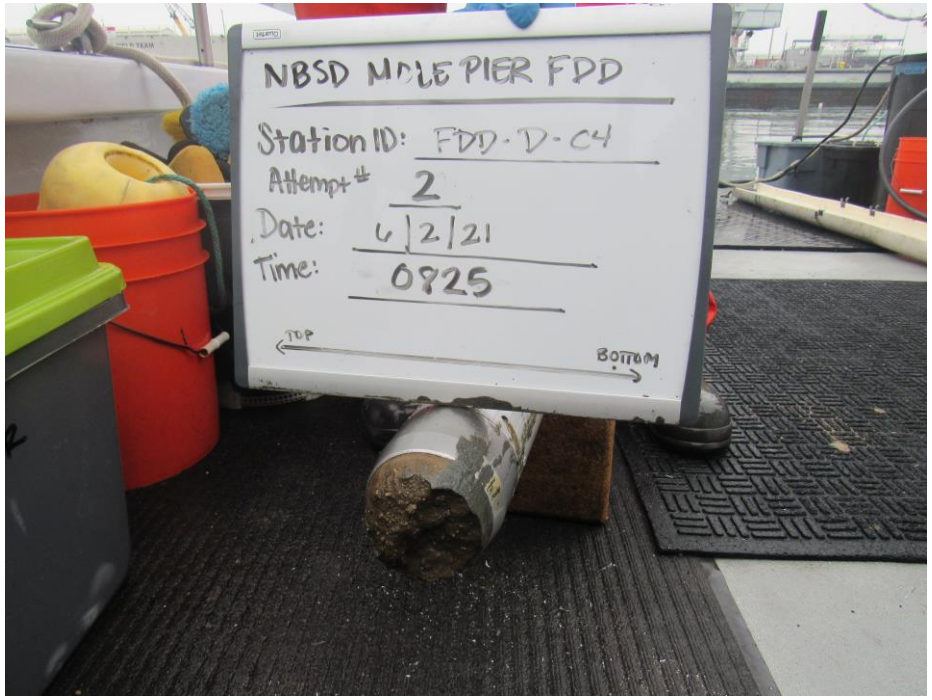
Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-D-C4
Attempt #: 2
Core Length: 0.0 to 2.0 feet
Sample Date and Time: 6/2/2021 0825

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-D-C4
Attempt #: 2
Core Length: 2.0 to 4.0 feet
Sample Date and Time: 6/2/2021 0825

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-D-C4
Attempt #: 2
Core Length: 4.0 to 6.9 feet
Sample Date and Time: 6/2/2021 0825

NBSD Mole Pier Floating Dry Dock Sediment Characterization
Naval Base San Diego
San Diego California
June 2021



Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-D-C4
Attempt #: 2
Core Length: Plug
Sample Date and Time: 6/2/2021 0825

Location: NBSD – Mole Pier FDD Sump
Sample ID: FDD-D-C4
Attempt #: 2
Core Length: Plug closeup
Sample Date and Time: 6/2/2021 0825

This page intentionally left blank.

APPENDIX C1

ANALYTICAL LABORATORY REPORTS – SEDIMENT CHEMISTRY

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-60732-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
7/5/2021 11:46:45 AM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 7
Surrogate Summary 50
QC Sample Results 55
QC Association Summary 81
Lab Chronicle 92
Certification Summary 102
Method Summary 104
Sample Summary 105
Chain of Custody 106
Receipt Checklists 108

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-60732-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-60732-1

Comments
The samples were frozen after collection (prior to holding time expiration) at -18C, and remained frozen until the laboratory was ready to prepare the samples for analysis. Eurofins Calscience, Inc. follows SWAMP criteria and the Puget Sound Protocol (USEPA/PSWQAT, 1997, Table 2) for holding times in marine tissues and / or sediment samples, which states holding times may be extended up to six months to one year (two years for metals) if stored frozen at -18C after collection. Therefore, the sample results have not been flagged as exceeding the EPA Method recommended holding times.

No additional comments.

Receipt
The samples were received on 6/2/2021 6:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.7º C.

GC/MS Semi VOA
Method 8270D TQ: Surrogate recovery for the following samples were outside the upper control limit: FDD-D-C2 (570-60732-5), (LCS 570-154999/2-A), (LCSD 570-154999/3-A), (MB 570-154999/1-A), (570-60732-A-5-M MS) and (570-60732-A-5-N MSD). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8270D TQ: Surrogate recovery for the following samples were outside the upper control limit: FDD-D-C1 (570-60732-4) and FDD-D-C3 (570-60732-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-154813 and analytical batch 570-155150 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with batch 570-156549 recovered above the upper control limit for 4,4'-DDD, Aldrin, delta-BHC, Endrin alpha-BHC and gamma-BHC. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 570-156549/33) and (CCV 570-156549/6).

Method 8081A: The continuing calibration verification (CCV) associated with 570-156549 recovered high and outside the control limits for Tetrachloro-m-xylene and DCB Decachlorobiphenyl (Surr) on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCV 570-156549/33) and (CCV 570-156549/6).

Method 8081A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-154993 and analytical batch 570-156549 recovered outside control limits for the following analytes: Endosulfan sulfate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Job ID: 570-60732-1 (Continued)

Laboratory: Eurofins Calscience LLC (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.45	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-28	ND		0.45	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-37	ND		0.45	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-44	ND		0.45	0.34	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-49	**2.7**		0.45	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-52	**5.4**		0.45	0.42	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-66	**4.7**		0.45	0.27	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-70	**2.4**		0.45	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-74	ND		0.45	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-77	ND		0.45	0.26	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-81	ND		0.45	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-87	ND		0.45	0.25	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-99	**8.2**		0.45	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-101	**10**		0.45	0.099	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-105	ND		0.45	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-110	**8.7**		0.45	0.075	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-114	ND		0.45	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-118	**7.3**		0.45	0.077	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-119	ND		0.45	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-123	ND		0.45	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-126	ND		0.45	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-128	ND		0.45	0.27	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-132/153	**21**		0.89	0.36	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-138/158	**18**		0.89	0.78	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-149	**15**		0.45	0.26	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-151	**5.1**		0.45	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-156	ND		0.45	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-157	ND		0.45	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-167	ND		0.45	0.30	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-168	ND		0.45	0.32	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-169	ND		0.45	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-170	ND		0.45	0.25	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-177	**3.4**		0.45	0.26	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-180	**11**		0.45	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-183	**2.5**		0.45	0.21	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-187	**9.0**		0.45	0.23	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-189	ND		0.45	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-194	**3.0**		0.45	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-201	ND		0.45	0.076	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
PCB-206	ND		0.45	0.26	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1
Polychlorinated biphenyls, Total	**150**		0.89	0.78	ug/Kg	☼	06/03/21 21:50	06/14/21 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*20 - 139*	*06/03/21 21:50*	*06/14/21 15:55*	*1*
p-Terphenyl-d14	*87*		*37 - 165*	*06/03/21 21:50*	*06/14/21 15:55*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.38	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-28	ND		0.38	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-37	ND		0.38	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-44	ND		0.38	0.29	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-49	**3.7**		0.38	0.095	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-52	**5.2**		0.38	0.36	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-66	**3.6**		0.38	0.24	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-70	**2.0**		0.38	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-74	ND		0.38	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-77	ND		0.38	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-81	ND		0.38	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-87	ND		0.38	0.21	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-99	**6.7**		0.38	0.091	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-101	**8.6**		0.38	0.085	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-105	ND		0.38	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-110	**9.9**		0.38	0.065	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-114	ND		0.38	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-118	**15**		0.38	0.066	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-119	ND		0.38	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-123	ND		0.38	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-126	ND		0.38	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-128	ND		0.38	0.23	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-132/153	**15**		0.76	0.31	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-138/158	**12**		0.76	0.67	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-149	**10**		0.38	0.23	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-151	ND		0.38	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-156	ND		0.38	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-157	ND		0.38	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-167	ND		0.38	0.25	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-168	ND		0.38	0.27	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-169	ND		0.38	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-170	ND		0.38	0.21	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-177	**2.1**		0.38	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-180	**8.3**		0.38	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-183	**2.2**		0.38	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-187	**5.9**		0.38	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-189	ND		0.38	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-194	ND		0.38	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-201	ND		0.38	0.065	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
PCB-206	ND		0.38	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1
Polychlorinated biphenyls, Total	**120**		0.76	0.67	ug/Kg	☼	06/03/21 21:50	06/14/21 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*20 - 139*	*06/03/21 21:50*	*06/14/21 16:20*	*1*
p-Terphenyl-d14	*83*		*37 - 165*	*06/03/21 21:50*	*06/14/21 16:20*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.33	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-28	ND		0.33	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-37	ND		0.33	0.099	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-44	ND		0.33	0.25	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-49	ND		0.33	0.081	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-52	ND		0.33	0.31	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-66	**3.0**		0.33	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-70	ND		0.33	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-74	ND		0.33	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-77	ND		0.33	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-81	ND		0.33	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-87	ND		0.33	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-99	**5.2**		0.33	0.078	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-101	**8.9**		0.33	0.073	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-105	ND		0.33	0.088	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-110	**8.6**		0.33	0.056	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-114	ND		0.33	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-118	**6.7**		0.33	0.057	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-119	ND		0.33	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-123	ND		0.33	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-126	ND		0.33	0.090	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-128	ND		0.33	0.20	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-132/153	**15**		0.66	0.27	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-138/158	**13**		0.66	0.58	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-149	**10**		0.33	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-151	ND		0.33	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-156	ND		0.33	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-157	ND		0.33	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-167	ND		0.33	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-168	ND		0.33	0.23	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-169	ND		0.33	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-170	ND		0.33	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-177	**1.7**		0.33	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-180	**7.3**		0.33	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-183	**2.0**		0.33	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-187	**4.8**		0.33	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-189	ND		0.33	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-194	ND		0.33	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-201	ND		0.33	0.056	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
PCB-206	ND		0.33	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1
Polychlorinated biphenyls, Total	**97**		0.66	0.58	ug/Kg	☼	06/03/21 21:50	06/14/21 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*20 - 139*	*06/03/21 21:50*	*06/14/21 16:45*	*1*
p-Terphenyl-d14	*88*		*37 - 165*	*06/03/21 21:50*	*06/14/21 16:45*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.24	0.077	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-28	ND		0.24	0.082	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-37	ND		0.24	0.072	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-44	ND		0.24	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-49	ND		0.24	0.059	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-52	ND		0.24	0.23	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-66	ND		0.24	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-70	ND		0.24	0.085	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-74	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-77	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-81	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-87	ND		0.24	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-99	ND		0.24	0.056	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-101	ND		0.24	0.053	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-105	ND		0.24	0.063	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-110	ND		0.24	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-114	ND		0.24	0.088	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-118	ND		0.24	0.041	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-119	ND		0.24	0.074	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-123	ND		0.24	0.087	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-126	ND		0.24	0.065	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-128	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-132/153	ND		0.47	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-138/158	ND		0.47	0.42	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-149	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-151	ND		0.24	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-156	ND		0.24	0.092	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-157	ND		0.24	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-167	ND		0.24	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-168	ND		0.24	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-169	ND		0.24	0.077	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-170	ND		0.24	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-177	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-180	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-183	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-187	ND		0.24	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-189	ND		0.24	0.076	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-194	ND		0.24	0.088	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-201	ND		0.24	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
PCB-206	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1
Polychlorinated biphenyls, Total	ND		0.47	0.42	ug/Kg	☼	06/03/21 21:50	06/14/21 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*20 - 139*	*06/03/21 21:50*	*06/14/21 17:09*	*1*
p-Terphenyl-d14	*82*		*37 - 165*	*06/03/21 21:50*	*06/14/21 17:09*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.23	0.075	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-28	ND		0.23	0.081	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-37	ND		0.23	0.070	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-44	ND		0.23	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-49	ND		0.23	0.058	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-52	ND		0.23	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-66	ND		0.23	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-70	ND		0.23	0.083	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-74	ND		0.23	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-77	ND		0.23	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-81	ND		0.23	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-87	ND		0.23	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-99	ND		0.23	0.055	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-101	ND		0.23	0.051	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-105	ND		0.23	0.062	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-110	ND		0.23	0.039	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-114	ND		0.23	0.086	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-118	ND		0.23	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-119	ND		0.23	0.073	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-123	ND		0.23	0.085	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-126	ND		0.23	0.064	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-128	ND		0.23	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-132/153	ND		0.46	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-138/158	ND		0.46	0.41	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-149	ND		0.23	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-151	ND		0.23	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-156	ND		0.23	0.090	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-157	ND		0.23	0.099	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-167	ND		0.23	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-168	ND		0.23	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-169	ND		0.23	0.076	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-170	ND		0.23	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-177	ND		0.23	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-180	ND		0.23	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-183	ND		0.23	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-187	ND		0.23	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-189	ND		0.23	0.075	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-194	ND		0.23	0.086	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-201	ND		0.23	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
PCB-206	ND		0.23	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1
Polychlorinated biphenyls, Total	ND		0.46	0.41	ug/Kg	☼	06/03/21 21:50	06/14/21 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*	*06/03/21 21:50*	*06/14/21 17:34*	*1*
p-Terphenyl-d14	*80*		*37 - 165*	*06/03/21 21:50*	*06/14/21 17:34*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-C3
Lab Sample ID: 570-60732-6
Date Collected: 06/01/21 14:00
Matrix: Sediment
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.24	0.077	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-28	ND		0.24	0.082	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-37	ND		0.24	0.072	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-44	ND		0.24	0.18	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-49	ND		0.24	0.059	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-52	ND		0.24	0.22	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-66	ND		0.24	0.15	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-70	ND		0.24	0.084	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-74	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-77	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-81	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-87	ND		0.24	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-99	ND		0.24	0.056	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-101	ND		0.24	0.052	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-105	ND		0.24	0.063	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-110	ND		0.24	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-114	ND		0.24	0.087	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-118	ND		0.24	0.041	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-119	ND		0.24	0.074	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-123	ND		0.24	0.086	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-126	ND		0.24	0.065	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-128	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-132/153	ND		0.47	0.19	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-138/158	ND		0.47	0.42	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-149	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-151	ND		0.24	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-156	ND		0.24	0.091	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-157	ND		0.24	0.10	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-167	ND		0.24	0.16	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-168	ND		0.24	0.17	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-169	ND		0.24	0.077	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-170	ND		0.24	0.13	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-177	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-180	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-183	ND		0.24	0.11	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-187	ND		0.24	0.12	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-189	ND		0.24	0.076	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-194	ND		0.24	0.087	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-201	ND		0.24	0.040	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
PCB-206	ND		0.24	0.14	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1
Polychlorinated biphenyls, Total	ND		0.47	0.42	ug/Kg	☼	06/03/21 21:50	06/14/21 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*55*		*20 - 139*	*06/03/21 21:50*	*06/14/21 17:58*	*1*
p-Terphenyl-d14	*81*		*37 - 165*	*06/03/21 21:50*	*06/14/21 17:58*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		22	4.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
1-Methylnaphthalene	ND		22	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
1-Methylphenanthrene	ND		22	4.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,4,5-Trichlorophenol	**4.7**	**J**	22	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,4,6-Trichlorophenol	ND		22	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,4-Dichlorophenol	ND		22	4.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,4-Dimethylphenol	ND		1100	5.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,4-Dinitrophenol	ND		1100	130	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2,6-Dimethylnaphthalene	**29**		22	4.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2-Chlorophenol	ND		22	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2-Methylnaphthalene	**5.9**	**J**	22	3.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2-Methylphenol	ND		22	4.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
2-Nitrophenol	ND		1100	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
3/4-Methylphenol	ND		44	8.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
4,6-Dinitro-2-methylphenol	ND		1100	150	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
4-Chloro-3-methylphenol	ND		22	4.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Acenaphthene	**5.1**	**J**	22	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Acenaphthylene	**130**		22	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Anthracene	**120**		22	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[a]anthracene	**110**		22	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[a]pyrene	**730**		22	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[b]fluoranthene	**730**		22	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[e]pyrene	**490**		22	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[g,h,i]perylene	**290**		22	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Benzo[k]fluoranthene	**680**		22	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Biphenyl	ND		22	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Bis(2-ethylhexyl) phthalate	**280**	**B**	110	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Butyl benzyl phthalate	**53**	**J**	110	4.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Chrysene	**210**		22	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Dibenz(a,h)anthracene	**110**		22	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Diethyl phthalate	**11**	**J B**	110	3.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Dimethyl phthalate	**7.2**	**J**	110	4.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Di-n-butyl phthalate	**47**	**J B**	110	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Di-n-octyl phthalate	ND		110	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Fluoranthene	**100**		22	4.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Fluorene	ND		22	3.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Indeno[1,2,3-cd]pyrene	**330**		22	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Naphthalene	**6.8**	**J**	22	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Pentachlorophenol	ND		1100	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Phenanthrene	**29**		22	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1
Pyrene	**140**		22	3.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*56*		*32 - 143*	*06/03/21 21:53*	*06/11/21 12:27*	*1*
2-Fluorophenol	*47*		*15 - 138*	*06/03/21 21:53*	*06/11/21 12:27*	*1*
Nitrobenzene-d5	*51*		*18 - 162*	*06/03/21 21:53*	*06/11/21 12:27*	*1*
Phenol-d6	*50*		*17 - 141*	*06/03/21 21:53*	*06/11/21 12:27*	*1*
p-Terphenyl-d14	*64*		*34 - 148*	*06/03/21 21:53*	*06/11/21 12:27*	*1*
2-Fluorobiphenyl (Surr)	*60*		*14 - 146*	*06/03/21 21:53*	*06/11/21 12:27*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		19	3.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
1-Methylnaphthalene	ND		19	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
1-Methylphenanthrene	ND		19	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,4,5-Trichlorophenol	ND		19	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,4,6-Trichlorophenol	ND		19	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,4-Dichlorophenol	ND		19	4.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,4-Dimethylphenol	ND		950	5.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,4-Dinitrophenol	ND		950	110	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2,6-Dimethylnaphthalene	**19**		19	4.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2-Chlorophenol	ND		19	3.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2-Methylnaphthalene	ND		19	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2-Methylphenol	ND		19	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
2-Nitrophenol	ND		950	3.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
3/4-Methylphenol	ND		38	6.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
4,6-Dinitro-2-methylphenol	ND		950	130	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
4-Chloro-3-methylphenol	ND		19	4.0	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Acenaphthene	**4.1**	**J**	19	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Acenaphthylene	**93**		19	3.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Anthracene	**83**		19	3.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[a]anthracene	**100**		19	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[a]pyrene	**640**		19	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[b]fluoranthene	**620**		19	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[e]pyrene	**390**		19	3.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[g,h,i]perylene	**280**		19	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Benzo[k]fluoranthene	**620**		19	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Biphenyl	ND		19	3.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Bis(2-ethylhexyl) phthalate	**160**	**B**	95	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Butyl benzyl phthalate	**42**	**J**	95	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Chrysene	**240**		19	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Dibenz(a,h)anthracene	**100**		19	2.7	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Diethyl phthalate	**6.5**	**J B**	95	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Dimethyl phthalate	ND		95	3.8	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Di-n-butyl phthalate	**35**	**J B**	95	3.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Di-n-octyl phthalate	ND		95	3.6	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Fluoranthene	**150**		19	3.4	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Fluorene	ND		19	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Indeno[1,2,3-cd]pyrene	**290**		19	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Naphthalene	**5.3**	**J**	19	2.9	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Pentachlorophenol	ND		950	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Phenanthrene	**17**	**J**	19	3.2	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1
Pyrene	**250**		19	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*64*		*32 - 143*	*06/03/21 21:53*	*06/11/21 12:46*	*1*
2-Fluorophenol	*47*		*15 - 138*	*06/03/21 21:53*	*06/11/21 12:46*	*1*
Nitrobenzene-d5	*51*		*18 - 162*	*06/03/21 21:53*	*06/11/21 12:46*	*1*
Phenol-d6	*51*		*17 - 141*	*06/03/21 21:53*	*06/11/21 12:46*	*1*
p-Terphenyl-d14	*66*		*34 - 148*	*06/03/21 21:53*	*06/11/21 12:46*	*1*
2-Fluorobiphenyl (Surr)	*61*		*14 - 146*	*06/03/21 21:53*	*06/11/21 12:46*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		16	3.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
1-Methylnaphthalene	ND		16	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
1-Methylphenanthrene	ND		16	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,4,5-Trichlorophenol	ND		16	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,4,6-Trichlorophenol	ND		16	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,4-Dichlorophenol	ND		16	3.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,4-Dimethylphenol	ND		820	4.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,4-Dinitrophenol	ND		820	98	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2,6-Dimethylnaphthalene	**14**	**J**	16	3.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2-Chlorophenol	ND		16	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2-Methylnaphthalene	ND		16	2.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2-Methylphenol	ND		16	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
2-Nitrophenol	ND		820	2.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
3/4-Methylphenol	ND		33	5.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
4,6-Dinitro-2-methylphenol	ND		820	110	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
4-Chloro-3-methylphenol	ND		16	3.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Acenaphthene	ND		16	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Acenaphthylene	**65**		16	2.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Anthracene	**63**		16	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[a]anthracene	**72**		16	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[a]pyrene	**500**		16	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[b]fluoranthene	**500**		16	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[e]pyrene	**250**		16	2.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[g,h,i]perylene	**200**		16	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Benzo[k]fluoranthene	**490**		16	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Biphenyl	ND		16	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Bis(2-ethylhexyl) phthalate	**120**	**B**	82	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Butyl benzyl phthalate	ND		82	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Chrysene	**110**		16	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Dibenz(a,h)anthracene	**78**		16	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Diethyl phthalate	**6.2**	**J B**	82	2.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Dimethyl phthalate	ND		82	3.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Di-n-butyl phthalate	**12**	**J B**	82	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Di-n-octyl phthalate	ND		82	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Fluoranthene	**86**		16	3.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Fluorene	ND		16	2.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Indeno[1,2,3-cd]pyrene	**220**		16	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Naphthalene	**3.8**	**J**	16	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Pentachlorophenol	ND		820	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Phenanthrene	**21**		16	2.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1
Pyrene	**91**		16	2.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*		*32 - 143*	*06/03/21 21:53*	*06/11/21 13:05*	*1*
2-Fluorophenol	*46*		*15 - 138*	*06/03/21 21:53*	*06/11/21 13:05*	*1*
Nitrobenzene-d5	*51*		*18 - 162*	*06/03/21 21:53*	*06/11/21 13:05*	*1*
Phenol-d6	*50*		*17 - 141*	*06/03/21 21:53*	*06/11/21 13:05*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/03/21 21:53*	*06/11/21 13:05*	*1*
2-Fluorobiphenyl (Surr)	*57*		*14 - 146*	*06/03/21 21:53*	*06/11/21 13:05*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
1-Methylphenanthrene	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,4,5-Trichlorophenol	ND		12	1.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,4,6-Trichlorophenol	ND		12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,4-Dichlorophenol	ND		12	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,4-Dimethylphenol	ND		590	3.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,4-Dinitrophenol	**140**	**J**	590	71	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2,6-Dimethylnaphthalene	ND		12	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2-Chlorophenol	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2-Methylphenol	**3.0**	**J**	12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
2-Nitrophenol	ND		590	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
3/4-Methylphenol	ND		24	4.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
4,6-Dinitro-2-methylphenol	ND		590	79	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
4-Chloro-3-methylphenol	ND		12	2.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Acenaphthene	ND		12	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Acenaphthylene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Anthracene	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[a]anthracene	**4.9**	**J**	12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[a]pyrene	**14**		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[b]fluoranthene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[e]pyrene	**3.9**	**J**	12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[g,h,i]perylene	**8.0**	**J**	12	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Benzo[k]fluoranthene	**12**		12	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Biphenyl	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Bis(2-ethylhexyl) phthalate	**26**	**J B**	59	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Butyl benzyl phthalate	**13**	**J**	59	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Chrysene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Dibenz(a,h)anthracene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Diethyl phthalate	ND		59	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Dimethyl phthalate	ND		59	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Di-n-butyl phthalate	**5.9**	**J B**	59	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Di-n-octyl phthalate	**33**	**J**	59	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Fluoranthene	**7.1**	**J**	12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Indeno[1,2,3-cd]pyrene	**7.2**	**J**	12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Naphthalene	ND		12	1.8	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Pentachlorophenol	**24**	**J**	590	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Phenanthrene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1
Pyrene	**7.5**	**J**	12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*80*		*32 - 143*	*06/03/21 21:53*	*06/11/21 13:23*	*1*
2-Fluorophenol	*60*		*15 - 138*	*06/03/21 21:53*	*06/11/21 13:23*	*1*
Nitrobenzene-d5	*64*		*18 - 162*	*06/03/21 21:53*	*06/11/21 13:23*	*1*
Phenol-d6	*64*		*17 - 141*	*06/03/21 21:53*	*06/11/21 13:23*	*1*
p-Terphenyl-d14	*70*		*34 - 148*	*06/03/21 21:53*	*06/11/21 13:23*	*1*
2-Fluorobiphenyl (Surr)	*62*		*14 - 146*	*06/03/21 21:53*	*06/11/21 13:23*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
1-Methylphenanthrene	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,4,5-Trichlorophenol	ND		12	1.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,4,6-Trichlorophenol	ND		12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,4-Dichlorophenol	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,4-Dimethylphenol	ND		580	3.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,4-Dinitrophenol	**140**	**J**	580	70	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2,6-Dimethylnaphthalene	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2-Chlorophenol	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2-Methylphenol	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
2-Nitrophenol	ND		580	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
3/4-Methylphenol	ND		23	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
4,6-Dinitro-2-methylphenol	ND		580	77	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
4-Chloro-3-methylphenol	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Acenaphthene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Acenaphthylene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Anthracene	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[a]anthracene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[a]pyrene	**4.4**	**J**	12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[b]fluoranthene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[e]pyrene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[g,h,i]perylene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Benzo[k]fluoranthene	**3.7**	**J**	12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Biphenyl	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Bis(2-ethylhexyl) phthalate	**16**	**J B**	58	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Butyl benzyl phthalate	**10**	**J**	58	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Chrysene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Dibenz(a,h)anthracene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Diethyl phthalate	**3.4**	**J B**	58	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Dimethyl phthalate	ND		58	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Di-n-butyl phthalate	**17**	**J B**	58	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Di-n-octyl phthalate	**31**	**J**	58	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Fluoranthene	ND		12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Indeno[1,2,3-cd]pyrene	ND		12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Naphthalene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Pentachlorophenol	**23**	**J**	580	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Phenanthrene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1
Pyrene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 13:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*52*		*32 - 143*	*06/03/21 21:53*	*06/11/21 13:42*	*1*
2-Fluorophenol	*51*		*15 - 138*	*06/03/21 21:53*	*06/11/21 13:42*	*1*
Nitrobenzene-d5	*62*		*18 - 162*	*06/03/21 21:53*	*06/11/21 13:42*	*1*
Phenol-d6	*57*		*17 - 141*	*06/03/21 21:53*	*06/11/21 13:42*	*1*
p-Terphenyl-d14	*67*		*34 - 148*	*06/03/21 21:53*	*06/11/21 13:42*	*1*
2-Fluorobiphenyl (Surr)	*59*		*14 - 146*	*06/03/21 21:53*	*06/11/21 13:42*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
1-Methylphenanthrene	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,4,5-Trichlorophenol	ND		12	1.4	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,4,6-Trichlorophenol	ND		12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,4-Dichlorophenol	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,4-Dimethylphenol	ND		580	3.0	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,4-Dinitrophenol	ND		580	70	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2,6-Dimethylnaphthalene	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2-Chlorophenol	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2-Methylphenol	ND		12	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
2-Nitrophenol	ND		580	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
3/4-Methylphenol	ND		23	4.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
4,6-Dinitro-2-methylphenol	ND		580	77	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
4-Chloro-3-methylphenol	ND		12	2.4	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Acenaphthene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Acenaphthylene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Anthracene	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[a]anthracene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[a]pyrene	**2.4**	**J**	12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[b]fluoranthene	**2.4**	**J**	12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[e]pyrene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[g,h,i]perylene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Benzo[k]fluoranthene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Biphenyl	ND		12	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Bis(2-ethylhexyl) phthalate	**16**	**J B**	58	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Butyl benzyl phthalate	**12**	**J**	58	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Chrysene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Dibenz(a,h)anthracene	ND		12	1.6	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Diethyl phthalate	**3.3**	**J B**	58	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Dimethyl phthalate	ND		58	2.3	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Di-n-butyl phthalate	**22**	**J B**	58	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Di-n-octyl phthalate	ND		58	2.2	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Fluoranthene	ND		12	2.1	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Indeno[1,2,3-cd]pyrene	ND		12	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Naphthalene	ND		12	1.7	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Pentachlorophenol	ND		580	1.5	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Phenanthrene	ND		12	2.0	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1
Pyrene	ND		12	1.9	ug/Kg	☼	06/03/21 21:53	06/11/21 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*32 - 143*	*06/03/21 21:53*	*06/11/21 14:01*	*1*
2-Fluorophenol	*54*		*15 - 138*	*06/03/21 21:53*	*06/11/21 14:01*	*1*
Nitrobenzene-d5	*57*		*18 - 162*	*06/03/21 21:53*	*06/11/21 14:01*	*1*
Phenol-d6	*60*		*17 - 141*	*06/03/21 21:53*	*06/11/21 14:01*	*1*
p-Terphenyl-d14	*68*		*34 - 148*	*06/03/21 21:53*	*06/11/21 14:01*	*1*
2-Fluorobiphenyl (Surr)	*57*		*14 - 146*	*06/03/21 21:53*	*06/11/21 14:01*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		1.1	1.0	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Bifenthrin	ND		1.1	0.41	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Cyfluthrin	ND		1.1	0.50	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Cypermethrin	ND		1.1	0.35	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Deltamethrin/Tralomethrin	ND		1.1	0.57	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Fenpropathrin	ND		1.1	0.38	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Fenvalerate/Esfenvalerate	ND		1.1	0.40	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Fluvalinate	ND		1.1	0.36	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Lambda cyhalothrin	ND		1.1	0.72	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Permethrins (cis/trans)	ND		2.2	0.35	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Phenothrin	ND		1.1	0.43	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Resmethrin/Bioresmethrin	ND		1.1	0.50	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1
Tetramethrin	ND		1.1	0.22	ug/Kg	☼	06/03/21 21:55	06/11/21 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*109*		*14 - 116*	*06/03/21 21:55*	*06/11/21 18:44*	*1*

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.97	0.89	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Bifenthrin	ND		0.97	0.36	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Cyfluthrin	ND		0.97	0.43	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Cypermethrin	ND		0.97	0.31	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Deltamethrin/Tralomethrin	ND		0.97	0.50	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Fenpropathrin	ND		0.97	0.33	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Fenvalerate/Esfenvalerate	ND		0.97	0.35	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Fluvalinate	ND		0.97	0.32	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Lambda cyhalothrin	ND		0.97	0.63	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Permethrins (cis/trans)	ND		1.9	0.31	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Phenothrin	ND		0.97	0.38	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Resmethrin/Bioresmethrin	ND		0.97	0.43	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1
Tetramethrin	ND		0.97	0.20	ug/Kg	☼	06/03/21 21:55	06/11/21 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*100*		*14 - 116*	*06/03/21 21:55*	*06/11/21 19:20*	*1*

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.83	0.76	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Bifenthrin	ND		0.83	0.31	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Cyfluthrin	ND		0.83	0.37	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Cypermethrin	ND		0.83	0.27	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Deltamethrin/Tralomethrin	ND		0.83	0.43	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Fenpropathrin	ND		0.83	0.29	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Fenvalerate/Esfenvalerate	ND		0.83	0.30	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Fluvalinate	ND		0.83	0.27	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-B-C8 — **Lab Sample ID: 570-60732-3**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND		0.83	0.54	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Permethrins (cis/trans)	ND		1.7	0.26	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Phenothrin	ND		0.83	0.33	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Resmethrin/Bioresmethrin	ND		0.83	0.37	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1
Tetramethrin	ND		0.83	0.17	ug/Kg	☼	06/03/21 21:55	06/11/21 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*94*		*14 - 116*	*06/03/21 21:55*	*06/11/21 19:57*	*1*

Client Sample ID: FDD-D-C1 — **Lab Sample ID: 570-60732-4**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.59	0.54	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Bifenthrin	ND		0.59	0.22	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Cyfluthrin	ND		0.59	0.27	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Cypermethrin	ND		0.59	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Deltamethrin/Tralomethrin	ND		0.59	0.31	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Fenpropathrin	ND		0.59	0.20	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Fenvalerate/Esfenvalerate	ND		0.59	0.21	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Fluvalinate	ND		0.59	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Lambda cyhalothrin	ND		0.59	0.38	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Permethrins (cis/trans)	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Phenothrin	ND		0.59	0.23	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Resmethrin/Bioresmethrin	ND		0.59	0.27	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1
Tetramethrin	ND		0.59	0.12	ug/Kg	☼	06/03/21 21:55	06/11/21 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*120*	*S1+*	*14 - 116*	*06/03/21 21:55*	*06/11/21 20:34*	*1*

Client Sample ID: FDD-D-C2 — **Lab Sample ID: 570-60732-5**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.58	0.54	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Bifenthrin	ND		0.58	0.22	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Cyfluthrin	ND		0.58	0.26	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Cypermethrin	ND		0.58	0.19	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Deltamethrin/Tralomethrin	ND		0.58	0.30	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Fenpropathrin	ND		0.58	0.20	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Fenvalerate/Esfenvalerate	ND		0.58	0.21	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Fluvalinate	ND		0.58	0.19	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Lambda cyhalothrin	ND		0.58	0.38	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Permethrins (cis/trans)	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Phenothrin	ND		0.58	0.23	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Resmethrin/Bioresmethrin	ND		0.58	0.26	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1
Tetramethrin	ND		0.58	0.12	ug/Kg	☼	06/03/21 21:55	06/10/21 22:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*134*	*S1+*	*14 - 116*	*06/03/21 21:55*	*06/10/21 22:13*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.59	0.54	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Bifenthrin	ND		0.59	0.22	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Cyfluthrin	ND		0.59	0.26	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Cypermethrin	ND		0.59	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Deltamethrin/Tralomethrin	ND		0.59	0.30	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Fenpropathrin	ND		0.59	0.20	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Fenvalerate/Esfenvalerate	ND		0.59	0.21	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Fluvalinate	ND		0.59	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Lambda cyhalothrin	ND		0.59	0.38	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Permethrins (cis/trans)	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Phenothrin	ND		0.59	0.23	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Resmethrin/Bioresmethrin	ND		0.59	0.26	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1
Tetramethrin	ND		0.59	0.12	ug/Kg	☼	06/03/21 21:55	06/11/21 21:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*117*	*S1+*	*14 - 116*	*06/03/21 21:55*	*06/11/21 21:11*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		6.6	1.6	ug/Kg	☼	06/03/21 10:10	06/04/21 18:23	1
Tributyltin	ND		6.6	3.3	ug/Kg	☼	06/03/21 10:10	06/04/21 18:23	1
Dibutyltin	**16**		6.6	1.6	ug/Kg	☼	06/03/21 10:10	06/04/21 18:23	1
Monobutyltin	ND		6.6	3.0	ug/Kg	☼	06/03/21 10:10	06/04/21 18:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*54*		*10 - 120*	*06/03/21 10:10*	*06/04/21 18:23*	*1*

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.7	1.4	ug/Kg	☼	06/03/21 10:10	06/04/21 18:40	1
Tributyltin	ND		5.7	2.8	ug/Kg	☼	06/03/21 10:10	06/04/21 18:40	1
Dibutyltin	**11**		5.7	1.4	ug/Kg	☼	06/03/21 10:10	06/04/21 18:40	1
Monobutyltin	ND		5.7	2.6	ug/Kg	☼	06/03/21 10:10	06/04/21 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*56*		*10 - 120*	*06/03/21 10:10*	*06/04/21 18:40*	*1*

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.9	1.2	ug/Kg	☼	06/03/21 10:10	06/04/21 18:58	1
Tributyltin	ND		4.9	2.4	ug/Kg	☼	06/03/21 10:10	06/04/21 18:58	1
Dibutyltin	**16**		4.9	1.2	ug/Kg	☼	06/03/21 10:10	06/04/21 18:58	1
Monobutyltin	ND		4.9	2.2	ug/Kg	☼	06/03/21 10:10	06/04/21 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*58*		*10 - 120*	*06/03/21 10:10*	*06/04/21 18:58*	*1*

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.5	0.88	ug/Kg	☼	06/03/21 10:10	06/04/21 19:15	1
Tributyltin	ND		3.5	1.8	ug/Kg	☼	06/03/21 10:10	06/04/21 19:15	1
Dibutyltin	**1.1**	**J**	3.5	0.86	ug/Kg	☼	06/03/21 10:10	06/04/21 19:15	1
Monobutyltin	ND		3.5	1.6	ug/Kg	☼	06/03/21 10:10	06/04/21 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*61*		*10 - 120*	*06/03/21 10:10*	*06/04/21 19:15*	*1*

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.5	0.86	ug/Kg	☼	06/03/21 10:10	06/04/21 19:33	1
Tributyltin	ND		3.5	1.7	ug/Kg	☼	06/03/21 10:10	06/04/21 19:33	1
Dibutyltin	ND		3.5	0.85	ug/Kg	☼	06/03/21 10:10	06/04/21 19:33	1

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Client Sample ID: FDD-D-C2
Lab Sample ID: 570-60732-5
Date Collected: 06/01/21 11:05
Matrix: Sediment
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monobutyltin	ND		3.5	1.6	ug/Kg	☼	06/03/21 10:10	06/04/21 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*61*		*10 - 120*	*06/03/21 10:10*	*06/04/21 19:33*	*1*

Client Sample ID: FDD-D-C3
Lab Sample ID: 570-60732-6
Date Collected: 06/01/21 14:00
Matrix: Sediment
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.5	0.87	ug/Kg	☼	06/03/21 10:10	06/04/21 19:50	1
Tributyltin	ND		3.5	1.7	ug/Kg	☼	06/03/21 10:10	06/04/21 19:50	1
Dibutyltin	ND		3.5	0.85	ug/Kg	☼	06/03/21 10:10	06/04/21 19:50	1
Monobutyltin	ND	F1	3.5	1.6	ug/Kg	☼	06/03/21 10:10	06/04/21 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*57*		*10 - 120*	*06/03/21 10:10*	*06/04/21 19:50*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C7 as C7	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C8 as C8	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C9-C10	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C11-C12	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C13-C14	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C15-C16	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C17-C18	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C19-C20	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C21-C22	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C23-C24	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C25-C28	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C29-C32	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C33-C36	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C37-C40	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C41-C44	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1
C6-C44	ND		12	9.1	mg/Kg	☼	06/14/21 13:07	06/14/21 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*88*		*60 - 138*	*06/14/21 13:07*	*06/14/21 18:38*	*1*

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C7 as C7	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C8 as C8	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C9-C10	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C11-C12	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C13-C14	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C15-C16	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C17-C18	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C19-C20	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C21-C22	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C23-C24	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C25-C28	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C29-C32	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C33-C36	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C37-C40	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C41-C44	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1
C6-C44	ND		9.1	7.0	mg/Kg	☼	06/14/21 13:07	06/14/21 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*90*		*60 - 138*	*06/14/21 13:07*	*06/14/21 18:59*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C7 as C7	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C8 as C8	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C9-C10	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C11-C12	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C13-C14	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C15-C16	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C17-C18	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C19-C20	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C21-C22	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C23-C24	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C25-C28	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C29-C32	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C33-C36	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C37-C40	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C41-C44	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1
C6-C44	ND		8.0	6.1	mg/Kg	☼	06/14/21 13:07	06/14/21 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*06/14/21 13:07*	*06/14/21 19:20*	*1*

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C7 as C7	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C8 as C8	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C9-C10	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C11-C12	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C13-C14	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C15-C16	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C17-C18	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C19-C20	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C21-C22	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C23-C24	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C25-C28	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C29-C32	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C33-C36	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C37-C40	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C41-C44	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1
C6-C44	ND		6.3	4.8	mg/Kg	☼	06/14/21 13:07	06/14/21 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*92*		*60 - 138*	*06/14/21 13:07*	*06/14/21 19:41*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C7 as C7	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C8 as C8	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C9-C10	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C11-C12	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C13-C14	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C15-C16	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C17-C18	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C19-C20	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C21-C22	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C23-C24	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C25-C28	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C29-C32	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C33-C36	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C37-C40	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C41-C44	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1
C6-C44	ND		5.5	4.2	mg/Kg	☼	06/14/21 13:07	06/14/21 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*91*		*60 - 138*	*06/14/21 13:07*	*06/14/21 20:02*	*1*

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C7 as C7	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C8 as C8	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C9-C10	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C11-C12	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C13-C14	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C15-C16	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C17-C18	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C19-C20	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C21-C22	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C23-C24	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C25-C28	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C29-C32	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C33-C36	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C37-C40	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C41-C44	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1
C6-C44	ND		6.2	4.7	mg/Kg	☼	06/14/21 13:07	06/14/21 21:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*91*		*60 - 138*	*06/14/21 13:07*	*06/14/21 21:05*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		2.2	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
4,4'-DDD	ND		2.2	1.1	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
2,4'-DDE	ND		4.4	0.21	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
4,4'-DDE	**1.1**	**J p**	2.2	0.16	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
2,4'-DDT	ND		2.2	0.20	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
4,4'-DDT	ND		2.2	0.39	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Aldrin	ND		2.2	0.16	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
alpha-BHC	ND		2.2	0.18	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
beta-BHC	ND		2.2	0.20	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Chlordane	ND		11	0.72	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
delta-BHC	ND		2.2	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Dieldrin	ND		0.44	0.15	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
alpha-Chlordane	ND		2.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endosulfan I	ND		2.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endosulfan II	ND		2.2	0.50	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endosulfan sulfate	ND	*+	2.2	0.24	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endrin	ND		2.2	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
cis-Nonachlor	ND		2.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endrin aldehyde	ND		2.2	1.1	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Endrin ketone	ND		2.2	0.42	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
gamma-BHC	ND		2.2	0.23	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Heptachlor	ND		2.2	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Heptachlor epoxide	ND		2.2	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Methoxychlor	ND		2.2	0.36	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Toxaphene	ND		11	2.2	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
gamma-Chlordane	ND	*1	2.2	0.78	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
Oxychlordane	ND		2.2	0.33	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1
trans-Nonachlor	ND		2.2	0.083	ug/Kg	☼	06/03/21 21:46	06/11/21 07:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*20 - 131*	*06/03/21 21:46*	*06/11/21 07:34*	*1*
DCB Decachlorobiphenyl (Surr)	*168*		*20 - 180*	*06/03/21 21:46*	*06/11/21 07:34*	*1*

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.9	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
4,4'-DDD	ND		1.9	0.96	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
2,4'-DDE	ND		3.8	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
4,4'-DDE	**0.69**	**J p**	1.9	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
2,4'-DDT	ND		1.9	0.18	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
4,4'-DDT	ND		1.9	0.34	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Aldrin	ND		1.9	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
alpha-BHC	ND		1.9	0.15	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
beta-BHC	ND		1.9	0.17	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Chlordane	ND		9.6	0.62	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
delta-BHC	ND		1.9	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Dieldrin	ND		0.38	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
alpha-Chlordane	ND		1.9	0.088	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		1.9	0.093	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Endosulfan II	ND		1.9	0.43	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Endosulfan sulfate	ND		1.9	0.21	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Endrin	ND		1.9	0.17	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
cis-Nonachlor	ND		1.9	0.091	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Endrin aldehyde	ND		1.9	0.94	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Endrin ketone	ND		1.9	0.37	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
gamma-BHC	ND		1.9	0.20	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Heptachlor	ND		1.9	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Heptachlor epoxide	ND		1.9	0.16	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Methoxychlor	ND		1.9	0.31	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Toxaphene	ND		9.6	1.9	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
gamma-Chlordane	ND		1.9	0.67	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
Oxychlordane	ND		1.9	0.29	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1
trans-Nonachlor	ND		1.9	0.072	ug/Kg	☼	06/03/21 21:46	06/11/21 07:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*82*		*20 - 131*	*06/03/21 21:46*	*06/11/21 07:49*	*1*
DCB Decachlorobiphenyl (Surr)	*159*		*20 - 180*	*06/03/21 21:46*	*06/11/21 07:49*	*1*

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.7	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
4,4'-DDD	ND		1.7	0.83	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
2,4'-DDE	ND		3.3	0.16	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
4,4'-DDE	**0.34**	**J p**	1.7	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
2,4'-DDT	ND		1.7	0.15	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
4,4'-DDT	ND		1.7	0.29	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Aldrin	ND		1.7	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
alpha-BHC	ND		1.7	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
beta-BHC	ND		1.7	0.15	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Chlordane	ND		8.3	0.54	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
delta-BHC	ND		1.7	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Dieldrin	ND		0.33	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
alpha-Chlordane	ND		1.7	0.076	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endosulfan I	ND		1.7	0.080	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endosulfan II	ND		1.7	0.38	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endosulfan sulfate	ND	*+	1.7	0.18	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endrin	ND		1.7	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
cis-Nonachlor	ND		1.7	0.078	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endrin aldehyde	ND		1.7	0.81	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Endrin ketone	ND		1.7	0.32	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
gamma-BHC	ND		1.7	0.17	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Heptachlor	ND		1.7	0.098	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Heptachlor epoxide	ND		1.7	0.14	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Methoxychlor	ND		1.7	0.27	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
Toxaphene	ND		8.3	1.6	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
gamma-Chlordane	ND	*1	1.7	0.58	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		1.7	0.25	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1
trans-Nonachlor	ND		1.7	0.062	ug/Kg	☼	06/03/21 21:46	06/11/21 08:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*20 - 131*	*06/03/21 21:46*	*06/11/21 08:03*	*1*
DCB Decachlorobiphenyl (Surr)	*141*		*20 - 180*	*06/03/21 21:46*	*06/11/21 08:03*	*1*

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.076	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
4,4'-DDD	ND		1.2	0.59	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
2,4'-DDE	ND	F1	2.4	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
4,4'-DDE	ND		1.2	0.084	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
4,4'-DDT	ND		1.2	0.21	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Aldrin	ND		1.2	0.085	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
alpha-BHC	ND		1.2	0.095	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
beta-BHC	ND		1.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Chlordane	ND		5.9	0.39	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
delta-BHC	ND		1.2	0.076	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Dieldrin	ND		0.24	0.078	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
alpha-Chlordane	ND		1.2	0.055	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endosulfan I	ND		1.2	0.058	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endosulfan II	ND		1.2	0.27	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endosulfan sulfate	ND	*+	1.2	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endrin	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
cis-Nonachlor	ND		1.2	0.056	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endrin aldehyde	ND		1.2	0.58	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Endrin ketone	ND		1.2	0.23	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
gamma-BHC	ND		1.2	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Heptachlor	ND		1.2	0.071	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Heptachlor epoxide	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Methoxychlor	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Toxaphene	ND		5.9	1.2	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
gamma-Chlordane	ND	F2 *1	1.2	0.41	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
Oxychlordane	ND		1.2	0.18	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1
trans-Nonachlor	ND		1.2	0.044	ug/Kg	☼	06/03/21 21:46	06/11/21 08:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*74*		*20 - 131*	*06/03/21 21:46*	*06/11/21 08:17*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*20 - 180*	*06/03/21 21:46*	*06/11/21 08:17*	*1*

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.074	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
4,4'-DDD	ND		1.2	0.58	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDE	ND		2.3	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
4,4'-DDE	ND		1.2	0.082	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
4,4'-DDT	ND		1.2	0.20	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Aldrin	ND		1.2	0.083	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
alpha-BHC	ND		1.2	0.093	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
beta-BHC	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Chlordane	ND		5.8	0.38	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
delta-BHC	ND		1.2	0.075	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Dieldrin	ND		0.23	0.077	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
alpha-Chlordane	ND		1.2	0.053	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endosulfan I	ND		1.2	0.056	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endosulfan II	ND		1.2	0.26	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endosulfan sulfate	ND	*+	1.2	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endrin	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
cis-Nonachlor	ND		1.2	0.055	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endrin aldehyde	ND		1.2	0.57	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Endrin ketone	ND		1.2	0.22	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
gamma-BHC	ND		1.2	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Heptachlor	ND		1.2	0.069	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Heptachlor epoxide	ND		1.2	0.099	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Methoxychlor	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Toxaphene	ND		5.8	1.2	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
gamma-Chlordane	ND	*1	1.2	0.41	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
Oxychlordane	ND		1.2	0.17	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1
trans-Nonachlor	ND		1.2	0.043	ug/Kg	☼	06/03/21 21:46	06/11/21 08:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*97*		*20 - 131*	*06/03/21 21:46*	*06/11/21 08:31*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*20 - 180*	*06/03/21 21:46*	*06/11/21 08:31*	*1*

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.075	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
4,4'-DDD	ND		1.2	0.58	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
2,4'-DDE	ND		2.3	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
4,4'-DDE	ND		1.2	0.083	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
4,4'-DDT	ND		1.2	0.21	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Aldrin	ND		1.2	0.084	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
alpha-BHC	ND		1.2	0.094	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
beta-BHC	ND		1.2	0.11	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Chlordane	ND		5.9	0.38	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
delta-BHC	ND		1.2	0.075	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Dieldrin	ND		0.23	0.077	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
alpha-Chlordane	ND		1.2	0.054	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Endosulfan I	ND		1.2	0.057	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Endosulfan II	ND		1.2	0.27	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan sulfate	ND	*+	1.2	0.13	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Endrin	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
cis-Nonachlor	ND		1.2	0.055	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Endrin aldehyde	ND		1.2	0.57	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Endrin ketone	ND		1.2	0.22	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
gamma-BHC	ND		1.2	0.12	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Heptachlor	ND		1.2	0.070	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Heptachlor epoxide	ND		1.2	0.10	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Methoxychlor	ND		1.2	0.19	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Toxaphene	ND		5.9	1.2	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
gamma-Chlordane	ND	*1	1.2	0.41	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
Oxychlordane	ND		1.2	0.18	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1
trans-Nonachlor	ND		1.2	0.044	ug/Kg	☼	06/03/21 21:46	06/11/21 08:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*104*		*20 - 131*	*06/03/21 21:46*	*06/11/21 08:46*	*1*
DCB Decachlorobiphenyl (Surr)	*106*		*20 - 180*	*06/03/21 21:46*	*06/11/21 08:46*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		22	12	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1221	ND		22	12	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1232	ND		22	12	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1242	ND		22	12	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1248	**37**		22	12	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1254	**110**		22	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1260	**110**		22	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1262	ND		22	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1
Aroclor-1268	ND		22	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*115*		*20 - 155*	*06/03/21 21:46*	*06/11/21 01:03*	*1*
Tetrachloro-m-xylene (Surr)	*78*		*25 - 126*	*06/03/21 21:46*	*06/11/21 01:03*	*1*

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		19	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1221	ND		19	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1232	ND		19	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1242	ND		19	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1248	**52**		19	11	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1254	**92**		19	9.5	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1260	**93**		19	9.5	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1262	ND		19	9.5	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1
Aroclor-1268	ND		19	9.5	ug/Kg	☼	06/03/21 21:46	06/11/21 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*124*		*20 - 155*	*06/03/21 21:46*	*06/11/21 01:21*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*25 - 126*	*06/03/21 21:46*	*06/11/21 01:21*	*1*

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		17	9.1	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1221	ND		17	9.1	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1232	ND		17	9.1	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1242	ND		17	9.1	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1248	**31**		17	9.1	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1254	**71**		17	8.2	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1260	**73**		17	8.2	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1262	ND		17	8.2	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1
Aroclor-1268	ND		17	8.2	ug/Kg	☼	06/03/21 21:46	06/11/21 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*99*		*20 - 155*	*06/03/21 21:46*	*06/11/21 01:39*	*1*
Tetrachloro-m-xylene (Surr)	*58*		*25 - 126*	*06/03/21 21:46*	*06/11/21 01:39*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND	F1	12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1221	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1232	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1242	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1248	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1254	ND		12	5.9	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1260	ND		12	5.9	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1262	ND		12	5.9	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1
Aroclor-1268	ND		12	5.9	ug/Kg	☼	06/03/21 21:46	06/11/21 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*74*		*20 - 155*	*06/03/21 21:46*	*06/11/21 13:35*	*1*
Tetrachloro-m-xylene (Surr)	*80*		*25 - 126*	*06/03/21 21:46*	*06/11/21 13:35*	*1*

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.4	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1221	ND		12	6.4	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1232	ND		12	6.4	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1242	ND		12	6.4	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1248	**7.8**	**J**	12	6.4	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1254	**6.6**	**J**	12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1260	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1262	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1
Aroclor-1268	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 13:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*93*		*20 - 155*	*06/03/21 21:46*	*06/11/21 13:53*	*1*
Tetrachloro-m-xylene (Surr)	*96*		*25 - 126*	*06/03/21 21:46*	*06/11/21 13:53*	*1*

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1221	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1232	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1242	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1248	ND		12	6.5	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1254	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1260	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1262	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1
Aroclor-1268	ND		12	5.8	ug/Kg	☼	06/03/21 21:46	06/11/21 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*119*		*20 - 155*	*06/03/21 21:46*	*06/11/21 14:11*	*1*
Tetrachloro-m-xylene (Surr)	*105*		*25 - 126*	*06/03/21 21:46*	*06/11/21 14:11*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-B-C3 — **Lab Sample ID: 570-60732-1**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		880	460	ug/Kg	☼	06/09/21 14:22	06/10/21 18:08	10

Client Sample ID: FDD-B-C7 — **Lab Sample ID: 570-60732-2**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**460**	**J**	770	400	ug/Kg	☼	06/09/21 14:22	06/10/21 18:19	10

Client Sample ID: FDD-B-C8 — **Lab Sample ID: 570-60732-3**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**470**	**J**	660	340	ug/Kg	☼	06/09/21 14:22	06/10/21 18:30	10

Client Sample ID: FDD-D-C1 — **Lab Sample ID: 570-60732-4**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		470	240	ug/Kg	☼	06/09/21 14:22	06/10/21 19:03	10

Client Sample ID: FDD-D-C2 — **Lab Sample ID: 570-60732-5**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		460	240	ug/Kg	☼	06/09/21 14:22	06/10/21 19:14	10

Client Sample ID: FDD-D-C3 — **Lab Sample ID: 570-60732-6**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		470	240	ug/Kg	☼	06/09/21 14:22	06/10/21 19:25	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.35	0.607	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Arsenic	8.26		2.17	0.726	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Barium	108		2.17	0.452	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Beryllium	0.482	J	2.17	0.450	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Cadmium	ND		2.17	0.979	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Chromium	44.8		4.35	0.652	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Cobalt	8.84		2.17	0.411	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Copper	215		2.17	0.585	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Lead	49.5		2.17	0.468	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Molybdenum	0.841	J	2.17	0.670	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Nickel	11.9		2.17	0.587	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Selenium	ND		2.17	1.26	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Silver	1.26	J	2.17	0.720	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Thallium	ND		2.17	0.476	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Vanadium	59.5		4.35	0.526	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20
Zinc	244		10.9	10.0	mg/Kg	☼	06/14/21 13:40	06/15/21 11:12	20

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.86	0.539	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Arsenic	7.53		1.93	0.645	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Barium	109		1.93	0.402	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Beryllium	0.432	J	1.93	0.400	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Cadmium	ND		1.93	0.869	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Chromium	44.5		3.86	0.579	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Cobalt	9.06		1.93	0.365	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Copper	212		1.93	0.520	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Lead	45.8		1.93	0.415	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Molybdenum	0.864	J	1.93	0.595	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Nickel	11.7		1.93	0.521	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Selenium	1.28	J	1.93	1.12	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Silver	1.14	J	1.93	0.639	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Thallium	ND		1.93	0.423	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Vanadium	60.0		3.86	0.467	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20
Zinc	233		9.66	8.92	mg/Kg	☼	06/14/21 13:40	06/15/21 11:16	20

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.30	0.461	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Arsenic	5.78		1.65	0.552	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Barium	75.2		1.65	0.344	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Beryllium	0.347	J	1.65	0.342	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Cadmium	ND		1.65	0.744	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Chromium	32.5		3.30	0.496	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Cobalt	6.36		1.65	0.312	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Copper	155		1.65	0.444	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	36.1		1.65	0.355	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Molybdenum	0.627	J	1.65	0.509	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Nickel	8.90		1.65	0.446	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Selenium	ND		1.65	0.960	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Silver	0.883	J	1.65	0.547	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Thallium	ND		1.65	0.362	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Vanadium	42.4		3.30	0.400	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20
Zinc	174		8.26	7.63	mg/Kg	☼	06/14/21 13:40	06/15/21 11:19	20

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.30	0.321	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Arsenic	4.17		1.15	0.384	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Barium	57.7		1.15	0.239	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Beryllium	ND		1.15	0.238	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Cadmium	ND		1.15	0.518	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Chromium	26.0		2.30	0.345	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Cobalt	4.85		1.15	0.217	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Copper	106		1.15	0.309	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Lead	25.4		1.15	0.247	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Molybdenum	0.483	J	1.15	0.354	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Nickel	5.87		1.15	0.311	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Selenium	ND		1.15	0.668	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Silver	0.606	J	1.15	0.381	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Thallium	ND		1.15	0.252	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Vanadium	33.4		2.30	0.278	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20
Zinc	131		5.75	5.31	mg/Kg	☼	06/14/21 13:40	06/15/21 11:22	20

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.37	0.330	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Arsenic	4.57		1.18	0.396	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Barium	64.5		1.18	0.246	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Beryllium	0.256	J	1.18	0.245	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Cadmium	ND		1.18	0.533	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Chromium	25.9		2.37	0.355	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Cobalt	5.32		1.18	0.224	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Copper	120		1.18	0.319	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Lead	27.5		1.18	0.255	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Molybdenum	0.516	J	1.18	0.365	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Nickel	6.85		1.18	0.320	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Selenium	0.776	J	1.18	0.688	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Silver	0.681	J	1.18	0.392	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Thallium	ND		1.18	0.259	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Vanadium	35.0		2.37	0.287	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20
Zinc	138		5.92	5.47	mg/Kg	☼	06/14/21 13:40	06/15/21 11:25	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.42	0.338	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Arsenic	**4.40**		1.21	0.405	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Barium	**57.7**		1.21	0.252	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Beryllium	ND		1.21	0.251	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Cadmium	ND		1.21	0.545	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Chromium	**23.4**		2.42	0.364	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Cobalt	**4.74**		1.21	0.229	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Copper	**111**		1.21	0.326	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Lead	**25.4**		1.21	0.261	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Molybdenum	**0.440**	**J**	1.21	0.373	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Nickel	**6.27**		1.21	0.327	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Selenium	ND		1.21	0.704	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Silver	**0.631**	**J**	1.21	0.401	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Thallium	ND		1.21	0.265	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Vanadium	**31.0**		2.42	0.293	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20
Zinc	**150**		6.06	5.60	mg/Kg	☼	06/14/21 13:40	06/15/21 11:28	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-B-C3 — **Lab Sample ID: 570-60732-1**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.545		0.183	0.0296	mg/Kg	☼	06/14/21 13:00	06/14/21 17:07	1

Client Sample ID: FDD-B-C7 — **Lab Sample ID: 570-60732-2**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.719		0.161	0.0261	mg/Kg	☼	06/14/21 13:00	06/14/21 17:09	1

Client Sample ID: FDD-B-C8 — **Lab Sample ID: 570-60732-3**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.467		0.132	0.0213	mg/Kg	☼	06/14/21 13:00	06/14/21 17:11	1

Client Sample ID: FDD-D-C1 — **Lab Sample ID: 570-60732-4**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.416		0.0976	0.0158	mg/Kg	☼	06/14/21 13:00	06/14/21 17:13	1

Client Sample ID: FDD-D-C2 — **Lab Sample ID: 570-60732-5**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.370		0.102	0.0166	mg/Kg	☼	06/14/21 13:00	06/14/21 17:17	1

Client Sample ID: FDD-D-C3 — **Lab Sample ID: 570-60732-6**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.418		0.102	0.0165	mg/Kg	☼	06/14/21 13:00	06/14/21 17:19	1

General Chemistry

Client Sample ID: FDD-B-C3 — **Lab Sample ID: 570-60732-1**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	59.1		22.1	17.5	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	36.9		22.1	17.9	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	435		43.6	36.6	mg/Kg	☼	06/03/21 00:00	06/03/21 01:40	200
Trivalent Chromium	44.8		4.46	0.669	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.38		0.111	0.0387	%	☼		06/03/21 09:03	1
Percent Solids	44.9		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	6.74		1.11	0.613	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

Client Sample ID: FDD-B-C7 — **Lab Sample ID: 570-60732-2**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	64.2		19.2	15.2	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	38.5		19.2	15.6	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	45.3		19.1	16.0	mg/Kg	☼	06/03/21 00:00	06/03/21 01:41	100
Trivalent Chromium	44.0		3.86	0.579	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.05		0.0966	0.0335	%	☼		06/03/21 09:03	1
Percent Solids	51.8		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	7.08		0.966	0.531	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

Client Sample ID: FDD-B-C8 — **Lab Sample ID: 570-60732-3**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	66.4		16.6	13.1	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	38.7		16.6	13.4	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	56.0		16.6	13.9	mg/Kg	☼	06/03/21 00:00	06/03/21 01:42	100
Trivalent Chromium	32.0		3.32	0.498	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.852		0.0830	0.0288	%	☼		06/03/21 09:03	1
Percent Solids	60.2		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	7.81		0.830	0.457	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

Client Sample ID: FDD-D-C1 — **Lab Sample ID: 570-60732-4**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	27.7		11.9	9.35	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	11.9		11.9	9.60	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	2.26		0.238	0.200	mg/Kg	☼	06/03/21 00:00	06/03/21 01:43	2
Trivalent Chromium	26.0		2.38	0.357	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	ND		0.0595	0.0207	%	☼		06/03/21 09:03	1
Percent Solids	84.0		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	1.23		0.595	0.327	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

Client Sample ID: FDD-D-C2 — **Lab Sample ID: 570-60732-5**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	27.1		11.6	9.16	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	11.6		11.6	9.40	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1

General Chemistry (Continued)

Client Sample ID: FDD-D-C2
Lab Sample ID: 570-60732-5
Date Collected: 06/01/21 11:05
Matrix: Sediment
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	1.13		0.116	0.0975	mg/Kg	☼	06/03/21 00:00	06/03/21 01:44	1
Trivalent Chromium	25.9		2.33	0.350	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	ND		0.0583	0.0203	%	☼		06/03/21 09:03	1
Percent Solids	85.7		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	10.8		0.583	0.321	mg/Kg	☼	06/03/21 20:30	06/04/21 10:44	1

Client Sample ID: FDD-D-C3
Lab Sample ID: 570-60732-6
Date Collected: 06/01/21 14:00
Matrix: Sediment
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	27.6		11.8	9.31	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	11.8		11.8	9.56	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	1.15		0.118	0.0991	mg/Kg	☼	06/03/21 00:00	06/03/21 01:45	1
Trivalent Chromium	23.4		2.36	0.355	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	ND		0.0591	0.0205	%	☼		06/03/21 09:03	1
Percent Solids	84.6		0.1	0.1	%			06/03/21 22:10	1
Ammonia (as N)	5.86		0.591	0.325	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

General Chemistry - Soluble

Client Sample ID: FDD-B-C3 — **Lab Sample ID: 570-60732-1**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0842	mg/Kg			06/03/21 01:53	1

Client Sample ID: FDD-B-C7 — **Lab Sample ID: 570-60732-2**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0842	mg/Kg			06/03/21 01:54	1

Client Sample ID: FDD-B-C8 — **Lab Sample ID: 570-60732-3**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/03/21 01:55	1

Client Sample ID: FDD-D-C1 — **Lab Sample ID: 570-60732-4**
Date Collected: 06/01/21 08:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/03/21 01:56	1

Client Sample ID: FDD-D-C2 — **Lab Sample ID: 570-60732-5**
Date Collected: 06/01/21 11:05 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:57	1

Client Sample ID: FDD-D-C3 — **Lab Sample ID: 570-60732-6**
Date Collected: 06/01/21 14:00 — **Matrix: Sediment**
Date Received: 06/02/21 18:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:58	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-B-C3
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	17.66		0.01	0.01	%			06/08/21 17:48	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/08/21 17:48	1
Fine Sand (0.125 to 0.25mm)	12.86		0.01	0.01	%			06/08/21 17:48	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/08/21 17:48	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/08/21 17:48	1
Silt (0.00391 to 0.0625mm)	56.54		0.01	0.01	%			06/08/21 17:48	1
Total Silt and Clay (0 to 0.0626mm)	74.20		0.01	0.01	%			06/08/21 17:48	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/08/21 17:48	1
Very Fine Sand (0.0625 to 0.125 mm)	12.94		0.01	0.01	%			06/08/21 17:48	1

Client Sample ID: FDD-B-C7
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	14.50		0.01	0.01	%			06/08/21 17:55	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/08/21 17:55	1
Fine Sand (0.125 to 0.25mm)	20.87		0.01	0.01	%			06/08/21 17:55	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/08/21 17:55	1
Medium Sand (0.25 to 0.5 mm)	0.35		0.01	0.01	%			06/08/21 17:55	1
Silt (0.00391 to 0.0625mm)	49.30		0.01	0.01	%			06/08/21 17:55	1
Total Silt and Clay (0 to 0.0626mm)	63.80		0.01	0.01	%			06/08/21 17:55	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/08/21 17:55	1
Very Fine Sand (0.0625 to 0.125 mm)	14.98		0.01	0.01	%			06/08/21 17:55	1

Client Sample ID: FDD-B-C8
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	8.47		0.01	0.01	%			06/08/21 18:04	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/08/21 18:04	1
Fine Sand (0.125 to 0.25mm)	26.86		0.01	0.01	%			06/08/21 18:04	1
Gravel (greater than 2 mm)	1.47		0.01	0.01	%			06/08/21 18:04	1
Medium Sand (0.25 to 0.5 mm)	14.56		0.01	0.01	%			06/08/21 18:04	1
Silt (0.00391 to 0.0625mm)	30.75		0.01	0.01	%			06/08/21 18:04	1
Total Silt and Clay (0 to 0.0626mm)	39.22		0.01	0.01	%			06/08/21 18:04	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/08/21 18:04	1
Very Fine Sand (0.0625 to 0.125 mm)	17.89		0.01	0.01	%			06/08/21 18:04	1

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	0.96		0.01	0.01	%			06/08/21 18:12	1
Coarse Sand (0.5mm to 1mm)	18.92		0.01	0.01	%			06/08/21 18:12	1
Fine Sand (0.125 to 0.25mm)	23.41		0.01	0.01	%			06/08/21 18:12	1
Gravel (greater than 2 mm)	3.59		0.01	0.01	%			06/08/21 18:12	1
Medium Sand (0.25 to 0.5 mm)	35.12		0.01	0.01	%			06/08/21 18:12	1
Silt (0.00391 to 0.0625mm)	4.97		0.01	0.01	%			06/08/21 18:12	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering) (Continued)

Client Sample ID: FDD-D-C1
Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Silt and Clay (0 to 0.0626mm)	5.93		0.01	0.01	%			06/08/21 18:12	1
Very Coarse Sand (1 to 2mm)	5.09		0.01	0.01	%			06/08/21 18:12	1
Very Fine Sand (0.0625 to 0.125 mm)	7.94		0.01	0.01	%			06/08/21 18:12	1

Client Sample ID: FDD-D-C2
Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	0.98		0.01	0.01	%			06/08/21 18:18	1
Coarse Sand (0.5mm to 1mm)	25.33		0.01	0.01	%			06/08/21 18:18	1
Fine Sand (0.125 to 0.25mm)	17.26		0.01	0.01	%			06/08/21 18:18	1
Gravel (greater than 2 mm)	8.42		0.01	0.01	%			06/08/21 18:18	1
Medium Sand (0.25 to 0.5 mm)	26.85		0.01	0.01	%			06/08/21 18:18	1
Silt (0.00391 to 0.0625mm)	5.35		0.01	0.01	%			06/08/21 18:18	1
Total Silt and Clay (0 to 0.0626mm)	6.33		0.01	0.01	%			06/08/21 18:18	1
Very Coarse Sand (1 to 2mm)	8.50		0.01	0.01	%			06/08/21 18:18	1
Very Fine Sand (0.0625 to 0.125 mm)	7.31		0.01	0.01	%			06/08/21 18:18	1

Client Sample ID: FDD-D-C3
Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45
Lab Sample ID: 570-60732-6
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	0.75		0.01	0.01	%			06/08/21 18:24	1
Coarse Sand (0.5mm to 1mm)	26.72		0.01	0.01	%			06/08/21 18:24	1
Fine Sand (0.125 to 0.25mm)	12.28		0.01	0.01	%			06/08/21 18:24	1
Gravel (greater than 2 mm)	11.32		0.01	0.01	%			06/08/21 18:24	1
Medium Sand (0.25 to 0.5 mm)	19.64		0.01	0.01	%			06/08/21 18:24	1
Silt (0.00391 to 0.0625mm)	3.43		0.01	0.01	%			06/08/21 18:24	1
Total Silt and Clay (0 to 0.0626mm)	4.18		0.01	0.01	%			06/08/21 18:24	1
Very Coarse Sand (1 to 2mm)	21.32		0.01	0.01	%			06/08/21 18:24	1
Very Fine Sand (0.0625 to 0.125 mm)	4.54		0.01	0.01	%			06/08/21 18:24	1

PARTICLE SIZE SUMMARY

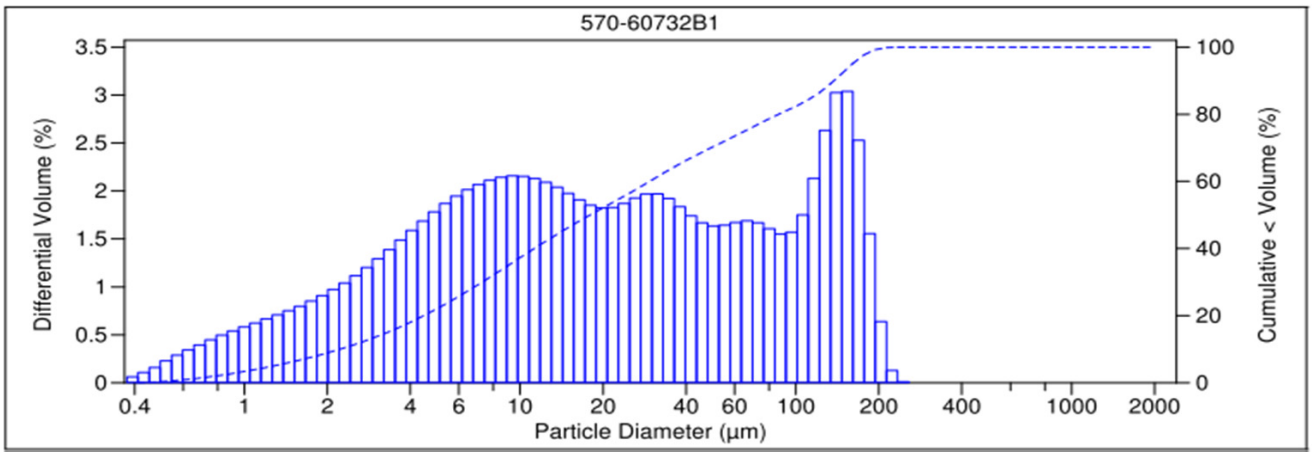
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C3		Silt	0.044

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	12.86	12.94	56.54	17.66	74.20



V 3.0

PARTICLE SIZE SUMMARY

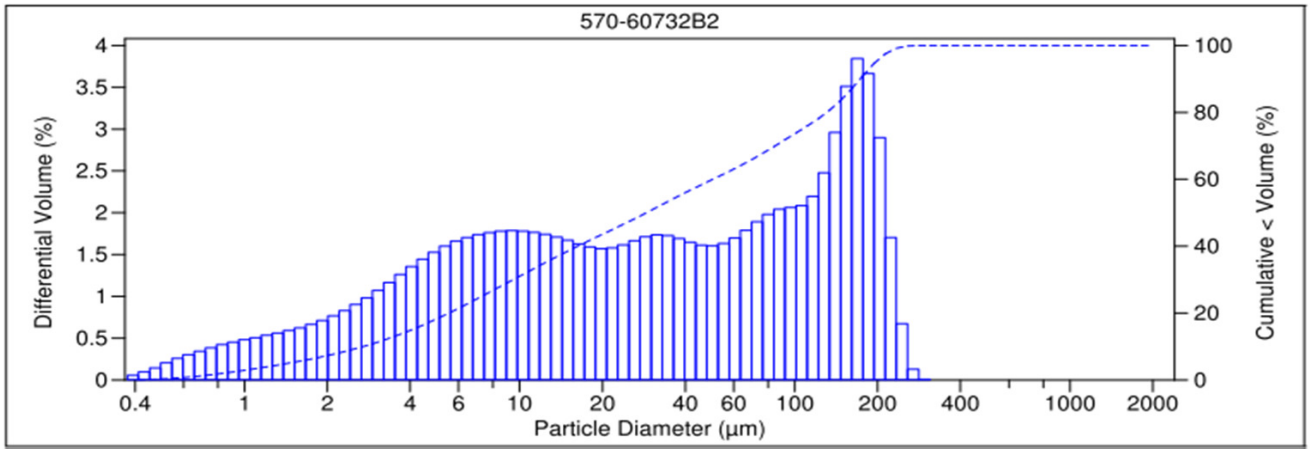
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C7		Silt	0.061

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.35	20.87	14.98	49.30	14.50	63.80



V 3.0

PARTICLE SIZE SUMMARY

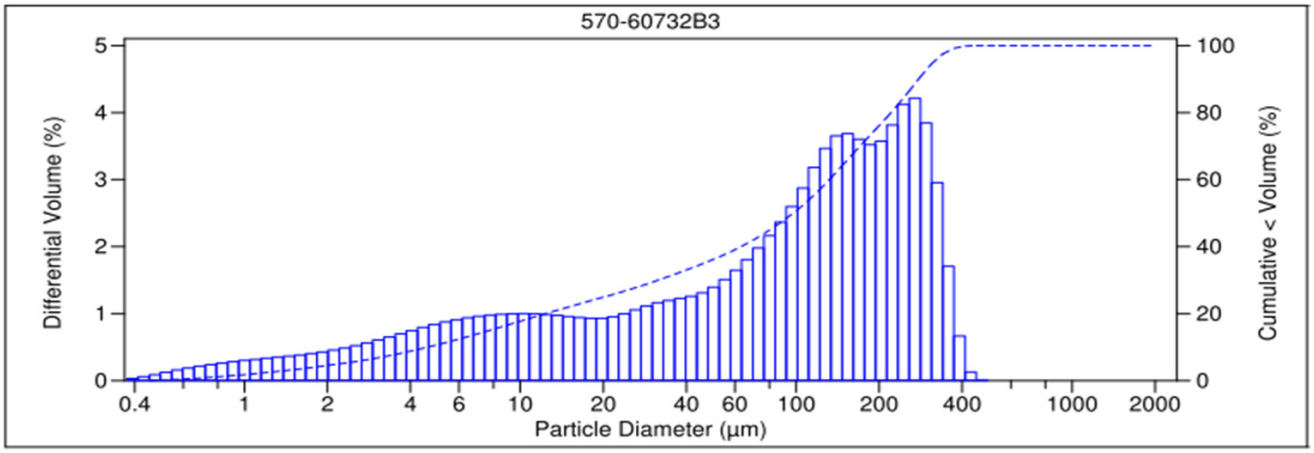
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C8		Fine Sand	0.163

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
1.47	0.00	0.00	14.56	26.86	17.89	30.75	8.47	39.22



V 3.0

PARTICLE SIZE SUMMARY

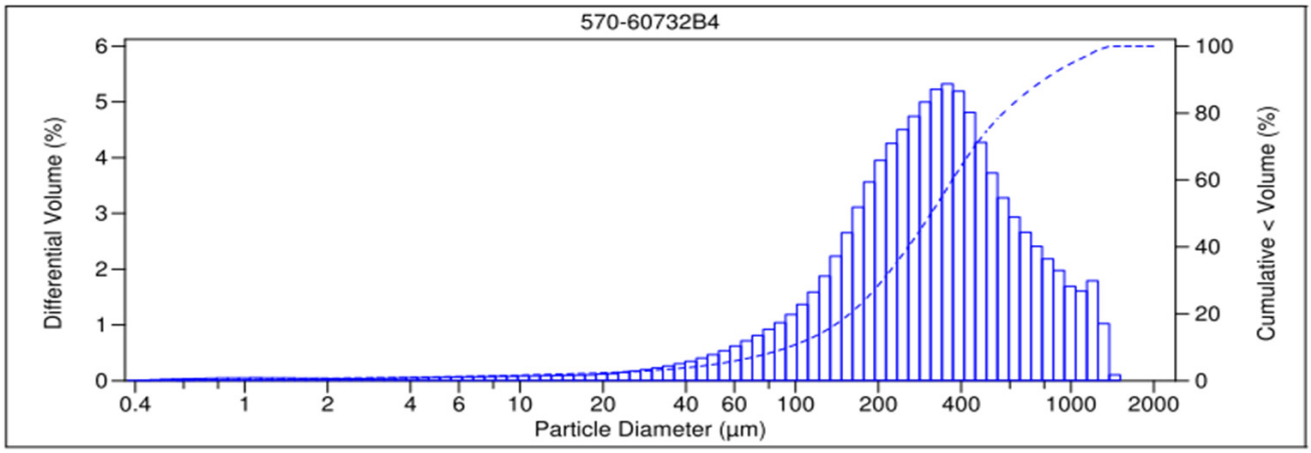
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-C1		Medium Sand	0.490

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
3.59	5.09	18.92	35.12	23.41	7.94	4.97	0.96	5.93



V 3.0

PARTICLE SIZE SUMMARY

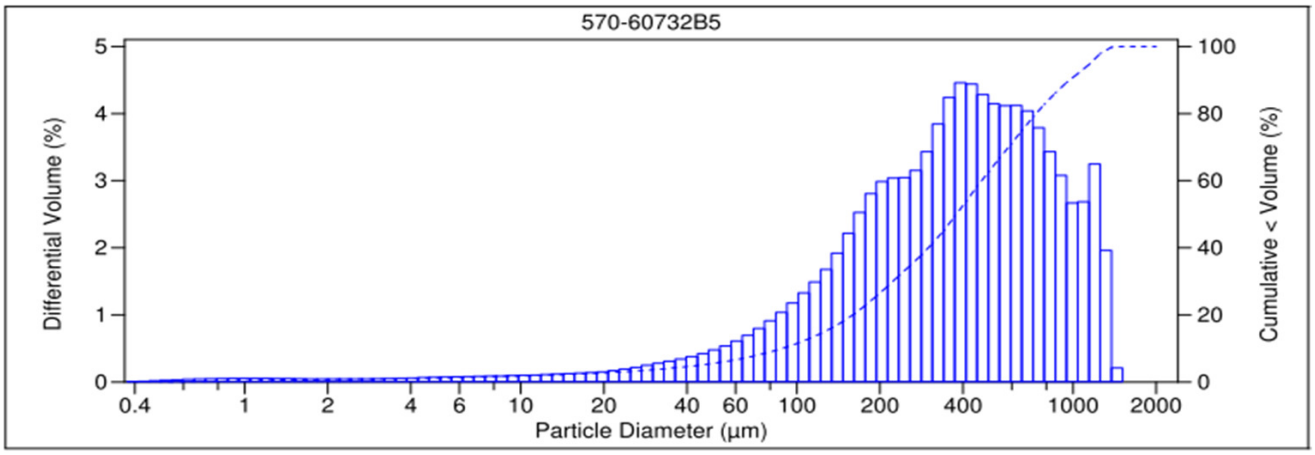
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-C2		Coarse Sand	0.709

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
8.42	8.50	25.33	26.85	17.26	7.31	5.35	0.98	6.33



V 3.0

PARTICLE SIZE SUMMARY

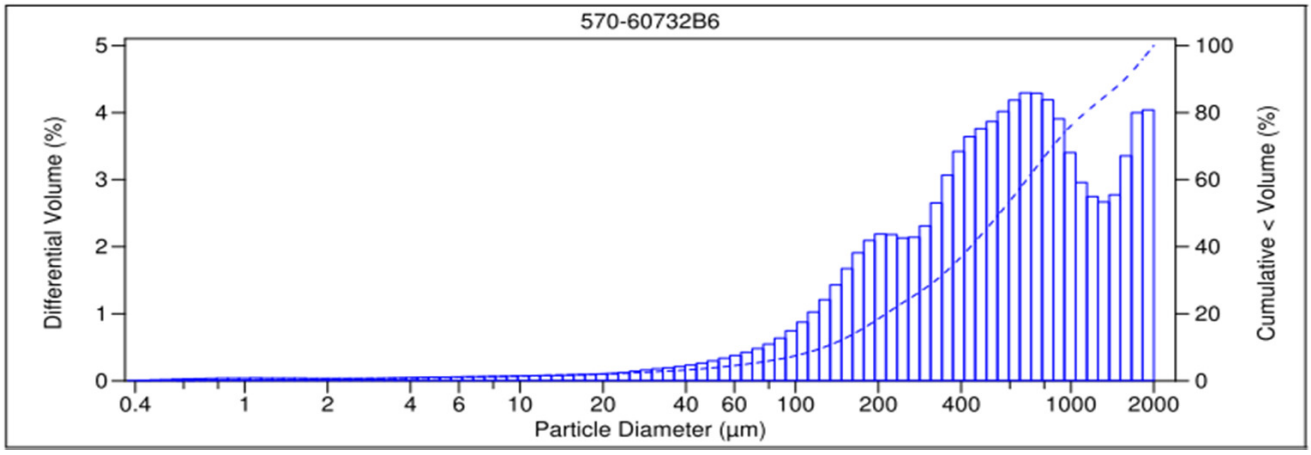
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc	Date Sampled:	06/01/21
	Date Received:	06/02/21
	Work Order No:	570-60732
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project:

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-C3		Very Coarse Sand	1.026

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
11.32	21.32	26.72	19.64	12.28	4.54	3.43	0.75	4.18



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-60732-1	FDD-B-C3	56	47	51	50	64	60
570-60732-2	FDD-B-C7	64	47	51	51	66	61
570-60732-3	FDD-B-C8	76	46	51	50	63	57
570-60732-4	FDD-D-C1	80	60	64	64	70	62
570-60732-5	FDD-D-C2	52	51	62	57	67	59
570-60732-5 MS	FDD-D-C2	82	71	59	74	82	68
570-60732-5 MSD	FDD-D-C2	86	73	62	76	82	70
570-60732-6	FDD-D-C3	69	54	57	60	68	57

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
LCS 570-154995/2-A	Lab Control Sample	72	66	57	68	70	64
LCSD 570-154995/3-A	Lab Control Sample Dup	70	68	57	70	68	63
MB 570-154995/1-A	Method Blank	44	49	55	49	46	50

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-60732-1	FDD-B-C3	73	87
570-60732-2	FDD-B-C7	70	83
570-60732-3	FDD-B-C8	65	88
570-60732-4	FDD-D-C1	70	82
570-60732-5	FDD-D-C2	63	80
570-60732-5 MS	FDD-D-C2	74	83
570-60732-5 MSD	FDD-D-C2	73	82
570-60732-6	FDD-D-C3	55	81

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60732-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

TPHd14 = p-Terphenyl-d14

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
LCS 570-154994/2-A	Lab Control Sample	82	84
LCSD 570-154994/3-A	Lab Control Sample Dup	79	82
MB 570-154994/1-A	Method Blank	87	95

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-60732-1	FDD-B-C3	109
570-60732-2	FDD-B-C7	100
570-60732-3	FDD-B-C8	94
570-60732-4	FDD-D-C1	120 S1+
570-60732-5	FDD-D-C2	134 S1+
570-60732-5 MS	FDD-D-C2	131 S1+
570-60732-5 MSD	FDD-D-C2	124 S1+
570-60732-6	FDD-D-C3	117 S1+

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
LCS 570-154999/2-A	Lab Control Sample	119 S1+
LCSD 570-154999/3-A	Lab Control Sample Dup	127 S1+
MB 570-154999/1-A	Method Blank	127 S1+

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-60732-1	FDD-B-C3	54
570-60732-2	FDD-B-C7	56
570-60732-3	FDD-B-C8	58
570-60732-4	FDD-D-C1	61
570-60732-5	FDD-D-C2	61
570-60732-6	FDD-D-C3	57

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60732-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
570-60732-6 MS	FDD-D-C3	81
570-60732-6 MSD	FDD-D-C3	70

Surrogate Legend

TPTT = Tripentyltin

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
LCS 570-154813/2-A	Lab Control Sample	65
LCSD 570-154813/3-A	Lab Control Sample Dup	62
MB 570-154813/1-A	Method Blank	78

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-60732-1	FDD-B-C3	88
570-60732-2	FDD-B-C7	90
570-60732-3	FDD-B-C8	89
570-60732-4	FDD-D-C1	92
570-60732-5	FDD-D-C2	91
570-60732-6	FDD-D-C3	91

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-61395-A-1-F MS	Matrix Spike	82
570-61395-A-1-G MSD	Matrix Spike Duplicate	87
LCS 570-157160/2-A	Lab Control Sample	88
LCSD 570-157160/3-A	Lab Control Sample Dup	84
MB 570-157160/1-A	Method Blank	88

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60732-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCB2
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
570-60732-1	FDD-B-C3	88	168
570-60732-2	FDD-B-C7	82	159
570-60732-3	FDD-B-C8	66	141
570-60732-4	FDD-D-C1	74	93
570-60732-4 MS	FDD-D-C1	92	97
570-60732-4 MSD	FDD-D-C1	94	101
570-60732-5	FDD-D-C2	97	95
570-60732-6	FDD-D-C3	104	106

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCB2
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
LCS 570-154993/2-A	Lab Control Sample	94	108
LCSD 570-154993/3-A	Lab Control Sample Dup	89	103
MB 570-154993/1-A	Method Blank	100	107

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-60732-1	FDD-B-C3	115	78
570-60732-2	FDD-B-C7	124	72
570-60732-3	FDD-B-C8	99	58
570-60732-4	FDD-D-C1	74	80
570-60732-4 MS	FDD-D-C1	101	80
570-60732-4 MSD	FDD-D-C1	91	92
570-60732-5	FDD-D-C2	93	96
570-60732-6	FDD-D-C3	119	105

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
LCS 570-154993/6-A	Lab Control Sample	90	91

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60732-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Matrix: Solid
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**DCB1 (20-155)**	**TCX1 (25-126)**						
LCSD 570-154993/7-A	Lab Control Sample Dup	97	96						
MB 570-154993/1-A	Method Blank	95	93						

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-154995/1-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154995

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Acenaphthene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Anthracene	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Biphenyl	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Bis(2-ethylhexyl) phthalate	11.12	J	50	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Chrysene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Diethyl phthalate	2.718	J	50	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Di-n-butyl phthalate	26.75	J	50	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Fluoranthene	ND		10	1.8	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Fluorene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Naphthalene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Phenanthrene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Pyrene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*44*		*32 - 143*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
2-Fluorophenol	*49*		*15 - 138*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
Nitrobenzene-d5	*55*		*18 - 162*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
Phenol-d6	*49*		*17 - 141*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
p-Terphenyl-d14	*46*		*34 - 148*	*06/03/21 21:53*	*06/11/21 10:54*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-154995/1-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154995

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	50		14 - 146	06/03/21 21:53	06/11/21 10:54	1

Lab Sample ID: LCS 570-154995/2-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	781.1		ug/Kg		78	40 - 160
2,4,6-Trichlorophenol	1000	740.6		ug/Kg		74	40 - 160
2,4-Dichlorophenol	1000	637.2		ug/Kg		64	40 - 160
2,4-Dimethylphenol	1000	621.6		ug/Kg		62	40 - 160
2,4-Dinitrophenol	1000	812.3		ug/Kg		81	40 - 160
2-Chlorophenol	1000	718.2		ug/Kg		72	40 - 160
2-Methylphenol	1000	751.3		ug/Kg		75	40 - 160
2-Nitrophenol	1000	654.7		ug/Kg		65	40 - 160
3/4-Methylphenol	2000	1240		ug/Kg		62	40 - 160
4,6-Dinitro-2-methylphenol	1000	828.6		ug/Kg		83	40 - 160
4-Chloro-3-methylphenol	1000	650.8		ug/Kg		65	40 - 160
Acenaphthene	1000	667.9		ug/Kg		67	48 - 108
Benzo[a]pyrene	1000	908.5		ug/Kg		91	17 - 163
Bis(2-ethylhexyl) phthalate	1000	882.6		ug/Kg		88	40 - 160
Butyl benzyl phthalate	1000	803.0		ug/Kg		80	40 - 160
Chrysene	1000	720.5		ug/Kg		72	17 - 168
Diethyl phthalate	1000	754.5		ug/Kg		75	40 - 160
Dimethyl phthalate	1000	715.8		ug/Kg		72	40 - 160
Di-n-butyl phthalate	1000	765.2		ug/Kg		77	40 - 160
Di-n-octyl phthalate	1000	852.5		ug/Kg		85	40 - 160
Fluoranthene	1000	701.8		ug/Kg		70	26 - 137
Fluorene	1000	691.4		ug/Kg		69	59 - 121
Naphthalene	1000	563.5		ug/Kg		56	21 - 133
Pentachlorophenol	1000	703.0		ug/Kg		70	40 - 160
Phenanthrene	1000	731.8		ug/Kg		73	54 - 120
Pyrene	1000	724.9		ug/Kg		72	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	72		32 - 143
2-Fluorophenol	66		15 - 138
Nitrobenzene-d5	57		18 - 162
Phenol-d6	68		17 - 141
p-Terphenyl-d14	70		34 - 148
2-Fluorobiphenyl (Surr)	64		14 - 146

Lab Sample ID: LCSD 570-154995/3-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	819.0		ug/Kg		82	40 - 160	5	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-154995/3-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154995

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol			1000	749.9		ug/Kg		75	40 - 160	1	20
2,4-Dichlorophenol			1000	651.9		ug/Kg		65	40 - 160	2	20
2,4-Dimethylphenol			1000	661.1		ug/Kg		66	40 - 160	6	20
2,4-Dinitrophenol			1000	856.5		ug/Kg		86	40 - 160	5	20
2-Chlorophenol			1000	729.3		ug/Kg		73	40 - 160	2	20
2-Methylphenol			1000	774.4		ug/Kg		77	40 - 160	3	20
2-Nitrophenol			1000	662.6		ug/Kg		66	40 - 160	1	20
3/4-Methylphenol			2000	1312		ug/Kg		66	40 - 160	6	20
4,6-Dinitro-2-methylphenol			1000	853.5		ug/Kg		85	40 - 160	3	20
4-Chloro-3-methylphenol			1000	699.9		ug/Kg		70	40 - 160	7	20
Acenaphthene			1000	676.4		ug/Kg		68	48 - 108	1	20
Benzo[a]pyrene			1000	927.5		ug/Kg		93	17 - 163	2	20
Bis(2-ethylhexyl) phthalate			1000	883.1		ug/Kg		88	40 - 160	0	20
Butyl benzyl phthalate			1000	802.2		ug/Kg		80	40 - 160	0	20
Chrysene			1000	730.5		ug/Kg		73	17 - 168	1	20
Diethyl phthalate			1000	769.8		ug/Kg		77	40 - 160	2	20
Dimethyl phthalate			1000	735.1		ug/Kg		74	40 - 160	3	20
Di-n-butyl phthalate			1000	787.5		ug/Kg		79	40 - 160	3	20
Di-n-octyl phthalate			1000	856.5		ug/Kg		86	40 - 160	0	20
Fluoranthene			1000	732.1		ug/Kg		73	26 - 137	4	20
Fluorene			1000	705.2		ug/Kg		71	59 - 121	2	20
Naphthalene			1000	566.1		ug/Kg		57	21 - 133	0	20
Pentachlorophenol			1000	742.6		ug/Kg		74	40 - 160	5	20
Phenanthrene			1000	741.6		ug/Kg		74	54 - 120	1	20
Pyrene			1000	716.2		ug/Kg		72	28 - 106	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*70*		*32 - 143*
2-Fluorophenol	*68*		*15 - 138*
Nitrobenzene-d5	*57*		*18 - 162*
Phenol-d6	*70*		*17 - 141*
p-Terphenyl-d14	*68*		*34 - 148*
2-Fluorobiphenyl (Surr)	*63*		*14 - 146*

Lab Sample ID: 570-60732-5 MS
Matrix: Sediment
Analysis Batch: 156682

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND		1160	1015		ug/Kg	☼	88	40 - 160		
2,4,6-Trichlorophenol	ND		1160	973.1		ug/Kg	☼	84	40 - 160		
2,4-Dichlorophenol	ND		1160	800.3		ug/Kg	☼	69	40 - 160		
2,4-Dimethylphenol	ND		1160	828.0		ug/Kg	☼	72	40 - 160		
2,4-Dinitrophenol	140	J	1160	1049		ug/Kg	☼	79	40 - 160		
2-Chlorophenol	ND		1160	906.9		ug/Kg	☼	78	40 - 160		
2-Methylphenol	ND		1160	970.3		ug/Kg	☼	84	40 - 160		
2-Nitrophenol	ND		1160	807.5		ug/Kg	☼	70	40 - 160		
3/4-Methylphenol	ND		2310	1623		ug/Kg	☼	70	40 - 160		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-60732-5 MS
Matrix: Sediment
Analysis Batch: 156682

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	ND		1160	1067		ug/Kg	☼	92	40 - 160
4-Chloro-3-methylphenol	ND		1160	816.7		ug/Kg	☼	71	8 - 160
Acenaphthene	ND		1160	858.0		ug/Kg	☼	74	40 - 160
Benzo[a]pyrene	4.4	J	1160	1185		ug/Kg	☼	102	17 - 163
Bis(2-ethylhexyl) phthalate	16	J B	1160	1172		ug/Kg	☼	100	40 - 160
Butyl benzyl phthalate	10	J	1160	1040		ug/Kg	☼	89	40 - 160
Chrysene	ND		1160	951.5		ug/Kg	☼	82	17 - 168
Diethyl phthalate	3.4	J B	1160	974.1		ug/Kg	☼	84	40 - 160
Dimethyl phthalate	ND		1160	923.4		ug/Kg	☼	80	40 - 160
Di-n-butyl phthalate	17	J B	1160	966.1		ug/Kg	☼	82	40 - 160
Di-n-octyl phthalate	31	J	1160	1085		ug/Kg	☼	91	40 - 160
Fluoranthene	ND		1160	907.3		ug/Kg	☼	79	26 - 137
Fluorene	ND		1160	886.2		ug/Kg	☼	77	59 - 121
Naphthalene	ND		1160	661.8		ug/Kg	☼	57	21 - 133
Pentachlorophenol	23	J	1160	904.7		ug/Kg	☼	76	40 - 160
Phenanthrene	ND		1160	961.0		ug/Kg	☼	83	54 - 120
Pyrene	ND		1160	969.6		ug/Kg	☼	84	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*82*		*32 - 143*
2-Fluorophenol	*71*		*15 - 138*
Nitrobenzene-d5	*59*		*18 - 162*
Phenol-d6	*74*		*17 - 141*
p-Terphenyl-d14	*82*		*34 - 148*
2-Fluorobiphenyl (Surr)	*68*		*14 - 146*

Lab Sample ID: 570-60732-5 MSD
Matrix: Sediment
Analysis Batch: 156682

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND		1160	1020		ug/Kg	☼	88	40 - 160	0	20
2,4,6-Trichlorophenol	ND		1160	947.8		ug/Kg	☼	82	40 - 160	3	20
2,4-Dichlorophenol	ND		1160	788.2		ug/Kg	☼	68	40 - 160	2	20
2,4-Dimethylphenol	ND		1160	846.6		ug/Kg	☼	73	40 - 160	2	20
2,4-Dinitrophenol	140	J	1160	1044		ug/Kg	☼	78	40 - 160	1	20
2-Chlorophenol	ND		1160	903.5		ug/Kg	☼	78	40 - 160	0	20
2-Methylphenol	ND		1160	964.3		ug/Kg	☼	83	40 - 160	1	20
2-Nitrophenol	ND		1160	815.3		ug/Kg	☼	70	40 - 160	1	20
3/4-Methylphenol	ND		2320	1592		ug/Kg	☼	69	40 - 160	2	20
4,6-Dinitro-2-methylphenol	ND		1160	1085		ug/Kg	☼	94	40 - 160	2	20
4-Chloro-3-methylphenol	ND		1160	811.8		ug/Kg	☼	70	8 - 160	1	20
Acenaphthene	ND		1160	838.0		ug/Kg	☼	72	40 - 160	2	20
Benzo[a]pyrene	4.4	J	1160	1186		ug/Kg	☼	102	17 - 163	0	20
Bis(2-ethylhexyl) phthalate	16	J B	1160	1165		ug/Kg	☼	99	40 - 160	1	20
Butyl benzyl phthalate	10	J	1160	1053		ug/Kg	☼	90	40 - 160	1	20
Chrysene	ND		1160	953.0		ug/Kg	☼	82	17 - 168	0	20
Diethyl phthalate	3.4	J B	1160	972.3		ug/Kg	☼	84	40 - 160	0	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-60732-5 MSD
Matrix: Sediment
Analysis Batch: 156682

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	ND		1160	906.9		ug/Kg	☼	78	40 - 160	2	20
Di-n-butyl phthalate	17	J B	1160	976.9		ug/Kg	☼	83	40 - 160	1	20
Di-n-octyl phthalate	31	J	1160	1093		ug/Kg	☼	92	40 - 160	1	20
Fluoranthene	ND		1160	896.2		ug/Kg	☼	77	26 - 137	1	20
Fluorene	ND		1160	867.8		ug/Kg	☼	75	59 - 121	2	20
Naphthalene	ND		1160	669.5		ug/Kg	☼	58	21 - 133	1	20
Pentachlorophenol	23	J	1160	945.8		ug/Kg	☼	80	40 - 160	4	20
Phenanthrene	ND		1160	965.6		ug/Kg	☼	83	54 - 120	0	20
Pyrene	ND		1160	981.5		ug/Kg	☼	85	6 - 156	1	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*86*		*32 - 143*
2-Fluorophenol	*73*		*15 - 138*
Nitrobenzene-d5	*62*		*18 - 162*
Phenol-d6	*76*		*17 - 141*
p-Terphenyl-d14	*82*		*34 - 148*
2-Fluorobiphenyl (Surr)	*70*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-154994/1-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-28	ND		0.20	0.069	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-37	ND		0.20	0.061	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-44	ND		0.20	0.15	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-49	ND		0.20	0.050	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-52	ND		0.20	0.19	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-66	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-70	ND		0.20	0.072	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-74	ND		0.20	0.090	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-77	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-81	ND		0.20	0.090	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-87	ND		0.20	0.11	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-99	ND		0.20	0.047	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-101	ND		0.20	0.044	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-105	ND		0.20	0.053	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-110	ND		0.20	0.034	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-114	ND		0.20	0.074	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-118	ND		0.20	0.035	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-119	ND		0.20	0.063	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-123	ND		0.20	0.073	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-126	ND		0.20	0.055	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-128	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/03/21 21:50	06/14/21 13:52	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-154994/1-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-149	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-151	ND		0.20	0.088	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-156	ND		0.20	0.077	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-157	ND		0.20	0.085	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-167	ND		0.20	0.13	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-168	ND		0.20	0.14	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-169	ND		0.20	0.065	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-170	ND		0.20	0.11	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-177	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-180	ND		0.20	0.092	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-183	ND		0.20	0.093	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-187	ND		0.20	0.10	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-189	ND		0.20	0.064	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-194	ND		0.20	0.074	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-201	ND		0.20	0.034	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-206	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/03/21 21:50	06/14/21 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*87*		*20 - 139*	*06/03/21 21:50*	*06/14/21 13:52*	*1*
p-Terphenyl-d14	*95*		*37 - 165*	*06/03/21 21:50*	*06/14/21 13:52*	*1*

Lab Sample ID: LCS 570-154994/2-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	34.55		ug/Kg		69	33 - 114
PCB-28	50.0	39.78		ug/Kg		80	40 - 132
PCB-44	50.0	39.38		ug/Kg		79	38 - 131
PCB-52	50.0	39.40		ug/Kg		79	38 - 131
PCB-66	50.0	44.23		ug/Kg		88	42 - 141
PCB-77	50.0	39.96		ug/Kg		80	47 - 135
PCB-101	50.0	41.24		ug/Kg		82	40 - 132
PCB-105	50.0	43.14		ug/Kg		86	39 - 135
PCB-118	50.0	39.64		ug/Kg		79	38 - 131
PCB-126	50.0	44.69		ug/Kg		89	40 - 139
PCB-128	50.0	50.36		ug/Kg		101	43 - 149
PCB-132/153	50.0	45.67		ug/Kg		91	37 - 164
PCB-138/158	50.0	41.34		ug/Kg		83	36 - 124
PCB-170	50.0	47.53		ug/Kg		95	35 - 134
PCB-180	50.0	48.70		ug/Kg		97	38 - 159
PCB-187	50.0	49.57		ug/Kg		99	41 - 147
PCB-201	50.0	50.52		ug/Kg		101	40 - 156
PCB-206	50.0	55.42		ug/Kg		111	37 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-154994/2-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154994

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
p-Terphenyl-d14	*84*		*37 - 165*

Lab Sample ID: LCSD 570-154994/3-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154994

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18			50.0	33.90		ug/Kg		68	33 - 114	2	29
PCB-28			50.0	38.58		ug/Kg		77	40 - 132	3	29
PCB-44			50.0	39.00		ug/Kg		78	38 - 131	1	32
PCB-52			50.0	37.64		ug/Kg		75	38 - 131	5	32
PCB-66			50.0	44.89		ug/Kg		90	42 - 141	1	34
PCB-77			50.0	38.71		ug/Kg		77	47 - 135	3	35
PCB-101			50.0	40.09		ug/Kg		80	40 - 132	3	34
PCB-105			50.0	42.24		ug/Kg		84	39 - 135	2	37
PCB-118			50.0	38.90		ug/Kg		78	38 - 131	2	35
PCB-126			50.0	43.33		ug/Kg		87	40 - 139	3	39
PCB-128			50.0	48.75		ug/Kg		97	43 - 149	3	37
PCB-132/153			50.0	44.60		ug/Kg		89	37 - 164	2	38
PCB-138/158			50.0	39.53		ug/Kg		79	36 - 124	4	40
PCB-170			50.0	46.74		ug/Kg		93	35 - 134	2	31
PCB-180			50.0	48.63		ug/Kg		97	38 - 159	0	40
PCB-187			50.0	48.45		ug/Kg		97	41 - 147	2	40
PCB-201			50.0	48.63		ug/Kg		97	40 - 156	4	40
PCB-206			50.0	55.02		ug/Kg		110	37 - 153	1	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*20 - 139*
p-Terphenyl-d14	*82*		*37 - 165*

Lab Sample ID: 570-60732-5 MS
Matrix: Sediment
Analysis Batch: 157139

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18	ND		57.9	38.76		ug/Kg	☼	67	29 - 127		
PCB-28	ND		57.9	44.93		ug/Kg	☼	78	29 - 170		
PCB-44	ND		57.9	45.67		ug/Kg	☼	79	33 - 150		
PCB-52	ND		57.9	44.73		ug/Kg	☼	77	23 - 159		
PCB-66	ND		57.9	51.85		ug/Kg	☼	90	29 - 166		
PCB-77	ND		57.9	46.44		ug/Kg	☼	80	30 - 166		
PCB-101	ND		57.9	46.74		ug/Kg	☼	81	30 - 159		
PCB-105	ND		57.9	49.74		ug/Kg	☼	86	22 - 173		
PCB-118	ND		57.9	45.74		ug/Kg	☼	79	24 - 162		
PCB-126	ND		57.9	50.55		ug/Kg	☼	87	18 - 180		
PCB-128	ND		57.9	56.38		ug/Kg	☼	97	18 - 180		
PCB-132/153	ND		57.9	52.22		ug/Kg	☼	90	27 - 180		
PCB-138/158	ND		57.9	47.04		ug/Kg	☼	81	18 - 160		

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-60732-5 MS
Matrix: Sediment
Analysis Batch: 157139

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-170	ND		57.9	55.66		ug/Kg	☼	96	25 - 165
PCB-180	ND		57.9	56.57		ug/Kg	☼	98	20 - 180
PCB-187	ND		57.9	56.90		ug/Kg	☼	98	14 - 180
PCB-201	ND		57.9	56.37		ug/Kg	☼	97	17 - 180
PCB-206	ND		57.9	61.27		ug/Kg	☼	106	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*74*		*20 - 139*
p-Terphenyl-d14	*83*		*37 - 165*

Lab Sample ID: 570-60732-5 MSD
Matrix: Sediment
Analysis Batch: 157139

Client Sample ID: FDD-D-C2
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		58.1	38.44		ug/Kg	☼	66	29 - 127	1	40
PCB-28	ND		58.1	45.17		ug/Kg	☼	78	29 - 170	1	32
PCB-44	ND		58.1	45.73		ug/Kg	☼	79	33 - 150	0	40
PCB-52	ND		58.1	44.51		ug/Kg	☼	77	23 - 159	0	40
PCB-66	ND		58.1	51.61		ug/Kg	☼	89	29 - 166	0	40
PCB-77	ND		58.1	45.18		ug/Kg	☼	78	30 - 166	3	40
PCB-101	ND		58.1	47.02		ug/Kg	☼	81	30 - 159	1	40
PCB-105	ND		58.1	48.75		ug/Kg	☼	84	22 - 173	2	40
PCB-118	ND		58.1	45.15		ug/Kg	☼	78	24 - 162	1	40
PCB-126	ND		58.1	49.29		ug/Kg	☼	85	18 - 180	3	40
PCB-128	ND		58.1	56.19		ug/Kg	☼	97	18 - 180	0	40
PCB-132/153	ND		58.1	51.19		ug/Kg	☼	88	27 - 180	2	40
PCB-138/158	ND		58.1	46.00		ug/Kg	☼	79	18 - 160	2	40
PCB-170	ND		58.1	54.37		ug/Kg	☼	94	25 - 165	2	22
PCB-180	ND		58.1	55.00		ug/Kg	☼	95	20 - 180	3	40
PCB-187	ND		58.1	54.98		ug/Kg	☼	95	14 - 180	3	40
PCB-201	ND		58.1	56.03		ug/Kg	☼	96	17 - 180	1	40
PCB-206	ND		58.1	59.16		ug/Kg	☼	102	16 - 180	4	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*73*		*20 - 139*
p-Terphenyl-d14	*82*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-154999/1-A
Matrix: Solid
Analysis Batch: 156500

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154999

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/03/21 21:55	06/10/21 20:59	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-154999/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cypermethrin	ND		0.50	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/03/21 21:55	06/10/21 20:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*127*	*S1+*	*14 - 116*	*06/03/21 21:55*	*06/10/21 20:59*	*1*

Lab Sample ID: LCS 570-154999/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.578		ug/Kg		72	10 - 148
Bifenthrin	5.00	5.453		ug/Kg		109	26 - 128
Cyfluthrin	5.00	5.134		ug/Kg		103	10 - 131
Cypermethrin	5.00	5.217		ug/Kg		104	10 - 136
Deltamethrin/Tralomethrin	5.00	4.531		ug/Kg		91	13 - 190
Fenpropathrin	5.00	5.197		ug/Kg		104	10 - 148
Fenvalerate/Esfenvalerate	5.00	5.013		ug/Kg		100	10 - 149
Fluvalinate	5.00	3.474		ug/Kg		69	10 - 121
Lambda cyhalothrin	5.00	5.086		ug/Kg		102	10 - 123
Permethrins (cis/trans)	5.00	5.590		ug/Kg		112	45 - 123
Phenothrin	5.00	5.612		ug/Kg		112	45 - 165
Resmethrin/Bioresmethrin	5.00	4.009		ug/Kg		80	38 - 164
Tetramethrin	5.00	4.519		ug/Kg		90	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*119*	*S1+*	*14 - 116*

Lab Sample ID: LCSD 570-154999/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.975		ug/Kg		79	10 - 148	11	25
Bifenthrin	5.00	5.558		ug/Kg		111	26 - 128	2	25
Cyfluthrin	5.00	5.297		ug/Kg		106	10 - 131	3	25
Cypermethrin	5.00	5.335		ug/Kg		107	10 - 136	2	25
Deltamethrin/Tralomethrin	5.00	4.662		ug/Kg		93	13 - 190	3	25
Fenpropathrin	5.00	5.560		ug/Kg		111	10 - 148	7	25
Fenvalerate/Esfenvalerate	5.00	5.141		ug/Kg		103	10 - 149	3	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCSD 570-154999/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluvalinate			5.00	3.466		ug/Kg		69	10 - 121	0	25
Lambda cyhalothrin			5.00	5.183		ug/Kg		104	10 - 123	2	25
Permethrins (cis/trans)			5.00	5.782		ug/Kg		116	45 - 123	3	25
Phenothrin			5.00	5.913		ug/Kg		118	45 - 165	5	25
Resmethrin/Bioresmethrin			5.00	4.054		ug/Kg		81	38 - 164	1	25
Tetramethrin			5.00	4.611		ug/Kg		92	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*127*	*S1+*	*14 - 116*

Lab Sample ID: 570-60732-5 MS — **Client Sample ID: FDD-D-C2**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Allethrin	ND		5.82	4.420		ug/Kg	☼	76	10 - 148		
Bifenthrin	ND		5.82	7.391		ug/Kg	☼	127	26 - 128		
Cyfluthrin	ND		5.82	5.983		ug/Kg	☼	103	10 - 131		
Cypermethrin	ND		5.82	6.318		ug/Kg	☼	109	10 - 136		
Deltamethrin/Tralomethrin	ND		5.82	6.603		ug/Kg	☼	113	13 - 190		
Fenpropathrin	ND		5.82	7.747		ug/Kg	☼	133	10 - 148		
Fenvalerate/Esfenvalerate	ND		5.82	6.717		ug/Kg	☼	115	10 - 149		
Fluvalinate	ND		5.82	4.381		ug/Kg	☼	75	10 - 121		
Lambda cyhalothrin	ND		5.82	6.442		ug/Kg	☼	111	10 - 123		
Permethrins (cis/trans)	ND		5.82	7.148		ug/Kg	☼	123	45 - 123		
Phenothrin	ND		5.82	8.820		ug/Kg	☼	152	45 - 165		
Resmethrin/Bioresmethrin	ND		5.82	4.015		ug/Kg	☼	69	38 - 164		
Tetramethrin	ND		5.82	6.149		ug/Kg	☼	106	15 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*131*	*S1+*	*14 - 116*

Lab Sample ID: 570-60732-5 MSD — **Client Sample ID: FDD-D-C2**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.78	4.110		ug/Kg	☼	71	10 - 148	7	30
Bifenthrin	ND		5.78	6.169		ug/Kg	☼	107	26 - 128	18	30
Cyfluthrin	ND		5.78	4.963		ug/Kg	☼	86	10 - 131	19	30
Cypermethrin	ND		5.78	5.178		ug/Kg	☼	90	10 - 136	20	30
Deltamethrin/Tralomethrin	ND		5.78	5.336		ug/Kg	☼	92	13 - 190	21	30
Fenpropathrin	ND		5.78	6.526		ug/Kg	☼	113	10 - 148	17	30
Fenvalerate/Esfenvalerate	ND		5.78	5.446		ug/Kg	☼	94	10 - 149	21	30
Fluvalinate	ND		5.78	3.711		ug/Kg	☼	64	10 - 121	17	30
Lambda cyhalothrin	ND		5.78	5.545		ug/Kg	☼	96	10 - 123	15	30
Permethrins (cis/trans)	ND		5.78	5.913		ug/Kg	☼	102	45 - 123	19	30
Phenothrin	ND		5.78	8.115		ug/Kg	☼	140	45 - 165	8	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-60732-5 MSD — **Client Sample ID: FDD-D-C2**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Resmethrin/Bioresmethrin	ND		5.78	3.708		ug/Kg	☼	64	38 - 164	8	30
Tetramethrin	ND		5.78	5.666		ug/Kg	☼	98	15 - 153	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*124*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-154813/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155150 — **Prep Batch: 154813**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/03/21 10:10	06/04/21 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*78*		*10 - 120*	*06/03/21 10:10*	*06/04/21 16:54*	*1*

Lab Sample ID: LCS 570-154813/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 154813**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	95.38		ug/Kg		95	10 - 153
Tributyltin	100	64.93		ug/Kg		65	10 - 126
Monobutyltin	100	19.97		ug/Kg		20	10 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*65*		*10 - 120*

Lab Sample ID: LCSD 570-154813/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 154813**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	100	95.07		ug/Kg		95	10 - 153	0	30
Tributyltin	100	63.63		ug/Kg		64	10 - 126	2	30
Monobutyltin	100	15.44		ug/Kg		15	10 - 120	26	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-60732-6 MS
Matrix: Sediment
Analysis Batch: 155150

Client Sample ID: FDD-D-C3
Prep Type: Total/NA
Prep Batch: 154813

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		116	123.1		ug/Kg	☼	107	10 - 140
Tributyltin	ND		116	89.97		ug/Kg	☼	78	10 - 135
Monobutyltin	ND	F1	116	ND	F1	ug/Kg	☼	0	10 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*81*		*10 - 120*

Lab Sample ID: 570-60732-6 MSD
Matrix: Sediment
Analysis Batch: 155150

Client Sample ID: FDD-D-C3
Prep Type: Total/NA
Prep Batch: 154813

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		116	116.7		ug/Kg	☼	101	10 - 140	5	40
Tributyltin	ND		116	82.83		ug/Kg	☼	71	10 - 135	8	40
Monobutyltin	ND	F1	116	ND	F1	ug/Kg	☼	0	10 - 125	NC	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*70*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-157160/1-A
Matrix: Solid
Analysis Batch: 157131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 157160

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C9-C10	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C11-C12	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C13-C14	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C15-C16	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C17-C18	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C19-C20	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C21-C22	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C23-C24	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C25-C28	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C29-C32	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C33-C36	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C37-C40	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C41-C44	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1
C6-C44	ND		5.0	3.8	mg/Kg		06/14/21 13:07	06/14/21 15:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*88*		*60 - 138*	*06/14/21 13:07*	*06/14/21 15:06*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 570-157160/2-A
Matrix: Solid
Analysis Batch: 157131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 157160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	395.4		mg/Kg		99	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*88*		*60 - 138*

Lab Sample ID: LCSD 570-157160/3-A
Matrix: Solid
Analysis Batch: 157131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 157160

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	390.1		mg/Kg		98	80 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*84*		*60 - 138*

Lab Sample ID: 570-61395-A-1-F MS
Matrix: Solid
Analysis Batch: 157131

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 157160

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	ND		398	389.3		mg/Kg		98	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*82*		*60 - 138*

Lab Sample ID: 570-61395-A-1-G MSD
Matrix: Solid
Analysis Batch: 157131

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 157160

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		393	406.4		mg/Kg		103	43 - 165	4	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*87*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-154993/1-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/03/21 21:46	06/11/21 05:27	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-154993/1-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Aldrin	ND		1.0	0.072	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Chlordane	ND		5.0	0.33	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin	ND		1.0	0.088	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/03/21 21:46	06/11/21 05:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*20 - 131*	*06/03/21 21:46*	*06/11/21 05:27*	*1*
DCB Decachlorobiphenyl (Surr)	*107*		*20 - 180*	*06/03/21 21:46*	*06/11/21 05:27*	*1*

Lab Sample ID: LCS 570-154993/2-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	6.015		ug/Kg		120	54 - 150
4,4'-DDE	5.00	5.942		ug/Kg		119	49 - 146
4,4'-DDT	5.00	6.200		ug/Kg		124	52 - 147
Aldrin	5.00	4.893		ug/Kg		98	28 - 116
alpha-BHC	5.00	5.651		ug/Kg		113	44 - 123
beta-BHC	5.00	6.098		ug/Kg		122	48 - 127
delta-BHC	5.00	5.662		ug/Kg		113	10 - 149
Dieldrin	5.00	5.667		ug/Kg		113	48 - 132
alpha-Chlordane	5.00	5.518		ug/Kg		110	48 - 125
Endosulfan I	5.00	5.332		ug/Kg		107	44 - 125
Endosulfan II	5.00	5.420		ug/Kg		108	47 - 136
Endosulfan sulfate	5.00	5.587		ug/Kg		112	46 - 133
Endrin	5.00	5.856		ug/Kg		117	43 - 142

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-154993/2-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin aldehyde	5.00	5.449		ug/Kg		109	29 - 141
gamma-BHC	5.00	5.708		ug/Kg		114	44 - 126
Heptachlor	5.00	5.624		ug/Kg		112	50 - 123
Heptachlor epoxide	5.00	5.949		ug/Kg		119	49 - 125
Methoxychlor	5.00	6.027		ug/Kg		121	49 - 145
gamma-Chlordane	5.00	5.663	p	ug/Kg		113	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*94*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*108*		*20 - 180*

Lab Sample ID: LCSD 570-154993/3-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	6.067		ug/Kg		121	54 - 150	1	29
4,4'-DDE	5.00	6.009		ug/Kg		120	49 - 146	1	28
4,4'-DDT	5.00	6.422		ug/Kg		128	52 - 147	4	32
Aldrin	5.00	4.893		ug/Kg		98	28 - 116	0	30
alpha-BHC	5.00	5.538		ug/Kg		111	44 - 123	2	27
beta-BHC	5.00	5.625		ug/Kg		113	48 - 127	8	28
delta-BHC	5.00	5.752		ug/Kg		115	10 - 149	2	27
Dieldrin	5.00	5.768		ug/Kg		115	48 - 132	2	28
alpha-Chlordane	5.00	5.631		ug/Kg		113	48 - 125	2	27
Endosulfan I	5.00	5.987		ug/Kg		120	44 - 125	12	29
Endosulfan II	5.00	6.738		ug/Kg		135	47 - 136	22	29
Endosulfan sulfate	5.00	6.929	*+ me	ug/Kg		139	46 - 133	21	28
Endrin	5.00	5.940		ug/Kg		119	43 - 142	1	27
Endrin aldehyde	5.00	6.093		ug/Kg		122	29 - 141	11	40
gamma-BHC	5.00	6.212		ug/Kg		124	44 - 126	8	28
Heptachlor	5.00	5.484		ug/Kg		110	50 - 123	3	28
Heptachlor epoxide	5.00	5.821		ug/Kg		116	49 - 125	2	28
Methoxychlor	5.00	6.529		ug/Kg		131	49 - 145	8	39
gamma-Chlordane	5.00	5.877		ug/Kg		118	29 - 153	4	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*89*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*103*		*20 - 180*

Lab Sample ID: 570-60732-4 MS
Matrix: Sediment
Analysis Batch: 156549

Client Sample ID: FDD-D-C1
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		5.92	6.225		ug/Kg	☼	105	17 - 180
4,4'-DDE	ND		5.92	6.130		ug/Kg	☼	104	20 - 180
4,4'-DDT	ND		5.92	6.648		ug/Kg	☼	112	10 - 180

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-60732-4 MS
Matrix: Sediment
Analysis Batch: 156549

Client Sample ID: FDD-D-C1
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		5.92	5.423		ug/Kg	☼	92	27 - 146
alpha-BHC	ND		5.92	5.991		ug/Kg	☼	101	33 - 160
beta-BHC	ND		5.92	7.787		ug/Kg	☼	132	14 - 178
delta-BHC	ND		5.92	6.447		ug/Kg	☼	109	10 - 159
Dieldrin	ND		5.92	6.154		ug/Kg	☼	104	25 - 180
alpha-Chlordane	ND		5.92	5.835		ug/Kg	☼	99	24 - 164
Endosulfan I	ND		5.92	5.938		ug/Kg	☼	100	31 - 146
Endosulfan II	ND		5.92	5.923		ug/Kg	☼	100	14 - 176
Endosulfan sulfate	ND	*+	5.92	6.157		ug/Kg	☼	104	22 - 167
Endrin	ND		5.92	6.358		ug/Kg	☼	107	23 - 174
Endrin aldehyde	ND		5.92	6.937		ug/Kg	☼	117	10 - 180
gamma-BHC	ND		5.92	6.467		ug/Kg	☼	109	27 - 160
Heptachlor	ND		5.92	5.561		ug/Kg	☼	94	23 - 144
Heptachlor epoxide	ND		5.92	7.343		ug/Kg	☼	124	25 - 173
Methoxychlor	ND		5.92	6.428		ug/Kg	☼	109	10 - 180
gamma-Chlordane	ND	F2 *1	5.92	6.512	p	ug/Kg	☼	110	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*92*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 180*

Lab Sample ID: 570-60732-4 MSD
Matrix: Sediment
Analysis Batch: 156549

Client Sample ID: FDD-D-C1
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		5.88	6.296		ug/Kg	☼	107	17 - 180	1	40
4,4'-DDE	ND		5.88	6.149		ug/Kg	☼	105	20 - 180	0	40
4,4'-DDT	ND		5.88	6.686		ug/Kg	☼	114	10 - 180	1	40
Aldrin	ND		5.88	5.416		ug/Kg	☼	92	27 - 146	0	40
alpha-BHC	ND		5.88	6.175		ug/Kg	☼	105	33 - 160	3	36
beta-BHC	ND		5.88	8.422		ug/Kg	☼	143	14 - 178	8	40
delta-BHC	ND		5.88	6.771		ug/Kg	☼	115	10 - 159	5	40
Dieldrin	ND		5.88	6.095		ug/Kg	☼	104	25 - 180	1	40
alpha-Chlordane	ND		5.88	5.801		ug/Kg	☼	99	24 - 164	1	40
Endosulfan I	ND		5.88	5.879		ug/Kg	☼	100	31 - 146	1	34
Endosulfan II	ND		5.88	6.061		ug/Kg	☼	103	14 - 176	2	40
Endosulfan sulfate	ND	*+	5.88	6.065		ug/Kg	☼	103	22 - 167	2	40
Endrin	ND		5.88	6.457		ug/Kg	☼	110	23 - 174	2	40
Endrin aldehyde	ND		5.88	7.546		ug/Kg	☼	128	10 - 180	8	40
gamma-BHC	ND		5.88	6.339		ug/Kg	☼	108	27 - 160	2	40
Heptachlor	ND		5.88	5.646		ug/Kg	☼	96	23 - 144	2	40
Heptachlor epoxide	ND		5.88	6.079		ug/Kg	☼	103	25 - 173	19	40
Methoxychlor	ND		5.88	6.500		ug/Kg	☼	111	10 - 180	1	40
gamma-Chlordane	ND	F2 *1	5.88	6.908		ug/Kg	☼	118	26 - 180	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*94*		*20 - 131*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-60732-4 MSD
Matrix: Sediment
Analysis Batch: 156549

Client Sample ID: FDD-D-C1
Prep Type: Total/NA
Prep Batch: 154993

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*101*		*20 - 180*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-154993/1-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*20 - 155*	*06/03/21 21:46*	*06/11/21 00:09*	*1*
Tetrachloro-m-xylene (Surr)	*93*		*25 - 126*	*06/03/21 21:46*	*06/11/21 00:09*	*1*

Lab Sample ID: LCS 570-154993/6-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154993

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			20.0	25.61		ug/Kg		128	50 - 142		
Aroclor-1260			20.0	23.20		ug/Kg		116	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*90*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*91*		*25 - 126*

Lab Sample ID: LCSD 570-154993/7-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154993

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			20.0	23.52		ug/Kg		118	50 - 142	9	30
Aroclor-1260			20.0	23.70		ug/Kg		119	50 - 150	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*96*		*25 - 126*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-60732-4 MS — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156525 — **Prep Batch: 154993**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	ND	F1	23.7	47.57	F1	ug/Kg	☼	201	20 - 175
Aroclor-1260	ND		23.7	30.84		ug/Kg	☼	130	20 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*101*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*80*		*25 - 126*

Lab Sample ID: 570-60732-4 MSD — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156525 — **Prep Batch: 154993**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND	F1	23.6	71.36	F1	ug/Kg	☼	302	20 - 175	40	40
Aroclor-1260	ND		23.6	25.98		ug/Kg	☼	110	20 - 180	17	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*92*		*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-156160/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	210	ug/Kg		06/09/21 14:22	06/10/21 16:52	10

Lab Sample ID: LCS 570-156160/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19310		ug/Kg		97	80 - 120

Lab Sample ID: LCSD 570-156160/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20100	19290		ug/Kg		96	80 - 120	0	20

Lab Sample ID: 570-61178-A-3-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	5300		19900	23330		ug/Kg		90	75 - 125

Method: 7199 - Chromium, Hexavalent (IC) (Continued)

Lab Sample ID: 570-61178-A-3-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	5300		20000	20940		ug/Kg		78	75 - 125	11	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-157167/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	0.275	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Arsenic	ND		0.985	0.329	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Barium	ND		0.985	0.205	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Beryllium	ND		0.985	0.204	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Cadmium	ND		0.985	0.443	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Chromium	ND		1.97	0.296	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Cobalt	ND		0.985	0.186	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Copper	ND		0.985	0.265	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Lead	ND		0.985	0.212	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Molybdenum	ND		0.985	0.303	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Nickel	ND		0.985	0.266	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Selenium	ND		0.985	0.572	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Silver	ND		0.985	0.326	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Thallium	ND		0.985	0.216	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Vanadium	ND		1.97	0.238	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Zinc	ND		4.93	4.55	mg/Kg		06/14/21 13:40	06/15/21 10:28	20

Lab Sample ID: LCS 570-157167/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	25.0	23.80		mg/Kg		95	80 - 120
Arsenic	25.0	25.30		mg/Kg		101	80 - 120
Barium	25.0	23.87		mg/Kg		95	80 - 120
Beryllium	25.0	25.11		mg/Kg		100	80 - 120
Cadmium	25.0	25.46		mg/Kg		102	80 - 120
Chromium	25.0	24.18		mg/Kg		97	80 - 120
Cobalt	25.0	25.20		mg/Kg		101	80 - 120
Copper	25.0	25.59		mg/Kg		102	80 - 120
Lead	25.0	24.64		mg/Kg		99	80 - 120
Molybdenum	25.0	24.88		mg/Kg		100	80 - 120
Nickel	25.0	25.68		mg/Kg		103	80 - 120
Selenium	25.0	24.70		mg/Kg		99	80 - 120
Silver	12.5	12.75		mg/Kg		102	80 - 120
Thallium	25.0	23.22		mg/Kg		93	80 - 120
Vanadium	25.0	24.85		mg/Kg		99	80 - 120
Zinc	25.0	26.38		mg/Kg		106	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-157167/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	25.1	23.93		mg/Kg		95	80 - 120	1	20
Arsenic	25.1	24.99		mg/Kg		99	80 - 120	1	20
Barium	25.1	23.63		mg/Kg		94	80 - 120	1	20
Beryllium	25.1	25.86		mg/Kg		103	80 - 120	3	20
Cadmium	25.1	25.87		mg/Kg		103	80 - 120	2	20
Chromium	25.1	23.99		mg/Kg		95	80 - 120	1	20
Cobalt	25.1	24.61		mg/Kg		98	80 - 120	2	20
Copper	25.1	26.04		mg/Kg		104	80 - 120	2	20
Lead	25.1	24.66		mg/Kg		98	80 - 120	0	20
Molybdenum	25.1	25.88		mg/Kg		103	80 - 120	4	20
Nickel	25.1	25.39		mg/Kg		101	80 - 120	1	20
Selenium	25.1	24.85		mg/Kg		99	80 - 120	1	20
Silver	12.6	12.32		mg/Kg		98	80 - 120	3	20
Thallium	25.1	23.23		mg/Kg		92	80 - 120	0	20
Vanadium	25.1	24.65		mg/Kg		98	80 - 120	1	20
Zinc	25.1	26.13		mg/Kg		104	80 - 120	1	20

Lab Sample ID: 570-60879-B-1-U MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		56.2	9.119		mg/Kg	☼	16	1 - 97
Arsenic	8.42		56.2	66.19		mg/Kg	☼	103	72 - 132
Barium	88.9	F1	56.2	195.9	F1	mg/Kg	☼	191	50 - 152
Beryllium	0.530	J	56.2	57.26		mg/Kg	☼	101	61 - 121
Cadmium	ND		56.2	58.00		mg/Kg	☼	103	85 - 121
Chromium	45.5		56.2	118.7		mg/Kg	☼	130	20 - 182
Cobalt	8.61		56.2	67.37		mg/Kg	☼	105	40 - 166
Copper	243		56.2	384.7	4	mg/Kg	☼	252	25 - 157
Lead	52.4		56.2	124.6		mg/Kg	☼	129	62 - 134
Molybdenum	0.691	J F1	56.2	36.83	F1	mg/Kg	☼	64	69 - 123
Nickel	11.6		56.2	71.43		mg/Kg	☼	107	46 - 154
Selenium	ND		56.2	52.34		mg/Kg	☼	93	54 - 132
Silver	1.13	J F1	28.1	2.943	F1	mg/Kg	☼	6	78 - 126
Thallium	ND		56.2	53.76		mg/Kg	☼	96	79 - 115
Vanadium	56.7		56.2	141.2		mg/Kg	☼	150	28 - 178
Zinc	271		56.2	429.1	4	mg/Kg	☼	281	23 - 173

Lab Sample ID: 570-60879-B-1-V MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		56.7	8.676		mg/Kg	☼	15	1 - 97	5	39
Arsenic	8.42		56.7	63.63		mg/Kg	☼	97	72 - 132	4	13
Barium	88.9	F1	56.7	188.7	F1	mg/Kg	☼	176	50 - 152	4	41
Beryllium	0.530	J	56.7	56.21		mg/Kg	☼	98	61 - 121	2	13
Cadmium	ND		56.7	56.13		mg/Kg	☼	99	85 - 121	3	12

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-60879-B-1-V MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	45.5		56.7	115.3		mg/Kg	☼	123	20 - 182	3	15
Cobalt	8.61		56.7	66.96		mg/Kg	☼	103	40 - 166	1	14
Copper	243		56.7	375.0	4	mg/Kg	☼	232	25 - 157	3	22
Lead	52.4		56.7	118.9		mg/Kg	☼	117	62 - 134	5	23
Molybdenum	0.691	J F1	56.7	35.67	F1	mg/Kg	☼	62	69 - 123	3	13
Nickel	11.6		56.7	70.44		mg/Kg	☼	104	46 - 154	1	15
Selenium	ND		56.7	52.97		mg/Kg	☼	93	54 - 132	1	14
Silver	1.13	J F1	28.4	2.957	F1	mg/Kg	☼	6	78 - 126	0	15
Thallium	ND		56.7	51.75		mg/Kg	☼	91	79 - 115	4	11
Vanadium	56.7		56.7	137.2		mg/Kg	☼	142	28 - 178	3	28
Zinc	271		56.7	418.2	4	mg/Kg	☼	259	23 - 173	3	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-157159/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0135	mg/Kg		06/14/21 13:00	06/14/21 16:45	1

Lab Sample ID: LCS 570-157159/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.820	0.8409		mg/Kg		103	85 - 121

Lab Sample ID: LCSD 570-157159/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.833	0.9193		mg/Kg		110	85 - 121	9	10

Lab Sample ID: 570-60879-B-1-R MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.760	F2	1.83	2.380		mg/Kg	☼	89	71 - 137

Lab Sample ID: 570-60879-B-1-S MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.760	F2	1.89	2.862	F2	mg/Kg	☼	111	71 - 137	18	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-154938/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/03/21 16:18	06/03/21 20:41	1

Lab Sample ID: LCS 570-154938/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	36.67		mg/Kg		92	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-154938/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	36.67		mg/Kg		92	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Lab Sample ID: 570-60732-4 MS — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	27.7		47.5	71.21		mg/Kg	☼	92	78 - 114
SGT-HEM (TRPH)	11.9		23.7	35.61		mg/Kg	☼	100	64 - 132

Lab Sample ID: 570-60732-4 MSD — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	27.7		47.3	70.98		mg/Kg	☼	91	78 - 114	0	18
SGT-HEM (TRPH)	11.9		23.7	35.49		mg/Kg	☼	100	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-154704/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.100	0.0840	mg/Kg		06/03/21 00:00	06/03/21 01:35	1

Lab Sample ID: LCS 570-154704/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.502	0.5161		mg/Kg		103	72 - 123

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCSD 570-154704/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide			0.502	0.5165		mg/Kg		103	72 - 123	0	11

Lab Sample ID: 570-60626-A-1-O DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Sulfide	6.31			5.912		mg/Kg	☼			6	20

Lab Sample ID: MB 570-154705/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:48	1

Lab Sample ID: LCS 570-154705/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.4755		mg/Kg		95	72 - 123		

Lab Sample ID: LCSD 570-154705/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5158		mg/Kg		103	72 - 123	8	11

Lab Sample ID: 570-60626-A-1-Q DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-154708/33 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/01/21 18:27	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 570-154708/34 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.302		%		110	80 - 120		

Lab Sample ID: LCSD 570-154708/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	3.148		%		105	80 - 120	5	20

Lab Sample ID: 570-60433-A-28 MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic	0.0971		3.17	3.216		%	☼	98	75 - 125		

Lab Sample ID: 570-60433-A-28 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	0.0971		3.17	3.326		%	☼	102	75 - 125	3	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-60732-1 DU — **Client Sample ID: FDD-B-C3**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 155000

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	44.9			44.8		%				0.05	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-155099/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/03/21 20:30	06/04/21 10:43	1

Lab Sample ID: LCS 570-155099/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	287.6		mg/Kg		115	80 - 120		

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: LCSD 570-155099/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	285.6		mg/Kg		114	80 - 120	1	20

Lab Sample ID: 570-60732-4 MS — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	1.23		29.8	35.01		mg/Kg	☼	113	75 - 125		

Lab Sample ID: 570-60732-4 MSD — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	1.23		29.8	34.44		mg/Kg	☼	112	75 - 125	2	25

Lab Sample ID: 570-60732-4 DU — **Client Sample ID: FDD-D-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	1.23			1.567		mg/Kg	☼			24	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCSD 570-154993/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	6.067		ug/Kg	121	54 - 150	38 - 166	
4,4'-DDE	5.00	6.009		ug/Kg	120	49 - 146	33 - 162	
4,4'-DDT	5.00	6.422		ug/Kg	128	52 - 147	36 - 163	
Aldrin	5.00	4.893		ug/Kg	98	28 - 116	13 - 131	
alpha-BHC	5.00	5.538		ug/Kg	111	44 - 123	31 - 136	
beta-BHC	5.00	5.625		ug/Kg	113	48 - 127	35 - 140	
delta-BHC	5.00	5.752		ug/Kg	115	10 - 149	1 - 172	
Dieldrin	5.00	5.768		ug/Kg	115	48 - 132	34 - 146	
alpha-Chlordane	5.00	5.631		ug/Kg	113	48 - 125	35 - 138	
Endosulfan I	5.00	5.987		ug/Kg	120	44 - 125	31 - 139	
Endosulfan II	5.00	6.738		ug/Kg	135	47 - 136	32 - 151	
Endosulfan sulfate	5.00	6.929	*+ me	ug/Kg	139	46 - 133	32 - 148	ME
Endrin	5.00	5.940		ug/Kg	119	43 - 142	27 - 159	
Endrin aldehyde	5.00	6.093		ug/Kg	122	29 - 141	10 - 160	
gamma-BHC	5.00	6.212		ug/Kg	124	44 - 126	30 - 140	
Heptachlor	5.00	5.484		ug/Kg	110	50 - 123	38 - 135	
Heptachlor epoxide	5.00	5.821		ug/Kg	116	49 - 125	36 - 138	
Methoxychlor	5.00	6.529		ug/Kg	131	49 - 145	33 - 161	
gamma-Chlordane	5.00	5.877		ug/Kg	118	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	1

ME = Marginal Exceedance

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

GC/MS Semi VOA

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 154813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Organotin Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Organotin Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Organotin Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Organotin Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Organotin Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Organotin Prep	
MB 570-154813/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-154813/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-154813/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-60732-6 MS	FDD-D-C3	Total/NA	Sediment	Organotin Prep	
570-60732-6 MSD	FDD-D-C3	Total/NA	Sediment	Organotin Prep	

Prep Batch: 154994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3541	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3541	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3541	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3541	154700
MB 570-154994/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154994/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154994/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	3541	154700

Prep Batch: 154995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3541	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3541	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3541	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3541	154700

GC/MS Semi VOA (Continued)

Prep Batch: 154995 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-154995/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154995/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154995/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	3541	154700

Prep Batch: 154999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3541	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3541	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3541	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3541	154700
MB 570-154999/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154999/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154999/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	3541	154700

Analysis Batch: 155150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Organotins SIM	154813
570-60732-2	FDD-B-C7	Total/NA	Sediment	Organotins SIM	154813
570-60732-3	FDD-B-C8	Total/NA	Sediment	Organotins SIM	154813
570-60732-4	FDD-D-C1	Total/NA	Sediment	Organotins SIM	154813
570-60732-5	FDD-D-C2	Total/NA	Sediment	Organotins SIM	154813
570-60732-6	FDD-D-C3	Total/NA	Sediment	Organotins SIM	154813
MB 570-154813/1-A	Method Blank	Total/NA	Solid	Organotins SIM	154813
570-60732-6 MS	FDD-D-C3	Total/NA	Sediment	Organotins SIM	154813
570-60732-6 MSD	FDD-D-C3	Total/NA	Sediment	Organotins SIM	154813

Analysis Batch: 155808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-154813/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	154813
LCSD 570-154813/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	154813

Analysis Batch: 156500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-5	FDD-D-C2	Total/NA	Sediment	8270D TQ	154999
MB 570-154999/1-A	Method Blank	Total/NA	Solid	8270D TQ	154999
LCS 570-154999/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	154999
LCSD 570-154999/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	154999
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	8270D TQ	154999
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	8270D TQ	154999

Analysis Batch: 156682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8270C SIM	154995
570-60732-2	FDD-B-C7	Total/NA	Sediment	8270C SIM	154995
570-60732-3	FDD-B-C8	Total/NA	Sediment	8270C SIM	154995

GC/MS Semi VOA (Continued)

Analysis Batch: 156682 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-4	FDD-D-C1	Total/NA	Sediment	8270C SIM	154995
570-60732-5	FDD-D-C2	Total/NA	Sediment	8270C SIM	154995
570-60732-6	FDD-D-C3	Total/NA	Sediment	8270C SIM	154995
MB 570-154995/1-A	Method Blank	Total/NA	Solid	8270C SIM	154995
LCS 570-154995/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	154995
LCSD 570-154995/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	154995
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	8270C SIM	154995
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	8270C SIM	154995

Analysis Batch: 156828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8270D TQ	154999
570-60732-2	FDD-B-C7	Total/NA	Sediment	8270D TQ	154999
570-60732-3	FDD-B-C8	Total/NA	Sediment	8270D TQ	154999
570-60732-4	FDD-D-C1	Total/NA	Sediment	8270D TQ	154999
570-60732-6	FDD-D-C3	Total/NA	Sediment	8270D TQ	154999

Analysis Batch: 157139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8270C SIM CON	154994
570-60732-2	FDD-B-C7	Total/NA	Sediment	8270C SIM CON	154994
570-60732-3	FDD-B-C8	Total/NA	Sediment	8270C SIM CON	154994
570-60732-4	FDD-D-C1	Total/NA	Sediment	8270C SIM CON	154994
570-60732-5	FDD-D-C2	Total/NA	Sediment	8270C SIM CON	154994
570-60732-6	FDD-D-C3	Total/NA	Sediment	8270C SIM CON	154994
MB 570-154994/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	154994
LCS 570-154994/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	154994
LCSD 570-154994/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	154994
570-60732-5 MS	FDD-D-C2	Total/NA	Sediment	8270C SIM CON	154994
570-60732-5 MSD	FDD-D-C2	Total/NA	Sediment	8270C SIM CON	154994

GC Semi VOA

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

GC Semi VOA

Prep Batch: 154993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3541	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3541	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3541	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	3541	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3541	154700
MB 570-154993/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154993/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-154993/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154993/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-154993/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	3541	154700
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	3541	154700

Cleanup Batch: 155602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 156525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8082	154993
570-60732-2	FDD-B-C7	Total/NA	Sediment	8082	154993
570-60732-3	FDD-B-C8	Total/NA	Sediment	8082	154993
570-60732-4	FDD-D-C1	Total/NA	Sediment	8082	154993
570-60732-5	FDD-D-C2	Total/NA	Sediment	8082	154993
570-60732-6	FDD-D-C3	Total/NA	Sediment	8082	154993
MB 570-154993/1-A	Method Blank	Total/NA	Solid	8082	154993
LCS 570-154993/6-A	Lab Control Sample	Total/NA	Solid	8082	154993
LCSD 570-154993/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	154993
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	8082	154993
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	8082	154993

Analysis Batch: 156549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8081A	154993
570-60732-2	FDD-B-C7	Total/NA	Sediment	8081A	154993
570-60732-3	FDD-B-C8	Total/NA	Sediment	8081A	154993
570-60732-4	FDD-D-C1	Total/NA	Sediment	8081A	154993
570-60732-5	FDD-D-C2	Total/NA	Sediment	8081A	154993
570-60732-6	FDD-D-C3	Total/NA	Sediment	8081A	154993
MB 570-154993/1-A	Method Blank	Total/NA	Solid	8081A	154993
LCS 570-154993/2-A	Lab Control Sample	Total/NA	Solid	8081A	154993
LCSD 570-154993/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	154993
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	8081A	154993
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	8081A	154993

GC Semi VOA

Analysis Batch: 157131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	8015B	157160
570-60732-2	FDD-B-C7	Total/NA	Sediment	8015B	157160
570-60732-3	FDD-B-C8	Total/NA	Sediment	8015B	157160
570-60732-4	FDD-D-C1	Total/NA	Sediment	8015B	157160
570-60732-5	FDD-D-C2	Total/NA	Sediment	8015B	157160
570-60732-6	FDD-D-C3	Total/NA	Sediment	8015B	157160
MB 570-157160/1-A	Method Blank	Total/NA	Solid	8015B	157160
LCS 570-157160/2-A	Lab Control Sample	Total/NA	Solid	8015B	157160
LCSD 570-157160/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	157160
570-61395-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B	157160
570-61395-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	157160

Prep Batch: 157160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3550C	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3550C	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3550C	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3550C	155602
570-60732-5	FDD-D-C2	Total/NA	Sediment	3550C	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3550C	154700
MB 570-157160/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-157160/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-157160/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-61395-A-1-F MS	Matrix Spike	Total/NA	Solid	3550C	
570-61395-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

HPLC/IC

Cleanup Batch: 155602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3060A	155602
570-60732-2	FDD-B-C7	Total/NA	Sediment	3060A	155602
570-60732-3	FDD-B-C8	Total/NA	Sediment	3060A	155602
570-60732-4	FDD-D-C1	Total/NA	Sediment	3060A	155602
570-60732-5	FDD-D-C2	Total/NA	Sediment	3060A	155602
570-60732-6	FDD-D-C3	Total/NA	Sediment	3060A	155602
MB 570-156160/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	3060A	

HPLC/IC (Continued)

Prep Batch: 156160 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	3060A	
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

Analysis Batch: 156295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	7199	156160
570-60732-2	FDD-B-C7	Total/NA	Sediment	7199	156160
570-60732-3	FDD-B-C8	Total/NA	Sediment	7199	156160
570-60732-4	FDD-D-C1	Total/NA	Sediment	7199	156160
570-60732-5	FDD-D-C2	Total/NA	Sediment	7199	156160
570-60732-6	FDD-D-C3	Total/NA	Sediment	7199	156160
MB 570-156160/1-A	Method Blank	Total/NA	Solid	7199	156160
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	7199	156160
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	156160
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	7199	156160
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	156160

Metals

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-B-1-R MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60879-B-1-S MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-60879-B-1-U MS ^20	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60879-B-1-V MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 157159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	7471A	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	7471A	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	7471A	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	7471A	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	7471A	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	7471A	154700

Metals (Continued)

Prep Batch: 157159 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-157159/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-157159/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-157159/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-60879-B-1-R MS	Matrix Spike	Total/NA	Solid	7471A	155128
570-60879-B-1-S MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	155128

Prep Batch: 157167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	3050B	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	3050B	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	3050B	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	3050B	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	3050B	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	3050B	154700
MB 570-157167/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-157167/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-157167/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-60879-B-1-U MS ^20	Matrix Spike	Total/NA	Solid	3050B	155128
570-60879-B-1-V MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	155128

Analysis Batch: 157171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	7471A	157159
570-60732-2	FDD-B-C7	Total/NA	Sediment	7471A	157159
570-60732-3	FDD-B-C8	Total/NA	Sediment	7471A	157159
570-60732-4	FDD-D-C1	Total/NA	Sediment	7471A	157159
570-60732-5	FDD-D-C2	Total/NA	Sediment	7471A	157159
570-60732-6	FDD-D-C3	Total/NA	Sediment	7471A	157159
MB 570-157159/1-A	Method Blank	Total/NA	Solid	7471A	157159
LCS 570-157159/2-A	Lab Control Sample	Total/NA	Solid	7471A	157159
LCSD 570-157159/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	157159
570-60879-B-1-R MS	Matrix Spike	Total/NA	Solid	7471A	157159
570-60879-B-1-S MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	157159

Analysis Batch: 157354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	6020	157167
570-60732-2	FDD-B-C7	Total/NA	Sediment	6020	157167
570-60732-3	FDD-B-C8	Total/NA	Sediment	6020	157167
570-60732-4	FDD-D-C1	Total/NA	Sediment	6020	157167
570-60732-5	FDD-D-C2	Total/NA	Sediment	6020	157167
570-60732-6	FDD-D-C3	Total/NA	Sediment	6020	157167
MB 570-157167/1-A ^20	Method Blank	Total/NA	Solid	6020	157167
LCS 570-157167/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	157167
LCSD 570-157167/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	157167
570-60879-B-1-U MS ^20	Matrix Spike	Total/NA	Solid	6020	157167
570-60879-B-1-V MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	157167

General Chemistry

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	Homogenize Prep	

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Soluble	Sediment	Homogenize Prep	
570-60732-1	FDD-B-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Soluble	Sediment	Homogenize Prep	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Soluble	Sediment	Homogenize Prep	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Soluble	Sediment	Homogenize Prep	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Soluble	Sediment	Homogenize Prep	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Soluble	Sediment	Homogenize Prep	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Homogenize Prep	
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	
570-60732-4 DU	FDD-D-C1	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 154704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	9030B	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	9030B	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	9030B	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	9030B	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	9030B	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	9030B	154700
MB 570-154704/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	9030B	154601

Leach Batch: 154705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Soluble	Sediment	DI Leach	154700
570-60732-2	FDD-B-C7	Soluble	Sediment	DI Leach	154700

General Chemistry (Continued)

Leach Batch: 154705 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-3	FDD-B-C8	Soluble	Sediment	DI Leach	154700
570-60732-4	FDD-D-C1	Soluble	Sediment	DI Leach	154700
570-60732-5	FDD-D-C2	Soluble	Sediment	DI Leach	154700
570-60732-6	FDD-D-C3	Soluble	Sediment	DI Leach	154700
MB 570-154705/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	DI Leach	154601

Analysis Batch: 154706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Soluble	Sediment	376.2 LL	154705
570-60732-1	FDD-B-C3	Total/NA	Sediment	376.2 LL	154704
570-60732-2	FDD-B-C7	Soluble	Sediment	376.2 LL	154705
570-60732-2	FDD-B-C7	Total/NA	Sediment	376.2 LL	154704
570-60732-3	FDD-B-C8	Soluble	Sediment	376.2 LL	154705
570-60732-3	FDD-B-C8	Total/NA	Sediment	376.2 LL	154704
570-60732-4	FDD-D-C1	Soluble	Sediment	376.2 LL	154705
570-60732-4	FDD-D-C1	Total/NA	Sediment	376.2 LL	154704
570-60732-5	FDD-D-C2	Soluble	Sediment	376.2 LL	154705
570-60732-5	FDD-D-C2	Total/NA	Sediment	376.2 LL	154704
570-60732-6	FDD-D-C3	Soluble	Sediment	376.2 LL	154705
570-60732-6	FDD-D-C3	Total/NA	Sediment	376.2 LL	154704
MB 570-154704/1-A	Method Blank	Total/NA	Solid	376.2 LL	154704
MB 570-154705/1-A	Method Blank	Soluble	Solid	376.2 LL	154705
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	154704
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	154705
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	154704
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	154705
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	376.2 LL	154704
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	376.2 LL	154705

Analysis Batch: 154708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	9060A	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	9060A	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	9060A	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	9060A	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	9060A	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	9060A	154700
MB 570-154708/33	Method Blank	Total/NA	Solid	9060A	
LCS 570-154708/34	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-154708/35	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-60433-A-28 MS	Matrix Spike	Total/NA	Solid	9060A	
570-60433-A-28 MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	

Prep Batch: 154938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	1664A	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	1664A	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	1664A	154700

General Chemistry (Continued)

Prep Batch: 154938 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-4	FDD-D-C1	Total/NA	Sediment	1664A	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	1664A	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	1664A	154700
MB 570-154938/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-154938/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-154938/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	1664A	154700
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	1664A	154700

Analysis Batch: 154986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	1664A	154938
570-60732-2	FDD-B-C7	Total/NA	Sediment	1664A	154938
570-60732-3	FDD-B-C8	Total/NA	Sediment	1664A	154938
570-60732-4	FDD-D-C1	Total/NA	Sediment	1664A	154938
570-60732-5	FDD-D-C2	Total/NA	Sediment	1664A	154938
570-60732-6	FDD-D-C3	Total/NA	Sediment	1664A	154938
MB 570-154938/1-A	Method Blank	Total/NA	Solid	1664A	154938
LCS 570-154938/2-A	Lab Control Sample	Total/NA	Solid	1664A	154938
LCSD 570-154938/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	154938
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	1664A	154938
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	1664A	154938

Analysis Batch: 155000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	Moisture	
570-60732-2	FDD-B-C7	Total/NA	Sediment	Moisture	
570-60732-3	FDD-B-C8	Total/NA	Sediment	Moisture	
570-60732-4	FDD-D-C1	Total/NA	Sediment	Moisture	
570-60732-5	FDD-D-C2	Total/NA	Sediment	Moisture	
570-60732-6	FDD-D-C3	Total/NA	Sediment	Moisture	
570-60732-1 DU	FDD-B-C3	Total/NA	Sediment	Moisture	

Prep Batch: 155099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-2	FDD-B-C7	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-3	FDD-B-C8	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-4	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-5	FDD-D-C2	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-6	FDD-D-C3	Total/NA	Sediment	SM4500 NH3 B LL	154700
MB 570-155099/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-155099/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-155099/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	

General Chemistry (Continued)

Prep Batch: 155099 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 B LL	154700
570-60732-4 DU	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 B LL	154700

Analysis Batch: 155106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-2	FDD-B-C7	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-3	FDD-B-C8	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-4	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-5	FDD-D-C2	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-6	FDD-D-C3	Total/NA	Sediment	SM4500 NH3 C LL	155099
MB 570-155099/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	155099
LCS 570-155099/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	155099
LCSD 570-155099/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	155099
570-60732-4 MS	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-4 MSD	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 C LL	155099
570-60732-4 DU	FDD-D-C1	Total/NA	Sediment	SM4500 NH3 C LL	155099

Analysis Batch: 157473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	7199 CR3	
570-60732-2	FDD-B-C7	Total/NA	Sediment	7199 CR3	
570-60732-3	FDD-B-C8	Total/NA	Sediment	7199 CR3	
570-60732-4	FDD-D-C1	Total/NA	Sediment	7199 CR3	
570-60732-5	FDD-D-C2	Total/NA	Sediment	7199 CR3	
570-60732-6	FDD-D-C3	Total/NA	Sediment	7199 CR3	

Geotechnical

Analysis Batch: 156167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-1	FDD-B-C3	Total/NA	Sediment	D4464	
570-60732-2	FDD-B-C7	Total/NA	Sediment	D4464	
570-60732-3	FDD-B-C8	Total/NA	Sediment	D4464	
570-60732-4	FDD-D-C1	Total/NA	Sediment	D4464	
570-60732-5	FDD-D-C2	Total/NA	Sediment	D4464	
570-60732-6	FDD-D-C3	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-B-C3

Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.14 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 12:27	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.03 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 15:55	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.26 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 18:44	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.16 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 18:23	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3550C			9.44 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 18:38	N5Y3	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.14 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 07:34	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.14 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 01:03	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 18:08	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			2.05 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:12	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.61 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:07	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.2 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-B-C3

Lab Sample ID: 570-60732-1
Date Collected: 06/01/21 08:00
Matrix: Sediment
Date Received: 06/02/21 18:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			19.96 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:53	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.46 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		200	7.5 mL	7.5 mL	154706	06/03/21 01:40	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	208.0 mg	208.0 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 17:48	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C7

Lab Sample ID: 570-60732-2
Date Collected: 06/01/21 11:05
Matrix: Sediment
Date Received: 06/02/21 18:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.26 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 12:46	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.20 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 16:20	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.00 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 19:20	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.14 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 18:40	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3550C			10.66 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 18:59	N5Y3	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-B-C7

Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.16 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 07:49	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.16 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 01:21	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 18:19	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			2.00 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:16	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.60 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:09	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.1 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			19.95 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:54	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.22 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	154706	06/03/21 01:41	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	209.2 mg	209.2 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 17:55	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-B-C8

Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.25 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 13:05	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.24 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 16:45	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.02 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 19:57	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.27 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 18:58	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3550C			10.40 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 19:20	N5Y3	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.08 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 08:03	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.08 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 01:39	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 18:30	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			2.01 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:19	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.63 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:11	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.0 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-B-C8

Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			19.98 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:55	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.01 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	154706	06/03/21 01:42	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	209.5 mg	209.5 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 18:04	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-D-C1

Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.08 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 13:23	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.06 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 17:09	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.17 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 20:34	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.08 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 19:15	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3550C			9.51 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 19:41	N5Y3	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-D-C1

Date Collected: 06/01/21 08:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.10 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 08:17	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.10 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 13:35	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:03	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			2.07 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:22	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.61 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:13	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.1 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			19.97 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:56	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.03 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		2	7.5 mL	7.5 mL	154706	06/03/21 01:43	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	202.8 mg	202.8 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 18:12	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-D-C2

Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.03 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 13:42	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.08 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 17:34	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.04 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156500	06/10/21 22:13	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.03 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 19:33	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3550C			10.58 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 20:02	N5Y3	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.16 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 08:31	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.16 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 13:53	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.54 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:14	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			1.97 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:25	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.57 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:17	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.1 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-D-C2

Date Collected: 06/01/21 11:05
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			19.99 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:57	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.11 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:44	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	202.1 mg	202.1 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:44	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 18:18	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-D-C3

Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.29 g	2 mL	154995	06/03/21 21:53	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 14:01	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.03 g	2 mL	154994	06/03/21 21:50	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 17:58	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.08 g	2 mL	154999	06/03/21 21:55	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 21:11	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.11 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 19:50	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3550C			9.60 g	10 mL	157160	06/14/21 13:07	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157131	06/14/21 21:05	N5Y3	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Client Sample ID: FDD-D-C3

Date Collected: 06/01/21 14:00
Date Received: 06/02/21 18:45

Lab Sample ID: 570-60732-6

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.20 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 08:46	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3541			20.20 g	2 mL	154993	06/03/21 21:46	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 14:11	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:25	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	3050B			1.95 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:28	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	7471A			.58 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:19	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	1664A			30.0 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Soluble	Leach	DI Leach			20.00 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:58	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	9030B			20.03 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:45	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Analysis	9060A		1	207.5 mg	207.5 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155000	06/03/21 22:10	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154700	06/02/21 21:20	UAPD	ECL 3
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 18:24	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60732-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-60732-1	FDD-B-C3	Sediment	06/01/21 08:00	06/02/21 18:45	
570-60732-2	FDD-B-C7	Sediment	06/01/21 11:05	06/02/21 18:45	
570-60732-3	FDD-B-C8	Sediment	06/01/21 14:00	06/02/21 18:45	
570-60732-4	FDD-D-C1	Sediment	06/01/21 08:00	06/02/21 18:45	
570-60732-5	FDD-D-C2	Sediment	06/01/21 11:05	06/02/21 18:45	
570-60732-6	FDD-D-C3	Sediment	06/01/21 14:00	06/02/21 18:45	

60732

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us

CHAIN OF CUSTODY RECORD

WO #/ LAB USE ONLY

DATE: 6/2/2021

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL. 858-300-4300 E-MAIL. kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O. NO: 3151197955 04

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details.

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376.2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44), (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)		
1	FDD-B-C3	6/1/21	0800	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
2	FDD-B-C7	6/1/21	1105	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3	FDD-B-C8	6/1/21	1400	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4	FDD-D-C1	6/1/21	0800	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	FDD-D-C2	6/1/21	1105	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	FDD-D-C3	6/1/21	1400	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

570-60732 Chain of Custody

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
[signature]	[signature] ECI	6/2/21	1419
[signature]	[signature]	06/02/21	1845

2.3/2.7 SCS

06/02/14 Revision

7/5/2021 (Rev. 1)

60732

Analyte	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0.10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C.A., D W Brown, D G Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989. A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18.

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes. allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion), ASTM = ASTM International, GC = gas chromatography; (M) = modified; RL = reporting limit; mg/kg = milligrams per kilogram, MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration, SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration, TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration, USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-60732-1

Login Number: 60732
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-60879-1
Laboratory Sample Delivery Group: 3151182049 04
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/30/2021 3:42:34 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 6
Surrogate Summary 43
QC Sample Results 48
QC Association Summary 74
Lab Chronicle 85
Certification Summary 93
Method Summary 95
Sample Summary 96
Chain of Custody 97
Receipt Checklists 99

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-60879-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-60879-1

Comments
No additional comments.

Receipt
The samples were received on 6/3/2021 7:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.0º C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with batch 570-156549 recovered above the upper control limit for 4,4'-DDD, Aldrin, delta-BHC, Endrin alpha-BHC and gamma-BHC. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 570-156549/33) and (CCV 570-156549/6).

Method 8081A: The continuing calibration verification (CCV) associated with 570-156549 recovered high and outside the control limits for Tetrachloro-m-xylene and DCB Decachlorobiphenyl (Surr) on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCV 570-156549/33) and (CCV 570-156549/6).

Method 8081A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-154993 and analytical batch 570-156549 recovered outside control limits for the following analytes: Endosulfan sulfate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020: Due to the high concentration of Copper and Zinc, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 570-155128 and 570-157167 and analytical batch 570-157354 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method 7471A: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 570-155128 and 570-157159 and analytical batch 570-157171 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-157461 was flagged as being outside control limits due to a LIMS limitation: (570-61058-B-1) and (570-61058-A-1 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.43	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-28	ND		0.43	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-37	ND		0.43	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-44	ND		0.43	0.33	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-49	ND		0.43	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-52	ND		0.43	0.41	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-66	**4.4**		0.43	0.26	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-70	ND		0.43	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-74	ND		0.43	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-77	ND		0.43	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-81	ND		0.43	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-87	ND		0.43	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-99	**8.5**		0.43	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-101	**11**		0.43	0.095	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-105	ND		0.43	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-110	**7.1**		0.43	0.072	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-114	ND		0.43	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-118	**7.4**		0.43	0.074	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-119	ND		0.43	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-123	ND		0.43	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-126	ND		0.43	0.12	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-128	ND		0.43	0.26	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-132/153	**20**		0.86	0.35	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-138/158	**19**		0.86	0.75	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-149	**12**		0.43	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-151	ND		0.43	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-156	ND		0.43	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-157	ND		0.43	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-167	ND		0.43	0.28	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-168	ND		0.43	0.31	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-169	ND		0.43	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-170	ND		0.43	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-177	**2.9**		0.43	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-180	**11**		0.43	0.20	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-183	**2.7**		0.43	0.20	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-187	**9.2**		0.43	0.22	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-189	ND		0.43	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-194	ND		0.43	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-201	ND		0.43	0.073	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
PCB-206	ND		0.43	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1
Polychlorinated biphenyls, Total	**130**		0.86	0.75	ug/Kg	☼	06/04/21 18:00	06/14/21 18:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*71*		*20 - 139*	*06/04/21 18:00*	*06/14/21 18:23*	*1*
p-Terphenyl-d14	*89*		*37 - 165*	*06/04/21 18:00*	*06/14/21 18:23*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.41	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-28	ND		0.41	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-37	ND		0.41	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-44	ND		0.41	0.32	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-49	**6.2**		0.41	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-52	**5.3**		0.41	0.39	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-66	**5.2**		0.41	0.26	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-70	ND		0.41	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-74	ND		0.41	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-77	ND		0.41	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-81	ND		0.41	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-87	ND		0.41	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-99	**60**		0.41	0.098	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-101	**32**		0.41	0.092	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-105	ND		0.41	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-110	**15**		0.41	0.070	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-114	ND		0.41	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-118	**34**		0.41	0.072	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-119	ND		0.41	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-123	ND		0.41	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-126	ND		0.41	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-128	ND		0.41	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-132/153	**150**		0.83	0.34	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-138/158	**62**		0.83	0.73	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-149	**140**		0.41	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-151	**42**		0.41	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-156	ND		0.41	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-157	ND		0.41	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-167	ND		0.41	0.28	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-168	ND		0.41	0.30	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-169	ND		0.41	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-170	**24**		0.41	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-177	**8.5**		0.41	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-180	**63**		0.41	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-183	**17**		0.41	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-187	**94**		0.41	0.21	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-189	ND		0.41	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-194	**24**		0.41	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-201	**4.3**		0.41	0.071	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
PCB-206	**9.1**		0.41	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1
Polychlorinated biphenyls, Total	**910**		0.83	0.73	ug/Kg	☼	06/04/21 18:00	06/14/21 18:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*20 - 139*	*06/04/21 18:00*	*06/14/21 18:48*	*1*
p-Terphenyl-d14	*91*		*37 - 165*	*06/04/21 18:00*	*06/14/21 18:48*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.40	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-28	ND		0.40	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-37	ND		0.40	0.12	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-44	ND		0.40	0.30	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-49	ND		0.40	0.099	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-52	ND		0.40	0.38	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-66	ND		0.40	0.25	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-70	ND		0.40	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-74	ND		0.40	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-77	ND		0.40	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-81	ND		0.40	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-87	ND		0.40	0.22	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-99	**5.8**		0.40	0.095	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-101	**11**		0.40	0.089	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-105	ND		0.40	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-110	**7.6**		0.40	0.068	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-114	ND		0.40	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-118	**7.3**		0.40	0.069	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-119	ND		0.40	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-123	ND		0.40	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-126	ND		0.40	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-128	ND		0.40	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-132/153	**20**		0.80	0.32	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-138/158	**20**		0.80	0.70	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-149	**14**		0.40	0.24	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-151	ND		0.40	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-156	ND		0.40	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-157	ND		0.40	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-167	ND		0.40	0.27	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-168	ND		0.40	0.29	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-169	ND		0.40	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-170	ND		0.40	0.22	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-177	**3.0**		0.40	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-180	**12**		0.40	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-183	**2.9**		0.40	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-187	**8.3**		0.40	0.21	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-189	ND		0.40	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-194	ND		0.40	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-201	ND		0.40	0.068	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
PCB-206	ND		0.40	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1
Polychlorinated biphenyls, Total	**120**		0.80	0.70	ug/Kg	☼	06/04/21 18:00	06/14/21 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*20 - 139*	*06/04/21 18:00*	*06/14/21 19:12*	*1*
p-Terphenyl-d14	*92*		*37 - 165*	*06/04/21 18:00*	*06/14/21 19:12*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.24	0.078	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-28	ND		0.24	0.084	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-37	ND		0.24	0.073	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-44	ND		0.24	0.18	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-49	ND		0.24	0.060	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-52	ND		0.24	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-66	ND		0.24	0.15	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-70	ND		0.24	0.086	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-74	ND		0.24	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-77	ND		0.24	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-81	ND		0.24	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-87	ND		0.24	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-99	ND		0.24	0.057	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-101	ND		0.24	0.053	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-105	ND		0.24	0.064	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-110	ND		0.24	0.041	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-114	ND		0.24	0.089	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-118	ND		0.24	0.042	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-119	ND		0.24	0.075	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-123	ND		0.24	0.088	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-126	ND		0.24	0.066	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-128	ND		0.24	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-132/153	ND		0.48	0.20	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-138/158	ND		0.48	0.42	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-149	ND		0.24	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-151	ND		0.24	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-156	ND		0.24	0.093	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-157	ND		0.24	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-167	ND		0.24	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-168	ND		0.24	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-169	ND		0.24	0.078	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-170	ND		0.24	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-177	ND		0.24	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-180	ND		0.24	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-183	ND		0.24	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-187	ND		0.24	0.12	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-189	ND		0.24	0.077	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-194	ND		0.24	0.089	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-201	ND		0.24	0.041	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
PCB-206	ND		0.24	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1
Polychlorinated biphenyls, Total	ND		0.48	0.42	ug/Kg	☼	06/04/21 18:00	06/14/21 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*20 - 139*	*06/04/21 18:00*	*06/14/21 19:37*	*1*
p-Terphenyl-d14	*82*		*37 - 165*	*06/04/21 18:00*	*06/14/21 19:37*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.28	0.092	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-28	ND		0.28	0.098	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-37	ND		0.28	0.086	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-44	ND		0.28	0.21	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-49	ND		0.28	0.070	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-52	ND		0.28	0.27	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-66	ND		0.28	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-70	ND		0.28	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-74	ND		0.28	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-77	ND		0.28	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-81	ND		0.28	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-87	ND		0.28	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-99	ND		0.28	0.067	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-101	ND		0.28	0.063	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-105	ND		0.28	0.075	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-110	ND		0.28	0.048	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-114	ND		0.28	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-118	ND		0.28	0.049	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-119	ND		0.28	0.088	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-123	ND		0.28	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-126	ND		0.28	0.078	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-128	ND		0.28	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-132/153	ND		0.56	0.23	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-138/158	ND		0.56	0.50	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-149	ND		0.28	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-151	ND		0.28	0.12	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-156	ND		0.28	0.11	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-157	ND		0.28	0.12	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-167	ND		0.28	0.19	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-168	ND		0.28	0.20	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-169	ND		0.28	0.092	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-170	ND		0.28	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-177	ND		0.28	0.17	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-180	ND		0.28	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-183	ND		0.28	0.13	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-187	ND		0.28	0.14	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-189	ND		0.28	0.091	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-194	ND		0.28	0.10	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-201	ND		0.28	0.048	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
PCB-206	ND		0.28	0.16	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1
Polychlorinated biphenyls, Total	ND		0.56	0.50	ug/Kg	☼	06/04/21 18:00	06/14/21 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*	*06/04/21 18:00*	*06/14/21 20:02*	*1*
p-Terphenyl-d14	*84*		*37 - 165*	*06/04/21 18:00*	*06/14/21 20:02*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		21	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
1-Methylnaphthalene	ND		21	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
1-Methylphenanthrene	ND		21	4.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,4,5-Trichlorophenol	ND		21	2.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,4,6-Trichlorophenol	ND		21	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,4-Dichlorophenol	ND		21	4.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,4-Dimethylphenol	ND		1100	5.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,4-Dinitrophenol	ND		1100	130	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2,6-Dimethylnaphthalene	**48**		21	4.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2-Chlorophenol	ND		21	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2-Methylnaphthalene	**4.9**	**J**	21	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2-Methylphenol	ND		21	4.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
2-Nitrophenol	ND		1100	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
3/4-Methylphenol	ND		43	7.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
4,6-Dinitro-2-methylphenol	ND		1100	140	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
4-Chloro-3-methylphenol	ND		21	4.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Acenaphthene	**6.2**	**J**	21	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Acenaphthylene	**160**		21	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Anthracene	**150**		21	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[a]anthracene	**130**		21	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[a]pyrene	**800**		21	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[b]fluoranthene	**920**		21	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[e]pyrene	**640**		21	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[g,h,i]perylene	**270**		21	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Benzo[k]fluoranthene	**710**		21	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Biphenyl	ND		21	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Bis(2-ethylhexyl) phthalate	**220**	**B**	110	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Butyl benzyl phthalate	ND		110	4.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Chrysene	**230**		21	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Dibenz(a,h)anthracene	**130**		21	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Diethyl phthalate	**10**	**J B**	110	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Dimethyl phthalate	ND		110	4.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Di-n-butyl phthalate	**42**	**J B**	110	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Di-n-octyl phthalate	ND		110	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Fluoranthene	**110**		21	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Fluorene	ND		21	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Indeno[1,2,3-cd]pyrene	**340**		21	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Naphthalene	**6.5**	**J**	21	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Pentachlorophenol	ND		1100	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Phenanthrene	**31**		21	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1
Pyrene	**150**		21	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*55*		*32 - 143*	*06/04/21 18:03*	*06/11/21 14:19*	*1*
2-Fluorophenol	*45*		*15 - 138*	*06/04/21 18:03*	*06/11/21 14:19*	*1*
Nitrobenzene-d5	*52*		*18 - 162*	*06/04/21 18:03*	*06/11/21 14:19*	*1*
Phenol-d6	*48*		*17 - 141*	*06/04/21 18:03*	*06/11/21 14:19*	*1*
p-Terphenyl-d14	*62*		*34 - 148*	*06/04/21 18:03*	*06/11/21 14:19*	*1*
2-Fluorobiphenyl (Surr)	*60*		*14 - 146*	*06/04/21 18:03*	*06/11/21 14:19*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		21	3.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
1-Methylnaphthalene	**13**	**J**	21	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
1-Methylphenanthrene	ND		21	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,4,5-Trichlorophenol	ND		21	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,4,6-Trichlorophenol	ND		21	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,4-Dichlorophenol	ND		21	4.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,4-Dimethylphenol	ND		1000	5.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,4-Dinitrophenol	ND		1000	120	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2,6-Dimethylnaphthalene	**43**		21	4.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2-Chlorophenol	ND		21	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2-Methylnaphthalene	**13**	**J**	21	3.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2-Methylphenol	ND		21	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
2-Nitrophenol	ND		1000	3.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
3/4-Methylphenol	ND		41	7.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
4,6-Dinitro-2-methylphenol	ND		1000	140	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
4-Chloro-3-methylphenol	ND		21	4.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Acenaphthene	**7.2**	**J**	21	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Acenaphthylene	**120**		21	3.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Anthracene	**130**		21	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[a]anthracene	**130**		21	2.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[a]pyrene	**880**		21	2.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[b]fluoranthene	**880**		21	2.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[e]pyrene	**460**		21	3.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[g,h,i]perylene	**330**		21	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Benzo[k]fluoranthene	**780**		21	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Biphenyl	ND		21	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Bis(2-ethylhexyl) phthalate	**260**	**B**	100	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Butyl benzyl phthalate	ND		100	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Chrysene	**200**		21	2.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Dibenz(a,h)anthracene	**130**		21	2.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Diethyl phthalate	ND		100	3.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Dimethyl phthalate	**6.9**	**J**	100	4.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Di-n-butyl phthalate	**42**	**J B**	100	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Di-n-octyl phthalate	ND		100	3.9	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Fluoranthene	**120**		21	3.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Fluorene	ND		21	3.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Indeno[1,2,3-cd]pyrene	**370**		21	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Naphthalene	**7.6**	**J**	21	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Pentachlorophenol	ND		1000	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Phenanthrene	**38**		21	3.5	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1
Pyrene	**150**		21	3.3	ug/Kg	☼	06/04/21 18:03	06/11/21 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*73*		*32 - 143*	*06/04/21 18:03*	*06/11/21 14:38*	*1*
2-Fluorophenol	*56*		*15 - 138*	*06/04/21 18:03*	*06/11/21 14:38*	*1*
Nitrobenzene-d5	*64*		*18 - 162*	*06/04/21 18:03*	*06/11/21 14:38*	*1*
Phenol-d6	*61*		*17 - 141*	*06/04/21 18:03*	*06/11/21 14:38*	*1*
p-Terphenyl-d14	*72*		*34 - 148*	*06/04/21 18:03*	*06/11/21 14:38*	*1*
2-Fluorobiphenyl (Surr)	*73*		*14 - 146*	*06/04/21 18:03*	*06/11/21 14:38*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		20	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
1-Methylnaphthalene	ND		20	2.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
1-Methylphenanthrene	ND		20	4.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,4,5-Trichlorophenol	ND		20	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,4,6-Trichlorophenol	ND		20	2.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,4-Dichlorophenol	ND		20	4.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,4-Dimethylphenol	ND		1000	5.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,4-Dinitrophenol	ND		1000	120	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2,6-Dimethylnaphthalene	**34**		20	4.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2-Chlorophenol	ND		20	3.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2-Methylnaphthalene	**4.9**	**J**	20	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2-Methylphenol	ND		20	4.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
2-Nitrophenol	ND		1000	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
3/4-Methylphenol	ND		40	7.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
4,6-Dinitro-2-methylphenol	ND		1000	130	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
4-Chloro-3-methylphenol	ND		20	4.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Acenaphthene	**8.5**	**J**	20	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Acenaphthylene	**240**		20	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Anthracene	**240**		20	3.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[a]anthracene	**160**		20	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[a]pyrene	**1300**		20	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[b]fluoranthene	**1400**		20	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[e]pyrene	**750**		20	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[g,h,i]perylene	**480**		20	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Benzo[k]fluoranthene	**1100**		20	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Biphenyl	ND		20	3.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Bis(2-ethylhexyl) phthalate	**380**	**B**	100	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Butyl benzyl phthalate	ND		100	4.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Chrysene	**280**		20	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Dibenz(a,h)anthracene	**200**		20	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Diethyl phthalate	ND		100	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Dimethyl phthalate	**6.5**	**J**	100	4.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Di-n-butyl phthalate	**47**	**J B**	100	3.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Di-n-octyl phthalate	ND		100	3.8	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Fluoranthene	**110**		20	3.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Fluorene	ND		20	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Indeno[1,2,3-cd]pyrene	**540**		20	2.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Naphthalene	ND		20	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Pentachlorophenol	ND		1000	2.6	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Phenanthrene	**34**		20	3.4	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1
Pyrene	**140**		20	3.2	ug/Kg	☼	06/04/21 18:03	06/11/21 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*61*		*32 - 143*	*06/04/21 18:03*	*06/11/21 14:56*	*1*
2-Fluorophenol	*49*		*15 - 138*	*06/04/21 18:03*	*06/11/21 14:56*	*1*
Nitrobenzene-d5	*56*		*18 - 162*	*06/04/21 18:03*	*06/11/21 14:56*	*1*
Phenol-d6	*54*		*17 - 141*	*06/04/21 18:03*	*06/11/21 14:56*	*1*
p-Terphenyl-d14	*65*		*34 - 148*	*06/04/21 18:03*	*06/11/21 14:56*	*1*
2-Fluorobiphenyl (Surr)	*63*		*14 - 146*	*06/04/21 18:03*	*06/11/21 14:56*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.2	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
1-Methylphenanthrene	ND		12	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,4,5-Trichlorophenol	ND		12	1.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,4,6-Trichlorophenol	ND		12	1.6	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,4-Dichlorophenol	ND		12	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,4-Dimethylphenol	ND		600	3.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,4-Dinitrophenol	ND		600	72	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2,6-Dimethylnaphthalene	ND		12	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2-Chlorophenol	ND		12	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2-Methylphenol	ND		12	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
2-Nitrophenol	ND		600	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
3/4-Methylphenol	ND		24	4.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
4,6-Dinitro-2-methylphenol	ND		600	79	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
4-Chloro-3-methylphenol	ND		12	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Acenaphthene	ND		12	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Acenaphthylene	ND		12	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Anthracene	ND		12	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[a]anthracene	ND		12	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[a]pyrene	**2.8**	**J**	12	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[b]fluoranthene	**3.0**	**J**	12	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[e]pyrene	ND		12	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[g,h,i]perylene	ND		12	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Benzo[k]fluoranthene	**2.5**	**J**	12	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Biphenyl	ND		12	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Bis(2-ethylhexyl) phthalate	**16**	**J B**	60	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Butyl benzyl phthalate	**4.8**	**J**	60	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Chrysene	ND		12	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Dibenz(a,h)anthracene	ND		12	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Diethyl phthalate	**2.6**	**J B**	60	1.9	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Dimethyl phthalate	ND		60	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Di-n-butyl phthalate	**7.9**	**J B**	60	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Di-n-octyl phthalate	ND		60	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Fluoranthene	ND		12	2.2	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Indeno[1,2,3-cd]pyrene	ND		12	1.6	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Naphthalene	ND		12	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Pentachlorophenol	ND		600	1.6	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Phenanthrene	ND		12	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1
Pyrene	ND		12	1.9	ug/Kg	☼	06/04/21 18:03	06/11/21 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*74*		*32 - 143*	*06/04/21 18:03*	*06/11/21 15:34*	*1*
2-Fluorophenol	*60*		*15 - 138*	*06/04/21 18:03*	*06/11/21 15:34*	*1*
Nitrobenzene-d5	*66*		*18 - 162*	*06/04/21 18:03*	*06/11/21 15:34*	*1*
Phenol-d6	*63*		*17 - 141*	*06/04/21 18:03*	*06/11/21 15:34*	*1*
p-Terphenyl-d14	*69*		*34 - 148*	*06/04/21 18:03*	*06/11/21 15:34*	*1*
2-Fluorobiphenyl (Surr)	*62*		*14 - 146*	*06/04/21 18:03*	*06/11/21 15:34*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		14	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
1-Methylnaphthalene	ND		14	1.6	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
1-Methylphenanthrene	ND		14	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,4,5-Trichlorophenol	ND		14	1.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,4,6-Trichlorophenol	ND		14	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,4-Dichlorophenol	ND		14	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,4-Dimethylphenol	ND		710	3.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,4-Dinitrophenol	ND		710	85	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2,6-Dimethylnaphthalene	ND		14	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2-Chlorophenol	ND		14	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2-Methylnaphthalene	ND		14	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2-Methylphenol	ND		14	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
2-Nitrophenol	ND		710	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
3/4-Methylphenol	ND		28	5.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
4,6-Dinitro-2-methylphenol	ND		710	94	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
4-Chloro-3-methylphenol	ND		14	3.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Acenaphthene	ND		14	2.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Acenaphthylene	ND		14	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Anthracene	ND		14	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[a]anthracene	ND		14	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[a]pyrene	**18**		14	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[b]fluoranthene	**18**		14	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[e]pyrene	ND		14	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[g,h,i]perylene	**6.6**	**J**	14	2.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Benzo[k]fluoranthene	**17**		14	2.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Biphenyl	ND		14	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Bis(2-ethylhexyl) phthalate	**22**	**J B**	71	2.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Butyl benzyl phthalate	**6.9**	**J**	71	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Chrysene	**3.8**	**J**	14	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Dibenz(a,h)anthracene	ND		14	2.0	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Diethyl phthalate	ND		71	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Dimethyl phthalate	ND		71	2.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Di-n-butyl phthalate	**21**	**J B**	71	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Di-n-octyl phthalate	**39**	**J**	71	2.7	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Fluoranthene	ND		14	2.5	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Fluorene	ND		14	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Indeno[1,2,3-cd]pyrene	**7.4**	**J**	14	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Naphthalene	ND		14	2.1	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Pentachlorophenol	ND		710	1.8	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Phenanthrene	ND		14	2.4	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1
Pyrene	ND		14	2.3	ug/Kg	☼	06/04/21 18:03	06/11/21 15:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*54*		*32 - 143*	*06/04/21 18:03*	*06/11/21 15:52*	*1*
2-Fluorophenol	*40*		*15 - 138*	*06/04/21 18:03*	*06/11/21 15:52*	*1*
Nitrobenzene-d5	*44*		*18 - 162*	*06/04/21 18:03*	*06/11/21 15:52*	*1*
Phenol-d6	*43*		*17 - 141*	*06/04/21 18:03*	*06/11/21 15:52*	*1*
p-Terphenyl-d14	*49*		*34 - 148*	*06/04/21 18:03*	*06/11/21 15:52*	*1*
2-Fluorobiphenyl (Surr)	*43*		*14 - 146*	*06/04/21 18:03*	*06/11/21 15:52*	*1*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		1.1	0.98	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Bifenthrin	ND		1.1	0.40	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Cyfluthrin	ND		1.1	0.48	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Cypermethrin	ND		1.1	0.34	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Deltamethrin/Tralomethrin	ND		1.1	0.55	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Fenpropathrin	ND		1.1	0.37	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Fenvalerate/Esfenvalerate	ND		1.1	0.39	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Fluvalinate	ND		1.1	0.35	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Lambda cyhalothrin	ND		1.1	0.69	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Permethrins (cis/trans)	**0.43**	**J**	2.1	0.34	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Phenothrin	ND		1.1	0.42	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Resmethrin/Bioresmethrin	ND		1.1	0.48	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1
Tetramethrin	ND		1.1	0.21	ug/Kg	☼	06/04/21 18:06	06/11/21 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*102*		*14 - 116*	*06/04/21 18:06*	*06/11/21 21:48*	*1*

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		1.0	0.96	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Bifenthrin	ND		1.0	0.39	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Cyfluthrin	ND		1.0	0.47	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Cypermethrin	ND		1.0	0.33	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Deltamethrin/Tralomethrin	ND		1.0	0.54	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Fenpropathrin	ND		1.0	0.36	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Fenvalerate/Esfenvalerate	ND		1.0	0.38	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Fluvalinate	ND		1.0	0.34	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Lambda cyhalothrin	ND		1.0	0.68	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Permethrins (cis/trans)	ND		2.1	0.33	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Phenothrin	ND		1.0	0.41	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Resmethrin/Bioresmethrin	ND		1.0	0.47	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1
Tetramethrin	ND		1.0	0.21	ug/Kg	☼	06/04/21 18:06	06/11/21 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*101*		*14 - 116*	*06/04/21 18:06*	*06/11/21 22:24*	*1*

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		1.0	0.92	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Bifenthrin	ND		1.0	0.37	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Cyfluthrin	ND		1.0	0.45	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Cypermethrin	ND		1.0	0.32	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Deltamethrin/Tralomethrin	ND		1.0	0.52	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Fenpropathrin	ND		1.0	0.35	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Fenvalerate/Esfenvalerate	ND		1.0	0.36	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Fluvalinate	ND		1.0	0.33	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND		1.0	0.65	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Permethrins (cis/trans)	ND		2.0	0.32	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Phenothrin	ND		1.0	0.39	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Resmethrin/Bioresmethrin	ND		1.0	0.45	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1
Tetramethrin	ND		1.0	0.20	ug/Kg	☼	06/04/21 18:06	06/11/21 23:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*88*		*14 - 116*	*06/04/21 18:06*	*06/11/21 23:01*	*1*

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.60	0.55	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Bifenthrin	ND		0.60	0.22	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Cyfluthrin	ND		0.60	0.27	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Cypermethrin	ND		0.60	0.19	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Deltamethrin/Tralomethrin	ND		0.60	0.31	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Fenpropathrin	ND		0.60	0.21	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Fenvalerate/Esfenvalerate	ND		0.60	0.22	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Fluvalinate	ND		0.60	0.20	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Lambda cyhalothrin	ND		0.60	0.39	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Permethrins (cis/trans)	ND		1.2	0.19	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Phenothrin	ND		0.60	0.24	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Resmethrin/Bioresmethrin	ND		0.60	0.27	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1
Tetramethrin	ND		0.60	0.12	ug/Kg	☼	06/04/21 18:06	06/11/21 23:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*116*		*14 - 116*	*06/04/21 18:06*	*06/11/21 23:38*	*1*

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.71	0.65	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Bifenthrin	ND		0.71	0.26	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Cyfluthrin	ND		0.71	0.32	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Cypermethrin	ND		0.71	0.23	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Deltamethrin/Tralomethrin	ND		0.71	0.37	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Fenpropathrin	ND		0.71	0.24	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Fenvalerate/Esfenvalerate	ND		0.71	0.26	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Fluvalinate	ND		0.71	0.23	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Lambda cyhalothrin	ND		0.71	0.46	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Permethrins (cis/trans)	ND		1.4	0.22	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Phenothrin	ND		0.71	0.28	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Resmethrin/Bioresmethrin	ND		0.71	0.32	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1
Tetramethrin	ND		0.71	0.14	ug/Kg	☼	06/04/21 18:06	06/12/21 00:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*108*		*14 - 116*	*06/04/21 18:06*	*06/12/21 00:15*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		6.4	1.6	ug/Kg	☼	06/07/21 16:00	06/09/21 17:32	1
Tributyltin	ND		6.4	3.2	ug/Kg	☼	06/07/21 16:00	06/09/21 17:32	1
Dibutyltin	**18**		6.4	1.6	ug/Kg	☼	06/07/21 16:00	06/09/21 17:32	1
Monobutyltin	ND		6.4	3.0	ug/Kg	☼	06/07/21 16:00	06/09/21 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*47*		*10 - 120*	*06/07/21 16:00*	*06/09/21 17:32*	*1*

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		6.1	1.5	ug/Kg	☼	06/07/21 16:00	06/09/21 17:50	1
Tributyltin	ND		6.1	3.0	ug/Kg	☼	06/07/21 16:00	06/09/21 17:50	1
Dibutyltin	**29**		6.1	1.5	ug/Kg	☼	06/07/21 16:00	06/09/21 17:50	1
Monobutyltin	ND		6.1	2.8	ug/Kg	☼	06/07/21 16:00	06/09/21 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*46*		*10 - 120*	*06/07/21 16:00*	*06/09/21 17:50*	*1*

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		6.0	1.5	ug/Kg	☼	06/07/21 16:00	06/09/21 18:09	1
Tributyltin	ND		6.0	3.0	ug/Kg	☼	06/07/21 16:00	06/09/21 18:09	1
Dibutyltin	**40**		6.0	1.5	ug/Kg	☼	06/07/21 16:00	06/09/21 18:09	1
Monobutyltin	ND		6.0	2.8	ug/Kg	☼	06/07/21 16:00	06/09/21 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*49*		*10 - 120*	*06/07/21 16:00*	*06/09/21 18:09*	*1*

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.6	0.89	ug/Kg	☼	06/07/21 16:06	06/09/21 18:26	1
Tributyltin	ND		3.6	1.8	ug/Kg	☼	06/07/21 16:06	06/09/21 18:26	1
Dibutyltin	ND		3.6	0.87	ug/Kg	☼	06/07/21 16:06	06/09/21 18:26	1
Monobutyltin	ND		3.6	1.7	ug/Kg	☼	06/07/21 16:06	06/09/21 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*47*		*10 - 120*	*06/07/21 16:06*	*06/09/21 18:26*	*1*

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.2	1.0	ug/Kg	☼	06/07/21 16:00	06/09/21 18:44	1
Tributyltin	ND		4.2	2.1	ug/Kg	☼	06/07/21 16:00	06/09/21 18:44	1
Dibutyltin	**3.1**	**J**	4.2	1.0	ug/Kg	☼	06/07/21 16:00	06/09/21 18:44	1

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monobutyltin	ND		4.2	1.9	ug/Kg	☼	06/07/21 16:00	06/09/21 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*57*		*10 - 120*	*06/07/21 16:00*	*06/09/21 18:44*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C7 as C7	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C8 as C8	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C9-C10	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C11-C12	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C13-C14	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C15-C16	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C17-C18	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C19-C20	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C21-C22	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C23-C24	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C25-C28	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C29-C32	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C33-C36	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C37-C40	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C41-C44	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1
C6-C44	ND		11	8.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*87*		*60 - 138*	*06/15/21 13:50*	*06/16/21 01:34*	*1*

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C7 as C7	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C8 as C8	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C9-C10	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C11-C12	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C13-C14	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C15-C16	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C17-C18	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C19-C20	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C21-C22	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C23-C24	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C25-C28	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C29-C32	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C33-C36	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C37-C40	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C41-C44	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1
C6-C44	ND		9.7	7.5	mg/Kg	☼	06/15/21 13:50	06/16/21 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*84*		*60 - 138*	*06/15/21 13:50*	*06/16/21 01:56*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C7 as C7	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C8 as C8	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C9-C10	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C11-C12	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C13-C14	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C15-C16	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C17-C18	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C19-C20	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C21-C22	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C23-C24	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C25-C28	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C29-C32	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C33-C36	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C37-C40	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C41-C44	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1
C6-C44	ND		10	8.0	mg/Kg	☼	06/15/21 13:50	06/16/21 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*91*		*60 - 138*	*06/15/21 13:50*	*06/16/21 02:17*	*1*

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C7 as C7	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C8 as C8	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C9-C10	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C11-C12	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C13-C14	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C15-C16	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C17-C18	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C19-C20	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C21-C22	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C23-C24	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C25-C28	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C29-C32	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C33-C36	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C37-C40	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C41-C44	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1
C6-C44	ND		6.0	4.6	mg/Kg	☼	06/15/21 13:50	06/16/21 02:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*87*		*60 - 138*	*06/15/21 13:50*	*06/16/21 02:38*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C7 as C7	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C8 as C8	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C9-C10	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C11-C12	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C13-C14	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C15-C16	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C17-C18	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C19-C20	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C21-C22	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C23-C24	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C25-C28	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C29-C32	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C33-C36	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C37-C40	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C41-C44	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1
C6-C44	ND		7.2	5.5	mg/Kg	☼	06/15/21 13:50	06/16/21 02:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*82*		*60 - 138*	*06/15/21 13:50*	*06/16/21 02:59*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		2.1	0.14	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
4,4'-DDD	ND		2.1	1.1	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
2,4'-DDE	ND		4.3	0.21	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
4,4'-DDE	**1.2**	**J p**	2.1	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
2,4'-DDT	ND		2.1	0.20	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
4,4'-DDT	ND		2.1	0.38	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Aldrin	ND		2.1	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
alpha-BHC	ND		2.1	0.17	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
beta-BHC	ND		2.1	0.19	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Chlordane	ND		11	0.69	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
delta-BHC	ND		2.1	0.14	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Dieldrin	ND		0.43	0.14	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
alpha-Chlordane	ND		2.1	0.098	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endosulfan I	ND		2.1	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endosulfan II	ND		2.1	0.48	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endosulfan sulfate	ND		2.1	0.23	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endrin	ND		2.1	0.19	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
cis-Nonachlor	ND		2.1	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endrin aldehyde	ND		2.1	1.0	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Endrin ketone	ND		2.1	0.41	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
gamma-BHC	ND		2.1	0.23	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Heptachlor	ND		2.1	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Heptachlor epoxide	ND		2.1	0.18	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Methoxychlor	ND		2.1	0.35	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Toxaphene	ND		11	2.1	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
gamma-Chlordane	ND		2.1	0.75	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
Oxychlordane	ND		2.1	0.32	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1
trans-Nonachlor	ND		2.1	0.080	ug/Kg	☼	06/04/21 17:47	06/11/21 09:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*81*		*20 - 131*	*06/04/21 17:47*	*06/11/21 09:00*	*1*
DCB Decachlorobiphenyl (Surr)	*152*		*20 - 180*	*06/04/21 17:47*	*06/11/21 09:00*	*1*

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		2.1	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
4,4'-DDD	ND		2.1	1.0	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
2,4'-DDE	ND		4.1	0.20	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
4,4'-DDE	**0.91**	**J p**	2.1	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
2,4'-DDT	ND		2.1	0.19	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
4,4'-DDT	ND		2.1	0.37	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Aldrin	ND		2.1	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
alpha-BHC	ND		2.1	0.17	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
beta-BHC	ND		2.1	0.19	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Chlordane	ND		10	0.67	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
delta-BHC	ND		2.1	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Dieldrin	ND		0.41	0.14	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
alpha-Chlordane	ND		2.1	0.095	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		2.1	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Endosulfan II	ND		2.1	0.47	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Endosulfan sulfate	ND		2.1	0.22	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Endrin	ND		2.1	0.18	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
cis-Nonachlor	ND		2.1	0.098	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Endrin aldehyde	ND		2.1	1.0	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Endrin ketone	ND		2.1	0.40	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
gamma-BHC	ND		2.1	0.22	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Heptachlor	ND		2.1	0.12	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Heptachlor epoxide	ND		2.1	0.18	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Methoxychlor	ND		2.1	0.34	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Toxaphene	ND		10	2.1	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
gamma-Chlordane	ND		2.1	0.72	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
Oxychlordane	ND		2.1	0.31	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1
trans-Nonachlor	ND		2.1	0.077	ug/Kg	☼	06/04/21 17:47	06/11/21 09:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*20 - 131*	*06/04/21 17:47*	*06/11/21 09:14*	*1*
DCB Decachlorobiphenyl (Surr)	*174*		*20 - 180*	*06/04/21 17:47*	*06/11/21 09:14*	*1*

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		2.0	0.13	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
4,4'-DDD	ND		2.0	1.0	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
2,4'-DDE	ND		4.0	0.19	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
4,4'-DDE	**2.0**		2.0	0.14	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
2,4'-DDT	ND		2.0	0.18	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
4,4'-DDT	ND		2.0	0.35	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Aldrin	ND		2.0	0.14	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
alpha-BHC	ND		2.0	0.16	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
beta-BHC	ND		2.0	0.18	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Chlordane	ND		10	0.65	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
delta-BHC	ND		2.0	0.13	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Dieldrin	ND		0.40	0.13	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
alpha-Chlordane	ND		2.0	0.092	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endosulfan I	ND		2.0	0.097	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endosulfan II	ND		2.0	0.45	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endosulfan sulfate	ND	*+	2.0	0.22	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endrin	ND		2.0	0.17	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
cis-Nonachlor	ND		2.0	0.094	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endrin aldehyde	ND		2.0	0.97	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Endrin ketone	ND		2.0	0.38	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
gamma-BHC	ND		2.0	0.21	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Heptachlor	ND		2.0	0.12	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Heptachlor epoxide	ND		2.0	0.17	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Methoxychlor	ND		2.0	0.33	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
Toxaphene	ND		10	2.0	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
gamma-Chlordane	ND		2.0	0.70	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		2.0	0.30	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1
trans-Nonachlor	ND		2.0	0.075	ug/Kg	☼	06/04/21 17:47	06/15/21 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*77*		*20 - 131*	*06/04/21 17:47*	*06/15/21 14:36*	*1*
DCB Decachlorobiphenyl (Surr)	*114*	*p*	*20 - 180*	*06/04/21 17:47*	*06/15/21 14:36*	*1*

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.077	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
4,4'-DDD	ND		1.2	0.60	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
2,4'-DDE	ND		2.4	0.12	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
4,4'-DDE	ND		1.2	0.086	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
4,4'-DDT	ND		1.2	0.21	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Aldrin	ND		1.2	0.087	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
alpha-BHC	ND		1.2	0.097	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
beta-BHC	ND		1.2	0.11	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Chlordane	ND		6.0	0.39	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
delta-BHC	ND		1.2	0.078	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Dieldrin	ND		0.24	0.080	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
alpha-Chlordane	ND		1.2	0.056	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endosulfan I	ND		1.2	0.058	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endosulfan II	ND		1.2	0.27	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endosulfan sulfate	ND	*+	1.2	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endrin	ND		1.2	0.11	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
cis-Nonachlor	ND		1.2	0.057	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endrin aldehyde	ND		1.2	0.59	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Endrin ketone	ND		1.2	0.23	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
gamma-BHC	ND		1.2	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Heptachlor	ND		1.2	0.072	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Heptachlor epoxide	ND		1.2	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Methoxychlor	ND		1.2	0.20	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Toxaphene	ND		6.0	1.2	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
gamma-Chlordane	ND	*1	1.2	0.42	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
Oxychlordane	ND		1.2	0.18	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1
trans-Nonachlor	ND		1.2	0.045	ug/Kg	☼	06/04/21 17:47	06/11/21 09:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*20 - 131*	*06/04/21 17:47*	*06/11/21 09:42*	*1*
DCB Decachlorobiphenyl (Surr)	*103*		*20 - 180*	*06/04/21 17:47*	*06/11/21 09:42*	*1*

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.4	0.090	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
4,4'-DDD	ND		1.4	0.70	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDE	ND		2.8	0.14	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
4,4'-DDE	ND		1.4	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
2,4'-DDT	ND		1.4	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
4,4'-DDT	ND		1.4	0.25	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Aldrin	ND		1.4	0.10	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
alpha-BHC	ND		1.4	0.11	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
beta-BHC	ND		1.4	0.13	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Chlordane	ND		7.0	0.46	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
delta-BHC	ND		1.4	0.090	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Dieldrin	ND		0.28	0.093	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
alpha-Chlordane	ND		1.4	0.065	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endosulfan I	ND		1.4	0.068	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endosulfan II	ND		1.4	0.32	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endosulfan sulfate	ND	*+	1.4	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endrin	ND		1.4	0.12	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
cis-Nonachlor	ND		1.4	0.066	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endrin aldehyde	ND		1.4	0.69	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Endrin ketone	ND		1.4	0.27	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
gamma-BHC	ND		1.4	0.15	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Heptachlor	ND		1.4	0.084	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Heptachlor epoxide	ND		1.4	0.12	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Methoxychlor	ND		1.4	0.23	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Toxaphene	ND		7.0	1.4	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
gamma-Chlordane	ND	*1	1.4	0.49	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
Oxychlordane	ND		1.4	0.21	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1
trans-Nonachlor	ND		1.4	0.052	ug/Kg	☼	06/04/21 17:47	06/11/21 09:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*85*		*20 - 131*	*06/04/21 17:47*	*06/11/21 09:56*	*1*
DCB Decachlorobiphenyl (Surr)	*111*		*20 - 180*	*06/04/21 17:47*	*06/11/21 09:56*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		21	12	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1221	ND		21	12	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1232	ND		21	12	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1242	ND		21	12	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1248	**39**		21	12	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1254	**100**		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1260	**120**		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1262	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1
Aroclor-1268	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 02:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*127*		*20 - 155*	*06/04/21 17:47*	*06/11/21 02:51*	*1*
Tetrachloro-m-xylene (Surr)	*74*		*25 - 126*	*06/04/21 17:47*	*06/11/21 02:51*	*1*

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1221	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1232	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1242	ND		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1248	**42**		21	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1254	**110**		21	10	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1260	**130**		21	10	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1262	ND		21	10	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1
Aroclor-1268	ND		21	10	ug/Kg	☼	06/04/21 17:47	06/11/21 03:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*145*		*20 - 155*	*06/04/21 17:47*	*06/11/21 03:09*	*1*
Tetrachloro-m-xylene (Surr)	*70*		*25 - 126*	*06/04/21 17:47*	*06/11/21 03:09*	*1*

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		20	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1221	ND		20	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1232	ND		20	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1242	ND		20	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1248	**34**		20	11	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1254	**98**		20	9.9	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1260	**130**		20	9.9	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1262	ND		20	9.9	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1
Aroclor-1268	ND		20	9.9	ug/Kg	☼	06/04/21 17:47	06/11/21 03:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*143*		*20 - 155*	*06/04/21 17:47*	*06/11/21 03:27*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*25 - 126*	*06/04/21 17:47*	*06/11/21 03:27*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.7	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1221	ND		12	6.7	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1232	ND		12	6.7	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1242	ND		12	6.7	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1248	ND		12	6.7	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1254	ND		12	6.0	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1260	ND		12	6.0	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1262	ND		12	6.0	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1
Aroclor-1268	ND		12	6.0	ug/Kg	☼	06/04/21 17:47	06/11/21 03:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*94*		*20 - 155*	*06/04/21 17:47*	*06/11/21 03:45*	*1*
Tetrachloro-m-xylene (Surr)	*77*		*25 - 126*	*06/04/21 17:47*	*06/11/21 03:45*	*1*

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		14	7.8	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1221	ND		14	7.8	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1232	ND		14	7.8	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1242	ND		14	7.8	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1248	ND		14	7.8	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1254	ND		14	7.0	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1260	**7.1**	**J**	14	7.0	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1262	ND		14	7.0	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1
Aroclor-1268	ND		14	7.0	ug/Kg	☼	06/04/21 17:47	06/11/21 04:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 155*	*06/04/21 17:47*	*06/11/21 04:02*	*1*
Tetrachloro-m-xylene (Surr)	*76*		*25 - 126*	*06/04/21 17:47*	*06/11/21 04:02*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-B-C4 — **Lab Sample ID: 570-60879-1**
Date Collected: 06/02/21 09:15 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		850	440	ug/Kg	☼	06/09/21 14:22	06/10/21 19:36	10

Client Sample ID: FDD-B-C9 — **Lab Sample ID: 570-60879-2**
Date Collected: 06/02/21 13:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		820	420	ug/Kg	☼	06/09/21 14:22	06/10/21 19:46	10

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**460**	**J**	800	410	ug/Kg	☼	06/09/21 14:22	06/10/21 19:57	10

Client Sample ID: FDD-D-C4 — **Lab Sample ID: 570-60879-4**
Date Collected: 06/02/21 07:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		480	250	ug/Kg	☼	06/09/21 14:22	06/10/21 20:08	10

Client Sample ID: FDD-D-C6 — **Lab Sample ID: 570-60879-5**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		560	290	ug/Kg	☼	06/09/21 14:22	06/10/21 20:19	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-B-C4 — **Lab Sample ID: 570-60879-1**
Date Collected: 06/02/21 09:15 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.42	0.617	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Arsenic	**8.42**		2.21	0.739	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Barium	**88.9**	**F1**	2.21	0.460	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Beryllium	**0.530**	**J**	2.21	0.458	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Cadmium	ND		2.21	0.995	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Chromium	**45.5**		4.42	0.663	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Cobalt	**8.61**		2.21	0.418	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Copper	**243**		2.21	0.595	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Lead	**52.4**		2.21	0.475	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Molybdenum	**0.691**	**J F1**	2.21	0.681	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Nickel	**11.6**		2.21	0.597	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Selenium	ND		2.21	1.28	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Silver	**1.13**	**J F1**	2.21	0.732	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Thallium	ND		2.21	0.484	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Vanadium	**56.7**		4.42	0.535	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20
Zinc	**271**		11.1	10.2	mg/Kg	☼	06/14/21 13:40	06/15/21 10:41	20

Client Sample ID: FDD-B-C9 — **Lab Sample ID: 570-60879-2**
Date Collected: 06/02/21 13:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.18	0.583	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Arsenic	**9.21**		2.09	0.698	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Barium	**93.9**		2.09	0.435	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Beryllium	**0.538**	**J**	2.09	0.433	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Cadmium	ND		2.09	0.941	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Chromium	**46.3**		4.18	0.627	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Cobalt	**8.98**		2.09	0.395	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Copper	**246**		2.09	0.562	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Lead	**54.3**		2.09	0.450	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Molybdenum	**0.827**	**J**	2.09	0.644	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Nickel	**12.1**		2.09	0.565	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Selenium	ND		2.09	1.21	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Silver	**1.32**	**J**	2.09	0.692	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Thallium	ND		2.09	0.458	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Vanadium	**60.2**		4.18	0.506	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20
Zinc	**285**		10.5	9.65	mg/Kg	☼	06/14/21 13:40	06/15/21 10:53	20

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.97	0.553	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Arsenic	**9.04**		1.98	0.663	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Barium	**92.6**		1.98	0.413	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Beryllium	**0.517**	**J**	1.98	0.411	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Cadmium	ND		1.98	0.893	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Chromium	**47.5**		3.97	0.595	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Cobalt	**8.69**		1.98	0.375	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Copper	**252**		1.98	0.534	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	53.5		1.98	0.427	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Molybdenum	0.902	J	1.98	0.611	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Nickel	11.9		1.98	0.536	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Selenium	1.26	J	1.98	1.15	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Silver	1.19	J	1.98	0.657	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Thallium	ND		1.98	0.434	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Vanadium	62.5		3.97	0.480	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20
Zinc	278		9.92	9.16	mg/Kg	☼	06/14/21 13:40	06/15/21 11:03	20

Client Sample ID: FDD-D-C4 — **Lab Sample ID: 570-60879-4**
Date Collected: 06/02/21 07:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.41	0.336	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Arsenic	5.05		1.20	0.402	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Barium	68.3		1.20	0.250	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Beryllium	0.337	J	1.20	0.249	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Cadmium	ND		1.20	0.542	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Chromium	28.2		2.41	0.361	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Cobalt	5.79		1.20	0.228	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Copper	133		1.20	0.324	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Lead	31.4		1.20	0.259	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Molybdenum	0.539	J	1.20	0.371	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Nickel	7.28		1.20	0.325	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Selenium	ND		1.20	0.699	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Silver	0.781	J	1.20	0.398	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Thallium	ND		1.20	0.264	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Vanadium	37.5		2.41	0.291	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20
Zinc	151		6.02	5.56	mg/Kg	☼	06/14/21 13:40	06/15/21 11:06	20

Client Sample ID: FDD-D-C6 — **Lab Sample ID: 570-60879-5**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.79	0.390	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Arsenic	5.62		1.40	0.467	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Barium	76.6		1.40	0.291	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Beryllium	0.333	J	1.40	0.289	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Cadmium	ND		1.40	0.629	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Chromium	30.9		2.79	0.419	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Cobalt	6.08		1.40	0.264	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Copper	148		1.40	0.376	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Lead	34.5		1.40	0.300	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Molybdenum	0.588	J	1.40	0.430	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Nickel	8.27		1.40	0.377	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Selenium	ND		1.40	0.812	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Silver	0.874	J	1.40	0.462	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Thallium	ND		1.40	0.306	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Vanadium	41.4		2.79	0.338	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20
Zinc	162		6.99	6.45	mg/Kg	☼	06/14/21 13:40	06/15/21 11:09	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-B-C4 — **Lab Sample ID: 570-60879-1**
Date Collected: 06/02/21 09:15 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.760	F2	0.180	0.0291	mg/Kg	☼	06/14/21 13:00	06/14/21 16:51	1

Client Sample ID: FDD-B-C9 — **Lab Sample ID: 570-60879-2**
Date Collected: 06/02/21 13:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.768		0.171	0.0276	mg/Kg	☼	06/14/21 13:00	06/14/21 16:56	1

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.854		0.167	0.0270	mg/Kg	☼	06/14/21 13:00	06/14/21 16:58	1

Client Sample ID: FDD-D-C4 — **Lab Sample ID: 570-60879-4**
Date Collected: 06/02/21 07:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.359		0.0976	0.0158	mg/Kg	☼	06/14/21 13:00	06/14/21 17:00	1

Client Sample ID: FDD-D-C6 — **Lab Sample ID: 570-60879-5**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.355		0.118	0.0191	mg/Kg	☼	06/14/21 13:00	06/14/21 17:02	1

General Chemistry

Client Sample ID: FDD-B-C4 — **Lab Sample ID: 570-60879-1**
Date Collected: 06/02/21 09:15 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	387		21.5	16.9	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	201		21.5	17.4	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Total Sulfide	706		100	84.1	mg/Kg	☼	06/03/21 21:00	06/03/21 23:53	500
Trivalent Chromium	45.5		4.31	0.647	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.62		0.108	0.0375	%	☼		06/10/21 15:32	1
Percent Solids	46.4		0.1	0.1	%			06/07/21 22:49	1
Ammonia (as N)	10.9		1.08	0.593	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C9 — **Lab Sample ID: 570-60879-2**
Date Collected: 06/02/21 13:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	444		20.8	16.4	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	222		20.8	16.8	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Total Sulfide	310		39.3	33.1	mg/Kg	☼	06/03/21 21:00	06/03/21 23:54	200
Trivalent Chromium	46.3		4.16	0.624	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.35		0.104	0.0361	%	☼		06/10/21 15:32	1
Percent Solids	48.1		0.1	0.1	%			06/07/21 22:49	1
Ammonia (as N)	7.22		1.04	0.572	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	347		20.0	15.8	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	180		20.0	16.2	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Total Sulfide	214		37.3	31.4	mg/Kg	☼	06/03/21 21:00	06/03/21 23:55	200
Trivalent Chromium	47.0		4.01	0.601	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.30		0.100	0.0348	%	☼		06/10/21 15:32	1
Percent Solids	49.9		0.1	0.1	%			06/07/21 22:49	1
Ammonia (as N)	10.2		1.00	0.551	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-D-C4 — **Lab Sample ID: 570-60879-4**
Date Collected: 06/02/21 07:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	181		12.1	9.50	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	92.4		12.1	9.75	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Total Sulfide	2.40		0.242	0.203	mg/Kg	☼	06/03/21 21:00	06/03/21 23:56	2
Trivalent Chromium	28.2		2.42	0.363	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.0460	J	0.0605	0.0210	%	☼		06/10/21 15:32	1
Percent Solids	82.7		0.1	0.1	%			06/07/21 22:49	1
Ammonia (as N)	2.30		0.605	0.333	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-D-C6 — **Lab Sample ID: 570-60879-5**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	165		14.1	11.1	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	84.8		14.1	11.4	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1

General Chemistry (Continued)

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	2.18		0.283	0.238	mg/Kg	☼	06/03/21 21:00	06/03/21 23:57	2
Trivalent Chromium	30.9		2.84	0.425	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.165		0.0709	0.0246	%	☼		06/10/21 15:32	1
Percent Solids	70.5		0.1	0.1	%			06/07/21 22:49	1
Ammonia (as N)	6.08		0.709	0.390	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

General Chemistry - Soluble

Client Sample ID: FDD-B-C4 — **Lab Sample ID: 570-60879-1**
Date Collected: 06/02/21 09:15 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/03/21 23:46	1

Client Sample ID: FDD-B-C9 — **Lab Sample ID: 570-60879-2**
Date Collected: 06/02/21 13:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 23:47	1

Client Sample ID: FDD-B-C10 — **Lab Sample ID: 570-60879-3**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 23:48	1

Client Sample ID: FDD-D-C4 — **Lab Sample ID: 570-60879-4**
Date Collected: 06/02/21 07:45 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/03/21 23:49	1

Client Sample ID: FDD-D-C6 — **Lab Sample ID: 570-60879-5**
Date Collected: 06/02/21 10:35 — **Matrix: Sediment**
Date Received: 06/03/21 19:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0998	0.0838	mg/Kg			06/03/21 23:50	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-B-C4
Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	20.64		0.01	0.01	%			06/14/21 15:34	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 15:34	1
Fine Sand (0.125 to 0.25mm)	0.62		0.01	0.01	%			06/14/21 15:34	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/14/21 15:34	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 15:34	1
Silt (0.00391 to 0.0625mm)	68.96		0.01	0.01	%			06/14/21 15:34	1
Total Silt and Clay (0 to 0.0626mm)	89.60		0.01	0.01	%			06/14/21 15:34	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 15:34	1
Very Fine Sand (0.0625 to 0.125 mm)	9.78		0.01	0.01	%			06/14/21 15:34	1

Client Sample ID: FDD-B-C9
Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	19.49		0.01	0.01	%			06/14/21 15:39	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 15:39	1
Fine Sand (0.125 to 0.25mm)	3.46		0.01	0.01	%			06/14/21 15:39	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/14/21 15:39	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 15:39	1
Silt (0.00391 to 0.0625mm)	62.83		0.01	0.01	%			06/14/21 15:39	1
Total Silt and Clay (0 to 0.0626mm)	82.32		0.01	0.01	%			06/14/21 15:39	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 15:39	1
Very Fine Sand (0.0625 to 0.125 mm)	14.22		0.01	0.01	%			06/14/21 15:39	1

Client Sample ID: FDD-B-C10
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	16.71		0.01	0.01	%			06/14/21 15:45	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 15:45	1
Fine Sand (0.125 to 0.25mm)	9.71		0.01	0.01	%			06/14/21 15:45	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/14/21 15:45	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 15:45	1
Silt (0.00391 to 0.0625mm)	59.62		0.01	0.01	%			06/14/21 15:45	1
Total Silt and Clay (0 to 0.0626mm)	76.33		0.01	0.01	%			06/14/21 15:45	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 15:45	1
Very Fine Sand (0.0625 to 0.125 mm)	13.96		0.01	0.01	%			06/14/21 15:45	1

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	1.45		0.01	0.01	%			06/14/21 15:50	1
Coarse Sand (0.5mm to 1mm)	9.19		0.01	0.01	%			06/14/21 15:50	1
Fine Sand (0.125 to 0.25mm)	31.31		0.01	0.01	%			06/14/21 15:50	1
Gravel (greater than 2 mm)	8.09		0.01	0.01	%			06/14/21 15:50	1
Medium Sand (0.25 to 0.5 mm)	14.16		0.01	0.01	%			06/14/21 15:50	1
Silt (0.00391 to 0.0625mm)	9.85		0.01	0.01	%			06/14/21 15:50	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering) (Continued)

Client Sample ID: FDD-D-C4
Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Silt and Clay (0 to 0.0626mm)	11.31		0.01	0.01	%			06/14/21 15:50	1
Very Coarse Sand (1 to 2mm)	2.09		0.01	0.01	%			06/14/21 15:50	1
Very Fine Sand (0.0625 to 0.125 mm)	23.86		0.01	0.01	%			06/14/21 15:50	1

Client Sample ID: FDD-D-C6
Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	3.50		0.01	0.01	%			06/14/21 15:56	1
Coarse Sand (0.5mm to 1mm)	9.00		0.01	0.01	%			06/14/21 15:56	1
Fine Sand (0.125 to 0.25mm)	31.78		0.01	0.01	%			06/14/21 15:56	1
Gravel (greater than 2 mm)	5.10		0.01	0.01	%			06/14/21 15:56	1
Medium Sand (0.25 to 0.5 mm)	16.75		0.01	0.01	%			06/14/21 15:56	1
Silt (0.00391 to 0.0625mm)	18.61		0.01	0.01	%			06/14/21 15:56	1
Total Silt and Clay (0 to 0.0626mm)	22.11		0.01	0.01	%			06/14/21 15:56	1
Very Coarse Sand (1 to 2mm)	0.06		0.01	0.01	%			06/14/21 15:56	1
Very Fine Sand (0.0625 to 0.125 mm)	15.20		0.01	0.01	%			06/14/21 15:56	1

PARTICLE SIZE SUMMARY

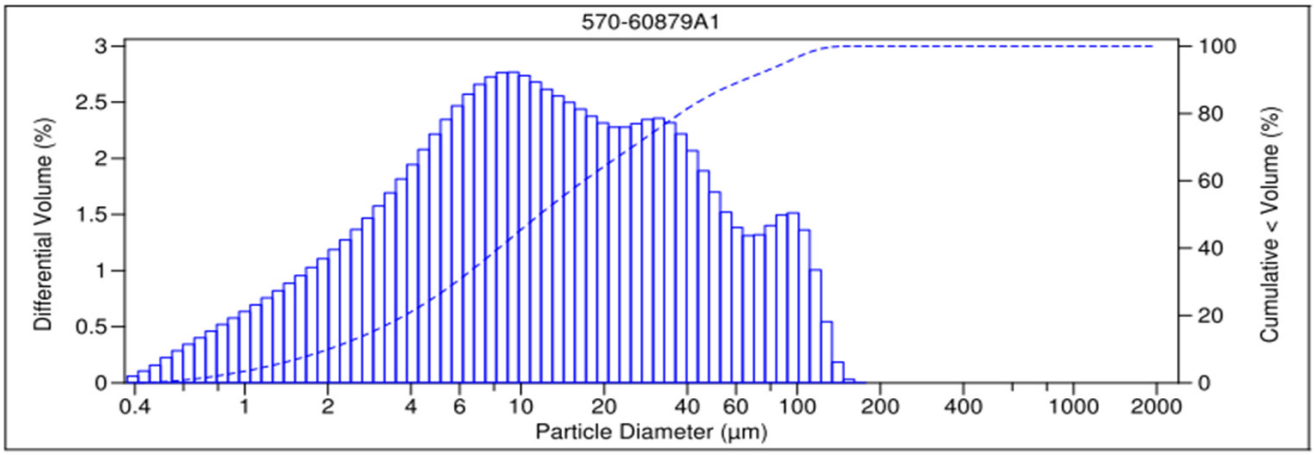
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.		Date Sampled:	06/02/21
		Date Received:	06/03/21
		Work Order No:	570-60879
		Date Analyzed:	06/08/21
		Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C4		Silt	0.023

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	0.62	9.78	68.96	20.64	89.60



V 3.0

PARTICLE SIZE SUMMARY

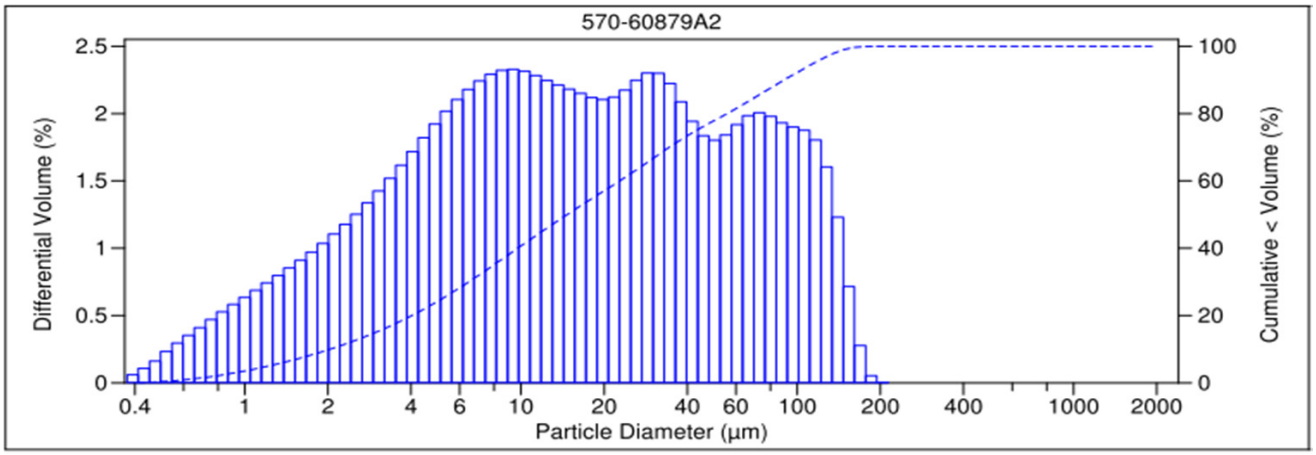
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/02/21
	Date Received:	06/03/21
	Work Order No:	570-60879
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C9		Silt	0.031

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	3.46	14.22	62.83	19.49	82.32



V 3.0

PARTICLE SIZE SUMMARY

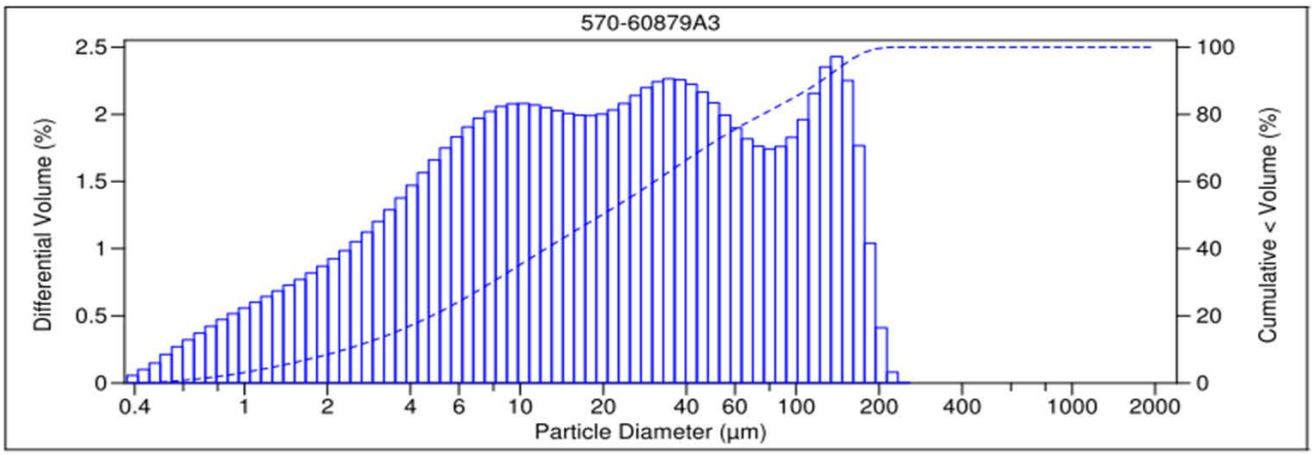
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/02/21
	Date Received:	06/03/21
	Work Order No:	570-60879
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C10		Silt	0.041

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	9.71	13.96	59.62	16.71	76.33



V 3.0

PARTICLE SIZE SUMMARY

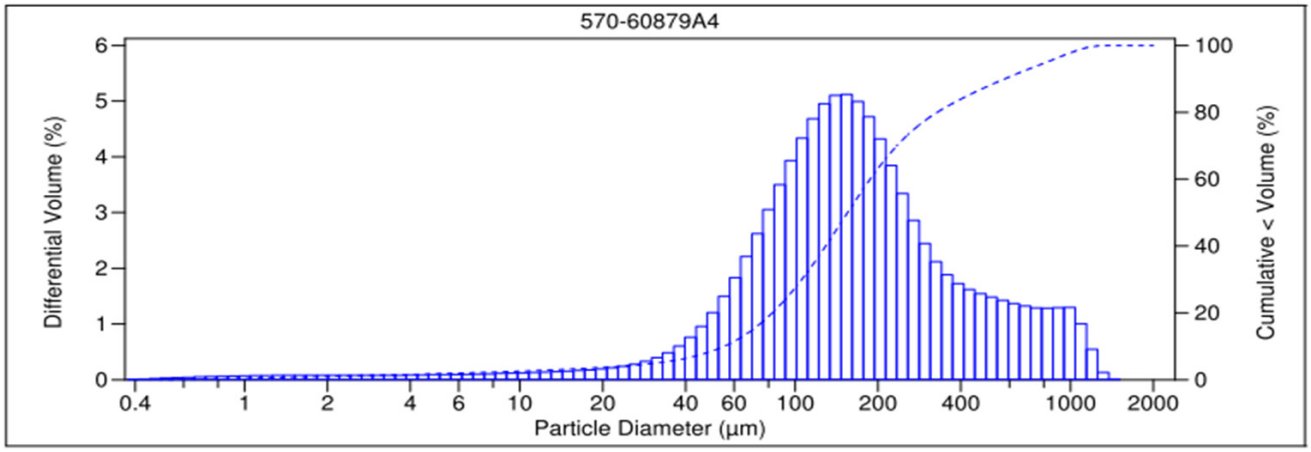
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/02/21
	Date Received:	06/03/21
	Work Order No:	570-60879
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-C4		Medium Sand	0.481

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
8.09	2.09	9.19	14.16	31.31	23.86	9.85	1.45	11.31



V 3.0

PARTICLE SIZE SUMMARY

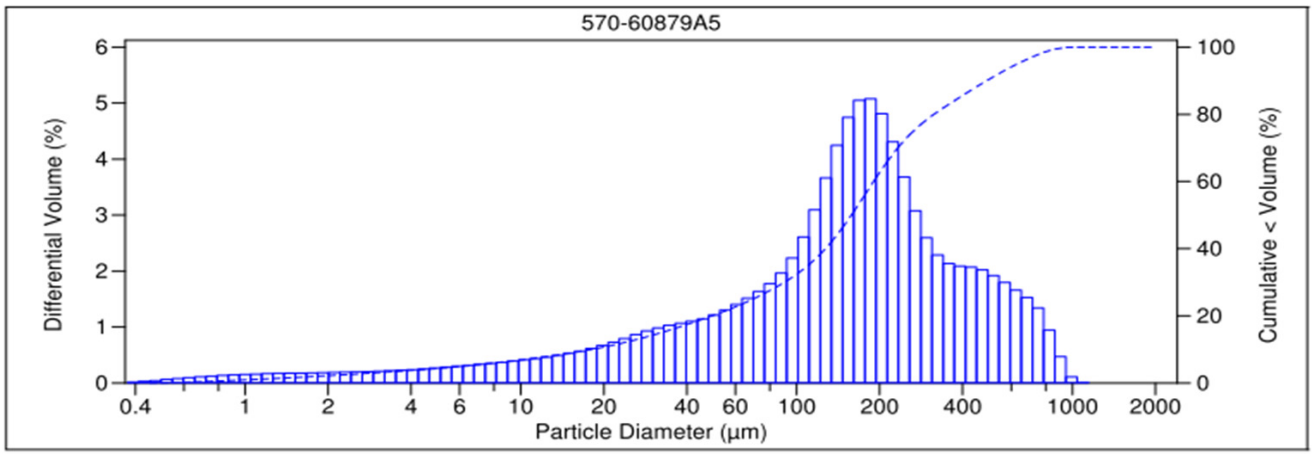
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/02/21
	Date Received:	06/03/21
	Work Order No:	570-60879
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-C6		Medium Sand	0.359

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
5.10	0.06	9.00	16.75	31.78	15.20	18.61	3.50	22.11



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-60879-1	FDD-B-C4	55	45	52	48	62	60
570-60879-2	FDD-B-C9	73	56	64	61	72	73
570-60879-3	FDD-B-C10	61	49	56	54	65	63
570-60879-4	FDD-D-C4	74	60	66	63	69	62
570-60879-5	FDD-D-C6	54	40	44	43	49	43

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-60732-A-5-J MS	Matrix Spike	82	71	59	74	82	68
570-60732-A-5-K MSD	Matrix Spike Duplicate	86	73	62	76	82	70
LCS 570-154995/2-A	Lab Control Sample	72	66	57	68	70	64
LCSD 570-154995/3-A	Lab Control Sample Dup	70	68	57	70	68	63
MB 570-154995/1-A	Method Blank	44	49	55	49	46	50

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-60879-1	FDD-B-C4	71	89
570-60879-2	FDD-B-C9	65	91
570-60879-3	FDD-B-C10	65	92
570-60879-4	FDD-D-C4	66	82
570-60879-5	FDD-D-C6	61	84

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-60732-A-5-G MS	Matrix Spike	74	83
570-60732-A-5-H MSD	Matrix Spike Duplicate	73	82
LCS 570-154994/2-A	Lab Control Sample	82	84
LCSD 570-154994/3-A	Lab Control Sample Dup	79	82
MB 570-154994/1-A	Method Blank	87	95

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-60879-1	FDD-B-C4	102
570-60879-2	FDD-B-C9	101
570-60879-3	FDD-B-C10	88
570-60879-4	FDD-D-C4	116
570-60879-5	FDD-D-C6	108

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-60732-A-5-M MS	Matrix Spike	131 S1+
570-60732-A-5-N MSD	Matrix Spike Duplicate	124 S1+
LCS 570-154999/2-A	Lab Control Sample	119 S1+
LCSD 570-154999/3-A	Lab Control Sample Dup	127 S1+
MB 570-154999/1-A	Method Blank	127 S1+

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-60879-1	FDD-B-C4	47
570-60879-2	FDD-B-C9	46
570-60879-3	FDD-B-C10	49
570-60879-4	FDD-D-C4	47
570-60879-5	FDD-D-C6	57

Surrogate Legend

TPTT = Tripentyltin

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TPTT (10-120)							
570-61058-A-1-G MS	Matrix Spike	51							
570-61058-A-1-H MSD	Matrix Spike Duplicate	53							
LCS 570-155507/2-A	Lab Control Sample	65							
LCSD 570-155507/3-A	Lab Control Sample Dup	69							
MB 570-155507/1-A	Method Blank	50							

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)							
570-60879-1	FDD-B-C4	87							
570-60879-2	FDD-B-C9	84							
570-60879-3	FDD-B-C10	91							
570-60879-4	FDD-D-C4	87							
570-60879-5	FDD-D-C6	82							

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)							
570-61518-A-1-D MS	Matrix Spike	81							
570-61518-A-1-E MSD	Matrix Spike Duplicate	93							
LCS 570-157422/2-A	Lab Control Sample	88							
LCSD 570-157422/3-A	Lab Control Sample Dup	81							
MB 570-157422/1-A	Method Blank	89							

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCX2 (20-131)	DCB2 (20-180)						
570-60879-1	FDD-B-C4	81	152						
570-60879-2	FDD-B-C9	83	174						
570-60879-4	FDD-D-C4	79	103						
570-60879-5	FDD-D-C6	85	111						

Surrogate Legend

TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)
570-60879-3	FDD-B-C10	77	114 p

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	TCX2 (20-131)	DCB2 (20-180)
570-60732-A-4-H MS	Matrix Spike	92	97
570-60732-A-4-I MSD	Matrix Spike Duplicate	94	101
LCS 570-154993/2-A	Lab Control Sample	94	108
LCSD 570-154993/3-A	Lab Control Sample Dup	89	103
MB 570-154993/1-A	Method Blank	100	107

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	DCB1 (20-155)	TCX1 (25-126)
570-60879-1	FDD-B-C4	127	74
570-60879-2	FDD-B-C9	145	70
570-60879-3	FDD-B-C10	143	68
570-60879-4	FDD-D-C4	94	77
570-60879-5	FDD-D-C6	89	76

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	DCB1 (20-155)	TCX1 (25-126)
570-60732-A-4-L MS	Matrix Spike	101	80
570-60732-A-4-M MSD	Matrix Spike Duplicate	91	92
LCS 570-154993/6-A	Lab Control Sample	90	91
LCSD 570-154993/7-A	Lab Control Sample Dup	97	96
MB 570-154993/1-A	Method Blank	95	93

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-154995/1-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154995

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Acenaphthene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Anthracene	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Biphenyl	ND		10	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Bis(2-ethylhexyl) phthalate	11.12	J	50	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Chrysene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Diethyl phthalate	2.718	J	50	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Di-n-butyl phthalate	26.75	J	50	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Fluoranthene	ND		10	1.8	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Fluorene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Naphthalene	ND		10	1.5	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Phenanthrene	ND		10	1.7	ug/Kg		06/03/21 21:53	06/11/21 10:54	1
Pyrene	ND		10	1.6	ug/Kg		06/03/21 21:53	06/11/21 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*44*		*32 - 143*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
2-Fluorophenol	*49*		*15 - 138*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
Nitrobenzene-d5	*55*		*18 - 162*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
Phenol-d6	*49*		*17 - 141*	*06/03/21 21:53*	*06/11/21 10:54*	*1*
p-Terphenyl-d14	*46*		*34 - 148*	*06/03/21 21:53*	*06/11/21 10:54*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-154995/1-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154995

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*50*		*14 - 146*	*06/03/21 21:53*	*06/11/21 10:54*	*1*

Lab Sample ID: LCS 570-154995/2-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	781.1		ug/Kg		78	40 - 160
2,4,6-Trichlorophenol	1000	740.6		ug/Kg		74	40 - 160
2,4-Dichlorophenol	1000	637.2		ug/Kg		64	40 - 160
2,4-Dimethylphenol	1000	621.6		ug/Kg		62	40 - 160
2,4-Dinitrophenol	1000	812.3		ug/Kg		81	40 - 160
2-Chlorophenol	1000	718.2		ug/Kg		72	40 - 160
2-Methylphenol	1000	751.3		ug/Kg		75	40 - 160
2-Nitrophenol	1000	654.7		ug/Kg		65	40 - 160
3/4-Methylphenol	2000	1240		ug/Kg		62	40 - 160
4,6-Dinitro-2-methylphenol	1000	828.6		ug/Kg		83	40 - 160
4-Chloro-3-methylphenol	1000	650.8		ug/Kg		65	40 - 160
Acenaphthene	1000	667.9		ug/Kg		67	48 - 108
Benzo[a]pyrene	1000	908.5		ug/Kg		91	17 - 163
Bis(2-ethylhexyl) phthalate	1000	882.6		ug/Kg		88	40 - 160
Butyl benzyl phthalate	1000	803.0		ug/Kg		80	40 - 160
Chrysene	1000	720.5		ug/Kg		72	17 - 168
Diethyl phthalate	1000	754.5		ug/Kg		75	40 - 160
Dimethyl phthalate	1000	715.8		ug/Kg		72	40 - 160
Di-n-butyl phthalate	1000	765.2		ug/Kg		77	40 - 160
Di-n-octyl phthalate	1000	852.5		ug/Kg		85	40 - 160
Fluoranthene	1000	701.8		ug/Kg		70	26 - 137
Fluorene	1000	691.4		ug/Kg		69	59 - 121
Naphthalene	1000	563.5		ug/Kg		56	21 - 133
Pentachlorophenol	1000	703.0		ug/Kg		70	40 - 160
Phenanthrene	1000	731.8		ug/Kg		73	54 - 120
Pyrene	1000	724.9		ug/Kg		72	28 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*72*		*32 - 143*
2-Fluorophenol	*66*		*15 - 138*
Nitrobenzene-d5	*57*		*18 - 162*
Phenol-d6	*68*		*17 - 141*
p-Terphenyl-d14	*70*		*34 - 148*
2-Fluorobiphenyl (Surr)	*64*		*14 - 146*

Lab Sample ID: LCSD 570-154995/3-A
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	819.0		ug/Kg		82	40 - 160	5	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-154995/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156682 — **Prep Batch: 154995**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol			1000	749.9		ug/Kg		75	40 - 160	1	20
2,4-Dichlorophenol			1000	651.9		ug/Kg		65	40 - 160	2	20
2,4-Dimethylphenol			1000	661.1		ug/Kg		66	40 - 160	6	20
2,4-Dinitrophenol			1000	856.5		ug/Kg		86	40 - 160	5	20
2-Chlorophenol			1000	729.3		ug/Kg		73	40 - 160	2	20
2-Methylphenol			1000	774.4		ug/Kg		77	40 - 160	3	20
2-Nitrophenol			1000	662.6		ug/Kg		66	40 - 160	1	20
3/4-Methylphenol			2000	1312		ug/Kg		66	40 - 160	6	20
4,6-Dinitro-2-methylphenol			1000	853.5		ug/Kg		85	40 - 160	3	20
4-Chloro-3-methylphenol			1000	699.9		ug/Kg		70	40 - 160	7	20
Acenaphthene			1000	676.4		ug/Kg		68	48 - 108	1	20
Benzo[a]pyrene			1000	927.5		ug/Kg		93	17 - 163	2	20
Bis(2-ethylhexyl) phthalate			1000	883.1		ug/Kg		88	40 - 160	0	20
Butyl benzyl phthalate			1000	802.2		ug/Kg		80	40 - 160	0	20
Chrysene			1000	730.5		ug/Kg		73	17 - 168	1	20
Diethyl phthalate			1000	769.8		ug/Kg		77	40 - 160	2	20
Dimethyl phthalate			1000	735.1		ug/Kg		74	40 - 160	3	20
Di-n-butyl phthalate			1000	787.5		ug/Kg		79	40 - 160	3	20
Di-n-octyl phthalate			1000	856.5		ug/Kg		86	40 - 160	0	20
Fluoranthene			1000	732.1		ug/Kg		73	26 - 137	4	20
Fluorene			1000	705.2		ug/Kg		71	59 - 121	2	20
Naphthalene			1000	566.1		ug/Kg		57	21 - 133	0	20
Pentachlorophenol			1000	742.6		ug/Kg		74	40 - 160	5	20
Phenanthrene			1000	741.6		ug/Kg		74	54 - 120	1	20
Pyrene			1000	716.2		ug/Kg		72	28 - 106	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*70*		*32 - 143*
2-Fluorophenol	*68*		*15 - 138*
Nitrobenzene-d5	*57*		*18 - 162*
Phenol-d6	*70*		*17 - 141*
p-Terphenyl-d14	*68*		*34 - 148*
2-Fluorobiphenyl (Surr)	*63*		*14 - 146*

Lab Sample ID: 570-60732-A-5-J MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156682 — **Prep Batch: 154995**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND		1160	1015		ug/Kg	☼	88	40 - 160		
2,4,6-Trichlorophenol	ND		1160	973.1		ug/Kg	☼	84	40 - 160		
2,4-Dichlorophenol	ND		1160	800.3		ug/Kg	☼	69	40 - 160		
2,4-Dimethylphenol	ND		1160	828.0		ug/Kg	☼	72	40 - 160		
2,4-Dinitrophenol	140	J	1160	1049		ug/Kg	☼	79	40 - 160		
2-Chlorophenol	ND		1160	906.9		ug/Kg	☼	78	40 - 160		
2-Methylphenol	ND		1160	970.3		ug/Kg	☼	84	40 - 160		
2-Nitrophenol	ND		1160	807.5		ug/Kg	☼	70	40 - 160		
3/4-Methylphenol	ND		2310	1623		ug/Kg	☼	70	40 - 160		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-60732-A-5-J MS
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	ND		1160	1067		ug/Kg	☼	92	40 - 160
4-Chloro-3-methylphenol	ND		1160	816.7		ug/Kg	☼	71	8 - 160
Acenaphthene	ND		1160	858.0		ug/Kg	☼	74	40 - 160
Benzo[a]pyrene	4.4	J	1160	1185		ug/Kg	☼	102	17 - 163
Bis(2-ethylhexyl) phthalate	16	J B	1160	1172		ug/Kg	☼	100	40 - 160
Butyl benzyl phthalate	10	J	1160	1040		ug/Kg	☼	89	40 - 160
Chrysene	ND		1160	951.5		ug/Kg	☼	82	17 - 168
Diethyl phthalate	3.4	J B	1160	974.1		ug/Kg	☼	84	40 - 160
Dimethyl phthalate	ND		1160	923.4		ug/Kg	☼	80	40 - 160
Di-n-butyl phthalate	17	J B	1160	966.1		ug/Kg	☼	82	40 - 160
Di-n-octyl phthalate	31	J	1160	1085		ug/Kg	☼	91	40 - 160
Fluoranthene	ND		1160	907.3		ug/Kg	☼	79	26 - 137
Fluorene	ND		1160	886.2		ug/Kg	☼	77	59 - 121
Naphthalene	ND		1160	661.8		ug/Kg	☼	57	21 - 133
Pentachlorophenol	23	J	1160	904.7		ug/Kg	☼	76	40 - 160
Phenanthrene	ND		1160	961.0		ug/Kg	☼	83	54 - 120
Pyrene	ND		1160	969.6		ug/Kg	☼	84	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*82*		*32 - 143*
2-Fluorophenol	*71*		*15 - 138*
Nitrobenzene-d5	*59*		*18 - 162*
Phenol-d6	*74*		*17 - 141*
p-Terphenyl-d14	*82*		*34 - 148*
2-Fluorobiphenyl (Surr)	*68*		*14 - 146*

Lab Sample ID: 570-60732-A-5-K MSD
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND		1160	1020		ug/Kg	☼	88	40 - 160	0	20
2,4,6-Trichlorophenol	ND		1160	947.8		ug/Kg	☼	82	40 - 160	3	20
2,4-Dichlorophenol	ND		1160	788.2		ug/Kg	☼	68	40 - 160	2	20
2,4-Dimethylphenol	ND		1160	846.6		ug/Kg	☼	73	40 - 160	2	20
2,4-Dinitrophenol	140	J	1160	1044		ug/Kg	☼	78	40 - 160	1	20
2-Chlorophenol	ND		1160	903.5		ug/Kg	☼	78	40 - 160	0	20
2-Methylphenol	ND		1160	964.3		ug/Kg	☼	83	40 - 160	1	20
2-Nitrophenol	ND		1160	815.3		ug/Kg	☼	70	40 - 160	1	20
3/4-Methylphenol	ND		2320	1592		ug/Kg	☼	69	40 - 160	2	20
4,6-Dinitro-2-methylphenol	ND		1160	1085		ug/Kg	☼	94	40 - 160	2	20
4-Chloro-3-methylphenol	ND		1160	811.8		ug/Kg	☼	70	8 - 160	1	20
Acenaphthene	ND		1160	838.0		ug/Kg	☼	72	40 - 160	2	20
Benzo[a]pyrene	4.4	J	1160	1186		ug/Kg	☼	102	17 - 163	0	20
Bis(2-ethylhexyl) phthalate	16	J B	1160	1165		ug/Kg	☼	99	40 - 160	1	20
Butyl benzyl phthalate	10	J	1160	1053		ug/Kg	☼	90	40 - 160	1	20
Chrysene	ND		1160	953.0		ug/Kg	☼	82	17 - 168	0	20
Diethyl phthalate	3.4	J B	1160	972.3		ug/Kg	☼	84	40 - 160	0	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-60732-A-5-K MSD
Matrix: Solid
Analysis Batch: 156682

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154995

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	ND		1160	906.9		ug/Kg	☼	78	40 - 160	2	20
Di-n-butyl phthalate	17	J B	1160	976.9		ug/Kg	☼	83	40 - 160	1	20
Di-n-octyl phthalate	31	J	1160	1093		ug/Kg	☼	92	40 - 160	1	20
Fluoranthene	ND		1160	896.2		ug/Kg	☼	77	26 - 137	1	20
Fluorene	ND		1160	867.8		ug/Kg	☼	75	59 - 121	2	20
Naphthalene	ND		1160	669.5		ug/Kg	☼	58	21 - 133	1	20
Pentachlorophenol	23	J	1160	945.8		ug/Kg	☼	80	40 - 160	4	20
Phenanthrene	ND		1160	965.6		ug/Kg	☼	83	54 - 120	0	20
Pyrene	ND		1160	981.5		ug/Kg	☼	85	6 - 156	1	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*86*		*32 - 143*
2-Fluorophenol	*73*		*15 - 138*
Nitrobenzene-d5	*62*		*18 - 162*
Phenol-d6	*76*		*17 - 141*
p-Terphenyl-d14	*82*		*34 - 148*
2-Fluorobiphenyl (Surr)	*70*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-154994/1-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-28	ND		0.20	0.069	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-37	ND		0.20	0.061	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-44	ND		0.20	0.15	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-49	ND		0.20	0.050	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-52	ND		0.20	0.19	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-66	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-70	ND		0.20	0.072	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-74	ND		0.20	0.090	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-77	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-81	ND		0.20	0.090	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-87	ND		0.20	0.11	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-99	ND		0.20	0.047	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-101	ND		0.20	0.044	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-105	ND		0.20	0.053	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-110	ND		0.20	0.034	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-114	ND		0.20	0.074	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-118	ND		0.20	0.035	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-119	ND		0.20	0.063	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-123	ND		0.20	0.073	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-126	ND		0.20	0.055	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-128	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/03/21 21:50	06/14/21 13:52	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-154994/1-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-149	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-151	ND		0.20	0.088	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-156	ND		0.20	0.077	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-157	ND		0.20	0.085	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-167	ND		0.20	0.13	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-168	ND		0.20	0.14	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-169	ND		0.20	0.065	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-170	ND		0.20	0.11	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-177	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-180	ND		0.20	0.092	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-183	ND		0.20	0.093	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-187	ND		0.20	0.10	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-189	ND		0.20	0.064	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-194	ND		0.20	0.074	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-201	ND		0.20	0.034	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
PCB-206	ND		0.20	0.12	ug/Kg		06/03/21 21:50	06/14/21 13:52	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/03/21 21:50	06/14/21 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*87*		*20 - 139*	*06/03/21 21:50*	*06/14/21 13:52*	*1*
p-Terphenyl-d14	*95*		*37 - 165*	*06/03/21 21:50*	*06/14/21 13:52*	*1*

Lab Sample ID: LCS 570-154994/2-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	34.55		ug/Kg		69	33 - 114
PCB-28	50.0	39.78		ug/Kg		80	40 - 132
PCB-44	50.0	39.38		ug/Kg		79	38 - 131
PCB-52	50.0	39.40		ug/Kg		79	38 - 131
PCB-66	50.0	44.23		ug/Kg		88	42 - 141
PCB-77	50.0	39.96		ug/Kg		80	47 - 135
PCB-101	50.0	41.24		ug/Kg		82	40 - 132
PCB-105	50.0	43.14		ug/Kg		86	39 - 135
PCB-118	50.0	39.64		ug/Kg		79	38 - 131
PCB-126	50.0	44.69		ug/Kg		89	40 - 139
PCB-128	50.0	50.36		ug/Kg		101	43 - 149
PCB-132/153	50.0	45.67		ug/Kg		91	37 - 164
PCB-138/158	50.0	41.34		ug/Kg		83	36 - 124
PCB-170	50.0	47.53		ug/Kg		95	35 - 134
PCB-180	50.0	48.70		ug/Kg		97	38 - 159
PCB-187	50.0	49.57		ug/Kg		99	41 - 147
PCB-201	50.0	50.52		ug/Kg		101	40 - 156
PCB-206	50.0	55.42		ug/Kg		111	37 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-154994/2-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154994

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
p-Terphenyl-d14	*84*		*37 - 165*

Lab Sample ID: LCSD 570-154994/3-A
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	33.90		ug/Kg		68	33 - 114	2	29
PCB-28	50.0	38.58		ug/Kg		77	40 - 132	3	29
PCB-44	50.0	39.00		ug/Kg		78	38 - 131	1	32
PCB-52	50.0	37.64		ug/Kg		75	38 - 131	5	32
PCB-66	50.0	44.89		ug/Kg		90	42 - 141	1	34
PCB-77	50.0	38.71		ug/Kg		77	47 - 135	3	35
PCB-101	50.0	40.09		ug/Kg		80	40 - 132	3	34
PCB-105	50.0	42.24		ug/Kg		84	39 - 135	2	37
PCB-118	50.0	38.90		ug/Kg		78	38 - 131	2	35
PCB-126	50.0	43.33		ug/Kg		87	40 - 139	3	39
PCB-128	50.0	48.75		ug/Kg		97	43 - 149	3	37
PCB-132/153	50.0	44.60		ug/Kg		89	37 - 164	2	38
PCB-138/158	50.0	39.53		ug/Kg		79	36 - 124	4	40
PCB-170	50.0	46.74		ug/Kg		93	35 - 134	2	31
PCB-180	50.0	48.63		ug/Kg		97	38 - 159	0	40
PCB-187	50.0	48.45		ug/Kg		97	41 - 147	2	40
PCB-201	50.0	48.63		ug/Kg		97	40 - 156	4	40
PCB-206	50.0	55.02		ug/Kg		110	37 - 153	1	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*20 - 139*
p-Terphenyl-d14	*82*		*37 - 165*

Lab Sample ID: 570-60732-A-5-G MS
Matrix: Solid
Analysis Batch: 157139

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154994

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		57.9	38.76		ug/Kg	☼	67	29 - 127
PCB-28	ND		57.9	44.93		ug/Kg	☼	78	29 - 170
PCB-44	ND		57.9	45.67		ug/Kg	☼	79	33 - 150
PCB-52	ND		57.9	44.73		ug/Kg	☼	77	23 - 159
PCB-66	ND		57.9	51.85		ug/Kg	☼	90	29 - 166
PCB-77	ND		57.9	46.44		ug/Kg	☼	80	30 - 166
PCB-101	ND		57.9	46.74		ug/Kg	☼	81	30 - 159
PCB-105	ND		57.9	49.74		ug/Kg	☼	86	22 - 173
PCB-118	ND		57.9	45.74		ug/Kg	☼	79	24 - 162
PCB-126	ND		57.9	50.55		ug/Kg	☼	87	18 - 180
PCB-128	ND		57.9	56.38		ug/Kg	☼	97	18 - 180
PCB-132/153	ND		57.9	52.22		ug/Kg	☼	90	27 - 180
PCB-138/158	ND		57.9	47.04		ug/Kg	☼	81	18 - 160

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-60732-A-5-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157139 — **Prep Batch: 154994**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-170	ND		57.9	55.66		ug/Kg	☼	96	25 - 165
PCB-180	ND		57.9	56.57		ug/Kg	☼	98	20 - 180
PCB-187	ND		57.9	56.90		ug/Kg	☼	98	14 - 180
PCB-201	ND		57.9	56.37		ug/Kg	☼	97	17 - 180
PCB-206	ND		57.9	61.27		ug/Kg	☼	106	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*74*		*20 - 139*
p-Terphenyl-d14	*83*		*37 - 165*

Lab Sample ID: 570-60732-A-5-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157139 — **Prep Batch: 154994**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		58.1	38.44		ug/Kg	☼	66	29 - 127	1	40
PCB-28	ND		58.1	45.17		ug/Kg	☼	78	29 - 170	1	32
PCB-44	ND		58.1	45.73		ug/Kg	☼	79	33 - 150	0	40
PCB-52	ND		58.1	44.51		ug/Kg	☼	77	23 - 159	0	40
PCB-66	ND		58.1	51.61		ug/Kg	☼	89	29 - 166	0	40
PCB-77	ND		58.1	45.18		ug/Kg	☼	78	30 - 166	3	40
PCB-101	ND		58.1	47.02		ug/Kg	☼	81	30 - 159	1	40
PCB-105	ND		58.1	48.75		ug/Kg	☼	84	22 - 173	2	40
PCB-118	ND		58.1	45.15		ug/Kg	☼	78	24 - 162	1	40
PCB-126	ND		58.1	49.29		ug/Kg	☼	85	18 - 180	3	40
PCB-128	ND		58.1	56.19		ug/Kg	☼	97	18 - 180	0	40
PCB-132/153	ND		58.1	51.19		ug/Kg	☼	88	27 - 180	2	40
PCB-138/158	ND		58.1	46.00		ug/Kg	☼	79	18 - 160	2	40
PCB-170	ND		58.1	54.37		ug/Kg	☼	94	25 - 165	2	22
PCB-180	ND		58.1	55.00		ug/Kg	☼	95	20 - 180	3	40
PCB-187	ND		58.1	54.98		ug/Kg	☼	95	14 - 180	3	40
PCB-201	ND		58.1	56.03		ug/Kg	☼	96	17 - 180	1	40
PCB-206	ND		58.1	59.16		ug/Kg	☼	102	16 - 180	4	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*73*		*20 - 139*
p-Terphenyl-d14	*82*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-154999/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/03/21 21:55	06/10/21 20:59	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-154999/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cypermethrin	ND		0.50	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/03/21 21:55	06/10/21 20:59	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/03/21 21:55	06/10/21 20:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*127*	*S1+*	*14 - 116*	*06/03/21 21:55*	*06/10/21 20:59*	*1*

Lab Sample ID: LCS 570-154999/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.578		ug/Kg		72	10 - 148
Bifenthrin	5.00	5.453		ug/Kg		109	26 - 128
Cyfluthrin	5.00	5.134		ug/Kg		103	10 - 131
Cypermethrin	5.00	5.217		ug/Kg		104	10 - 136
Deltamethrin/Tralomethrin	5.00	4.531		ug/Kg		91	13 - 190
Fenpropathrin	5.00	5.197		ug/Kg		104	10 - 148
Fenvalerate/Esfenvalerate	5.00	5.013		ug/Kg		100	10 - 149
Fluvalinate	5.00	3.474		ug/Kg		69	10 - 121
Lambda cyhalothrin	5.00	5.086		ug/Kg		102	10 - 123
Permethrins (cis/trans)	5.00	5.590		ug/Kg		112	45 - 123
Phenothrin	5.00	5.612		ug/Kg		112	45 - 165
Resmethrin/Bioresmethrin	5.00	4.009		ug/Kg		80	38 - 164
Tetramethrin	5.00	4.519		ug/Kg		90	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*119*	*S1+*	*14 - 116*

Lab Sample ID: LCSD 570-154999/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.975		ug/Kg		79	10 - 148	11	25
Bifenthrin	5.00	5.558		ug/Kg		111	26 - 128	2	25
Cyfluthrin	5.00	5.297		ug/Kg		106	10 - 131	3	25
Cypermethrin	5.00	5.335		ug/Kg		107	10 - 136	2	25
Deltamethrin/Tralomethrin	5.00	4.662		ug/Kg		93	13 - 190	3	25
Fenpropathrin	5.00	5.560		ug/Kg		111	10 - 148	7	25
Fenvalerate/Esfenvalerate	5.00	5.141		ug/Kg		103	10 - 149	3	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCSD 570-154999/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluvalinate			5.00	3.466		ug/Kg		69	10 - 121	0	25
Lambda cyhalothrin			5.00	5.183		ug/Kg		104	10 - 123	2	25
Permethrins (cis/trans)			5.00	5.782		ug/Kg		116	45 - 123	3	25
Phenothrin			5.00	5.913		ug/Kg		118	45 - 165	5	25
Resmethrin/Bioresmethrin			5.00	4.054		ug/Kg		81	38 - 164	1	25
Tetramethrin			5.00	4.611		ug/Kg		92	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*127*	*S1+*	*14 - 116*

Lab Sample ID: 570-60732-A-5-M MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Allethrin	ND		5.82	4.420		ug/Kg	☼	76	10 - 148		
Bifenthrin	ND		5.82	7.391		ug/Kg	☼	127	26 - 128		
Cyfluthrin	ND		5.82	5.983		ug/Kg	☼	103	10 - 131		
Cypermethrin	ND		5.82	6.318		ug/Kg	☼	109	10 - 136		
Deltamethrin/Tralomethrin	ND		5.82	6.603		ug/Kg	☼	113	13 - 190		
Fenpropathrin	ND		5.82	7.747		ug/Kg	☼	133	10 - 148		
Fenvalerate/Esfenvalerate	ND		5.82	6.717		ug/Kg	☼	115	10 - 149		
Fluvalinate	ND		5.82	4.381		ug/Kg	☼	75	10 - 121		
Lambda cyhalothrin	ND		5.82	6.442		ug/Kg	☼	111	10 - 123		
Permethrins (cis/trans)	ND		5.82	7.148		ug/Kg	☼	123	45 - 123		
Phenothrin	ND		5.82	8.820		ug/Kg	☼	152	45 - 165		
Resmethrin/Bioresmethrin	ND		5.82	4.015		ug/Kg	☼	69	38 - 164		
Tetramethrin	ND		5.82	6.149		ug/Kg	☼	106	15 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*131*	*S1+*	*14 - 116*

Lab Sample ID: 570-60732-A-5-N MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.78	4.110		ug/Kg	☼	71	10 - 148	7	30
Bifenthrin	ND		5.78	6.169		ug/Kg	☼	107	26 - 128	18	30
Cyfluthrin	ND		5.78	4.963		ug/Kg	☼	86	10 - 131	19	30
Cypermethrin	ND		5.78	5.178		ug/Kg	☼	90	10 - 136	20	30
Deltamethrin/Tralomethrin	ND		5.78	5.336		ug/Kg	☼	92	13 - 190	21	30
Fenpropathrin	ND		5.78	6.526		ug/Kg	☼	113	10 - 148	17	30
Fenvalerate/Esfenvalerate	ND		5.78	5.446		ug/Kg	☼	94	10 - 149	21	30
Fluvalinate	ND		5.78	3.711		ug/Kg	☼	64	10 - 121	17	30
Lambda cyhalothrin	ND		5.78	5.545		ug/Kg	☼	96	10 - 123	15	30
Permethrins (cis/trans)	ND		5.78	5.913		ug/Kg	☼	102	45 - 123	19	30
Phenothrin	ND		5.78	8.115		ug/Kg	☼	140	45 - 165	8	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-60732-A-5-N MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156500 — **Prep Batch: 154999**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Resmethrin/Bioresmethrin	ND		5.78	3.708		ug/Kg	☼	64	38 - 164	8	30
Tetramethrin	ND		5.78	5.666		ug/Kg	☼	98	15 - 153	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*124*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-155507/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/07/21 16:16	06/09/21 13:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*50*		*10 - 120*	*06/07/21 16:16*	*06/09/21 13:41*	*1*

Lab Sample ID: LCS 570-155507/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	94.75		ug/Kg		95	10 - 153
Tributyltin	100	65.72		ug/Kg		66	10 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*65*		*10 - 120*

Lab Sample ID: LCSD 570-155507/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	100	103.6		ug/Kg		104	10 - 153	9	30
Tributyltin	100	74.81		ug/Kg		75	10 - 126	13	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*69*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-61058-A-1-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		217	168.7		ug/Kg	☼	78	10 - 140
Tributyltin	ND		217	114.2		ug/Kg	☼	53	10 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*51*		*10 - 120*

Lab Sample ID: 570-61058-A-1-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		217	163.0		ug/Kg	☼	75	10 - 140	3	40
Tributyltin	ND		217	100.7		ug/Kg	☼	46	10 - 135	13	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*53*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-157422/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157419 — **Prep Batch: 157422**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C9-C10	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C11-C12	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C13-C14	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C15-C16	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C17-C18	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C19-C20	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C21-C22	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C23-C24	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C25-C28	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C29-C32	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C33-C36	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C37-C40	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C41-C44	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1
C6-C44	ND		5.0	3.8	mg/Kg		06/15/21 13:50	06/15/21 16:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*06/15/21 13:50*	*06/15/21 16:23*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 570-157422/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157419 — **Prep Batch: 157422**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	400.0		mg/Kg		100	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*88*		*60 - 138*

Lab Sample ID: LCSD 570-157422/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157419 — **Prep Batch: 157422**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	392.5		mg/Kg		98	80 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*81*		*60 - 138*

Lab Sample ID: 570-61518-A-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157419 — **Prep Batch: 157422**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	45		424	442.8		mg/Kg		94	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*81*		*60 - 138*

Lab Sample ID: 570-61518-A-1-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157419 — **Prep Batch: 157422**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	45		412	481.1		mg/Kg		106	43 - 165	8	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*93*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-154993/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156549 — **Prep Batch: 154993**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/03/21 21:46	06/11/21 05:27	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-154993/1-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Aldrin	ND		1.0	0.072	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Chlordane	ND		5.0	0.33	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin	ND		1.0	0.088	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/03/21 21:46	06/11/21 05:27	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/03/21 21:46	06/11/21 05:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*20 - 131*	*06/03/21 21:46*	*06/11/21 05:27*	*1*
DCB Decachlorobiphenyl (Surr)	*107*		*20 - 180*	*06/03/21 21:46*	*06/11/21 05:27*	*1*

Lab Sample ID: LCS 570-154993/2-A
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	6.015		ug/Kg		120	54 - 150
4,4'-DDE	5.00	5.942		ug/Kg		119	49 - 146
4,4'-DDT	5.00	6.200		ug/Kg		124	52 - 147
Aldrin	5.00	4.893		ug/Kg		98	28 - 116
alpha-BHC	5.00	5.651		ug/Kg		113	44 - 123
beta-BHC	5.00	6.098		ug/Kg		122	48 - 127
delta-BHC	5.00	5.662		ug/Kg		113	10 - 149
Dieldrin	5.00	5.667		ug/Kg		113	48 - 132
alpha-Chlordane	5.00	5.518		ug/Kg		110	48 - 125
Endosulfan I	5.00	5.332		ug/Kg		107	44 - 125
Endosulfan II	5.00	5.420		ug/Kg		108	47 - 136
Endosulfan sulfate	5.00	5.587		ug/Kg		112	46 - 133
Endrin	5.00	5.856		ug/Kg		117	43 - 142

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-154993/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156549 — **Prep Batch: 154993**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin aldehyde	5.00	5.449		ug/Kg		109	29 - 141
gamma-BHC	5.00	5.708		ug/Kg		114	44 - 126
Heptachlor	5.00	5.624		ug/Kg		112	50 - 123
Heptachlor epoxide	5.00	5.949		ug/Kg		119	49 - 125
Methoxychlor	5.00	6.027		ug/Kg		121	49 - 145
gamma-Chlordane	5.00	5.663	p	ug/Kg		113	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*94*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*108*		*20 - 180*

Lab Sample ID: LCSD 570-154993/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156549 — **Prep Batch: 154993**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	6.067		ug/Kg		121	54 - 150	1	29
4,4'-DDE	5.00	6.009		ug/Kg		120	49 - 146	1	28
4,4'-DDT	5.00	6.422		ug/Kg		128	52 - 147	4	32
Aldrin	5.00	4.893		ug/Kg		98	28 - 116	0	30
alpha-BHC	5.00	5.538		ug/Kg		111	44 - 123	2	27
beta-BHC	5.00	5.625		ug/Kg		113	48 - 127	8	28
delta-BHC	5.00	5.752		ug/Kg		115	10 - 149	2	27
Dieldrin	5.00	5.768		ug/Kg		115	48 - 132	2	28
alpha-Chlordane	5.00	5.631		ug/Kg		113	48 - 125	2	27
Endosulfan I	5.00	5.987		ug/Kg		120	44 - 125	12	29
Endosulfan II	5.00	6.738		ug/Kg		135	47 - 136	22	29
Endosulfan sulfate	5.00	6.929	*+ me	ug/Kg		139	46 - 133	21	28
Endrin	5.00	5.940		ug/Kg		119	43 - 142	1	27
Endrin aldehyde	5.00	6.093		ug/Kg		122	29 - 141	11	40
gamma-BHC	5.00	6.212		ug/Kg		124	44 - 126	8	28
Heptachlor	5.00	5.484		ug/Kg		110	50 - 123	3	28
Heptachlor epoxide	5.00	5.821		ug/Kg		116	49 - 125	2	28
Methoxychlor	5.00	6.529		ug/Kg		131	49 - 145	8	39
gamma-Chlordane	5.00	5.518	*1	ug/Kg		110	29 - 153	43	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*89*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*103*		*20 - 180*

Lab Sample ID: 570-60732-A-4-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156549 — **Prep Batch: 154993**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		5.92	6.225		ug/Kg	☼	105	17 - 180
4,4'-DDE	ND		5.92	6.130		ug/Kg	☼	104	20 - 180
4,4'-DDT	ND		5.92	6.648		ug/Kg	☼	112	10 - 180

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-60732-A-4-H MS
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		5.92	5.423		ug/Kg	☼	92	27 - 146
alpha-BHC	ND		5.92	5.991		ug/Kg	☼	101	33 - 160
beta-BHC	ND		5.92	7.787		ug/Kg	☼	132	14 - 178
delta-BHC	ND		5.92	6.447		ug/Kg	☼	109	10 - 159
Dieldrin	ND		5.92	6.154		ug/Kg	☼	104	25 - 180
alpha-Chlordane	ND		5.92	5.835		ug/Kg	☼	99	24 - 164
Endosulfan I	ND		5.92	5.938		ug/Kg	☼	100	31 - 146
Endosulfan II	ND		5.92	5.923		ug/Kg	☼	100	14 - 176
Endosulfan sulfate	ND	*+	5.92	6.157		ug/Kg	☼	104	22 - 167
Endrin	ND		5.92	6.358		ug/Kg	☼	107	23 - 174
Endrin aldehyde	ND		5.92	6.937		ug/Kg	☼	117	10 - 180
gamma-BHC	ND		5.92	6.467		ug/Kg	☼	109	27 - 160
Heptachlor	ND		5.92	5.561		ug/Kg	☼	94	23 - 144
Heptachlor epoxide	ND		5.92	7.343		ug/Kg	☼	124	25 - 173
Methoxychlor	ND		5.92	6.428		ug/Kg	☼	109	10 - 180
gamma-Chlordane	ND	F2 *1	5.92	6.512	p	ug/Kg	☼	110	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*92*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 180*

Lab Sample ID: 570-60732-A-4-I MSD
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		5.88	6.296		ug/Kg	☼	107	17 - 180	1	40
4,4'-DDE	ND		5.88	6.149		ug/Kg	☼	105	20 - 180	0	40
4,4'-DDT	ND		5.88	6.686		ug/Kg	☼	114	10 - 180	1	40
Aldrin	ND		5.88	5.416		ug/Kg	☼	92	27 - 146	0	40
alpha-BHC	ND		5.88	6.175		ug/Kg	☼	105	33 - 160	3	36
beta-BHC	ND		5.88	8.422		ug/Kg	☼	143	14 - 178	8	40
delta-BHC	ND		5.88	6.771		ug/Kg	☼	115	10 - 159	5	40
Dieldrin	ND		5.88	6.095		ug/Kg	☼	104	25 - 180	1	40
alpha-Chlordane	ND		5.88	5.801		ug/Kg	☼	99	24 - 164	1	40
Endosulfan I	ND		5.88	5.879		ug/Kg	☼	100	31 - 146	1	34
Endosulfan II	ND		5.88	6.061		ug/Kg	☼	103	14 - 176	2	40
Endosulfan sulfate	ND	*+	5.88	6.065		ug/Kg	☼	103	22 - 167	2	40
Endrin	ND		5.88	6.457		ug/Kg	☼	110	23 - 174	2	40
Endrin aldehyde	ND		5.88	7.546		ug/Kg	☼	128	10 - 180	8	40
gamma-BHC	ND		5.88	6.339		ug/Kg	☼	108	27 - 160	2	40
Heptachlor	ND		5.88	5.646		ug/Kg	☼	96	23 - 144	2	40
Heptachlor epoxide	ND		5.88	6.079		ug/Kg	☼	103	25 - 173	19	40
Methoxychlor	ND		5.88	6.500		ug/Kg	☼	111	10 - 180	1	40
gamma-Chlordane	ND	F2 *1	5.88	6.908		ug/Kg	☼	118	26 - 180	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*94*		*20 - 131*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-60732-A-4-I MSD
Matrix: Solid
Analysis Batch: 156549

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 154993

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*101*		*20 - 180*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-154993/1-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/03/21 21:46	06/11/21 00:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*20 - 155*	*06/03/21 21:46*	*06/11/21 00:09*	*1*
Tetrachloro-m-xylene (Surr)	*93*		*25 - 126*	*06/03/21 21:46*	*06/11/21 00:09*	*1*

Lab Sample ID: LCS 570-154993/6-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	20.0	25.61		ug/Kg		128	50 - 142
Aroclor-1260	20.0	23.20		ug/Kg		116	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*90*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*91*		*25 - 126*

Lab Sample ID: LCSD 570-154993/7-A
Matrix: Solid
Analysis Batch: 156525

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154993

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	20.0	23.52		ug/Kg		118	50 - 142	9	30
Aroclor-1260	20.0	23.70		ug/Kg		119	50 - 150	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*96*		*25 - 126*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-60732-A-4-L MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156525 — **Prep Batch: 154993**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	ND	F1	23.7	47.57	F1	ug/Kg	☼	201	20 - 175
Aroclor-1260	ND		23.7	30.84		ug/Kg	☼	130	20 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*101*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*80*		*25 - 126*

Lab Sample ID: 570-60732-A-4-M MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156525 — **Prep Batch: 154993**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND	F1	23.6	71.36	F1	ug/Kg	☼	302	20 - 175	40	40
Aroclor-1260	ND		23.6	25.98		ug/Kg	☼	110	20 - 180	17	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*92*		*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-156160/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	210	ug/Kg		06/09/21 14:22	06/10/21 16:52	10

Lab Sample ID: LCS 570-156160/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19310		ug/Kg		97	80 - 120

Lab Sample ID: LCSD 570-156160/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20100	19290		ug/Kg		96	80 - 120	0	20

Lab Sample ID: 570-61178-A-3-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	5300		19900	23330		ug/Kg		90	75 - 125

Method: 7199 - Chromium, Hexavalent (IC) (Continued)

Lab Sample ID: 570-61178-A-3-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	5300		20000	20940		ug/Kg		78	75 - 125	11	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-157167/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	0.275	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Arsenic	ND		0.985	0.329	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Barium	ND		0.985	0.205	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Beryllium	ND		0.985	0.204	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Cadmium	ND		0.985	0.443	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Chromium	ND		1.97	0.296	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Cobalt	ND		0.985	0.186	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Copper	ND		0.985	0.265	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Lead	ND		0.985	0.212	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Molybdenum	ND		0.985	0.303	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Nickel	ND		0.985	0.266	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Selenium	ND		0.985	0.572	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Silver	ND		0.985	0.326	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Thallium	ND		0.985	0.216	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Vanadium	ND		1.97	0.238	mg/Kg		06/14/21 13:40	06/15/21 10:28	20
Zinc	ND		4.93	4.55	mg/Kg		06/14/21 13:40	06/15/21 10:28	20

Lab Sample ID: LCS 570-157167/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	25.0	23.80		mg/Kg		95	80 - 120
Arsenic	25.0	25.30		mg/Kg		101	80 - 120
Barium	25.0	23.87		mg/Kg		95	80 - 120
Beryllium	25.0	25.11		mg/Kg		100	80 - 120
Cadmium	25.0	25.46		mg/Kg		102	80 - 120
Chromium	25.0	24.18		mg/Kg		97	80 - 120
Cobalt	25.0	25.20		mg/Kg		101	80 - 120
Copper	25.0	25.59		mg/Kg		102	80 - 120
Lead	25.0	24.64		mg/Kg		99	80 - 120
Molybdenum	25.0	24.88		mg/Kg		100	80 - 120
Nickel	25.0	25.68		mg/Kg		103	80 - 120
Selenium	25.0	24.70		mg/Kg		99	80 - 120
Silver	12.5	12.75		mg/Kg		102	80 - 120
Thallium	25.0	23.22		mg/Kg		93	80 - 120
Vanadium	25.0	24.85		mg/Kg		99	80 - 120
Zinc	25.0	26.38		mg/Kg		106	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-157167/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	25.1	23.93		mg/Kg		95	80 - 120	1	20
Arsenic	25.1	24.99		mg/Kg		99	80 - 120	1	20
Barium	25.1	23.63		mg/Kg		94	80 - 120	1	20
Beryllium	25.1	25.86		mg/Kg		103	80 - 120	3	20
Cadmium	25.1	25.87		mg/Kg		103	80 - 120	2	20
Chromium	25.1	23.99		mg/Kg		95	80 - 120	1	20
Cobalt	25.1	24.61		mg/Kg		98	80 - 120	2	20
Copper	25.1	26.04		mg/Kg		104	80 - 120	2	20
Lead	25.1	24.66		mg/Kg		98	80 - 120	0	20
Molybdenum	25.1	25.88		mg/Kg		103	80 - 120	4	20
Nickel	25.1	25.39		mg/Kg		101	80 - 120	1	20
Selenium	25.1	24.85		mg/Kg		99	80 - 120	1	20
Silver	12.6	12.32		mg/Kg		98	80 - 120	3	20
Thallium	25.1	23.23		mg/Kg		92	80 - 120	0	20
Vanadium	25.1	24.65		mg/Kg		98	80 - 120	1	20
Zinc	25.1	26.13		mg/Kg		104	80 - 120	1	20

Lab Sample ID: 570-60879-1 MS — **Client Sample ID: FDD-B-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		56.2	9.119		mg/Kg	☼	16	1 - 97
Arsenic	8.42		56.2	66.19		mg/Kg	☼	103	72 - 132
Barium	88.9	F1	56.2	195.9	F1	mg/Kg	☼	191	50 - 152
Beryllium	0.530	J	56.2	57.26		mg/Kg	☼	101	61 - 121
Cadmium	ND		56.2	58.00		mg/Kg	☼	103	85 - 121
Chromium	45.5		56.2	118.7		mg/Kg	☼	130	20 - 182
Cobalt	8.61		56.2	67.37		mg/Kg	☼	105	40 - 166
Copper	243		56.2	384.7	4	mg/Kg	☼	252	25 - 157
Lead	52.4		56.2	124.6		mg/Kg	☼	129	62 - 134
Molybdenum	0.691	J F1	56.2	36.83	F1	mg/Kg	☼	64	69 - 123
Nickel	11.6		56.2	71.43		mg/Kg	☼	107	46 - 154
Selenium	ND		56.2	52.34		mg/Kg	☼	93	54 - 132
Silver	1.13	J F1	28.1	2.943	F1	mg/Kg	☼	6	78 - 126
Thallium	ND		56.2	53.76		mg/Kg	☼	96	79 - 115
Vanadium	56.7		56.2	141.2		mg/Kg	☼	150	28 - 178
Zinc	271		56.2	429.1	4	mg/Kg	☼	281	23 - 173

Lab Sample ID: 570-60879-1 MSD — **Client Sample ID: FDD-B-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		56.7	8.676		mg/Kg	☼	15	1 - 97	5	39
Arsenic	8.42		56.7	63.63		mg/Kg	☼	97	72 - 132	4	13
Barium	88.9	F1	56.7	188.7	F1	mg/Kg	☼	176	50 - 152	4	41
Beryllium	0.530	J	56.7	56.21		mg/Kg	☼	98	61 - 121	2	13
Cadmium	ND		56.7	56.13		mg/Kg	☼	99	85 - 121	3	12

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-60879-1 MSD — **Client Sample ID: FDD-B-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157167**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	45.5		56.7	115.3		mg/Kg	☼	123	20 - 182	3	15
Cobalt	8.61		56.7	66.96		mg/Kg	☼	103	40 - 166	1	14
Copper	243		56.7	375.0	4	mg/Kg	☼	232	25 - 157	3	22
Lead	52.4		56.7	118.9		mg/Kg	☼	117	62 - 134	5	23
Molybdenum	0.691	J F1	56.7	35.67	F1	mg/Kg	☼	62	69 - 123	3	13
Nickel	11.6		56.7	70.44		mg/Kg	☼	104	46 - 154	1	15
Selenium	ND		56.7	52.97		mg/Kg	☼	93	54 - 132	1	14
Silver	1.13	J F1	28.4	2.957	F1	mg/Kg	☼	6	78 - 126	0	15
Thallium	ND		56.7	51.75		mg/Kg	☼	91	79 - 115	4	11
Vanadium	56.7		56.7	137.2		mg/Kg	☼	142	28 - 178	3	28
Zinc	271		56.7	418.2	4	mg/Kg	☼	259	23 - 173	3	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-157159/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0135	mg/Kg		06/14/21 13:00	06/14/21 16:45	1

Lab Sample ID: LCS 570-157159/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.820	0.8409		mg/Kg		103	85 - 121

Lab Sample ID: LCSD 570-157159/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.833	0.9193		mg/Kg		110	85 - 121	9	10

Lab Sample ID: 570-60879-1 MS — **Client Sample ID: FDD-B-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.760	F2	1.83	2.380		mg/Kg	☼	89	71 - 137

Lab Sample ID: 570-60879-1 MSD — **Client Sample ID: FDD-B-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157171 — **Prep Batch: 157159**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.760	F2	1.89	2.862	F2	mg/Kg	☼	111	71 - 137	18	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-155877/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/08/21 14:46	06/08/21 14:46	1

Lab Sample ID: LCS 570-155877/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-155877/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Lab Sample ID: 570-60879-4 MS — **Client Sample ID: FDD-D-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-60879-4 MSD — **Client Sample ID: FDD-D-C4**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114	0	18
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-154704/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.100	0.0840	mg/Kg		06/03/21 00:00	06/03/21 01:35	1

Lab Sample ID: LCS 570-154704/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.502	0.5161		mg/Kg		103	72 - 123

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCSD 570-154704/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide			0.502	0.5165		mg/Kg		103	72 - 123	0	11

Lab Sample ID: 570-60626-A-1-O DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Sulfide	6.31			5.912		mg/Kg	☼			6	20

Lab Sample ID: MB 570-154705/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:48	1

Lab Sample ID: LCS 570-154705/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.4755		mg/Kg		95	72 - 123		

Lab Sample ID: LCSD 570-154705/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5158		mg/Kg		103	72 - 123	8	11

Lab Sample ID: 570-60626-A-1-Q DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-156869/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 570-156869/5 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.147		%		105	80 - 120		

Lab Sample ID: LCSD 570-156869/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	3.010		%		100	80 - 120	4	20

Lab Sample ID: 570-57274-B-3-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic	2.05		6.04	7.426		%	☼	89	75 - 125		

Lab Sample ID: 570-57274-B-3-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	2.05		5.90	7.613		%	☼	94	75 - 125	2	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-61058-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155672

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	45.8			45.5		%				0.7	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-157805/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/16/21 19:05	06/17/21 21:44	1

Lab Sample ID: LCS 570-157805/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	218.1		mg/Kg		87	80 - 120		

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: LCSD 570-157805/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	215.6		mg/Kg		86	80 - 120	1	20

Lab Sample ID: 570-61000-B-5-W MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	4.14		30.8	29.62		mg/Kg	☼	83	75 - 125		

Lab Sample ID: 570-61000-B-5-X MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	4.14		30.8	29.21		mg/Kg	☼	81	75 - 125	1	25

Lab Sample ID: 570-61000-B-5-V DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	4.14			4.212		mg/Kg	☼			2	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCSD 570-154993/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	6.067		ug/Kg	121	54 - 150	38 - 166	
4,4'-DDE	5.00	6.009		ug/Kg	120	49 - 146	33 - 162	
4,4'-DDT	5.00	6.422		ug/Kg	128	52 - 147	36 - 163	
Aldrin	5.00	4.893		ug/Kg	98	28 - 116	13 - 131	
alpha-BHC	5.00	5.538		ug/Kg	111	44 - 123	31 - 136	
beta-BHC	5.00	5.625		ug/Kg	113	48 - 127	35 - 140	
delta-BHC	5.00	5.752		ug/Kg	115	10 - 149	1 - 172	
Dieldrin	5.00	5.768		ug/Kg	115	48 - 132	34 - 146	
alpha-Chlordane	5.00	5.631		ug/Kg	113	48 - 125	35 - 138	
Endosulfan I	5.00	5.987		ug/Kg	120	44 - 125	31 - 139	
Endosulfan II	5.00	6.738		ug/Kg	135	47 - 136	32 - 151	
Endosulfan sulfate	5.00	6.929	*+ me	ug/Kg	139	46 - 133	32 - 148	ME
Endrin	5.00	5.940		ug/Kg	119	43 - 142	27 - 159	
Endrin aldehyde	5.00	6.093		ug/Kg	122	29 - 141	10 - 160	
gamma-BHC	5.00	6.212		ug/Kg	124	44 - 126	30 - 140	
Heptachlor	5.00	5.484		ug/Kg	110	50 - 123	38 - 135	
Heptachlor epoxide	5.00	5.821		ug/Kg	116	49 - 125	36 - 138	
Methoxychlor	5.00	6.529		ug/Kg	131	49 - 145	33 - 161	
gamma-Chlordane	5.00	5.518	*1	ug/Kg	110	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	1

ME = Marginal Exceedance

GC/MS Semi VOA

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-A-5-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60732-A-5-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-60732-A-5-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60732-A-5-K MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-60732-A-5-M MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60732-A-5-N MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 154994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3541	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3541	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3541	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3541	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3541	155128
MB 570-154994/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154994/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154994/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-A-5-G MS	Matrix Spike	Total/NA	Solid	3541	154700
570-60732-A-5-H MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	154700

Prep Batch: 154995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3541	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3541	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3541	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3541	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3541	155128
MB 570-154995/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154995/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154995/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-A-5-J MS	Matrix Spike	Total/NA	Solid	3541	154700
570-60732-A-5-K MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	154700

Prep Batch: 154999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3541	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3541	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3541	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3541	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3541	155128
MB 570-154999/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154999/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154999/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-A-5-M MS	Matrix Spike	Total/NA	Solid	3541	154700
570-60732-A-5-N MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	154700

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

GC/MS Semi VOA

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 155507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Organotin Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Organotin Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Organotin Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Organotin Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Organotin Prep	
MB 570-155507/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-155507/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-155507/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Organotin Prep	155604
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotin Prep	155604

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 155808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Organotins SIM	155507
570-60879-2	FDD-B-C9	Total/NA	Sediment	Organotins SIM	155507
570-60879-3	FDD-B-C10	Total/NA	Sediment	Organotins SIM	155507
570-60879-4	FDD-D-C4	Total/NA	Sediment	Organotins SIM	155507
570-60879-5	FDD-D-C6	Total/NA	Sediment	Organotins SIM	155507
MB 570-155507/1-A	Method Blank	Total/NA	Solid	Organotins SIM	155507
LCS 570-155507/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	155507
LCSD 570-155507/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	155507
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Organotins SIM	155507
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotins SIM	155507

Analysis Batch: 156500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-154999/1-A	Method Blank	Total/NA	Solid	8270D TQ	154999
LCS 570-154999/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	154999
LCSD 570-154999/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	154999
570-60732-A-5-M MS	Matrix Spike	Total/NA	Solid	8270D TQ	154999
570-60732-A-5-N MSD	Matrix Spike Duplicate	Total/NA	Solid	8270D TQ	154999

GC/MS Semi VOA

Analysis Batch: 156682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8270C SIM	154995
570-60879-2	FDD-B-C9	Total/NA	Sediment	8270C SIM	154995
570-60879-3	FDD-B-C10	Total/NA	Sediment	8270C SIM	154995
570-60879-4	FDD-D-C4	Total/NA	Sediment	8270C SIM	154995
570-60879-5	FDD-D-C6	Total/NA	Sediment	8270C SIM	154995
MB 570-154995/1-A	Method Blank	Total/NA	Solid	8270C SIM	154995
LCS 570-154995/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	154995
LCSD 570-154995/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	154995
570-60732-A-5-J MS	Matrix Spike	Total/NA	Solid	8270C SIM	154995
570-60732-A-5-K MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM	154995

Analysis Batch: 156828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8270D TQ	154999
570-60879-2	FDD-B-C9	Total/NA	Sediment	8270D TQ	154999
570-60879-3	FDD-B-C10	Total/NA	Sediment	8270D TQ	154999
570-60879-4	FDD-D-C4	Total/NA	Sediment	8270D TQ	154999
570-60879-5	FDD-D-C6	Total/NA	Sediment	8270D TQ	154999

Analysis Batch: 157139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8270C SIM CON	154994
570-60879-2	FDD-B-C9	Total/NA	Sediment	8270C SIM CON	154994
570-60879-3	FDD-B-C10	Total/NA	Sediment	8270C SIM CON	154994
570-60879-4	FDD-D-C4	Total/NA	Sediment	8270C SIM CON	154994
570-60879-5	FDD-D-C6	Total/NA	Sediment	8270C SIM CON	154994
MB 570-154994/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	154994
LCS 570-154994/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	154994
LCSD 570-154994/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	154994
570-60732-A-5-G MS	Matrix Spike	Total/NA	Solid	8270C SIM CON	154994
570-60732-A-5-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM CON	154994

GC Semi VOA

Cleanup Batch: 154700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60732-A-4-H MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60732-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-60732-A-4-L MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60732-A-4-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 154993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3541	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3541	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3541	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3541	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3541	155128

GC Semi VOA (Continued)

Prep Batch: 154993 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-154993/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154993/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-154993/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154993/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-154993/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60732-A-4-H MS	Matrix Spike	Total/NA	Solid	3541	154700
570-60732-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	154700
570-60732-A-4-L MS	Matrix Spike	Total/NA	Solid	3541	154700
570-60732-A-4-M MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	154700

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 156525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8082	154993
570-60879-2	FDD-B-C9	Total/NA	Sediment	8082	154993
570-60879-3	FDD-B-C10	Total/NA	Sediment	8082	154993
570-60879-4	FDD-D-C4	Total/NA	Sediment	8082	154993
570-60879-5	FDD-D-C6	Total/NA	Sediment	8082	154993
MB 570-154993/1-A	Method Blank	Total/NA	Solid	8082	154993
LCS 570-154993/6-A	Lab Control Sample	Total/NA	Solid	8082	154993
LCSD 570-154993/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	154993
570-60732-A-4-L MS	Matrix Spike	Total/NA	Solid	8082	154993
570-60732-A-4-M MSD	Matrix Spike Duplicate	Total/NA	Solid	8082	154993

Analysis Batch: 156549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8081A	154993
570-60879-2	FDD-B-C9	Total/NA	Sediment	8081A	154993
570-60879-4	FDD-D-C4	Total/NA	Sediment	8081A	154993
570-60879-5	FDD-D-C6	Total/NA	Sediment	8081A	154993
MB 570-154993/1-A	Method Blank	Total/NA	Solid	8081A	154993
LCS 570-154993/2-A	Lab Control Sample	Total/NA	Solid	8081A	154993
LCSD 570-154993/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	154993
570-60732-A-4-H MS	Matrix Spike	Total/NA	Solid	8081A	154993
570-60732-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	154993

Analysis Batch: 157196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-3	FDD-B-C10	Total/NA	Sediment	8081A	154993

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

GC Semi VOA

Analysis Batch: 157419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	8015B	157422
570-60879-2	FDD-B-C9	Total/NA	Sediment	8015B	157422
570-60879-3	FDD-B-C10	Total/NA	Sediment	8015B	157422
570-60879-4	FDD-D-C4	Total/NA	Sediment	8015B	157422
570-60879-5	FDD-D-C6	Total/NA	Sediment	8015B	157422
MB 570-157422/1-A	Method Blank	Total/NA	Solid	8015B	157422
LCS 570-157422/2-A	Lab Control Sample	Total/NA	Solid	8015B	157422
LCSD 570-157422/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	157422
570-61518-A-1-D MS	Matrix Spike	Total/NA	Solid	8015B	157422
570-61518-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	157422

Prep Batch: 157422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3550C	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3550C	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3550C	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3550C	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3550C	155128
MB 570-157422/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-157422/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-157422/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-61518-A-1-D MS	Matrix Spike	Total/NA	Solid	3550C	
570-61518-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

HPLC/IC

Cleanup Batch: 155602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3060A	155602
570-60879-2	FDD-B-C9	Total/NA	Sediment	3060A	155602
570-60879-3	FDD-B-C10	Total/NA	Sediment	3060A	155602
570-60879-4	FDD-D-C4	Total/NA	Sediment	3060A	155602
570-60879-5	FDD-D-C6	Total/NA	Sediment	3060A	155602
MB 570-156160/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	3060A	
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

HPLC/IC

Analysis Batch: 156295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	7199	156160
570-60879-2	FDD-B-C9	Total/NA	Sediment	7199	156160
570-60879-3	FDD-B-C10	Total/NA	Sediment	7199	156160
570-60879-4	FDD-D-C4	Total/NA	Sediment	7199	156160
570-60879-5	FDD-D-C6	Total/NA	Sediment	7199	156160
MB 570-156160/1-A	Method Blank	Total/NA	Solid	7199	156160
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	7199	156160
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	156160
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	7199	156160
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	156160

Metals

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Homogenize Prep	
570-60879-1 MS	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-1 MSD	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 157159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	7471A	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	7471A	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	7471A	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	7471A	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	7471A	155128
MB 570-157159/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-157159/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-157159/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-60879-1 MS	FDD-B-C4	Total/NA	Sediment	7471A	155128
570-60879-1 MSD	FDD-B-C4	Total/NA	Sediment	7471A	155128

Prep Batch: 157167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	3050B	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	3050B	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	3050B	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	3050B	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	3050B	155128
MB 570-157167/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-157167/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-157167/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 157167 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1 MS	FDD-B-C4	Total/NA	Sediment	3050B	155128
570-60879-1 MSD	FDD-B-C4	Total/NA	Sediment	3050B	155128

Analysis Batch: 157171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	7471A	157159
570-60879-2	FDD-B-C9	Total/NA	Sediment	7471A	157159
570-60879-3	FDD-B-C10	Total/NA	Sediment	7471A	157159
570-60879-4	FDD-D-C4	Total/NA	Sediment	7471A	157159
570-60879-5	FDD-D-C6	Total/NA	Sediment	7471A	157159
MB 570-157159/1-A	Method Blank	Total/NA	Solid	7471A	157159
LCS 570-157159/2-A	Lab Control Sample	Total/NA	Solid	7471A	157159
LCSD 570-157159/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	157159
570-60879-1 MS	FDD-B-C4	Total/NA	Sediment	7471A	157159
570-60879-1 MSD	FDD-B-C4	Total/NA	Sediment	7471A	157159

Analysis Batch: 157354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	6020	157167
570-60879-2	FDD-B-C9	Total/NA	Sediment	6020	157167
570-60879-3	FDD-B-C10	Total/NA	Sediment	6020	157167
570-60879-4	FDD-D-C4	Total/NA	Sediment	6020	157167
570-60879-5	FDD-D-C6	Total/NA	Sediment	6020	157167
MB 570-157167/1-A ^20	Method Blank	Total/NA	Solid	6020	157167
LCS 570-157167/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	157167
LCSD 570-157167/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	157167
570-60879-1 MS	FDD-B-C4	Total/NA	Sediment	6020	157167
570-60879-1 MSD	FDD-B-C4	Total/NA	Sediment	6020	157167

General Chemistry

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	Homogenize Prep	

Prep Batch: 154704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	9030B	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	9030B	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	9030B	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	9030B	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	9030B	155128
MB 570-154704/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	9030B	154601

General Chemistry

Leach Batch: 154705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Soluble	Sediment	DI Leach	155128
570-60879-2	FDD-B-C9	Soluble	Sediment	DI Leach	155128
570-60879-3	FDD-B-C10	Soluble	Sediment	DI Leach	155128
570-60879-4	FDD-D-C4	Soluble	Sediment	DI Leach	155128
570-60879-5	FDD-D-C6	Soluble	Sediment	DI Leach	155128
MB 570-154705/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	DI Leach	154601

Analysis Batch: 154706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Soluble	Sediment	376.2 LL	154705
570-60879-1	FDD-B-C4	Total/NA	Sediment	376.2 LL	154704
570-60879-2	FDD-B-C9	Soluble	Sediment	376.2 LL	154705
570-60879-2	FDD-B-C9	Total/NA	Sediment	376.2 LL	154704
570-60879-3	FDD-B-C10	Soluble	Sediment	376.2 LL	154705
570-60879-3	FDD-B-C10	Total/NA	Sediment	376.2 LL	154704
570-60879-4	FDD-D-C4	Soluble	Sediment	376.2 LL	154705
570-60879-4	FDD-D-C4	Total/NA	Sediment	376.2 LL	154704
570-60879-5	FDD-D-C6	Soluble	Sediment	376.2 LL	154705
570-60879-5	FDD-D-C6	Total/NA	Sediment	376.2 LL	154704
MB 570-154704/1-A	Method Blank	Total/NA	Solid	376.2 LL	154704
MB 570-154705/1-A	Method Blank	Soluble	Solid	376.2 LL	154705
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	154704
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	154705
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	154704
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	154705
570-60626-A-1-O DU	Duplicate	Total/NA	Solid	376.2 LL	154704
570-60626-A-1-Q DU	Duplicate	Soluble	Solid	376.2 LL	154705

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Soluble	Sediment	Homogenize Prep	
570-60879-1	FDD-B-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Soluble	Sediment	Homogenize Prep	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Soluble	Sediment	Homogenize Prep	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Soluble	Sediment	Homogenize Prep	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Soluble	Sediment	Homogenize Prep	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Homogenize Prep	

General Chemistry (Continued)

Cleanup Batch: 155128 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-4 MS	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	
570-60879-4 MSD	FDD-D-C4	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 155495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 155672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	Moisture	
570-60879-2	FDD-B-C9	Total/NA	Sediment	Moisture	
570-60879-3	FDD-B-C10	Total/NA	Sediment	Moisture	
570-60879-4	FDD-D-C4	Total/NA	Sediment	Moisture	
570-60879-5	FDD-D-C6	Total/NA	Sediment	Moisture	
570-61058-A-1 DU	Duplicate	Total/NA	Solid	Moisture	

Prep Batch: 155877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	1664A	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	1664A	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	1664A	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	1664A	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	1664A	155128
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-60879-4 MS	FDD-D-C4	Total/NA	Sediment	1664A	155128
570-60879-4 MSD	FDD-D-C4	Total/NA	Sediment	1664A	155128

Analysis Batch: 156185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	1664A	155877
570-60879-2	FDD-B-C9	Total/NA	Sediment	1664A	155877
570-60879-3	FDD-B-C10	Total/NA	Sediment	1664A	155877
570-60879-4	FDD-D-C4	Total/NA	Sediment	1664A	155877
570-60879-5	FDD-D-C6	Total/NA	Sediment	1664A	155877
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	155877
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	155877
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	155877

General Chemistry (Continued)

Analysis Batch: 156185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-4 MS	FDD-D-C4	Total/NA	Sediment	1664A	155877
570-60879-4 MSD	FDD-D-C4	Total/NA	Sediment	1664A	155877

Analysis Batch: 156869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	9060A	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	9060A	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	9060A	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	9060A	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	9060A	155128
MB 570-156869/4	Method Blank	Total/NA	Solid	9060A	
LCS 570-156869/5	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-156869/6	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	9060A	155495
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	155495

Analysis Batch: 157473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	7199 CR3	
570-60879-2	FDD-B-C9	Total/NA	Sediment	7199 CR3	
570-60879-3	FDD-B-C10	Total/NA	Sediment	7199 CR3	
570-60879-4	FDD-D-C4	Total/NA	Sediment	7199 CR3	
570-60879-5	FDD-D-C6	Total/NA	Sediment	7199 CR3	

Prep Batch: 157805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	SM4500 NH3 B LL	155128
570-60879-2	FDD-B-C9	Total/NA	Sediment	SM4500 NH3 B LL	155128
570-60879-3	FDD-B-C10	Total/NA	Sediment	SM4500 NH3 B LL	155128
570-60879-4	FDD-D-C4	Total/NA	Sediment	SM4500 NH3 B LL	155128
570-60879-5	FDD-D-C6	Total/NA	Sediment	SM4500 NH3 B LL	155128
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604

Analysis Batch: 158115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	SM4500 NH3 C LL	157805

General Chemistry (Continued)

Analysis Batch: 158115 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-2	FDD-B-C9	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-60879-3	FDD-B-C10	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-60879-4	FDD-D-C4	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-60879-5	FDD-D-C6	Total/NA	Sediment	SM4500 NH3 C LL	157805
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	157805
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	157805
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805

Geotechnical

Analysis Batch: 157461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-1	FDD-B-C4	Total/NA	Sediment	D4464	
570-60879-2	FDD-B-C9	Total/NA	Sediment	D4464	
570-60879-3	FDD-B-C10	Total/NA	Sediment	D4464	
570-60879-4	FDD-D-C4	Total/NA	Sediment	D4464	
570-60879-5	FDD-D-C6	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-B-C4

Date Collected: 06/02/21 09:15
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	154995	06/04/21 18:03	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 14:19	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.17 g	2 mL	154994	06/04/21 18:00	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 18:23	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.26 g	2 mL	154999	06/04/21 18:06	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 21:48	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.05 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 17:32	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3550C			9.80 g	10 mL	157422	06/15/21 13:50	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157419	06/16/21 01:34	A1W	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.23 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 09:00	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.23 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 02:51	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3050B			1.95 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 10:41	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 16:51	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-B-C4

Lab Sample ID: 570-60879-1

Date Collected: 06/02/21 09:15
Matrix: Sediment
Date Received: 06/03/21 19:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			19.98 g	20 mL	154705	06/03/21 21:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 23:46	CY2M	ECL 1
	Instrument ID:	UV8								
Soluble	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	9030B			21.54 g	20 mL	154704	06/03/21 21:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		500	7.5 mL	7.5 mL	154706	06/03/21 23:53	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	9060A		1	200.4 mg	200.4 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155672	06/07/21 22:49	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 15:34	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C9

Lab Sample ID: 570-60879-2

Date Collected: 06/02/21 13:45
Matrix: Sediment
Date Received: 06/03/21 19:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	154995	06/04/21 18:03	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 14:38	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	154994	06/04/21 18:00	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 18:48	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.00 g	2 mL	154999	06/04/21 18:06	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 22:24	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.25 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 17:50	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3550C			10.69 g	10 mL	157422	06/15/21 13:50	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157419	06/16/21 01:56	A1W	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-B-C9

Date Collected: 06/02/21 13:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.10 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 09:14	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.10 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 03:09	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.54 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:46	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 10:53	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	7471A			.61 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 16:56	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	1664A			30.0 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Leach	DI Leach			19.99 g	20 mL	154705	06/03/21 21:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 23:47	CY2M	ECL 1
	Instrument ID:	UV8								
Soluble	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	9030B			21.15 g	20 mL	154704	06/03/21 21:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		200	7.5 mL	7.5 mL	154706	06/03/21 23:54	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	9060A		1	203.3 mg	203.3 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155672	06/07/21 22:49	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 15:39	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-B-C10

Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.00 g	2 mL	154995	06/04/21 18:03	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 14:56	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.03 g	2 mL	154994	06/04/21 18:00	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 19:12	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.02 g	2 mL	154999	06/04/21 18:06	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 23:01	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.00 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 18:09	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3550C			9.57 g	10 mL	157422	06/15/21 13:50	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157419	06/16/21 02:17	A1W	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157196	06/15/21 14:36	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8082		1	1 mL	1.0 mL	156525	06/11/21 03:27	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 19:57	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3050B			2.02 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:03	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 16:58	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	1664A			30.0 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-B-C10

Lab Sample ID: 570-60879-3

Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			19.99 g	20 mL	154705	06/03/21 21:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 23:48	CY2M	ECL 1
	Instrument ID:	UV8								
Soluble	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	9030B			21.47 g	20 mL	154704	06/03/21 21:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		200	7.5 mL	7.5 mL	154706	06/03/21 23:55	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	9060A		1	208.5 mg	208.5 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155672	06/07/21 22:49	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 15:45	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-D-C4

Lab Sample ID: 570-60879-4

Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.20 g	2 mL	154995	06/04/21 18:03	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 15:34	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	154994	06/04/21 18:00	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 19:37	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.17 g	2 mL	154999	06/04/21 18:06	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/11/21 23:38	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.11 g	5 mL	155507	06/07/21 16:06	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 18:26	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3550C			10.16 g	10 mL	157422	06/15/21 13:50	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157419	06/16/21 02:38	A1W	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-D-C4

Date Collected: 06/02/21 07:45
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 09:42	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 03:45	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 20:08	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3050B			2.01 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:06	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	7471A			.62 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:00	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Leach	DI Leach			19.98 g	20 mL	154705	06/03/21 21:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 23:49	CY2M	ECL 1
	Instrument ID:	UV8								
Soluble	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	9030B			20.01 g	20 mL	154704	06/03/21 21:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		2	7.5 mL	7.5 mL	154706	06/03/21 23:56	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	9060A		1	200.8 mg	200.8 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155672	06/07/21 22:49	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 15:50	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-D-C6

Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.05 g	2 mL	154995	06/04/21 18:03	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			156682	06/11/21 15:52	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.09 g	2 mL	154994	06/04/21 18:00	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157139	06/14/21 20:02	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	154999	06/04/21 18:06	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156828	06/12/21 00:15	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.10 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 18:44	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3550C			9.91 g	10 mL	157422	06/15/21 13:50	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157419	06/16/21 02:59	A1W	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.20 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8081A		1			156549	06/11/21 09:56	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3541			20.20 g	2 mL	154993	06/04/21 17:47	UM1W	ECL 1
Total/NA	Analysis	8082		1			156525	06/11/21 04:02	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 20:19	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	3050B			2.03 g	100 mL	157167	06/14/21 13:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 11:09	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	157159	06/14/21 13:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			157171	06/14/21 17:02	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Client Sample ID: FDD-D-C6

Date Collected: 06/02/21 10:35
Date Received: 06/03/21 19:45

Lab Sample ID: 570-60879-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			20.04 g	20 mL	154705	06/03/21 21:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 23:50	CY2M	ECL 1
	Instrument ID:	UV8								
Soluble	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	9030B			20.04 g	20 mL	154704	06/03/21 21:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		2	7.5 mL	7.5 mL	154706	06/03/21 23:57	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Analysis	9060A		1	207.4 mg	207.4 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155672	06/07/21 22:49	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155128	06/04/21 11:43	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 15:56	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60879-1
SDG: 3151182049 04

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-60879-1	FDD-B-C4	Sediment	06/02/21 09:15	06/03/21 19:45	
570-60879-2	FDD-B-C9	Sediment	06/02/21 13:45	06/03/21 19:45	
570-60879-3	FDD-B-C10	Sediment	06/02/21 10:35	06/03/21 19:45	
570-60879-4	FDD-D-C4	Sediment	06/02/21 07:45	06/03/21 19:45	
570-60879-5	FDD-D-C6	Sediment	06/02/21 10:35	06/03/21 19:45	

60879

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN OF CUSTODY RECORD

WO #/ LAB USE ONLY

DATE: 6/3/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

PO NO: 3151197955 04 PO 915

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs.

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376.2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418.1 M)	TPH (C6-C44); (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)
1	FDD-B-C4	6/2/21	0915	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	FDD-B-C9	6/2/21	1345	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	FDD-B-C10	6/2/21	1035	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	FDD-D-C4	6/2/21	0745	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	FDD-D-C6	6/2/21	1035	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

570-60879 Chain of Custody

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
Kate Buckley	ECI	6/3/21	1440
		06/03/21	1945

2.6/30 SCS

06/02/14 Revision

Page 9 of 9

0/30/2021 (Rev. 1)

60879

Analyte[i]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0.10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1 0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1.0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al. [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al., 1995.

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C A., D W Brown, D G Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18.

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes: allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion); ASTM = ASTM International, GC = gas chromatography; (M) = modified, RL = reporting limit; mg/kg = milligrams per kilogram, MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration; SIM = selective ion monitoring, SM = Standard Method; STLC = soluble threshold limit concentration, TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration; USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-60879-1
SDG Number: 3151182049 04

Login Number: 60879
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-61000-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/30/2021 4:09:11 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 6
Surrogate Summary 43
QC Sample Results 47
QC Association Summary 73
Lab Chronicle 84
Certification Summary 93
Method Summary 95
Sample Summary 96
Chain of Custody 97
Receipt Checklists 99

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-61000-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-61000-1

Comments
No additional comments.

Receipt
The samples were received on 6/4/2021 5:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 570-155604 and 570-156285 and analytical batch 570-157343 was outside control limits.

Method 8270C SIM: The method blank for preparation batch 570-156285 and analytical batch 570-157343 contained Di-n-butyl phthalate, Diethyl phthalate and Bis(2-ethylhexyl) phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270D TQ: Surrogate recovery for the following samples were outside the upper control limit: FDD-C-C3 (570-61000-4) and FDD-C-C5 (570-61000-5). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8270D TQ: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with preparation batch 570-155604 and 570-156286 and analytical batch 570-157739 were outside control limits: (570-61000-B-4-P MS) and (570-61000-B-4-Q MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with 570-157667 recovered high and outside the control limits for Oxychlordane on one column. Results are confirmed on both columns and reported from the passing column. The associated sample is: (CCV 570-157667/5).

Method 8081A: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156282 and analytical batch 570-157667: beta-BHC. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-157461 was flagged as being outside control limits due to a LIMS limitation: (570-61058-B-1) and (570-61058-A-1 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-28	ND		0.32	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-37	ND		0.32	0.097	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-44	ND		0.32	0.24	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-49	ND		0.32	0.080	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-52	ND		0.32	0.31	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-66	ND		0.32	0.20	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-70	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-74	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-77	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-81	ND		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-87	ND		0.32	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-99	**3.9**		0.32	0.076	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-101	**5.8**		0.32	0.071	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-105	ND		0.32	0.086	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-110	**4.9**		0.32	0.054	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-114	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-118	**4.4**		0.32	0.056	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-119	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-123	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-126	ND		0.32	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-128	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-132/153	**11**		0.64	0.26	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-138/158	**11**		0.64	0.57	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-149	**7.4**		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-151	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-156	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-157	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-167	ND		0.32	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-168	ND		0.32	0.23	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-169	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-170	**3.1**		0.32	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-177	**1.4**		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-180	**6.1**		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-183	**1.6**		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-187	**4.2**		0.32	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-189	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-194	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-201	ND		0.32	0.055	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
PCB-206	**1.4**		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1
Polychlorinated biphenyls, Total	**73**		0.64	0.57	ug/Kg	☼	06/09/21 22:33	06/15/21 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*20 - 139*	*06/09/21 22:33*	*06/15/21 15:36*	*1*
p-Terphenyl-d14	*89*		*37 - 165*	*06/09/21 22:33*	*06/15/21 15:36*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.38	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-28	ND		0.38	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-37	ND		0.38	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-44	ND		0.38	0.29	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-49	ND		0.38	0.094	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-52	ND		0.38	0.36	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-66	**4.0**		0.38	0.23	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-70	ND		0.38	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-74	ND		0.38	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-77	ND		0.38	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-81	ND		0.38	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-87	ND		0.38	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-99	**8.0**		0.38	0.090	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-101	**13**		0.38	0.084	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-105	ND		0.38	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-110	**10**		0.38	0.064	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-114	ND		0.38	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-118	**11**		0.38	0.066	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-119	ND		0.38	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-123	ND		0.38	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-126	ND		0.38	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-128	ND		0.38	0.23	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-132/153	**26**		0.76	0.31	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-138/158	**25**		0.76	0.67	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-149	**17**		0.38	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-151	**7.3**		0.38	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-156	ND		0.38	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-157	ND		0.38	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-167	ND		0.38	0.25	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-168	ND		0.38	0.27	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-169	ND		0.38	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-170	**8.2**		0.38	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-177	**4.1**		0.38	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-180	**15**		0.38	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-183	ND		0.38	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-187	**10**		0.38	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-189	ND		0.38	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-194	**4.2**		0.38	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-201	ND		0.38	0.065	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
PCB-206	ND		0.38	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1
Polychlorinated biphenyls, Total	**190**		0.76	0.67	ug/Kg	☼	06/09/21 22:33	06/15/21 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*20 - 139*	*06/09/21 22:33*	*06/15/21 16:02*	*1*
p-Terphenyl-d14	*98*		*37 - 165*	*06/09/21 22:33*	*06/15/21 16:02*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.36	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-28	ND		0.36	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-37	ND		0.36	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-44	ND		0.36	0.27	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-49	ND		0.36	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-52	ND		0.36	0.34	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-66	ND		0.36	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-70	ND		0.36	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-74	ND		0.36	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-77	ND		0.36	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-81	ND		0.36	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-87	ND		0.36	0.20	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-99	**4.9**		0.36	0.084	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-101	**7.6**		0.36	0.079	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-105	ND		0.36	0.095	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-110	**6.4**		0.36	0.060	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-114	ND		0.36	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-118	**19**		0.36	0.061	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-119	ND		0.36	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-123	ND		0.36	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-126	ND		0.36	0.098	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-128	ND		0.36	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-132/153	**14**		0.71	0.29	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-138/158	**13**		0.71	0.63	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-149	**9.2**		0.36	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-151	ND		0.36	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-156	ND		0.36	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-157	ND		0.36	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-167	ND		0.36	0.24	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-168	ND		0.36	0.25	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-169	ND		0.36	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-170	ND		0.36	0.20	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-177	ND		0.36	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-180	**7.8**		0.36	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-183	**2.0**		0.36	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-187	**6.2**		0.36	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-189	ND		0.36	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-194	ND		0.36	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-201	ND		0.36	0.060	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
PCB-206	ND		0.36	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1
Polychlorinated biphenyls, Total	**96**		0.71	0.63	ug/Kg	☼	06/09/21 22:33	06/15/21 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*71*		*20 - 139*	*06/09/21 22:33*	*06/15/21 16:28*	*1*
p-Terphenyl-d14	*101*		*37 - 165*	*06/09/21 22:33*	*06/15/21 16:28*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.23	0.074	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-28	ND		0.23	0.079	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-37	ND		0.23	0.069	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-44	ND		0.23	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-49	ND		0.23	0.056	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-52	ND		0.23	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-66	ND		0.23	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-70	ND		0.23	0.081	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-74	ND		0.23	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-77	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-81	ND		0.23	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-87	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-99	ND		0.23	0.054	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-101	ND		0.23	0.050	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-105	ND		0.23	0.061	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-110	ND		0.23	0.039	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-114	ND		0.23	0.084	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-118	ND		0.23	0.039	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-119	ND		0.23	0.071	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-123	ND		0.23	0.083	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-126	ND		0.23	0.063	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-128	ND		0.23	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-132/153	ND		0.46	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-138/158	ND		0.46	0.40	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-149	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-151	ND		0.23	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-156	ND		0.23	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-157	ND		0.23	0.097	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-167	ND		0.23	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-168	ND		0.23	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-169	ND		0.23	0.074	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-170	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-177	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-180	ND		0.23	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-183	ND		0.23	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-187	ND		0.23	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-189	ND		0.23	0.073	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-194	ND		0.23	0.084	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-201	ND		0.23	0.039	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
PCB-206	ND		0.23	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1
Polychlorinated biphenyls, Total	ND		0.46	0.40	ug/Kg	☼	06/09/21 22:33	06/15/21 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*	*06/09/21 22:33*	*06/15/21 16:54*	*1*
p-Terphenyl-d14	*75*		*37 - 165*	*06/09/21 22:33*	*06/15/21 16:54*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-C-C5
Lab Sample ID: 570-61000-5
Date Collected: 06/03/21 09:35
Matrix: Sediment
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.24	0.079	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-28	ND		0.24	0.085	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-37	ND		0.24	0.074	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-44	ND		0.24	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-49	ND		0.24	0.061	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-52	ND		0.24	0.23	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-66	ND		0.24	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-70	ND		0.24	0.087	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-74	ND		0.24	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-77	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-81	ND		0.24	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-87	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-99	ND		0.24	0.058	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-101	ND		0.24	0.054	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-105	ND		0.24	0.065	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-110	ND		0.24	0.041	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-114	ND		0.24	0.091	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-118	ND		0.24	0.042	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-119	ND		0.24	0.076	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-123	ND		0.24	0.089	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-126	ND		0.24	0.067	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-128	ND		0.24	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-132/153	ND		0.49	0.20	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-138/158	ND		0.49	0.43	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-149	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-151	ND		0.24	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-156	ND		0.24	0.094	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-157	ND		0.24	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-167	ND		0.24	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-168	ND		0.24	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-169	ND		0.24	0.080	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-170	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-177	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-180	ND		0.24	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-183	ND		0.24	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-187	ND		0.24	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-189	ND		0.24	0.078	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-194	ND		0.24	0.090	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-201	ND		0.24	0.042	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
PCB-206	ND		0.24	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1
Polychlorinated biphenyls, Total	ND		0.49	0.43	ug/Kg	☼	06/09/21 22:33	06/15/21 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*56*		*20 - 139*	*06/09/21 22:33*	*06/15/21 17:19*	*1*
p-Terphenyl-d14	*85*		*37 - 165*	*06/09/21 22:33*	*06/15/21 17:19*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		16	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
1-Methylnaphthalene	ND		16	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
1-Methylphenanthrene	ND		16	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,4,5-Trichlorophenol	ND		16	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,4,6-Trichlorophenol	ND		16	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,4-Dichlorophenol	ND		16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,4-Dimethylphenol	ND		810	4.2	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,4-Dinitrophenol	ND		810	97	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2,6-Dimethylnaphthalene	ND		16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2-Chlorophenol	ND		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2-Methylnaphthalene	ND		16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2-Methylphenol	ND		16	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
2-Nitrophenol	ND		810	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
3/4-Methylphenol	ND		32	5.8	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
4,6-Dinitro-2-methylphenol	ND		810	110	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
4-Chloro-3-methylphenol	ND		16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Acenaphthene	ND		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Acenaphthylene	**51**		16	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Anthracene	**41**		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[a]anthracene	**55**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[a]pyrene	**360**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[b]fluoranthene	**360**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[e]pyrene	**190**		16	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[g,h,i]perylene	**160**		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Benzo[k]fluoranthene	**330**		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Biphenyl	ND		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Bis(2-ethylhexyl) phthalate	**940**	**B**	81	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Butyl benzyl phthalate	**41**	**J**	81	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Chrysene	**87**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Dibenz(a,h)anthracene	**50**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Diethyl phthalate	**7.6**	**J B**	81	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Dimethyl phthalate	ND		81	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Di-n-butyl phthalate	**40**	**J B**	81	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Di-n-octyl phthalate	ND		81	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Fluoranthene	**84**		16	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Fluorene	ND		16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Indeno[1,2,3-cd]pyrene	**160**		16	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Naphthalene	ND		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Pentachlorophenol	ND		810	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Phenanthrene	**18**		16	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1
Pyrene	**85**		16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*65*		*32 - 143*	*06/09/21 22:41*	*06/15/21 17:55*	*1*
2-Fluorophenol	*45*		*15 - 138*	*06/09/21 22:41*	*06/15/21 17:55*	*1*
Nitrobenzene-d5	*50*		*18 - 162*	*06/09/21 22:41*	*06/15/21 17:55*	*1*
Phenol-d6	*49*		*17 - 141*	*06/09/21 22:41*	*06/15/21 17:55*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/09/21 22:41*	*06/15/21 17:55*	*1*
2-Fluorobiphenyl (Surr)	*57*		*14 - 146*	*06/09/21 22:41*	*06/15/21 17:55*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	**3.6**	**J**	19	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
1-Methylnaphthalene	ND		19	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
1-Methylphenanthrene	**26**		19	3.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,4,5-Trichlorophenol	ND		19	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,4,6-Trichlorophenol	ND		19	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,4-Dichlorophenol	ND		19	4.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,4-Dimethylphenol	ND		940	4.9	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,4-Dinitrophenol	ND		940	110	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2,6-Dimethylnaphthalene	**20**		19	4.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2-Chlorophenol	ND		19	3.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2-Methylnaphthalene	ND		19	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2-Methylphenol	ND		19	3.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
2-Nitrophenol	ND		940	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
3/4-Methylphenol	ND		38	6.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
4,6-Dinitro-2-methylphenol	ND		940	130	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
4-Chloro-3-methylphenol	ND		19	4.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Acenaphthene	**4.5**	**J**	19	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Acenaphthylene	**110**		19	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Anthracene	**98**		19	3.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[a]anthracene	**120**		19	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[a]pyrene	**720**		19	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[b]fluoranthene	**710**		19	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[e]pyrene	**380**		19	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[g,h,i]perylene	**310**		19	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Benzo[k]fluoranthene	**660**		19	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Biphenyl	ND		19	3.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Bis(2-ethylhexyl) phthalate	**1300**	**B**	94	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Butyl benzyl phthalate	**50**	**J**	94	3.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Chrysene	**180**		19	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Dibenz(a,h)anthracene	**110**		19	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Diethyl phthalate	**10**	**J B**	94	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Dimethyl phthalate	**6.8**	**J**	94	3.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Di-n-butyl phthalate	**38**	**J B**	94	3.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Di-n-octyl phthalate	**55**	**J**	94	3.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Fluoranthene	**160**		19	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Fluorene	**5.2**	**J**	19	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Indeno[1,2,3-cd]pyrene	**320**		19	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Naphthalene	**4.2**	**J**	19	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Pentachlorophenol	**37**	**J**	940	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Phenanthrene	**39**		19	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1
Pyrene	**190**		19	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*58*		*32 - 143*	*06/09/21 22:41*	*06/15/21 18:14*	*1*
2-Fluorophenol	*39*		*15 - 138*	*06/09/21 22:41*	*06/15/21 18:14*	*1*
Nitrobenzene-d5	*42*		*18 - 162*	*06/09/21 22:41*	*06/15/21 18:14*	*1*
Phenol-d6	*45*		*17 - 141*	*06/09/21 22:41*	*06/15/21 18:14*	*1*
p-Terphenyl-d14	*61*		*34 - 148*	*06/09/21 22:41*	*06/15/21 18:14*	*1*
2-Fluorobiphenyl (Surr)	*55*		*14 - 146*	*06/09/21 22:41*	*06/15/21 18:14*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		18	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
1-Methylnaphthalene	ND		18	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
1-Methylphenanthrene	ND		18	3.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,4,5-Trichlorophenol	ND		18	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,4,6-Trichlorophenol	ND		18	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,4-Dichlorophenol	ND		18	3.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,4-Dimethylphenol	ND		890	4.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,4-Dinitrophenol	ND		890	110	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2,6-Dimethylnaphthalene	ND		18	3.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2-Chlorophenol	ND		18	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2-Methylnaphthalene	ND		18	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2-Methylphenol	ND		18	3.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
2-Nitrophenol	ND		890	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
3/4-Methylphenol	ND		35	6.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
4,6-Dinitro-2-methylphenol	ND		890	120	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
4-Chloro-3-methylphenol	ND		18	3.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Acenaphthene	ND		18	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Acenaphthylene	**63**		18	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Anthracene	**49**		18	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[a]anthracene	**55**		18	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[a]pyrene	**400**		18	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[b]fluoranthene	**420**		18	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[e]pyrene	**240**		18	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[g,h,i]perylene	**150**		18	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Benzo[k]fluoranthene	**400**		18	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Biphenyl	ND		18	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Bis(2-ethylhexyl) phthalate	**140**	**B**	89	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Butyl benzyl phthalate	**31**	**J**	89	3.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Chrysene	**98**		18	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Dibenz(a,h)anthracene	**62**		18	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Diethyl phthalate	**7.1**	**J B**	89	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Dimethyl phthalate	ND		89	3.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Di-n-butyl phthalate	**27**	**J B**	89	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Di-n-octyl phthalate	ND		89	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Fluoranthene	**46**		18	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Fluorene	ND		18	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Indeno[1,2,3-cd]pyrene	**170**		18	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Naphthalene	ND		18	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Pentachlorophenol	ND		890	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Phenanthrene	**8.6**	**J**	18	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1
Pyrene	**55**		18	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*41*		*32 - 143*	*06/09/21 22:41*	*06/15/21 18:32*	*1*
2-Fluorophenol	*33*		*15 - 138*	*06/09/21 22:41*	*06/15/21 18:32*	*1*
Nitrobenzene-d5	*34*		*18 - 162*	*06/09/21 22:41*	*06/15/21 18:32*	*1*
Phenol-d6	*39*		*17 - 141*	*06/09/21 22:41*	*06/15/21 18:32*	*1*
p-Terphenyl-d14	*55*		*34 - 148*	*06/09/21 22:41*	*06/15/21 18:32*	*1*
2-Fluorobiphenyl (Surr)	*42*		*14 - 146*	*06/09/21 22:41*	*06/15/21 18:32*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		11	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
1-Methylnaphthalene	ND	F2	11	1.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
1-Methylphenanthrene	ND		11	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,4,5-Trichlorophenol	ND	F2	11	1.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,4,6-Trichlorophenol	ND	F2	11	1.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,4-Dichlorophenol	ND	F2	11	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,4-Dimethylphenol	ND	F2	570	3.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,4-Dinitrophenol	ND	F2	570	69	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2,6-Dimethylnaphthalene	ND		11	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2-Chlorophenol	ND	F2	11	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2-Methylnaphthalene	ND	F1 F2	11	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2-Methylphenol	ND	F2	11	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
2-Nitrophenol	ND	F2	570	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
3/4-Methylphenol	ND	F2	23	4.1	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
4,6-Dinitro-2-methylphenol	ND	F2	570	76	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
4-Chloro-3-methylphenol	ND	F2	11	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Acenaphthene	ND	F2	11	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Acenaphthylene	ND	F2	11	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Anthracene	ND	F2	11	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[a]anthracene	ND	F2	11	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[a]pyrene	ND	F2	11	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[b]fluoranthene	ND	F2	11	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[e]pyrene	ND		11	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[g,h,i]perylene	ND	F2	11	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Benzo[k]fluoranthene	ND	F2	11	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Biphenyl	ND		11	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Bis(2-ethylhexyl) phthalate	**8.9**	**J B F2**	57	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Butyl benzyl phthalate	**8.7**	**J F2**	57	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Chrysene	ND	F2	11	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Dibenz(a,h)anthracene	ND	F2	11	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Diethyl phthalate	**2.5**	**J B F2**	57	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Dimethyl phthalate	ND	F2	57	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Di-n-butyl phthalate	**5.9**	**J B F2**	57	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Di-n-octyl phthalate	ND	F2	57	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Fluoranthene	ND	F2	11	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Fluorene	ND	F1 F2	11	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Indeno[1,2,3-cd]pyrene	ND	F2	11	1.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Naphthalene	ND	F2	11	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Pentachlorophenol	ND	F2	570	1.5	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Phenanthrene	ND	F1 F2	11	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1
Pyrene	ND		11	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*67*		*32 - 143*	*06/09/21 22:41*	*06/15/21 18:51*	*1*
2-Fluorophenol	*51*		*15 - 138*	*06/09/21 22:41*	*06/15/21 18:51*	*1*
Nitrobenzene-d5	*54*		*18 - 162*	*06/09/21 22:41*	*06/15/21 18:51*	*1*
Phenol-d6	*55*		*17 - 141*	*06/09/21 22:41*	*06/15/21 18:51*	*1*
p-Terphenyl-d14	*56*		*34 - 148*	*06/09/21 22:41*	*06/15/21 18:51*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*06/09/21 22:41*	*06/15/21 18:51*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
1-Methylphenanthrene	ND		12	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,4,5-Trichlorophenol	ND		12	1.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,4,6-Trichlorophenol	ND		12	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,4-Dichlorophenol	ND		12	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,4-Dimethylphenol	ND		610	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,4-Dinitrophenol	ND		610	73	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2,6-Dimethylnaphthalene	ND		12	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2-Chlorophenol	ND		12	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2-Methylphenol	ND		12	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
2-Nitrophenol	ND		610	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
3/4-Methylphenol	ND		24	4.4	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
4,6-Dinitro-2-methylphenol	ND		610	80	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
4-Chloro-3-methylphenol	ND		12	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Acenaphthene	ND		12	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Acenaphthylene	ND		12	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Anthracene	ND		12	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[a]anthracene	ND		12	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[a]pyrene	ND		12	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[b]fluoranthene	ND		12	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[e]pyrene	ND		12	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[g,h,i]perylene	ND		12	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Benzo[k]fluoranthene	ND		12	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Biphenyl	ND		12	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Bis(2-ethylhexyl) phthalate	**10**	**J B**	61	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Butyl benzyl phthalate	**13**	**J**	61	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Chrysene	ND		12	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Dibenz(a,h)anthracene	ND		12	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Diethyl phthalate	**3.2**	**J B**	61	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Dimethyl phthalate	ND		61	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Di-n-butyl phthalate	**6.8**	**J B**	61	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Di-n-octyl phthalate	ND		61	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Fluoranthene	ND		12	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Indeno[1,2,3-cd]pyrene	ND		12	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Naphthalene	ND		12	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Pentachlorophenol	ND		610	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Phenanthrene	ND		12	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1
Pyrene	ND		12	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*63*		*32 - 143*	*06/09/21 22:41*	*06/15/21 19:10*	*1*
2-Fluorophenol	*50*		*15 - 138*	*06/09/21 22:41*	*06/15/21 19:10*	*1*
Nitrobenzene-d5	*54*		*18 - 162*	*06/09/21 22:41*	*06/15/21 19:10*	*1*
Phenol-d6	*54*		*17 - 141*	*06/09/21 22:41*	*06/15/21 19:10*	*1*
p-Terphenyl-d14	*58*		*34 - 148*	*06/09/21 22:41*	*06/15/21 19:10*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*06/09/21 22:41*	*06/15/21 19:10*	*1*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.81	0.74	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Bifenthrin	ND		0.81	0.30	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Cyfluthrin	ND		0.81	0.36	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Cypermethrin	ND		0.81	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Deltamethrin/Tralomethrin	ND		0.81	0.42	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Fenpropathrin	ND		0.81	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Fenvalerate/Esfenvalerate	ND		0.81	0.29	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Fluvalinate	ND		0.81	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Lambda cyhalothrin	ND		0.81	0.53	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Permethrins (cis/trans)	ND		1.6	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Phenothrin	ND		0.81	0.32	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Resmethrin/Bioresmethrin	ND		0.81	0.36	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1
Tetramethrin	ND		0.81	0.16	ug/Kg	☼	06/09/21 22:44	06/16/21 18:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*113*		*14 - 116*	*06/09/21 22:44*	*06/16/21 18:23*	*1*

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.95	0.87	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Bifenthrin	ND		0.95	0.35	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Cyfluthrin	ND		0.95	0.43	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Cypermethrin	ND		0.95	0.31	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Deltamethrin/Tralomethrin	ND		0.95	0.49	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Fenpropathrin	ND		0.95	0.33	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Fenvalerate/Esfenvalerate	ND		0.95	0.35	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Fluvalinate	ND		0.95	0.31	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Lambda cyhalothrin	ND		0.95	0.62	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Permethrins (cis/trans)	ND		1.9	0.30	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Phenothrin	ND		0.95	0.37	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Resmethrin/Bioresmethrin	ND		0.95	0.43	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1
Tetramethrin	ND		0.95	0.19	ug/Kg	☼	06/09/21 22:44	06/16/21 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*116*		*14 - 116*	*06/09/21 22:44*	*06/16/21 19:00*	*1*

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.89	0.82	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Bifenthrin	ND		0.89	0.33	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Cyfluthrin	ND		0.89	0.40	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Cypermethrin	ND		0.89	0.29	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Deltamethrin/Tralomethrin	ND		0.89	0.46	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Fenpropathrin	ND		0.89	0.31	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Fenvalerate/Esfenvalerate	ND		0.89	0.32	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Fluvalinate	ND		0.89	0.29	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-B-C6 — **Lab Sample ID: 570-61000-3**
Date Collected: 06/03/21 07:45 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND		0.89	0.58	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Permethrins (cis/trans)	ND		1.8	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Phenothrin	ND		0.89	0.35	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Resmethrin/Bioresmethrin	ND		0.89	0.40	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1
Tetramethrin	ND		0.89	0.18	ug/Kg	☼	06/09/21 22:44	06/16/21 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*86*		*14 - 116*	*06/09/21 22:44*	*06/16/21 19:36*	*1*

Client Sample ID: FDD-C-C3 — **Lab Sample ID: 570-61000-4**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.57	0.53	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Bifenthrin	ND		0.57	0.21	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Cyfluthrin	ND		0.57	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Cypermethrin	ND		0.57	0.18	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Deltamethrin/Tralomethrin	ND		0.57	0.30	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Fenpropathrin	ND		0.57	0.20	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Fenvalerate/Esfenvalerate	ND		0.57	0.21	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Fluvalinate	ND	F1	0.57	0.19	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Lambda cyhalothrin	ND		0.57	0.37	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Permethrins (cis/trans)	ND	F1	1.1	0.18	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Phenothrin	ND		0.57	0.22	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Resmethrin/Bioresmethrin	ND		0.57	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1
Tetramethrin	ND		0.57	0.12	ug/Kg	☼	06/09/21 22:44	06/16/21 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*123*	*S1+*	*14 - 116*	*06/09/21 22:44*	*06/16/21 20:13*	*1*

Client Sample ID: FDD-C-C5 — **Lab Sample ID: 570-61000-5**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.62	0.57	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Bifenthrin	ND		0.62	0.23	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Cyfluthrin	ND		0.62	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Cypermethrin	ND		0.62	0.20	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Deltamethrin/Tralomethrin	ND		0.62	0.32	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Fenpropathrin	ND		0.62	0.21	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Fenvalerate/Esfenvalerate	ND		0.62	0.22	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Fluvalinate	ND		0.62	0.20	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Lambda cyhalothrin	ND		0.62	0.40	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Permethrins (cis/trans)	ND		1.2	0.20	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Phenothrin	ND		0.62	0.24	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Resmethrin/Bioresmethrin	ND		0.62	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1
Tetramethrin	ND		0.62	0.12	ug/Kg	☼	06/09/21 22:44	06/16/21 20:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*136*	*S1+*	*14 - 116*	*06/09/21 22:44*	*06/16/21 20:50*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.7	1.2	ug/Kg	☼	06/07/21 16:00	06/09/21 19:02	1
Tributyltin	ND		4.7	2.4	ug/Kg	☼	06/07/21 16:00	06/09/21 19:02	1
Dibutyltin	**21**		4.7	1.2	ug/Kg	☼	06/07/21 16:00	06/09/21 19:02	1
Monobutyltin	ND		4.7	2.2	ug/Kg	☼	06/07/21 16:00	06/09/21 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*53*		*10 - 120*	*06/07/21 16:00*	*06/09/21 19:02*	*1*

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.7	1.4	ug/Kg	☼	06/07/21 16:00	06/09/21 19:20	1
Tributyltin	ND		5.7	2.8	ug/Kg	☼	06/07/21 16:00	06/09/21 19:20	1
Dibutyltin	**25**		5.7	1.4	ug/Kg	☼	06/07/21 16:00	06/09/21 19:20	1
Monobutyltin	ND		5.7	2.6	ug/Kg	☼	06/07/21 16:00	06/09/21 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*66*		*10 - 120*	*06/07/21 16:00*	*06/09/21 19:20*	*1*

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.3	1.3	ug/Kg	☼	06/07/21 16:00	06/09/21 19:38	1
Tributyltin	ND		5.3	2.6	ug/Kg	☼	06/07/21 16:00	06/09/21 19:38	1
Dibutyltin	**16**		5.3	1.3	ug/Kg	☼	06/07/21 16:00	06/09/21 19:38	1
Monobutyltin	ND		5.3	2.4	ug/Kg	☼	06/07/21 16:00	06/09/21 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*51*		*10 - 120*	*06/07/21 16:00*	*06/09/21 19:38*	*1*

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.3	0.83	ug/Kg	☼	06/07/21 16:00	06/09/21 19:55	1
Tributyltin	ND		3.3	1.7	ug/Kg	☼	06/07/21 16:00	06/09/21 19:55	1
Dibutyltin	ND		3.3	0.81	ug/Kg	☼	06/07/21 16:00	06/09/21 19:55	1
Monobutyltin	ND		3.3	1.5	ug/Kg	☼	06/07/21 16:00	06/09/21 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*43*		*10 - 120*	*06/07/21 16:00*	*06/09/21 19:55*	*1*

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.7	0.90	ug/Kg	☼	06/07/21 16:00	06/09/21 20:12	1
Tributyltin	ND		3.7	1.8	ug/Kg	☼	06/07/21 16:00	06/09/21 20:12	1
Dibutyltin	ND		3.7	0.89	ug/Kg	☼	06/07/21 16:00	06/09/21 20:12	1

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Client Sample ID: FDD-C-C5
Lab Sample ID: 570-61000-5
Date Collected: 06/03/21 09:35
Matrix: Sediment
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monobutyltin	ND		3.7	1.7	ug/Kg	☼	06/07/21 16:00	06/09/21 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*45*		*10 - 120*	*06/07/21 16:00*	*06/09/21 20:12*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C7 as C7	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C8 as C8	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C9-C10	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C11-C12	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C13-C14	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C15-C16	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C17-C18	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C19-C20	**8.4**		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C21-C22	**9.9**		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C23-C24	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C25-C28	**7.5**	**J**	8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C29-C32	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C33-C36	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C37-C40	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C41-C44	ND		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1
C6-C44	**43**		8.0	6.2	mg/Kg	☼	06/16/21 13:47	06/17/21 06:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*118*		*60 - 138*	*06/16/21 13:47*	*06/17/21 06:14*	*1*

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C7 as C7	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C8 as C8	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C9-C10	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C11-C12	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C13-C14	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C15-C16	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C17-C18	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C19-C20	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C21-C22	**7.9**	**J**	9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C23-C24	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C25-C28	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C29-C32	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C33-C36	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C37-C40	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C41-C44	ND		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1
C6-C44	**36**		9.7	7.5	mg/Kg	☼	06/16/21 13:47	06/17/21 06:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*110*		*60 - 138*	*06/16/21 13:47*	*06/17/21 06:36*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C7 as C7	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C8 as C8	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C9-C10	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C11-C12	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C13-C14	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C15-C16	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C17-C18	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C19-C20	**7.7**	**J**	9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C21-C22	**9.3**		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C23-C24	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C25-C28	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C29-C32	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C33-C36	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C37-C40	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C41-C44	ND		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1
C6-C44	**38**		9.1	7.0	mg/Kg	☼	06/16/21 13:47	06/17/21 06:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*115*		*60 - 138*	*06/16/21 13:47*	*06/17/21 06:57*	*1*

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C7 as C7	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C8 as C8	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C9-C10	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C11-C12	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C13-C14	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C15-C16	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C17-C18	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C19-C20	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C21-C22	**5.1**	**J**	5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C23-C24	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C25-C28	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C29-C32	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C33-C36	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C37-C40	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C41-C44	ND		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1
C6-C44	**19**		5.5	4.3	mg/Kg	☼	06/16/21 13:47	06/17/21 07:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*06/16/21 13:47*	*06/17/21 07:19*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C7 as C7	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C8 as C8	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C9-C10	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C11-C12	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C13-C14	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C15-C16	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C17-C18	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C19-C20	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C21-C22	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C23-C24	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C25-C28	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C29-C32	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C33-C36	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C37-C40	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C41-C44	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1
C6-C44	ND		6.2	4.8	mg/Kg	☼	06/16/21 13:47	06/17/21 07:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*112*		*60 - 138*	*06/16/21 13:47*	*06/17/21 07:40*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20
Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.6	0.10	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
4,4'-DDD	ND		1.6	0.81	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
2,4'-DDE	ND		3.2	0.16	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
4,4'-DDE	**0.43**	**J p**	1.6	0.11	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
2,4'-DDT	ND		1.6	0.15	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
4,4'-DDT	ND		1.6	0.29	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Aldrin	ND		1.6	0.12	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
alpha-BHC	ND		1.6	0.13	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
beta-BHC	ND	*+	1.6	0.15	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Chlordane	ND		8.1	0.53	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
delta-BHC	ND		1.6	0.10	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Dieldrin	ND		0.32	0.11	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
alpha-Chlordane	ND		1.6	0.074	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endosulfan I	ND		1.6	0.078	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endosulfan II	ND		1.6	0.37	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endosulfan sulfate	ND		1.6	0.17	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endrin	ND		1.6	0.14	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
cis-Nonachlor	ND		1.6	0.076	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endrin aldehyde	ND		1.6	0.79	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Endrin ketone	ND		1.6	0.31	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
gamma-BHC	ND		1.6	0.17	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Heptachlor	ND		1.6	0.096	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Heptachlor epoxide	ND		1.6	0.14	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Methoxychlor	ND		1.6	0.26	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Toxaphene	ND		8.1	1.6	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
gamma-Chlordane	ND		1.6	0.56	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
Oxychlordane	ND		1.6	0.24	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1
trans-Nonachlor	ND		1.6	0.060	ug/Kg	☼	06/09/21 22:26	06/16/21 15:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*56*		*20 - 131*	*06/09/21 22:26*	*06/16/21 15:49*	*1*
DCB Decachlorobiphenyl (Surr)	*113*		*20 - 180*	*06/09/21 22:26*	*06/16/21 15:49*	*1*

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20
Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.9	0.12	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
4,4'-DDD	ND		1.9	0.95	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
2,4'-DDE	ND		3.8	0.18	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
4,4'-DDE	**1.4**	**J p**	1.9	0.13	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
2,4'-DDT	ND		1.9	0.17	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
4,4'-DDT	ND		1.9	0.34	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Aldrin	ND		1.9	0.14	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
alpha-BHC	ND		1.9	0.15	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
beta-BHC	ND	*+	1.9	0.17	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Chlordane	ND		9.5	0.62	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
delta-BHC	ND		1.9	0.12	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Dieldrin	ND		0.38	0.13	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
alpha-Chlordane	ND		1.9	0.087	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		1.9	0.092	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Endosulfan II	ND		1.9	0.43	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Endosulfan sulfate	ND		1.9	0.21	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Endrin	ND		1.9	0.17	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
cis-Nonachlor	ND		1.9	0.090	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Endrin aldehyde	ND		1.9	0.92	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Endrin ketone	ND		1.9	0.36	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
gamma-BHC	ND		1.9	0.20	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Heptachlor	ND		1.9	0.11	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Heptachlor epoxide	ND		1.9	0.16	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Methoxychlor	ND		1.9	0.31	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Toxaphene	ND		9.5	1.9	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
gamma-Chlordane	ND		1.9	0.66	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
Oxychlordane	ND		1.9	0.28	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1
trans-Nonachlor	ND		1.9	0.071	ug/Kg	☼	06/09/21 22:26	06/17/21 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*47*		*20 - 131*	*06/09/21 22:26*	*06/17/21 13:01*	*1*
DCB Decachlorobiphenyl (Surr)	*178*		*20 - 180*	*06/09/21 22:26*	*06/17/21 13:01*	*1*

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.8	0.11	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
4,4'-DDD	ND		1.8	0.89	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
2,4'-DDE	ND		3.5	0.17	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
4,4'-DDE	**0.57**	**J p**	1.8	0.13	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
2,4'-DDT	ND		1.8	0.16	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
4,4'-DDT	ND		1.8	0.31	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Aldrin	ND		1.8	0.13	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
alpha-BHC	ND		1.8	0.14	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
beta-BHC	ND	*+	1.8	0.16	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Chlordane	ND		8.9	0.58	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
delta-BHC	ND		1.8	0.11	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Dieldrin	ND		0.35	0.12	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
alpha-Chlordane	ND		1.8	0.082	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endosulfan I	ND		1.8	0.086	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endosulfan II	ND		1.8	0.40	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endosulfan sulfate	ND		1.8	0.19	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endrin	ND		1.8	0.16	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
cis-Nonachlor	ND		1.8	0.084	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endrin aldehyde	ND		1.8	0.87	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Endrin ketone	ND		1.8	0.34	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
gamma-BHC	ND		1.8	0.19	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Heptachlor	ND		1.8	0.11	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Heptachlor epoxide	**1.5**	**J**	1.8	0.15	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Methoxychlor	ND		1.8	0.29	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
Toxaphene	ND		8.9	1.8	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
gamma-Chlordane	ND		1.8	0.62	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		1.8	0.27	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1
trans-Nonachlor	ND		1.8	0.066	ug/Kg	☼	06/09/21 22:26	06/17/21 11:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*49*		*20 - 131*	*06/09/21 22:26*	*06/17/21 11:21*	*1*
DCB Decachlorobiphenyl (Surr)	*115*		*20 - 180*	*06/09/21 22:26*	*06/17/21 11:21*	*1*

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.074	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
4,4'-DDD	ND		1.2	0.58	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
2,4'-DDE	ND		2.3	0.11	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
4,4'-DDE	ND		1.2	0.082	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
4,4'-DDT	ND		1.2	0.20	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Aldrin	ND		1.2	0.083	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
alpha-BHC	ND		1.2	0.092	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
beta-BHC	ND	*+	1.2	0.10	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Chlordane	ND		5.8	0.38	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
delta-BHC	ND		1.2	0.074	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Dieldrin	ND		0.23	0.076	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
alpha-Chlordane	ND		1.2	0.053	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endosulfan I	ND		1.2	0.056	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endosulfan II	ND		1.2	0.26	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endosulfan sulfate	ND		1.2	0.12	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endrin	ND		1.2	0.10	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
cis-Nonachlor	ND		1.2	0.055	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endrin aldehyde	ND		1.2	0.56	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Endrin ketone	ND		1.2	0.22	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
gamma-BHC	ND		1.2	0.12	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Heptachlor	ND		1.2	0.069	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Heptachlor epoxide	ND		1.2	0.098	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Methoxychlor	ND		1.2	0.19	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Toxaphene	ND		5.8	1.1	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
gamma-Chlordane	ND		1.2	0.40	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
Oxychlordane	ND		1.2	0.17	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1
trans-Nonachlor	ND		1.2	0.043	ug/Kg	☼	06/09/21 22:30	06/17/21 10:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*44*		*20 - 131*	*06/09/21 22:30*	*06/17/21 10:38*	*1*
DCB Decachlorobiphenyl (Surr)	*47*		*20 - 180*	*06/09/21 22:30*	*06/17/21 10:38*	*1*

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.078	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
4,4'-DDD	ND		1.2	0.61	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDE	ND		2.4	0.12	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
4,4'-DDE	ND		1.2	0.086	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
4,4'-DDT	ND		1.2	0.22	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Aldrin	ND		1.2	0.087	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
alpha-BHC	ND		1.2	0.097	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
beta-BHC	ND	*+	1.2	0.11	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Chlordane	ND		6.1	0.40	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
delta-BHC	ND		1.2	0.078	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Dieldrin	ND		0.24	0.080	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
alpha-Chlordane	ND		1.2	0.056	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endosulfan I	ND		1.2	0.059	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endosulfan II	ND		1.2	0.28	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endosulfan sulfate	ND		1.2	0.13	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endrin	ND		1.2	0.11	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
cis-Nonachlor	ND		1.2	0.057	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endrin aldehyde	ND		1.2	0.59	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Endrin ketone	ND		1.2	0.23	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
gamma-BHC	ND		1.2	0.13	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Heptachlor	ND		1.2	0.072	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Heptachlor epoxide	ND		1.2	0.10	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Methoxychlor	ND		1.2	0.20	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Toxaphene	ND		6.1	1.2	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
gamma-Chlordane	ND		1.2	0.43	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
Oxychlordane	ND		1.2	0.18	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1
trans-Nonachlor	ND		1.2	0.045	ug/Kg	☼	06/09/21 22:30	06/17/21 10:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*49*		*20 - 131*	*06/09/21 22:30*	*06/17/21 10:53*	*1*
DCB Decachlorobiphenyl (Surr)	*86*		*20 - 180*	*06/09/21 22:30*	*06/17/21 10:53*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		16	8.9	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1221	ND		16	8.9	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1232	ND		16	8.9	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1242	ND		16	8.9	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1248	**11**	**J**	16	8.9	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1254	**48**		16	8.0	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1260	**49**		16	8.0	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1262	ND		16	8.0	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1
Aroclor-1268	ND		16	8.0	ug/Kg	☼	06/09/21 22:26	06/16/21 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*59*		*25 - 126*	*06/09/21 22:26*	*06/16/21 06:23*	*1*
DCB Decachlorobiphenyl (Surr)	*98*		*20 - 155*	*06/09/21 22:26*	*06/16/21 06:23*	*1*

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		19	10	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1221	ND		19	10	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1232	ND		19	10	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1242	ND		19	10	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1248	**27**		19	10	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1254	**89**		19	9.4	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1260	**95**		19	9.4	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1262	ND		19	9.4	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1
Aroclor-1268	ND		19	9.4	ug/Kg	☼	06/09/21 22:26	06/16/21 06:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*47*		*25 - 126*	*06/09/21 22:26*	*06/16/21 06:41*	*1*
DCB Decachlorobiphenyl (Surr)	*106*		*20 - 155*	*06/09/21 22:26*	*06/16/21 06:41*	*1*

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		18	9.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1221	ND		18	9.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1232	ND		18	9.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1242	ND		18	9.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1248	**19**		18	9.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1254	**52**		18	8.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1260	**62**		18	8.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1262	ND		18	8.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1
Aroclor-1268	ND		18	8.8	ug/Kg	☼	06/09/21 22:26	06/16/21 06:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*49*		*25 - 126*	*06/09/21 22:26*	*06/16/21 06:59*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 155*	*06/09/21 22:26*	*06/16/21 06:59*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.4	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1221	ND		12	6.4	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1232	ND		12	6.4	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1242	ND		12	6.4	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1248	ND		12	6.4	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1254	ND		12	5.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1260	ND		12	5.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1262	ND		12	5.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1
Aroclor-1268	ND		12	5.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*45*		*25 - 126*	*06/09/21 22:30*	*06/16/21 07:18*	*1*
DCB Decachlorobiphenyl (Surr)	*40*		*20 - 155*	*06/09/21 22:30*	*06/16/21 07:18*	*1*

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1221	ND		12	6.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1232	ND		12	6.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1242	ND		12	6.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1248	ND		12	6.7	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1254	ND		12	6.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1260	ND		12	6.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1262	ND		12	6.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1
Aroclor-1268	ND		12	6.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*57*		*25 - 126*	*06/09/21 22:30*	*06/16/21 07:36*	*1*
DCB Decachlorobiphenyl (Surr)	*82*		*20 - 155*	*06/09/21 22:30*	*06/16/21 07:36*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-B-C2 — **Lab Sample ID: 570-61000-1**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**400**	**J**	640	330	ug/Kg	☼	06/09/21 14:22	06/10/21 20:30	10

Client Sample ID: FDD-B-C5 — **Lab Sample ID: 570-61000-2**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		770	400	ug/Kg	☼	06/09/21 14:22	06/10/21 20:41	10

Client Sample ID: FDD-B-C6 — **Lab Sample ID: 570-61000-3**
Date Collected: 06/03/21 07:45 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**420**	**J**	710	370	ug/Kg	☼	06/09/21 14:22	06/10/21 21:14	10

Client Sample ID: FDD-C-C3 — **Lab Sample ID: 570-61000-4**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		460	240	ug/Kg	☼	06/09/21 14:22	06/10/21 21:25	10

Client Sample ID: FDD-C-C5 — **Lab Sample ID: 570-61000-5**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		490	260	ug/Kg	☼	06/09/21 14:22	06/10/21 21:35	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.26	0.455	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Arsenic	**4.41**		1.63	0.545	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Barium	**83.3**		1.63	0.340	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Beryllium	**0.351**	**J**	1.63	0.338	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Cadmium	ND		1.63	0.735	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Chromium	**30.3**		3.26	0.490	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Cobalt	**7.73**		1.63	0.309	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Copper	**105**		1.63	0.439	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Lead	**27.2**		1.63	0.351	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Molybdenum	**0.568**	**J**	1.63	0.503	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Nickel	**8.15**		1.63	0.441	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Selenium	ND		1.63	0.948	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Silver	**0.632**	**J**	1.63	0.540	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Thallium	ND		1.63	0.358	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Vanadium	**43.8**		3.26	0.395	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20
Zinc	**150**		8.16	7.54	mg/Kg	☼	06/15/21 12:40	06/15/21 17:15	20

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.91	0.546	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Arsenic	**7.42**		1.96	0.654	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Barium	**94.5**		1.96	0.407	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Beryllium	**0.501**	**J**	1.96	0.405	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Cadmium	ND		1.96	0.881	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Chromium	**46.7**		3.91	0.587	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Cobalt	**8.48**		1.96	0.370	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Copper	**194**		1.96	0.527	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Lead	**51.3**		1.96	0.421	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Molybdenum	**0.798**	**J**	1.96	0.603	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Nickel	**11.5**		1.96	0.529	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Selenium	ND		1.96	1.14	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Silver	**1.37**	**J**	1.96	0.648	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Thallium	ND		1.96	0.429	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Vanadium	**53.3**		3.91	0.474	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20
Zinc	**237**		9.79	9.04	mg/Kg	☼	06/15/21 12:40	06/15/21 17:18	20

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.74	0.521	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Arsenic	**6.46**		1.87	0.624	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Barium	**128**		1.87	0.389	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Beryllium	**0.526**	**J**	1.87	0.387	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Cadmium	ND		1.87	0.841	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Chromium	**42.0**		3.74	0.561	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Cobalt	**10.7**		1.87	0.353	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Copper	**162**		1.87	0.503	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-B-C6 — **Lab Sample ID: 570-61000-3**
Date Collected: 06/03/21 07:45 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	38.9		1.87	0.402	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Molybdenum	0.627	J	1.87	0.576	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Nickel	12.5		1.87	0.505	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Selenium	1.31	J	1.87	1.09	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Silver	0.971	J	1.87	0.619	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Thallium	ND		1.87	0.409	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Vanadium	68.0		3.74	0.452	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20
Zinc	202		9.34	8.63	mg/Kg	☼	06/15/21 12:40	06/15/21 17:22	20

Client Sample ID: FDD-C-C3 — **Lab Sample ID: 570-61000-4**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.43	0.339	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Arsenic	0.424	J	1.22	0.406	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Barium	22.1		1.22	0.253	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Beryllium	ND		1.22	0.252	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Cadmium	ND		1.22	0.547	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Chromium	4.29		2.43	0.365	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Cobalt	2.86		1.22	0.230	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Copper	4.18		1.22	0.327	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Lead	1.23		1.22	0.261	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Molybdenum	ND		1.22	0.374	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Nickel	2.13		1.22	0.328	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Selenium	ND		1.22	0.706	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Silver	ND		1.22	0.402	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Thallium	ND		1.22	0.266	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Vanadium	16.5		2.43	0.294	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20
Zinc	11.2		6.08	5.61	mg/Kg	☼	06/15/21 12:40	06/15/21 17:25	20

Client Sample ID: FDD-C-C5 — **Lab Sample ID: 570-61000-5**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.48	0.346	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Arsenic	0.494	J	1.24	0.414	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Barium	39.0		1.24	0.258	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Beryllium	ND		1.24	0.257	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Cadmium	ND		1.24	0.558	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Chromium	5.17		2.48	0.372	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Cobalt	2.81		1.24	0.234	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Copper	4.73		1.24	0.333	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Lead	1.14	J	1.24	0.266	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Molybdenum	ND		1.24	0.382	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Nickel	2.36		1.24	0.335	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Selenium	ND		1.24	0.720	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Silver	ND		1.24	0.410	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Thallium	ND		1.24	0.271	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Vanadium	18.7		2.48	0.300	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20
Zinc	12.6		6.20	5.72	mg/Kg	☼	06/15/21 12:40	06/15/21 17:28	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.268**		0.138	0.0223	mg/Kg	☼	06/16/21 17:35	06/17/21 11:48	1

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.569**		0.154	0.0249	mg/Kg	☼	06/16/21 17:35	06/17/21 11:50	1

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.665**		0.147	0.0238	mg/Kg	☼	06/16/21 17:35	06/17/21 11:51	1

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0963	0.0156	mg/Kg	☼	06/16/21 17:35	06/17/21 11:53	1

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0994	0.0161	mg/Kg	☼	06/16/21 17:35	06/17/21 11:55	1

General Chemistry

Client Sample ID: FDD-B-C2 — **Lab Sample ID: 570-61000-1**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	237		16.1	12.7	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	124		16.1	13.0	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	2.95		1.58	1.33	mg/Kg	☼	06/10/21 10:00	06/10/21 19:19	10
Trivalent Chromium	29.9		3.25	0.487	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.682		0.0812	0.0282	%	☼		06/10/21 15:32	1
Percent Solids	61.6		0.1	0.1	%			06/07/21 19:16	1
Ammonia (as N)	3.50		0.812	0.447	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C5 — **Lab Sample ID: 570-61000-2**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	292		19.0	15.0	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	146		19.0	15.4	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	19.9		18.6	15.6	mg/Kg	☼	06/10/21 10:00	06/10/21 19:20	100
Trivalent Chromium	46.7		3.82	0.573	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.23		0.0954	0.0331	%	☼		06/10/21 15:32	1
Percent Solids	52.4		0.1	0.1	%			06/07/21 19:16	1
Ammonia (as N)	6.20		0.954	0.525	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C6 — **Lab Sample ID: 570-61000-3**
Date Collected: 06/03/21 07:45 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	244		17.9	14.1	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	125		17.9	14.5	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	20.7		17.6	14.8	mg/Kg	☼	06/10/21 10:00	06/10/21 19:21	100
Trivalent Chromium	41.6		3.59	0.538	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.954		0.0897	0.0312	%	☼		06/10/21 15:32	1
Percent Solids	55.7		0.1	0.1	%			06/07/21 19:16	1
Ammonia (as N)	11.9		0.897	0.493	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-C-C3 — **Lab Sample ID: 570-61000-4**
Date Collected: 06/03/21 11:15 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	177		11.6	9.10	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	92.4		11.6	9.34	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	ND		0.115	0.0965	mg/Kg	☼	06/10/21 10:00	06/10/21 19:17	1
Trivalent Chromium	42.9		2.31	0.347	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.0231	J	0.0578	0.0201	%	☼		06/10/21 15:32	1
Percent Solids	86.6		0.1	0.1	%			06/07/21 19:16	1
Ammonia (as N)	3.59		0.578	0.318	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-C-C5 — **Lab Sample ID: 570-61000-5**
Date Collected: 06/03/21 09:35 — **Matrix: Sediment**
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	201		12.3	9.72	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	103		12.3	9.97	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1

General Chemistry (Continued)

Client Sample ID: FDD-C-C5
Lab Sample ID: 570-61000-5
Date Collected: 06/03/21 09:35
Matrix: Sediment
Date Received: 06/04/21 17:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.122	0.102	mg/Kg	☼	06/10/21 10:00	06/10/21 19:22	1
Trivalent Chromium	**51.7**		2.47	0.370	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	**0.0222**	**J**	0.0617	0.0214	%	☼		06/10/21 15:32	1
Percent Solids	**81.1**		0.1	0.1	%			06/07/21 19:16	1
Ammonia (as N)	**4.14**		0.617	0.339	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

General Chemistry - Soluble

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0998	0.0838	mg/Kg			06/10/21 19:40	1

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0999	0.0839	mg/Kg			06/10/21 19:41	1

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:42	1

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0998	0.0838	mg/Kg			06/10/21 19:38	1

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/10/21 19:43	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-B-C2
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	16.72		0.01	0.01	%			06/14/21 16:04	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 16:04	1
Fine Sand (0.125 to 0.25mm)	10.49		0.01	0.01	%			06/14/21 16:04	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/14/21 16:04	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 16:04	1
Silt (0.00391 to 0.0625mm)	52.47		0.01	0.01	%			06/14/21 16:04	1
Total Silt and Clay (0 to 0.0626mm)	69.19		0.01	0.01	%			06/14/21 16:04	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 16:04	1
Very Fine Sand (0.0625 to 0.125 mm)	20.32		0.01	0.01	%			06/14/21 16:04	1

Client Sample ID: FDD-B-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	17.97		0.01	0.01	%			06/14/21 16:11	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 16:11	1
Fine Sand (0.125 to 0.25mm)	13.49		0.01	0.01	%			06/14/21 16:11	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/14/21 16:11	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 16:11	1
Silt (0.00391 to 0.0625mm)	54.20		0.01	0.01	%			06/14/21 16:11	1
Total Silt and Clay (0 to 0.0626mm)	72.17		0.01	0.01	%			06/14/21 16:11	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 16:11	1
Very Fine Sand (0.0625 to 0.125 mm)	14.34		0.01	0.01	%			06/14/21 16:11	1

Client Sample ID: FDD-B-C6
Date Collected: 06/03/21 07:45
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	17.65		0.01	0.01	%			06/14/21 16:18	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 16:18	1
Fine Sand (0.125 to 0.25mm)	13.25		0.01	0.01	%			06/14/21 16:18	1
Gravel (greater than 2 mm)	1.80		0.01	0.01	%			06/14/21 16:18	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/14/21 16:18	1
Silt (0.00391 to 0.0625mm)	53.22		0.01	0.01	%			06/14/21 16:18	1
Total Silt and Clay (0 to 0.0626mm)	70.88		0.01	0.01	%			06/14/21 16:18	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 16:18	1
Very Fine Sand (0.0625 to 0.125 mm)	14.08		0.01	0.01	%			06/14/21 16:18	1

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	1.04		0.01	0.01	%			06/14/21 16:23	1
Coarse Sand (0.5mm to 1mm)	25.19		0.01	0.01	%			06/14/21 16:23	1
Fine Sand (0.125 to 0.25mm)	17.75		0.01	0.01	%			06/14/21 16:23	1
Gravel (greater than 2 mm)	10.52		0.01	0.01	%			06/14/21 16:23	1
Medium Sand (0.25 to 0.5 mm)	24.44		0.01	0.01	%			06/14/21 16:23	1
Silt (0.00391 to 0.0625mm)	6.05		0.01	0.01	%			06/14/21 16:23	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering) (Continued)

Client Sample ID: FDD-C-C3
Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20
Lab Sample ID: 570-61000-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Silt and Clay (0 to 0.0626mm)	7.09		0.01	0.01	%			06/14/21 16:23	1
Very Coarse Sand (1 to 2mm)	7.50		0.01	0.01	%			06/14/21 16:23	1
Very Fine Sand (0.0625 to 0.125 mm)	7.50		0.01	0.01	%			06/14/21 16:23	1

Client Sample ID: FDD-C-C5
Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20
Lab Sample ID: 570-61000-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	1.01		0.01	0.01	%			06/14/21 16:30	1
Coarse Sand (0.5mm to 1mm)	29.92		0.01	0.01	%			06/14/21 16:30	1
Fine Sand (0.125 to 0.25mm)	16.22		0.01	0.01	%			06/14/21 16:30	1
Gravel (greater than 2 mm)	5.16		0.01	0.01	%			06/14/21 16:30	1
Medium Sand (0.25 to 0.5 mm)	30.81		0.01	0.01	%			06/14/21 16:30	1
Silt (0.00391 to 0.0625mm)	4.89		0.01	0.01	%			06/14/21 16:30	1
Total Silt and Clay (0 to 0.0626mm)	5.89		0.01	0.01	%			06/14/21 16:30	1
Very Coarse Sand (1 to 2mm)	6.98		0.01	0.01	%			06/14/21 16:30	1
Very Fine Sand (0.0625 to 0.125 mm)	5.01		0.01	0.01	%			06/14/21 16:30	1

PARTICLE SIZE SUMMARY

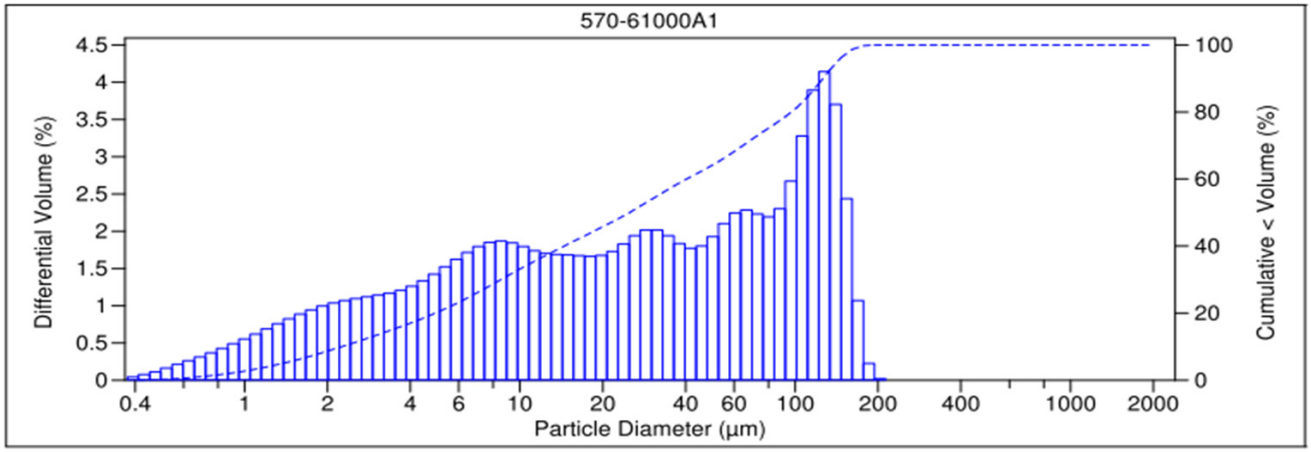
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/03/21
	Date Received:	06/04/21
	Work Order No:	570-61000
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C2		Silt	0.046

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	10.49	20.32	52.47	16.72	69.19



V 3.0

PARTICLE SIZE SUMMARY

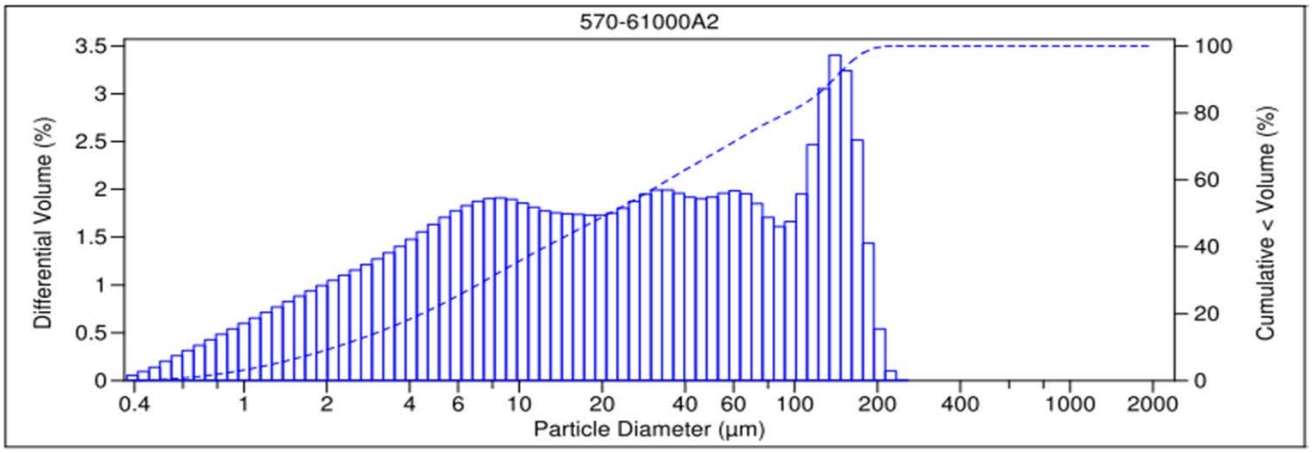
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/03/21
	Date Received:	06/04/21
	Work Order No:	570-61000
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C5		Silt	0.046

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	13.49	14.34	54.20	17.97	72.17



V 3.0

PARTICLE SIZE SUMMARY

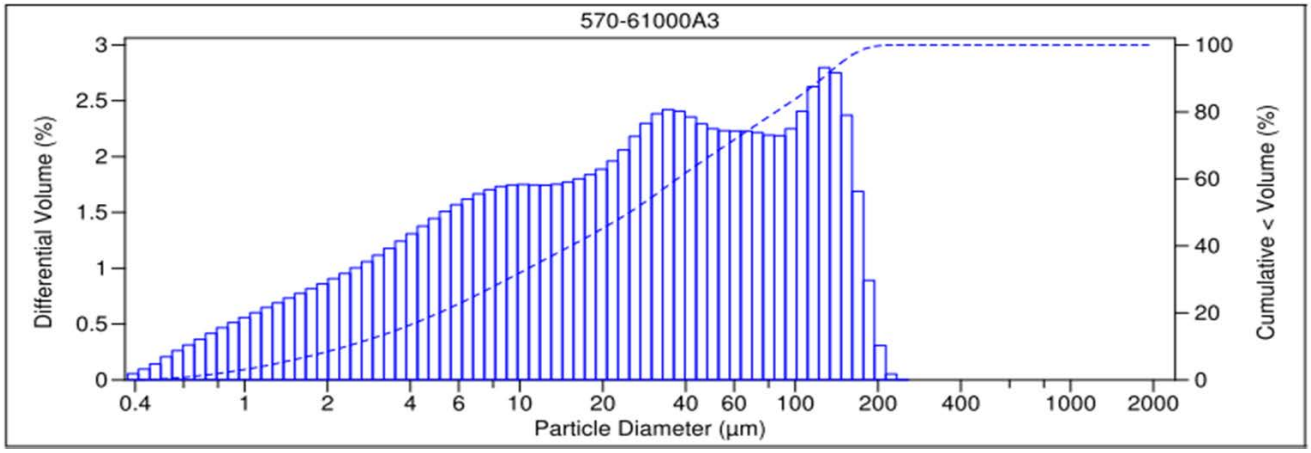
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/03/21
	Date Received:	06/04/21
	Work Order No:	570-61000
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-C6		Very Fine Sand	0.099

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
1.80	0.00	0.00	0.00	13.25	14.08	53.22	17.65	70.88



V 3.0

PARTICLE SIZE SUMMARY

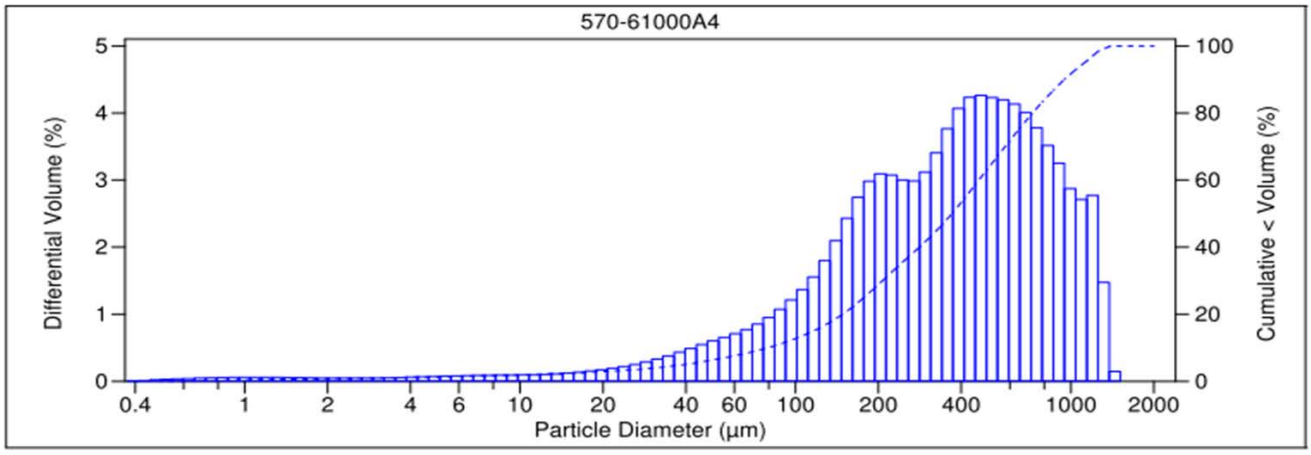
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/03/21
	Date Received:	06/04/21
	Work Order No:	570-61000
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-C-C3		Coarse Sand	0.760

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
10.52	7.50	25.19	24.44	17.75	7.50	6.05	1.04	7.09



V 3.0

PARTICLE SIZE SUMMARY

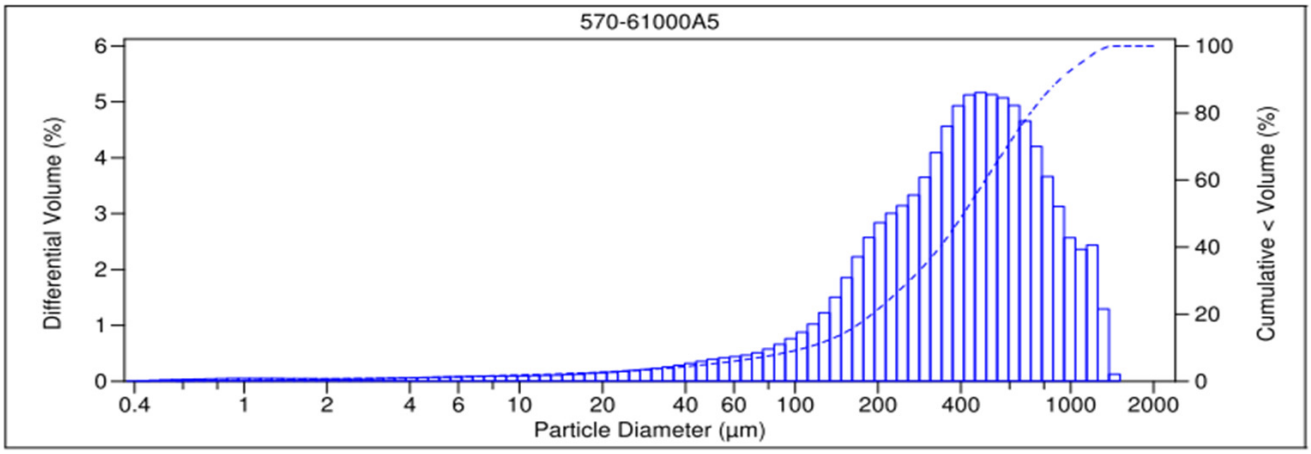
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/03/21
	Date Received:	06/04/21
	Work Order No:	570-61000
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-C-C5		Coarse Sand	0.619

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
5.16	6.98	29.92	30.81	16.22	5.01	4.89	1.01	5.89



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61000-1	FDD-B-C2	65	45	50	49	63	57
570-61000-2	FDD-B-C5	58	39	42	45	61	55
570-61000-3	FDD-B-C6	41	33	34	39	55	42
570-61000-4	FDD-C-C3	67	51	54	55	56	53
570-61000-4 MS	FDD-C-C3	61	54	48	57	60	53
570-61000-4 MSD	FDD-C-C3	56	54	46	58	58	50
570-61000-5	FDD-C-C5	63	50	54	54	58	53

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
LCS 570-156285/2-A	Lab Control Sample	70	65	56	70	69	60
LCSD 570-156285/3-A	Lab Control Sample Dup	71	65	56	71	72	62
MB 570-156285/1-A	Method Blank	58	55	58	57	57	55

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61000-1	FDD-B-C2	72	89
570-61000-2	FDD-B-C5	66	98
570-61000-3	FDD-B-C6	71	101
570-61000-4	FDD-C-C3	61	75
570-61000-5	FDD-C-C5	56	85

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61000-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	FBP (20-139)	TPHd14 (37-165)
570-61058-A-1-O MS	Matrix Spike	61	80
570-61058-A-1-P MSD	Matrix Spike Duplicate	62	85
LCS 570-156283/2-A	Lab Control Sample	56	85
LCSD 570-156283/3-A	Lab Control Sample Dup	63	91
MB 570-156283/1-A	Method Blank	82	107

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DBC (14-116)
570-61000-1	FDD-B-C2	113
570-61000-2	FDD-B-C5	116
570-61000-3	FDD-B-C6	86
570-61000-4	FDD-C-C3	123 S1+
570-61000-4 MS	FDD-C-C3	136 S1+
570-61000-4 MSD	FDD-C-C3	120 S1+
570-61000-5	FDD-C-C5	136 S1+

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DBC (14-116)
LCS 570-156286/2-A	Lab Control Sample	115
LCSD 570-156286/3-A	Lab Control Sample Dup	115
MB 570-156286/1-A	Method Blank	111

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
570-61000-1	FDD-B-C2	53
570-61000-2	FDD-B-C5	66
570-61000-3	FDD-B-C6	51
570-61000-4	FDD-C-C3	43
570-61000-5	FDD-C-C5	45

Surrogate Legend

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61000-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

TPTT = Tripentyltin

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TPTT (10-120)						
570-61058-A-1-G MS	Matrix Spike	51						
570-61058-A-1-H MSD	Matrix Spike Duplicate	53						
LCS 570-155507/2-A	Lab Control Sample	65						
LCSD 570-155507/3-A	Lab Control Sample Dup	69						
MB 570-155507/1-A	Method Blank	50						

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)						
570-61000-1	FDD-B-C2	118						
570-61000-2	FDD-B-C5	110						
570-61000-3	FDD-B-C6	115						
570-61000-4	FDD-C-C3	105						
570-61000-5	FDD-C-C5	112						

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)						
570-60942-A-11-E MS	Matrix Spike	102						
570-60942-A-11-F MSD	Matrix Spike Duplicate	112						
LCS 570-157725/2-A	Lab Control Sample	101						
LCSD 570-157725/3-A	Lab Control Sample Dup	99						
MB 570-157725/1-A	Method Blank	95						

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)					
570-61000-1	FDD-B-C2	56	113					
570-61000-2	FDD-B-C5	47	178					
570-61000-3	FDD-B-C6	49	115					
570-61000-4	FDD-C-C3	44	47					
570-61000-5	FDD-C-C5	49	86					

Surrogate Legend

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61000-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
570-61058-A-1-J MS	Matrix Spike	48	77
570-61058-A-1-K MSD	Matrix Spike Duplicate	55	76
LCS 570-156282/2-A	Lab Control Sample	84	92
LCSD 570-156282/3-A	Lab Control Sample Dup	82	91
MB 570-156282/1-A	Method Blank	79	92

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(25-126)	(20-155)
570-61000-1	FDD-B-C2	59	98
570-61000-2	FDD-B-C5	47	106
570-61000-3	FDD-B-C6	49	89
570-61000-4	FDD-C-C3	45	40
570-61000-4 MS	FDD-C-C3	55	83
570-61000-4 MSD	FDD-C-C3	63	80
570-61000-5	FDD-C-C5	57	82

Surrogate Legend

TCX = Tetrachloro-m-xylene (Surr)
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(25-126)	(20-155)
LCS 570-156282/6-A	Lab Control Sample	83	88
LCSD 570-156282/7-A	Lab Control Sample Dup	95	97
MB 570-156282/1-A	Method Blank	86	89

Surrogate Legend

TCX = Tetrachloro-m-xylene (Surr)
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Anthracene	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Biphenyl	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Bis(2-ethylhexyl) phthalate	17.90	J	50	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Chrysene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Diethyl phthalate	2.381	J	50	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-butyl phthalate	24.53	J	50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluoranthene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluorene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Naphthalene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Phenanthrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pyrene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*58*		*32 - 143*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
2-Fluorophenol	*55*		*15 - 138*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Nitrobenzene-d5	*58*		*18 - 162*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Phenol-d6	*57*		*17 - 141*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
p-Terphenyl-d14	*57*		*34 - 148*	*06/09/21 22:41*	*06/15/21 16:03*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	55		14 - 146	06/09/21 22:41	06/15/21 16:03	1

Lab Sample ID: LCS 570-156285/2-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	765.4		ug/Kg		77	40 - 160
2,4,6-Trichlorophenol	1000	705.4		ug/Kg		71	40 - 160
2,4-Dichlorophenol	1000	626.2		ug/Kg		63	40 - 160
2,4-Dimethylphenol	1000	666.0		ug/Kg		67	40 - 160
2,4-Dinitrophenol	1000	712.0		ug/Kg		71	40 - 160
2-Chlorophenol	1000	689.9		ug/Kg		69	40 - 160
2-Methylphenol	1000	752.8		ug/Kg		75	40 - 160
2-Nitrophenol	1000	601.4		ug/Kg		60	40 - 160
3/4-Methylphenol	2000	1283		ug/Kg		64	40 - 160
4,6-Dinitro-2-methylphenol	1000	768.4		ug/Kg		77	40 - 160
4-Chloro-3-methylphenol	1000	707.7		ug/Kg		71	40 - 160
Acenaphthene	1000	642.7		ug/Kg		64	48 - 108
Benzo[a]pyrene	1000	879.4		ug/Kg		88	17 - 163
Chrysene	1000	691.8		ug/Kg		69	17 - 168
Dimethyl phthalate	1000	718.9		ug/Kg		72	40 - 160
Di-n-butyl phthalate	1000	799.8		ug/Kg		80	40 - 160
Fluoranthene	1000	706.0		ug/Kg		71	26 - 137
Fluorene	1000	683.3		ug/Kg		68	59 - 121
Naphthalene	1000	528.9		ug/Kg		53	21 - 133
Phenanthrene	1000	711.2		ug/Kg		71	54 - 120
Pyrene	1000	681.6		ug/Kg		68	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	70		32 - 143
2-Fluorophenol	65		15 - 138
Nitrobenzene-d5	56		18 - 162
Phenol-d6	70		17 - 141
p-Terphenyl-d14	69		34 - 148
2-Fluorobiphenyl (Surr)	60		14 - 146

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	777.6		ug/Kg		78	40 - 160	2	20
2,4,6-Trichlorophenol	1000	733.7		ug/Kg		73	40 - 160	4	20
2,4-Dichlorophenol	1000	636.7		ug/Kg		64	40 - 160	2	20
2,4-Dimethylphenol	1000	657.6		ug/Kg		66	40 - 160	1	20
2,4-Dinitrophenol	1000	729.6		ug/Kg		73	40 - 160	2	20
2-Chlorophenol	1000	707.5		ug/Kg		71	40 - 160	3	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylphenol			1000	756.6		ug/Kg		76	40 - 160	1	20
2-Nitrophenol			1000	619.0		ug/Kg		62	40 - 160	3	20
3/4-Methylphenol			2000	1305		ug/Kg		65	40 - 160	2	20
4,6-Dinitro-2-methylphenol			1000	786.3		ug/Kg		79	40 - 160	2	20
4-Chloro-3-methylphenol			1000	696.3		ug/Kg		70	40 - 160	2	20
Acenaphthene			1000	651.0		ug/Kg		65	48 - 108	1	20
Benzo[a]pyrene			1000	884.7		ug/Kg		88	17 - 163	1	20
Chrysene			1000	697.1		ug/Kg		70	17 - 168	1	20
Dimethyl phthalate			1000	731.1		ug/Kg		73	40 - 160	2	20
Di-n-butyl phthalate			1000	804.9		ug/Kg		80	40 - 160	1	20
Fluoranthene			1000	690.8		ug/Kg		69	26 - 137	2	20
Fluorene			1000	690.1		ug/Kg		69	59 - 121	1	20
Naphthalene			1000	533.0		ug/Kg		53	21 - 133	1	20
Phenanthrene			1000	713.5		ug/Kg		71	54 - 120	0	20
Pyrene			1000	693.7		ug/Kg		69	28 - 106	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*32 - 143*
2-Fluorophenol	*65*		*15 - 138*
Nitrobenzene-d5	*56*		*18 - 162*
Phenol-d6	*71*		*17 - 141*
p-Terphenyl-d14	*72*		*34 - 148*
2-Fluorobiphenyl (Surr)	*62*		*14 - 146*

Lab Sample ID: 570-61000-4 MS
Matrix: Sediment
Analysis Batch: 157343

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND	F2	1150	543.2		ug/Kg	☼	47	40 - 160		
2,4,6-Trichlorophenol	ND	F2	1150	513.5		ug/Kg	☼	45	40 - 160		
2,4-Dichlorophenol	ND	F2	1150	485.4		ug/Kg	☼	42	40 - 160		
2,4-Dimethylphenol	ND	F2	1150	542.0	J	ug/Kg	☼	47	40 - 160		
2,4-Dinitrophenol	ND	F2	1150	604.2		ug/Kg	☼	53	40 - 160		
2-Chlorophenol	ND	F2	1150	510.4		ug/Kg	☼	44	40 - 160		
2-Methylphenol	ND	F2	1150	557.9		ug/Kg	☼	49	40 - 160		
2-Nitrophenol	ND	F2	1150	469.0	J	ug/Kg	☼	41	40 - 160		
3/4-Methylphenol	ND	F2	2300	932.4		ug/Kg	☼	41	40 - 160		
4,6-Dinitro-2-methylphenol	ND	F2	1150	592.7		ug/Kg	☼	52	40 - 160		
4-Chloro-3-methylphenol	ND	F2	1150	511.9		ug/Kg	☼	45	8 - 160		
Acenaphthene	ND	F2	1150	478.3		ug/Kg	☼	42	40 - 160		
Benzo[a]pyrene	ND	F2	1150	593.6		ug/Kg	☼	52	17 - 163		
Chrysene	ND	F2	1150	474.0		ug/Kg	☼	41	17 - 168		
Dimethyl phthalate	ND	F2	1150	523.3		ug/Kg	☼	46	40 - 160		
Di-n-butyl phthalate	5.9	J B F2	1150	558.6		ug/Kg	☼	48	40 - 160		
Fluoranthene	ND	F2	1150	509.9		ug/Kg	☼	44	26 - 137		
Fluorene	ND	F1 F2	1150	505.3	F1	ug/Kg	☼	44	59 - 121		
Naphthalene	ND	F2	1150	417.9		ug/Kg	☼	36	21 - 133		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61000-4 MS
Matrix: Sediment
Analysis Batch: 157343

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene	ND	F1 F2	1150	507.0	F1	ug/Kg	☼	44	54 - 120
Pyrene	ND		1150	487.2		ug/Kg	☼	42	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*61*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*48*		*18 - 162*
Phenol-d6	*57*		*17 - 141*
p-Terphenyl-d14	*60*		*34 - 148*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*

Lab Sample ID: 570-61000-4 MSD
Matrix: Sediment
Analysis Batch: 157343

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND	F2	1150	726.0	F2	ug/Kg	☼	63	40 - 160	29	20
2,4,6-Trichlorophenol	ND	F2	1150	683.4	F2	ug/Kg	☼	59	40 - 160	28	20
2,4-Dichlorophenol	ND	F2	1150	625.1	F2	ug/Kg	☼	54	40 - 160	25	20
2,4-Dimethylphenol	ND	F2	1150	717.6	F2	ug/Kg	☼	62	40 - 160	28	20
2,4-Dinitrophenol	ND	F2	1150	802.9	F2	ug/Kg	☼	70	40 - 160	28	20
2-Chlorophenol	ND	F2	1150	687.8	F2	ug/Kg	☼	60	40 - 160	30	20
2-Methylphenol	ND	F2	1150	745.7	F2	ug/Kg	☼	65	40 - 160	29	20
2-Nitrophenol	ND	F2	1150	615.8	F2	ug/Kg	☼	54	40 - 160	27	20
3/4-Methylphenol	ND	F2	2300	1284	F2	ug/Kg	☼	56	40 - 160	32	20
4,6-Dinitro-2-methylphenol	ND	F2	1150	740.3	F2	ug/Kg	☼	64	40 - 160	22	20
4-Chloro-3-methylphenol	ND	F2	1150	659.1	F2	ug/Kg	☼	57	8 - 160	25	20
Acenaphthene	ND	F2	1150	634.9	F2	ug/Kg	☼	55	40 - 160	28	20
Benzo[a]pyrene	ND	F2	1150	774.5	F2	ug/Kg	☼	67	17 - 163	26	20
Chrysene	ND	F2	1150	633.3	F2	ug/Kg	☼	55	17 - 168	29	20
Dimethyl phthalate	ND	F2	1150	692.6	F2	ug/Kg	☼	60	40 - 160	28	20
Di-n-butyl phthalate	5.9	J B F2	1150	718.7	F2	ug/Kg	☼	62	40 - 160	25	20
Fluoranthene	ND	F2	1150	661.9	F2	ug/Kg	☼	58	26 - 137	26	20
Fluorene	ND	F1 F2	1150	664.3	F1 F2	ug/Kg	☼	58	59 - 121	27	20
Naphthalene	ND	F2	1150	538.1	F2	ug/Kg	☼	47	21 - 133	25	20
Phenanthrene	ND	F1 F2	1150	665.3	F2	ug/Kg	☼	58	54 - 120	27	20
Pyrene	ND		1150	641.0		ug/Kg	☼	56	6 - 156	27	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*56*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*46*		*18 - 162*
Phenol-d6	*58*		*17 - 141*
p-Terphenyl-d14	*58*		*34 - 148*
2-Fluorobiphenyl (Surr)	*50*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-156283/1-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-28	ND		0.20	0.069	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-37	ND		0.20	0.061	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-44	ND		0.20	0.15	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-49	ND		0.20	0.050	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-52	ND		0.20	0.19	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-66	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-70	ND		0.20	0.072	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-74	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-77	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-81	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-87	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-99	ND		0.20	0.047	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-101	ND		0.20	0.044	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-105	ND		0.20	0.053	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-110	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-114	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-118	ND		0.20	0.035	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-119	ND		0.20	0.063	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-123	ND		0.20	0.073	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-126	ND		0.20	0.055	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-128	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-149	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-151	ND		0.20	0.088	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-156	ND		0.20	0.077	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-157	ND		0.20	0.085	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-167	ND		0.20	0.13	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-168	ND		0.20	0.14	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-169	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-170	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-177	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-180	ND		0.20	0.092	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-183	ND		0.20	0.093	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-187	ND		0.20	0.10	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-189	ND		0.20	0.064	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-194	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-201	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-206	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*	*06/09/21 22:33*	*06/15/21 13:06*	*1*
p-Terphenyl-d14	*107*		*37 - 165*	*06/09/21 22:33*	*06/15/21 13:06*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-156283/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157377
Prep Batch: 156283

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18			50.0	40.87		ug/Kg		82	33 - 114		
PCB-28			50.0	47.15		ug/Kg		94	40 - 132		
PCB-44			50.0	48.13		ug/Kg		96	38 - 131		
PCB-52			50.0	47.24		ug/Kg		94	38 - 131		
PCB-66			50.0	54.29		ug/Kg		109	42 - 141		
PCB-77			50.0	49.78		ug/Kg		100	47 - 135		
PCB-101			50.0	49.39		ug/Kg		99	40 - 132		
PCB-105			50.0	53.45		ug/Kg		107	39 - 135		
PCB-118			50.0	48.52		ug/Kg		97	38 - 131		
PCB-126			50.0	55.31		ug/Kg		111	40 - 139		
PCB-128			50.0	61.65		ug/Kg		123	43 - 149		
PCB-132/153			50.0	54.59		ug/Kg		109	37 - 164		
PCB-138/158			50.0	49.32		ug/Kg		99	36 - 124		
PCB-170			50.0	52.59		ug/Kg		105	35 - 134		
PCB-180			50.0	61.67		ug/Kg		123	38 - 159		
PCB-187			50.0	59.83		ug/Kg		120	41 - 147		
PCB-201			50.0	60.94		ug/Kg		122	40 - 156		
PCB-206			50.0	62.01		ug/Kg		124	37 - 153		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*56*		*20 - 139*
p-Terphenyl-d14	*85*		*37 - 165*

Lab Sample ID: LCSD 570-156283/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157377
Prep Batch: 156283

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18			50.0	43.59		ug/Kg		87	33 - 114	6	29
PCB-28			50.0	48.97		ug/Kg		98	40 - 132	4	29
PCB-44			50.0	50.00		ug/Kg		100	38 - 131	4	32
PCB-52			50.0	48.75		ug/Kg		97	38 - 131	3	32
PCB-66			50.0	56.92		ug/Kg		114	42 - 141	5	34
PCB-77			50.0	51.28		ug/Kg		103	47 - 135	3	35
PCB-101			50.0	51.66		ug/Kg		103	40 - 132	5	34
PCB-105			50.0	54.92		ug/Kg		110	39 - 135	3	37
PCB-118			50.0	50.50		ug/Kg		101	38 - 131	4	35
PCB-126			50.0	57.49		ug/Kg		115	40 - 139	4	39
PCB-128			50.0	64.16		ug/Kg		128	43 - 149	4	37
PCB-132/153			50.0	57.41		ug/Kg		115	37 - 164	5	38
PCB-138/158			50.0	51.75		ug/Kg		104	36 - 124	5	40
PCB-170			50.0	55.25		ug/Kg		110	35 - 134	5	31
PCB-180			50.0	63.97		ug/Kg		128	38 - 159	4	40
PCB-187			50.0	62.52		ug/Kg		125	41 - 147	4	40
PCB-201			50.0	62.97		ug/Kg		126	40 - 156	3	40
PCB-206			50.0	63.29		ug/Kg		127	37 - 153	2	36

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCSD 570-156283/3-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156283

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*
p-Terphenyl-d14	*91*		*37 - 165*

Lab Sample ID: 570-61058-A-1-O MS
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		108	67.97		ug/Kg	☼	63	29 - 127
PCB-28	ND		108	82.38		ug/Kg	☼	76	29 - 170
PCB-44	ND		108	81.14		ug/Kg	☼	75	33 - 150
PCB-52	ND		108	80.57		ug/Kg	☼	75	23 - 159
PCB-66	ND		108	92.84		ug/Kg	☼	86	29 - 166
PCB-77	ND		108	80.72		ug/Kg	☼	75	30 - 166
PCB-101	0.65		108	83.58		ug/Kg	☼	77	30 - 159
PCB-105	ND		108	88.98		ug/Kg	☼	83	22 - 173
PCB-118	0.73		108	80.88		ug/Kg	☼	74	24 - 162
PCB-126	ND		108	90.62		ug/Kg	☼	84	18 - 180
PCB-128	ND		108	100.9		ug/Kg	☼	94	18 - 180
PCB-132/153	1.2		108	94.22		ug/Kg	☼	86	27 - 180
PCB-138/158	ND		108	82.47		ug/Kg	☼	77	18 - 160
PCB-170	ND		108	91.85		ug/Kg	☼	85	25 - 165
PCB-180	ND		108	99.28		ug/Kg	☼	92	20 - 180
PCB-187	ND		108	98.09		ug/Kg	☼	91	14 - 180
PCB-201	ND		108	99.36		ug/Kg	☼	92	17 - 180
PCB-206	ND		108	91.35		ug/Kg	☼	85	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*
p-Terphenyl-d14	*80*		*37 - 165*

Lab Sample ID: 570-61058-A-1-P MSD
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		108	69.42		ug/Kg	☼	64	29 - 127	2	40
PCB-28	ND		108	85.15		ug/Kg	☼	79	29 - 170	3	32
PCB-44	ND		108	81.10		ug/Kg	☼	75	33 - 150	0	40
PCB-52	ND		108	82.91		ug/Kg	☼	77	23 - 159	3	40
PCB-66	ND		108	92.99		ug/Kg	☼	86	29 - 166	0	40
PCB-77	ND		108	80.60		ug/Kg	☼	74	30 - 166	0	40
PCB-101	0.65		108	84.00		ug/Kg	☼	77	30 - 159	0	40
PCB-105	ND		108	86.89		ug/Kg	☼	80	22 - 173	2	40
PCB-118	0.73		108	80.24		ug/Kg	☼	73	24 - 162	1	40
PCB-126	ND		108	92.63		ug/Kg	☼	85	18 - 180	2	40
PCB-128	ND		108	98.25		ug/Kg	☼	91	18 - 180	3	40
PCB-132/153	1.2		108	91.70		ug/Kg	☼	84	27 - 180	3	40

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-61058-A-1-P MSD
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-138/158	ND		108	80.84		ug/Kg	☼	75	18 - 160	2	40
PCB-170	ND		108	89.20		ug/Kg	☼	82	25 - 165	3	22
PCB-180	ND		108	95.16		ug/Kg	☼	88	20 - 180	4	40
PCB-187	ND		108	95.53		ug/Kg	☼	88	14 - 180	3	40
PCB-201	ND		108	94.55		ug/Kg	☼	87	17 - 180	5	40
PCB-206	ND		108	89.32		ug/Kg	☼	82	16 - 180	2	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*
p-Terphenyl-d14	*85*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-156286/1-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156286

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Cypermethrin	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/09/21 22:44	06/16/21 17:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*111*		*14 - 116*	*06/09/21 22:44*	*06/16/21 17:46*	*1*

Lab Sample ID: LCS 570-156286/2-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.770		ug/Kg		75	10 - 148
Bifenthrin	5.00	5.327		ug/Kg		107	26 - 128
Cyfluthrin	5.00	5.800		ug/Kg		116	10 - 131
Cypermethrin	5.00	5.895		ug/Kg		118	10 - 136
Deltamethrin/Tralomethrin	5.00	5.620		ug/Kg		112	13 - 190
Fenpropathrin	5.00	5.653		ug/Kg		113	10 - 148
Fenvalerate/Esfenvalerate	5.00	5.678		ug/Kg		114	10 - 149
Fluvalinate	5.00	5.361		ug/Kg		107	10 - 121

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCS 570-156286/2-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lambda cyhalothrin	5.00	5.165		ug/Kg		103	10 - 123
Permethrins (cis/trans)	5.00	5.789		ug/Kg		116	45 - 123
Phenothrin	5.00	6.057		ug/Kg		121	45 - 165
Resmethrin/Bioresmethrin	5.00	4.297		ug/Kg		86	38 - 164
Tetramethrin	5.00	4.934		ug/Kg		99	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: LCSD 570-156286/3-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.857		ug/Kg		77	10 - 148	2	25
Bifenthrin	5.00	5.411		ug/Kg		108	26 - 128	2	25
Cyfluthrin	5.00	5.675		ug/Kg		114	10 - 131	2	25
Cypermethrin	5.00	5.731		ug/Kg		115	10 - 136	3	25
Deltamethrin/Tralomethrin	5.00	5.514		ug/Kg		110	13 - 190	2	25
Fenpropathrin	5.00	5.469		ug/Kg		109	10 - 148	3	25
Fenvalerate/Esfenvalerate	5.00	5.508		ug/Kg		110	10 - 149	3	25
Fluvalinate	5.00	5.176		ug/Kg		104	10 - 121	4	25
Lambda cyhalothrin	5.00	5.051		ug/Kg		101	10 - 123	2	25
Permethrins (cis/trans)	5.00	5.675		ug/Kg		114	45 - 123	2	25
Phenothrin	5.00	6.013		ug/Kg		120	45 - 165	1	25
Resmethrin/Bioresmethrin	5.00	4.186		ug/Kg		84	38 - 164	3	25
Tetramethrin	5.00	5.021		ug/Kg		100	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: 570-61000-4 MS
Matrix: Sediment
Analysis Batch: 157739

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	ND		5.74	4.865		ug/Kg	☼	85	10 - 148
Bifenthrin	ND		5.74	6.683		ug/Kg	☼	116	26 - 128
Cyfluthrin	ND		5.74	7.022		ug/Kg	☼	122	10 - 131
Cypermethrin	ND		5.74	7.379		ug/Kg	☼	129	10 - 136
Deltamethrin/Tralomethrin	ND		5.74	8.013		ug/Kg	☼	140	13 - 190
Fenpropathrin	ND		5.74	7.358		ug/Kg	☼	128	10 - 148
Fenvalerate/Esfenvalerate	ND		5.74	7.299		ug/Kg	☼	127	10 - 149
Fluvalinate	ND	F1	5.74	7.151	F1	ug/Kg	☼	125	10 - 121
Lambda cyhalothrin	ND		5.74	6.578		ug/Kg	☼	115	10 - 123
Permethrins (cis/trans)	ND	F1	5.74	6.963		ug/Kg	☼	121	45 - 123
Phenothrin	ND		5.74	7.939		ug/Kg	☼	138	45 - 165
Resmethrin/Bioresmethrin	ND		5.74	4.950		ug/Kg	☼	86	38 - 164

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-61000-4 MS
Matrix: Sediment
Analysis Batch: 157739

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetramethrin	ND		5.74	6.586		ug/Kg	☼	115	15 - 153

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*136*	*S1+*	*14 - 116*

Lab Sample ID: 570-61000-4 MSD
Matrix: Sediment
Analysis Batch: 157739

Client Sample ID: FDD-C-C3
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.71	4.962		ug/Kg	☼	87	10 - 148	2	30
Bifenthrin	ND		5.71	6.582		ug/Kg	☼	115	26 - 128	2	30
Cyfluthrin	ND		5.71	7.115		ug/Kg	☼	125	10 - 131	1	30
Cypermethrin	ND		5.71	7.420		ug/Kg	☼	130	10 - 136	1	30
Deltamethrin/Tralomethrin	ND		5.71	7.399		ug/Kg	☼	130	13 - 190	8	30
Fenpropathrin	ND		5.71	7.015		ug/Kg	☼	123	10 - 148	5	30
Fenvalerate/Esfenvalerate	ND		5.71	7.277		ug/Kg	☼	127	10 - 149	0	30
Fluvalinate	ND	F1	5.71	6.909		ug/Kg	☼	121	10 - 121	3	30
Lambda cyhalothrin	ND		5.71	5.964		ug/Kg	☼	104	10 - 123	10	30
Permethrins (cis/trans)	ND	F1	5.71	7.549	F1	ug/Kg	☼	132	45 - 123	8	30
Phenothrin	ND		5.71	8.066		ug/Kg	☼	141	45 - 165	2	30
Resmethrin/Bioresmethrin	ND		5.71	4.550		ug/Kg	☼	80	38 - 164	8	30
Tetramethrin	ND		5.71	6.126		ug/Kg	☼	107	15 - 153	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*120*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-155507/1-A
Matrix: Solid
Analysis Batch: 155808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 155507

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/07/21 16:16	06/09/21 13:41	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/07/21 16:16	06/09/21 13:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*50*		*10 - 120*	*06/07/21 16:16*	*06/09/21 13:41*	*1*

Lab Sample ID: LCS 570-155507/2-A
Matrix: Solid
Analysis Batch: 155808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 155507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	94.75		ug/Kg		95	10 - 153

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: LCS 570-155507/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tributyltin			100	65.72		ug/Kg		66	10 - 126		
Dibutyltin			100	66.95		ug/Kg		67	14 - 174		
Monobutyltin			100	19.75		ug/Kg		20	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*65*		*10 - 120*

Lab Sample ID: LCSD 570-155507/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin			100	103.6		ug/Kg		104	10 - 153	9	30
Tributyltin			100	74.81		ug/Kg		75	10 - 126	13	30
Dibutyltin			100	72.68		ug/Kg		73	14 - 174	8	30
Monobutyltin			100	21.84		ug/Kg		22	10 - 120	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*69*		*10 - 120*

Lab Sample ID: 570-61058-A-1-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrabutyltin	ND		217	168.7		ug/Kg	☼	78	10 - 140		
Tributyltin	ND		217	114.2		ug/Kg	☼	53	10 - 135		
Dibutyltin	ND	F1	217	20.44	F1	ug/Kg	☼	9	10 - 180		
Monobutyltin	ND	F1	217	ND	F1	ug/Kg	☼	0	10 - 125		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*51*		*10 - 120*

Lab Sample ID: 570-61058-A-1-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155808 — **Prep Batch: 155507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		217	163.0		ug/Kg	☼	75	10 - 140	3	40
Tributyltin	ND		217	100.7		ug/Kg	☼	46	10 - 135	13	40
Dibutyltin	ND	F1	217	17.67	F1	ug/Kg	☼	8	10 - 180	15	40
Monobutyltin	ND	F1	217	ND	F1	ug/Kg	☼	0	10 - 125	NC	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*53*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-157725/1-A
Matrix: Solid
Analysis Batch: 157660

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 157725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C9-C10	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C11-C12	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C13-C14	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C15-C16	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C17-C18	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C19-C20	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C21-C22	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C23-C24	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C25-C28	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C29-C32	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C33-C36	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C37-C40	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C41-C44	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1
C6-C44	ND		5.0	3.8	mg/Kg		06/16/21 13:47	06/17/21 01:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*95*		*60 - 138*	*06/16/21 13:47*	*06/17/21 01:30*	*1*

Lab Sample ID: LCS 570-157725/2-A
Matrix: Solid
Analysis Batch: 157660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 157725

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			400	399.5		mg/Kg		100	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*101*		*60 - 138*

Lab Sample ID: LCSD 570-157725/3-A
Matrix: Solid
Analysis Batch: 157660

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 157725

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	394.5		mg/Kg		99	80 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*99*		*60 - 138*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-60942-A-11-E MS
Matrix: Solid
Analysis Batch: 157660

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 157725

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	4.1	J	381	375.5		mg/Kg		97	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*102*		*60 - 138*

Lab Sample ID: 570-60942-A-11-F MSD
Matrix: Solid
Analysis Batch: 157660

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 157725

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.1	J	379	446.7		mg/Kg		117	43 - 165	17	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*112*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Aldrin	ND		1.0	0.072	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Chlordane	ND		5.0	0.33	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin	ND		1.0	0.088	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-156282/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157667 — **Prep Batch: 156282**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*20 - 131*	*06/09/21 22:26*	*06/16/21 13:55*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*	*06/09/21 22:26*	*06/16/21 13:55*	*1*

Lab Sample ID: LCS 570-156282/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157667 — **Prep Batch: 156282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	5.523		ug/Kg		110	54 - 150
4,4'-DDE	5.00	5.602		ug/Kg		112	49 - 146
4,4'-DDT	5.00	5.672		ug/Kg		113	52 - 147
Aldrin	5.00	4.606		ug/Kg		92	28 - 116
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123
beta-BHC	5.00	6.594	*+ me	ug/Kg		132	48 - 127
delta-BHC	5.00	5.326		ug/Kg		107	10 - 149
Dieldrin	5.00	4.891		ug/Kg		98	48 - 132
alpha-Chlordane	5.00	4.803		ug/Kg		96	48 - 125
Endosulfan I	5.00	4.734		ug/Kg		95	44 - 125
Endosulfan II	5.00	4.846		ug/Kg		97	47 - 136
Endosulfan sulfate	5.00	4.943		ug/Kg		99	46 - 133
Endrin	5.00	5.107		ug/Kg		102	43 - 142
Endrin aldehyde	5.00	5.425		ug/Kg		108	29 - 141
gamma-BHC	5.00	4.756		ug/Kg		95	44 - 126
Heptachlor	5.00	4.713		ug/Kg		94	50 - 123
Heptachlor epoxide	5.00	4.836		ug/Kg		97	49 - 125
Methoxychlor	5.00	5.555		ug/Kg		111	49 - 145
gamma-Chlordane	5.00	4.826		ug/Kg		97	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*

Lab Sample ID: LCSD 570-156282/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157667 — **Prep Batch: 156282**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	5.366		ug/Kg		107	54 - 150	3	29
4,4'-DDE	5.00	5.461		ug/Kg		109	49 - 146	3	28
4,4'-DDT	5.00	5.520		ug/Kg		110	52 - 147	3	32
Aldrin	5.00	4.725		ug/Kg		94	28 - 116	3	30
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123	0	27
beta-BHC	5.00	5.068		ug/Kg		101	48 - 127	26	28

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 570-156282/3-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156282

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
delta-BHC			5.00	5.304		ug/Kg		106	10 - 149	0	27
Dieldrin			5.00	4.779		ug/Kg		96	48 - 132	2	28
alpha-Chlordane			5.00	4.736		ug/Kg		95	48 - 125	1	27
Endosulfan I			5.00	4.579		ug/Kg		92	44 - 125	3	29
Endosulfan II			5.00	4.740		ug/Kg		95	47 - 136	2	29
Endosulfan sulfate			5.00	4.865		ug/Kg		97	46 - 133	2	28
Endrin			5.00	5.002		ug/Kg		100	43 - 142	2	27
Endrin aldehyde			5.00	5.159		ug/Kg		103	29 - 141	5	40
gamma-BHC			5.00	4.753		ug/Kg		95	44 - 126	0	28
Heptachlor			5.00	4.634		ug/Kg		93	50 - 123	2	28
Heptachlor epoxide			5.00	4.811		ug/Kg		96	49 - 125	1	28
Methoxychlor			5.00	5.426		ug/Kg		109	49 - 145	2	39
gamma-Chlordane			5.00	4.786		ug/Kg		96	29 - 153	1	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*82*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 180*

Lab Sample ID: 570-61058-A-1-J MS
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDD	ND		10.8	10.48		ug/Kg	☼	97	17 - 180		
4,4'-DDE	1.3	J	10.8	11.39		ug/Kg	☼	93	20 - 180		
4,4'-DDT	ND		10.8	10.65		ug/Kg	☼	99	10 - 180		
Aldrin	ND		10.8	8.049		ug/Kg	☼	75	27 - 146		
alpha-BHC	ND		10.8	8.890		ug/Kg	☼	82	33 - 160		
beta-BHC	ND	*+	10.8	7.428		ug/Kg	☼	69	14 - 178		
delta-BHC	ND		10.8	6.422		ug/Kg	☼	59	10 - 159		
Dieldrin	ND		10.8	9.278		ug/Kg	☼	86	25 - 180		
alpha-Chlordane	ND		10.8	8.901		ug/Kg	☼	82	24 - 164		
Endosulfan I	ND		10.8	8.879		ug/Kg	☼	82	31 - 146		
Endosulfan II	ND		10.8	8.888		ug/Kg	☼	82	14 - 176		
Endosulfan sulfate	ND		10.8	7.543		ug/Kg	☼	70	22 - 167		
Endrin	ND		10.8	9.735		ug/Kg	☼	90	23 - 174		
Endrin aldehyde	ND	F1	10.8	4.829		ug/Kg	☼	45	10 - 180		
gamma-BHC	ND		10.8	7.968		ug/Kg	☼	74	27 - 160		
Heptachlor	ND		10.8	4.021		ug/Kg	☼	37	23 - 144		
Heptachlor epoxide	ND		10.8	8.883		ug/Kg	☼	82	25 - 173		
Methoxychlor	ND		10.8	10.81		ug/Kg	☼	100	10 - 180		
gamma-Chlordane	ND		10.8	9.196		ug/Kg	☼	85	26 - 180		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*48*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*77*		*20 - 180*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-61058-A-1-K MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157667
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		10.8	10.07		ug/Kg	☼	93	17 - 180	4	40
4,4'-DDE	1.3	J	10.8	11.44		ug/Kg	☼	94	20 - 180	0	40
4,4'-DDT	ND		10.8	10.88		ug/Kg	☼	101	10 - 180	2	40
Aldrin	ND		10.8	8.249		ug/Kg	☼	76	27 - 146	2	40
alpha-BHC	ND		10.8	9.824		ug/Kg	☼	91	33 - 160	10	36
beta-BHC	ND	*+	10.8	7.898		ug/Kg	☼	73	14 - 178	6	40
delta-BHC	ND		10.8	8.223		ug/Kg	☼	76	10 - 159	25	40
Dieldrin	ND		10.8	10.02		ug/Kg	☼	93	25 - 180	8	40
alpha-Chlordane	ND		10.8	8.949		ug/Kg	☼	83	24 - 164	1	40
Endosulfan I	ND		10.8	8.388		ug/Kg	☼	78	31 - 146	6	34
Endosulfan II	ND		10.8	7.807		ug/Kg	☼	72	14 - 176	13	40
Endosulfan sulfate	ND		10.8	8.245		ug/Kg	☼	76	22 - 167	9	40
Endrin	ND		10.8	9.563		ug/Kg	☼	89	23 - 174	2	40
Endrin aldehyde	ND	F1	10.8	4.801		ug/Kg	☼	45	10 - 180	1	40
gamma-BHC	ND		10.8	8.616		ug/Kg	☼	80	27 - 160	8	40
Heptachlor	ND		10.8	3.396		ug/Kg	☼	31	23 - 144	17	40
Heptachlor epoxide	ND		10.8	8.874		ug/Kg	☼	82	25 - 173	0	40
Methoxychlor	ND		10.8	8.962		ug/Kg	☼	83	10 - 180	19	40
gamma-Chlordane	ND		10.8	8.650		ug/Kg	☼	80	26 - 180	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*55*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*76*		*20 - 180*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-156282/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157510
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*86*		*25 - 126*	*06/09/21 22:26*	*06/16/21 04:51*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 155*	*06/09/21 22:26*	*06/16/21 04:51*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 570-156282/6-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157510
Prep Batch: 156282

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			20.0	23.67		ug/Kg		118	50 - 142		
Aroclor-1260			20.0	21.45		ug/Kg		107	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*83*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*88*		*20 - 155*

Lab Sample ID: LCSD 570-156282/7-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157510
Prep Batch: 156282

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			20.0	23.87		ug/Kg		119	50 - 142	1	30
Aroclor-1260			20.0	23.10		ug/Kg		116	50 - 150	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*95*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 155*

Lab Sample ID: 570-61000-4 MS
Client Sample ID: FDD-C-C3
Matrix: Sediment
Prep Type: Total/NA
Analysis Batch: 157510
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016	ND		23.0	24.92		ug/Kg	☼	108	20 - 175		
Aroclor-1260	ND		23.0	23.97		ug/Kg	☼	104	20 - 180		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*55*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*83*		*20 - 155*

Lab Sample ID: 570-61000-4 MSD
Client Sample ID: FDD-C-C3
Matrix: Sediment
Prep Type: Total/NA
Analysis Batch: 157510
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		22.8	23.58		ug/Kg	☼	104	20 - 175	6	40
Aroclor-1260	ND		22.8	23.67		ug/Kg	☼	104	20 - 180	1	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*63*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*80*		*20 - 155*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-156160/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	210	ug/Kg		06/09/21 14:22	06/10/21 16:52	10

Lab Sample ID: LCS 570-156160/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19310		ug/Kg		97	80 - 120

Lab Sample ID: LCSD 570-156160/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20100	19290		ug/Kg		96	80 - 120	0	20

Lab Sample ID: 570-61178-A-3-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	5300		19900	23330		ug/Kg		90	75 - 125

Lab Sample ID: 570-61178-A-3-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	5300		20000	20940		ug/Kg		78	75 - 125	11	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-157404/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157404**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.279	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Arsenic	ND		1.00	0.334	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Barium	ND		1.00	0.208	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Beryllium	ND		1.00	0.207	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Cadmium	ND		1.00	0.450	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Chromium	ND		2.00	0.300	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Cobalt	ND		1.00	0.189	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Copper	ND		1.00	0.269	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Lead	ND		1.00	0.215	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Molybdenum	ND		1.00	0.308	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Nickel	ND		1.00	0.270	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Selenium	ND		1.00	0.581	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Silver	ND		1.00	0.331	mg/Kg		06/15/21 12:40	06/15/21 16:34	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-157404/1-A ^20
Matrix: Solid
Analysis Batch: 157354

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 157404

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.00	0.219	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Vanadium	ND		2.00	0.242	mg/Kg		06/15/21 12:40	06/15/21 16:34	20
Zinc	ND		5.00	4.62	mg/Kg		06/15/21 12:40	06/15/21 16:34	20

Lab Sample ID: LCS 570-157404/2-A ^20
Matrix: Solid
Analysis Batch: 157354

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 157404

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.9	24.38		mg/Kg		98	80 - 120
Arsenic	24.9	25.66		mg/Kg		103	80 - 120
Barium	24.9	24.23		mg/Kg		97	80 - 120
Beryllium	24.9	25.17		mg/Kg		101	80 - 120
Cadmium	24.9	25.74		mg/Kg		103	80 - 120
Chromium	24.9	24.30		mg/Kg		98	80 - 120
Cobalt	24.9	24.59		mg/Kg		99	80 - 120
Copper	24.9	24.68		mg/Kg		99	80 - 120
Lead	24.9	24.94		mg/Kg		100	80 - 120
Molybdenum	24.9	24.53		mg/Kg		99	80 - 120
Nickel	24.9	25.32		mg/Kg		102	80 - 120
Selenium	24.9	26.36		mg/Kg		106	80 - 120
Silver	12.4	12.58		mg/Kg		101	80 - 120
Thallium	24.9	23.86		mg/Kg		96	80 - 120
Vanadium	24.9	24.30		mg/Kg		98	80 - 120
Zinc	24.9	25.77		mg/Kg		104	80 - 120

Lab Sample ID: LCSD 570-157404/3-A ^20
Matrix: Solid
Analysis Batch: 157354

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 157404

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	24.6	23.94		mg/Kg		97	80 - 120	2	20
Arsenic	24.6	24.71		mg/Kg		100	80 - 120	4	20
Barium	24.6	23.25		mg/Kg		94	80 - 120	4	20
Beryllium	24.6	24.75		mg/Kg		100	80 - 120	2	20
Cadmium	24.6	25.34		mg/Kg		103	80 - 120	2	20
Chromium	24.6	24.01		mg/Kg		98	80 - 120	1	20
Cobalt	24.6	24.33		mg/Kg		99	80 - 120	1	20
Copper	24.6	24.51		mg/Kg		100	80 - 120	1	20
Lead	24.6	24.12		mg/Kg		98	80 - 120	3	20
Molybdenum	24.6	24.20		mg/Kg		98	80 - 120	1	20
Nickel	24.6	25.43		mg/Kg		103	80 - 120	0	20
Selenium	24.6	24.47		mg/Kg		99	80 - 120	7	20
Silver	12.3	12.27		mg/Kg		100	80 - 120	3	20
Thallium	24.6	22.95		mg/Kg		93	80 - 120	4	20
Vanadium	24.6	23.87		mg/Kg		97	80 - 120	2	20
Zinc	24.6	25.30		mg/Kg		103	80 - 120	2	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-61058-A-1-V MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157404**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		54.6	18.09		mg/Kg	☼	33	1 - 97
Arsenic	9.35		54.6	63.81		mg/Kg	☼	100	72 - 132
Barium	35.4		54.6	92.75		mg/Kg	☼	105	50 - 152
Beryllium	0.522	J	54.6	58.10		mg/Kg	☼	105	61 - 121
Cadmium	ND		54.6	57.53		mg/Kg	☼	105	85 - 121
Chromium	59.0		54.6	109.9		mg/Kg	☼	93	20 - 182
Cobalt	14.2		54.6	69.69		mg/Kg	☼	102	40 - 166
Copper	43.2		54.6	99.06		mg/Kg	☼	102	25 - 157
Lead	19.2		54.6	71.98		mg/Kg	☼	97	62 - 134
Molybdenum	ND		54.6	43.76		mg/Kg	☼	80	69 - 123
Nickel	69.3		54.6	124.3		mg/Kg	☼	101	46 - 154
Selenium	ND		54.6	51.88		mg/Kg	☼	95	54 - 132
Silver	ND	F1	27.3	3.732	F1	mg/Kg	☼	14	78 - 126
Thallium	ND		54.6	53.54		mg/Kg	☼	98	79 - 115
Vanadium	50.1		54.6	103.9		mg/Kg	☼	98	28 - 178
Zinc	104		54.6	165.4		mg/Kg	☼	113	23 - 173

Lab Sample ID: 570-61058-A-1-W MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157354 — **Prep Batch: 157404**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		54.3	17.46		mg/Kg	☼	32	1 - 97	4	39
Arsenic	9.35		54.3	62.69		mg/Kg	☼	98	72 - 132	2	13
Barium	35.4		54.3	90.69		mg/Kg	☼	102	50 - 152	2	41
Beryllium	0.522	J	54.3	57.93		mg/Kg	☼	106	61 - 121	0	13
Cadmium	ND		54.3	56.91		mg/Kg	☼	105	85 - 121	1	12
Chromium	59.0		54.3	108.1		mg/Kg	☼	90	20 - 182	2	15
Cobalt	14.2		54.3	67.62		mg/Kg	☼	98	40 - 166	3	14
Copper	43.2		54.3	97.57		mg/Kg	☼	100	25 - 157	2	22
Lead	19.2		54.3	70.22		mg/Kg	☼	94	62 - 134	2	23
Molybdenum	ND		54.3	43.38		mg/Kg	☼	80	69 - 123	1	13
Nickel	69.3		54.3	121.8		mg/Kg	☼	97	46 - 154	2	15
Selenium	ND		54.3	50.94		mg/Kg	☼	94	54 - 132	2	14
Silver	ND	F1	27.2	3.706	F1	mg/Kg	☼	14	78 - 126	1	15
Thallium	ND		54.3	52.10		mg/Kg	☼	96	79 - 115	3	11
Vanadium	50.1		54.3	100.8		mg/Kg	☼	93	28 - 178	3	28
Zinc	104		54.3	161.7		mg/Kg	☼	107	23 - 173	2	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-157723/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157703 — **Prep Batch: 157723**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0847	0.0137	mg/Kg		06/16/21 13:40	06/16/21 15:12	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-157723/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157703 — **Prep Batch: 157723**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.8988		mg/Kg		108	85 - 121

Lab Sample ID: LCSD 570-157723/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157703 — **Prep Batch: 157723**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.820	0.8927		mg/Kg		109	85 - 121	1	10

Lab Sample ID: 570-61058-A-1-Y MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158057 — **Prep Batch: 157723**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.280		1.88	2.095		mg/Kg	☼	96	71 - 137

Lab Sample ID: 570-61058-A-1-Z MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158057 — **Prep Batch: 157723**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.280		1.85	2.039		mg/Kg	☼	95	71 - 137	3	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-155877/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/08/21 14:46	06/08/21 14:46	1

Lab Sample ID: LCS 570-155877/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-155877/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: 570-60879-B-4-N MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-60879-B-4-O MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114	0	18
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-156223/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.100	0.0840	mg/Kg		06/10/21 10:00	06/10/21 19:14	1

Lab Sample ID: LCS 570-156223/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.501	0.5344		mg/Kg		107	72 - 123

Lab Sample ID: LCSD 570-156223/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.501	0.5402		mg/Kg		108	72 - 123	1	11

Lab Sample ID: 570-61000-4 DU — **Client Sample ID: FDD-C-C3**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide	ND		ND		mg/Kg	☼	NC	20

Lab Sample ID: MB 570-156227/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:35	1

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCS 570-156227/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5436		mg/Kg		108	72 - 123		

Lab Sample ID: LCSD 570-156227/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5456		mg/Kg		109	72 - 123	0	11

Lab Sample ID: 570-61000-4 DU — **Client Sample ID: FDD-C-C3**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-156869/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Lab Sample ID: LCS 570-156869/5 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.147		%		105	80 - 120		

Lab Sample ID: LCSD 570-156869/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	3.010		%		100	80 - 120	4	20

Lab Sample ID: 570-57274-B-3-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic	2.05		6.04	7.426		%	☼	89	75 - 125		

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 570-57274-B-3-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	2.05		5.90	7.613		%	☼	94	75 - 125	2	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-60993-A-11 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155647

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	86.4			85.6		%				1	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-157805/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/16/21 19:05	06/17/21 21:44	1

Lab Sample ID: LCS 570-157805/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	218.1		mg/Kg		87	80 - 120		

Lab Sample ID: LCSD 570-157805/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	215.6		mg/Kg		86	80 - 120	1	20

Lab Sample ID: 570-61000-5 MS — **Client Sample ID: FDD-C-C5**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	4.14		30.8	29.62		mg/Kg	☼	83	75 - 125		

Lab Sample ID: 570-61000-5 MSD — **Client Sample ID: FDD-C-C5**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	4.14		30.8	29.21		mg/Kg	☼	81	75 - 125	1	25

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: 570-61000-5 DU
Client Sample ID: FDD-C-C5
Matrix: Sediment
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	4.14			4.212		mg/Kg	☼			2	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	5.523		ug/Kg	110	54 - 150	38 - 166	
4,4'-DDE	5.00	5.602		ug/Kg	112	49 - 146	33 - 162	
4,4'-DDT	5.00	5.672		ug/Kg	113	52 - 147	36 - 163	
Aldrin	5.00	4.606		ug/Kg	92	28 - 116	13 - 131	
alpha-BHC	5.00	4.725		ug/Kg	94	44 - 123	31 - 136	
beta-BHC	5.00	6.594	*+ me	ug/Kg	132	48 - 127	35 - 140	ME
delta-BHC	5.00	5.326		ug/Kg	107	10 - 149	1 - 172	
Dieldrin	5.00	4.891		ug/Kg	98	48 - 132	34 - 146	
alpha-Chlordane	5.00	4.803		ug/Kg	96	48 - 125	35 - 138	
Endosulfan I	5.00	4.734		ug/Kg	95	44 - 125	31 - 139	
Endosulfan II	5.00	4.846		ug/Kg	97	47 - 136	32 - 151	
Endosulfan sulfate	5.00	4.943		ug/Kg	99	46 - 133	32 - 148	
Endrin	5.00	5.107		ug/Kg	102	43 - 142	27 - 159	
Endrin aldehyde	5.00	5.425		ug/Kg	108	29 - 141	10 - 160	
gamma-BHC	5.00	4.756		ug/Kg	95	44 - 126	30 - 140	
Heptachlor	5.00	4.713		ug/Kg	94	50 - 123	38 - 135	
Heptachlor epoxide	5.00	4.836		ug/Kg	97	49 - 125	36 - 138	
Methoxychlor	5.00	5.555		ug/Kg	111	49 - 145	33 - 161	
gamma-Chlordane	5.00	4.826		ug/Kg	97	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	1

ME = Marginal Exceedance

GC/MS Semi VOA

Prep Batch: 155507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Organotin Prep	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	Organotin Prep	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	Organotin Prep	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	Organotin Prep	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	Organotin Prep	155604
MB 570-155507/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-155507/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-155507/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Organotin Prep	155604
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotin Prep	155604

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Homogenize Prep	
570-61000-4	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 155808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Organotins SIM	155507
570-61000-2	FDD-B-C5	Total/NA	Sediment	Organotins SIM	155507
570-61000-3	FDD-B-C6	Total/NA	Sediment	Organotins SIM	155507
570-61000-4	FDD-C-C3	Total/NA	Sediment	Organotins SIM	155507
570-61000-5	FDD-C-C5	Total/NA	Sediment	Organotins SIM	155507
MB 570-155507/1-A	Method Blank	Total/NA	Solid	Organotins SIM	155507
LCS 570-155507/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	155507
LCSD 570-155507/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	155507
570-61058-A-1-G MS	Matrix Spike	Total/NA	Solid	Organotins SIM	155507
570-61058-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotins SIM	155507

Prep Batch: 156283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3541	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3541	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3541	155604

GC/MS Semi VOA (Continued)

Prep Batch: 156283 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-4	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3541	155604
MB 570-156283/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Prep Batch: 156285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3541	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3541	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3541	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3541	155604
MB 570-156285/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	3541	155604

Prep Batch: 156286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3541	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3541	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3541	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3541	155604
MB 570-156286/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	3541	155604

Analysis Batch: 157343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8270C SIM	156285
570-61000-2	FDD-B-C5	Total/NA	Sediment	8270C SIM	156285
570-61000-3	FDD-B-C6	Total/NA	Sediment	8270C SIM	156285
570-61000-4	FDD-C-C3	Total/NA	Sediment	8270C SIM	156285
570-61000-5	FDD-C-C5	Total/NA	Sediment	8270C SIM	156285
MB 570-156285/1-A	Method Blank	Total/NA	Solid	8270C SIM	156285
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	156285
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	156285
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	8270C SIM	156285
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	8270C SIM	156285

Analysis Batch: 157377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8270C SIM CON	156283
570-61000-2	FDD-B-C5	Total/NA	Sediment	8270C SIM CON	156283

GC/MS Semi VOA (Continued)

Analysis Batch: 157377 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-3	FDD-B-C6	Total/NA	Sediment	8270C SIM CON	156283
570-61000-4	FDD-C-C3	Total/NA	Sediment	8270C SIM CON	156283
570-61000-5	FDD-C-C5	Total/NA	Sediment	8270C SIM CON	156283
MB 570-156283/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	156283
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	156283
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM CON	156283

Analysis Batch: 157739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8270D TQ	156286
570-61000-2	FDD-B-C5	Total/NA	Sediment	8270D TQ	156286
570-61000-3	FDD-B-C6	Total/NA	Sediment	8270D TQ	156286
570-61000-4	FDD-C-C3	Total/NA	Sediment	8270D TQ	156286
570-61000-5	FDD-C-C5	Total/NA	Sediment	8270D TQ	156286
MB 570-156286/1-A	Method Blank	Total/NA	Solid	8270D TQ	156286
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	156286
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	156286
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	8270D TQ	156286
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	8270D TQ	156286

GC Semi VOA

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Homogenize Prep	
570-61000-4	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 156282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3541	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3541	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3541	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3541	155604
MB 570-156282/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	3541	

GC Semi VOA (Continued)

Prep Batch: 156282 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	3541	155604
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Analysis Batch: 157510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8082	156282
570-61000-2	FDD-B-C5	Total/NA	Sediment	8082	156282
570-61000-3	FDD-B-C6	Total/NA	Sediment	8082	156282
570-61000-4	FDD-C-C3	Total/NA	Sediment	8082	156282
570-61000-5	FDD-C-C5	Total/NA	Sediment	8082	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8082	156282
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	8082	156282
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	156282
570-61000-4 MS	FDD-C-C3	Total/NA	Sediment	8082	156282
570-61000-4 MSD	FDD-C-C3	Total/NA	Sediment	8082	156282

Analysis Batch: 157660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8015B	157725
570-61000-2	FDD-B-C5	Total/NA	Sediment	8015B	157725
570-61000-3	FDD-B-C6	Total/NA	Sediment	8015B	157725
570-61000-4	FDD-C-C3	Total/NA	Sediment	8015B	157725
570-61000-5	FDD-C-C5	Total/NA	Sediment	8015B	157725
MB 570-157725/1-A	Method Blank	Total/NA	Solid	8015B	157725
LCS 570-157725/2-A	Lab Control Sample	Total/NA	Solid	8015B	157725
LCSD 570-157725/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	157725
570-60942-A-11-E MS	Matrix Spike	Total/NA	Solid	8015B	157725
570-60942-A-11-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	157725

Analysis Batch: 157667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	8081A	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8081A	156282
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	8081A	156282
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	156282
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	8081A	156282
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	156282

Prep Batch: 157725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3550C	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3550C	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3550C	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3550C	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3550C	155604
MB 570-157725/1-A	Method Blank	Total/NA	Solid	3550C	

GC Semi VOA (Continued)

Prep Batch: 157725 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-157725/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-157725/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-60942-A-11-E MS	Matrix Spike	Total/NA	Solid	3550C	
570-60942-A-11-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Analysis Batch: 157781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-2	FDD-B-C5	Total/NA	Sediment	8081A	156282
570-61000-3	FDD-B-C6	Total/NA	Sediment	8081A	156282
570-61000-4	FDD-C-C3	Total/NA	Sediment	8081A	156282
570-61000-5	FDD-C-C5	Total/NA	Sediment	8081A	156282

HPLC/IC

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Homogenize Prep	
570-61000-4	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3060A	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3060A	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3060A	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3060A	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3060A	155604
MB 570-156160/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	3060A	
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

Analysis Batch: 156295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	7199	156160
570-61000-2	FDD-B-C5	Total/NA	Sediment	7199	156160
570-61000-3	FDD-B-C6	Total/NA	Sediment	7199	156160
570-61000-4	FDD-C-C3	Total/NA	Sediment	7199	156160
570-61000-5	FDD-C-C5	Total/NA	Sediment	7199	156160
MB 570-156160/1-A	Method Blank	Total/NA	Solid	7199	156160
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	7199	156160
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	156160
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	7199	156160
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	156160

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Metals

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Homogenize Prep	
570-61000-4	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61058-A-1-V MS ^20	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-W MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-Y MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-Z MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 157354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	6020	157404
570-61000-2	FDD-B-C5	Total/NA	Sediment	6020	157404
570-61000-3	FDD-B-C6	Total/NA	Sediment	6020	157404
570-61000-4	FDD-C-C3	Total/NA	Sediment	6020	157404
570-61000-5	FDD-C-C5	Total/NA	Sediment	6020	157404
MB 570-157404/1-A ^20	Method Blank	Total/NA	Solid	6020	157404
LCS 570-157404/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	157404
LCSD 570-157404/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	157404
570-61058-A-1-V MS ^20	Matrix Spike	Total/NA	Solid	6020	157404
570-61058-A-1-W MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	157404

Prep Batch: 157404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	3050B	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	3050B	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	3050B	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	3050B	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	3050B	155604
MB 570-157404/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-157404/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-157404/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-61058-A-1-V MS ^20	Matrix Spike	Total/NA	Solid	3050B	155604
570-61058-A-1-W MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	155604

Analysis Batch: 157703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-157723/1-A	Method Blank	Total/NA	Solid	7471A	157723
LCS 570-157723/2-A	Lab Control Sample	Total/NA	Solid	7471A	157723
LCSD 570-157723/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	157723

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Metals

Prep Batch: 157723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	7471A	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	7471A	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	7471A	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	7471A	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	7471A	155604
MB 570-157723/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-157723/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-157723/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-61058-A-1-Y MS	Matrix Spike	Total/NA	Solid	7471A	155604
570-61058-A-1-Z MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	155604

Analysis Batch: 158057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	7471A	157723
570-61000-2	FDD-B-C5	Total/NA	Sediment	7471A	157723
570-61000-3	FDD-B-C6	Total/NA	Sediment	7471A	157723
570-61000-4	FDD-C-C3	Total/NA	Sediment	7471A	157723
570-61000-5	FDD-C-C5	Total/NA	Sediment	7471A	157723
570-61058-A-1-Y MS	Matrix Spike	Total/NA	Solid	7471A	157723
570-61058-A-1-Z MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	157723

General Chemistry

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Soluble	Sediment	Homogenize Prep	
570-61000-1	FDD-B-C2	Total/NA	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Soluble	Sediment	Homogenize Prep	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Soluble	Sediment	Homogenize Prep	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Homogenize Prep	
570-61000-4	FDD-C-C3	Soluble	Sediment	Homogenize Prep	

General Chemistry (Continued)

Cleanup Batch: 155604 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-4	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Soluble	Sediment	Homogenize Prep	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-5 MS	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-5 MSD	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	
570-61000-4 DU	FDD-C-C3	Soluble	Sediment	Homogenize Prep	
570-61000-4 DU	FDD-C-C3	Total/NA	Sediment	Homogenize Prep	
570-61000-5 DU	FDD-C-C5	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 155647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	Moisture	
570-61000-2	FDD-B-C5	Total/NA	Sediment	Moisture	
570-61000-3	FDD-B-C6	Total/NA	Sediment	Moisture	
570-61000-4	FDD-C-C3	Total/NA	Sediment	Moisture	
570-61000-5	FDD-C-C5	Total/NA	Sediment	Moisture	
570-60993-A-11 DU	Duplicate	Total/NA	Solid	Moisture	

Prep Batch: 155877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	1664A	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	1664A	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	1664A	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	1664A	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	1664A	155604
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155128
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155128

Analysis Batch: 156185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	1664A	155877
570-61000-2	FDD-B-C5	Total/NA	Sediment	1664A	155877
570-61000-3	FDD-B-C6	Total/NA	Sediment	1664A	155877
570-61000-4	FDD-C-C3	Total/NA	Sediment	1664A	155877
570-61000-5	FDD-C-C5	Total/NA	Sediment	1664A	155877
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	155877
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	155877
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	155877
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155877
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155877

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

General Chemistry

Prep Batch: 156223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	9030B	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	9030B	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	9030B	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	9030B	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	9030B	155604
MB 570-156223/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-61000-4 DU	FDD-C-C3	Total/NA	Sediment	9030B	155604

Leach Batch: 156227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Soluble	Sediment	DI Leach	155604
570-61000-2	FDD-B-C5	Soluble	Sediment	DI Leach	155604
570-61000-3	FDD-B-C6	Soluble	Sediment	DI Leach	155604
570-61000-4	FDD-C-C3	Soluble	Sediment	DI Leach	155604
570-61000-5	FDD-C-C5	Soluble	Sediment	DI Leach	155604
MB 570-156227/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-61000-4 DU	FDD-C-C3	Soluble	Sediment	DI Leach	155604

Analysis Batch: 156579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Soluble	Sediment	376.2 LL	156227
570-61000-1	FDD-B-C2	Total/NA	Sediment	376.2 LL	156223
570-61000-2	FDD-B-C5	Soluble	Sediment	376.2 LL	156227
570-61000-2	FDD-B-C5	Total/NA	Sediment	376.2 LL	156223
570-61000-3	FDD-B-C6	Soluble	Sediment	376.2 LL	156227
570-61000-3	FDD-B-C6	Total/NA	Sediment	376.2 LL	156223
570-61000-4	FDD-C-C3	Soluble	Sediment	376.2 LL	156227
570-61000-4	FDD-C-C3	Total/NA	Sediment	376.2 LL	156223
570-61000-5	FDD-C-C5	Soluble	Sediment	376.2 LL	156227
570-61000-5	FDD-C-C5	Total/NA	Sediment	376.2 LL	156223
MB 570-156223/1-A	Method Blank	Total/NA	Solid	376.2 LL	156223
MB 570-156227/1-A	Method Blank	Soluble	Solid	376.2 LL	156227
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	156223
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	156227
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	156223
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	156227
570-61000-4 DU	FDD-C-C3	Soluble	Sediment	376.2 LL	156227
570-61000-4 DU	FDD-C-C3	Total/NA	Sediment	376.2 LL	156223

Analysis Batch: 156869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	9060A	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	9060A	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	9060A	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	9060A	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	9060A	155604
MB 570-156869/4	Method Blank	Total/NA	Solid	9060A	

General Chemistry (Continued)

Analysis Batch: 156869 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-156869/5	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-156869/6	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	9060A	155495
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	155495

Analysis Batch: 157473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	7199 CR3	
570-61000-2	FDD-B-C5	Total/NA	Sediment	7199 CR3	
570-61000-3	FDD-B-C6	Total/NA	Sediment	7199 CR3	
570-61000-4	FDD-C-C3	Total/NA	Sediment	7199 CR3	
570-61000-5	FDD-C-C5	Total/NA	Sediment	7199 CR3	

Prep Batch: 157805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-2	FDD-B-C5	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-3	FDD-B-C6	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-4	FDD-C-C3	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-5	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 B LL	155604
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-61000-5 MS	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-5 MSD	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 B LL	155604
570-61000-5 DU	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 B LL	155604

Analysis Batch: 158115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-2	FDD-B-C5	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-3	FDD-B-C6	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-4	FDD-C-C3	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-5	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 C LL	157805
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	157805
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	157805
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	157805

General Chemistry (Continued)

Analysis Batch: 158115 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-5 MS	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-5 MSD	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61000-5 DU	FDD-C-C5	Total/NA	Sediment	SM4500 NH3 C LL	157805

Geotechnical

Analysis Batch: 157461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-1	FDD-B-C2	Total/NA	Sediment	D4464	
570-61000-2	FDD-B-C5	Total/NA	Sediment	D4464	
570-61000-3	FDD-B-C6	Total/NA	Sediment	D4464	
570-61000-4	FDD-C-C3	Total/NA	Sediment	D4464	
570-61000-5	FDD-C-C5	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-B-C2

Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.09 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 17:55	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 15:36	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 18:23	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.26 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 19:02	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3550C			10.13 g	10 mL	157725	06/16/21 13:47	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157660	06/17/21 06:14	N5Y3	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157667	06/16/21 15:49	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 06:23	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3060A			2.54 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 20:30	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	157404	06/15/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 17:15	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	157723	06/16/21 17:35	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158057	06/17/21 11:48	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	1664A			30.2 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-B-C2

Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Soluble	Leach	DI Leach			20.04 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:40	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	9030B			20.58 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		10	7.5 mL	7.5 mL	156579	06/10/21 19:19	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Analysis	9060A		1	206.1 mg	206.1 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155647	06/07/21 19:16	ZHU8	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 16:04	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C5

Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 18:14	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 16:02	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 19:00	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.12 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 19:20	AJ2Q	ECL 1
	Instrument ID:	GCMSY								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-B-C5

Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3550C			9.80 g	10 mL	157725	06/16/21 13:47	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157660	06/17/21 06:36	N5Y3	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 13:01	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 06:41	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3060A			2.49 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 20:41	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3050B			1.95 g	100 mL	157404	06/15/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 17:18	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	7471A			.62 g	100 mL	157723	06/16/21 17:35	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158057	06/17/21 11:50	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Soluble	Leach	DI Leach			20.02 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:41	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	9030B			20.53 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:20	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Analysis	9060A		1	208.7 mg	208.7 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155647	06/07/21 19:16	ZHU8	ECL 1
	Instrument ID:	BAL87								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-B-C5

Lab Sample ID: 570-61000-2
Date Collected: 06/03/21 09:35
Matrix: Sediment
Date Received: 06/04/21 17:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 16:11	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C6

Lab Sample ID: 570-61000-3
Date Collected: 06/03/21 07:45
Matrix: Sediment
Date Received: 06/04/21 17:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.26 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 18:32	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 16:28	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.22 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 19:36	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.14 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 19:38	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3550C			9.87 g	10 mL	157725	06/16/21 13:47	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157660	06/17/21 06:57	N5Y3	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.25 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 11:21	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.25 g	2 mL	156282	06/09/21 22:26	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 06:59	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3060A			2.51 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 21:14	URMH	ECL 1
	Instrument ID:	IC17								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-B-C6

Lab Sample ID: 570-61000-3

Date Collected: 06/03/21 07:45
Matrix: Sediment
Date Received: 06/04/21 17:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3050B			1.92 g	100 mL	157404	06/15/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 17:22	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	7471A			.61 g	100 mL	157723	06/16/21 17:35	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158057	06/17/21 11:51	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Soluble	Leach	DI Leach			20.01 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:42	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	9030B			20.35 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:21	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Analysis	9060A		1	203.0 mg	203.0 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155647	06/07/21 19:16	ZHU8	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 16:18	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-C-C3

Lab Sample ID: 570-61000-4

Date Collected: 06/03/21 11:15
Matrix: Sediment
Date Received: 06/04/21 17:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.14 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 18:51	ULLI	ECL 1
	Instrument ID:	GCMSEEE								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-C-C3

Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.30 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 16:54	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.14 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 20:13	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.36 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 19:55	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3550C			10.45 g	10 mL	157725	06/16/21 13:47	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157660	06/17/21 07:19	N5Y3	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.04 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 10:38	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.04 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 07:18	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 21:25	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3050B			1.90 g	100 mL	157404	06/15/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 17:25	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	157723	06/16/21 17:35	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158057	06/17/21 11:53	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	1664A			30.0 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Soluble	Leach	DI Leach			20.04 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:38	CY2M	ECL 1
	Instrument ID:	UV9								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-C-C3

Date Collected: 06/03/21 11:15
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-4
Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	9030B			20.10 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:17	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Analysis	9060A		1	207.5 mg	207.5 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155647	06/07/21 19:16	ZHU8	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 16:23	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-C-C5

Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5
Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.32 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 19:10	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 17:19	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.01 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 20:50	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.13 g	5 mL	155507	06/07/21 16:00	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155808	06/09/21 20:12	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3550C			9.87 g	10 mL	157725	06/16/21 13:47	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157660	06/17/21 07:40	N5Y3	ECL 1
	Instrument ID:	GC47								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Client Sample ID: FDD-C-C5

Date Collected: 06/03/21 09:35
Date Received: 06/04/21 17:20

Lab Sample ID: 570-61000-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.31 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 10:53	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3541			20.31 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 07:36	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 21:35	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	157404	06/15/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			157354	06/15/21 17:28	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	7471A			.62 g	100 mL	157723	06/16/21 17:35	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158057	06/17/21 11:55	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	1664A			30.0 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Soluble	Leach	DI Leach			19.97 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:43	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	9030B			20.23 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:22	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Analysis	9060A		1	206.0 mg	206.0 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155647	06/07/21 19:16	ZHU8	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155604	06/07/21 15:38	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 16:30	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61000-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61000-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-61000-1	FDD-B-C2	Sediment	06/03/21 11:15	06/04/21 17:20	
570-61000-2	FDD-B-C5	Sediment	06/03/21 09:35	06/04/21 17:20	
570-61000-3	FDD-B-C6	Sediment	06/03/21 07:45	06/04/21 17:20	
570-61000-4	FDD-C-C3	Sediment	06/03/21 11:15	06/04/21 17:20	
570-61000-5	FDD-C-C5	Sediment	06/03/21 09:35	06/04/21 17:20	

61000

eurofins

Calscience

7440 Lincoln Way Garden Grove CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information contact us26_sales@eurofinsus.com or call us

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY

DATE: 6/4/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions Inc

ADDRESS: 9177 Sky Park Ct

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie gobbi@woodplc com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

PO NO: 3151197955 04 P0915

PROJECT CONTACT: kimbrie gobbi@woodplc com

SAMPLER(S): (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not 'STANDARD'):
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO OF CONT	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376 2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44) (8015B (M))	PAHs Phenols & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)
1	FDD-B-C2	6/3/21	1115	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	FDD-B-C5	6/3/21	0935	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	FDD-B-C6	6/3/21	0745	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	FDD-C-C3	6/3/21	1115	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	FDD-C-C5	6/3/21	0935	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

570-61000 Chain of Custody

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
Stephen Campbell	ECI	6-4-21	1441
		06/04/21	1720

Page 97 of 99

6/30/2021 (Rev. 1)

06/02/14 Revision

Analyte[1]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160 3/SM 2540 B	0 10%	0 10%
Total Organic Carbon (TOC)	USEPA 9060A	0 10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376 2M [c]	0 5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Barium	USEPA 6020 [d]	0 1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Chromium	USEPA 6020 [d]	0 1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Lead	USEPA 6020[d]	0 1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0 02 mg/kg	0 02 mg/kg
Molybdenum	USEPA 6020 [d]	0 1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Selenium	USEPA 6020 [d]	0 1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0 1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0 1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1 0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0 10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0 5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0 2-0 4 µg/kg	0 5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0 5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al [h]	3.0 µg/kg	3 0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc

c) Standard Methods for the Examination of Water and Wastewater 19th Edition, American Public Health Association et al 1995

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene 1 6 7-trimethylnaphthalene 2-methylnaphthalene 2 6-dimethylnaphthalene acenaphthene acenaphthylene anthracene naphthalene phenanthrene fluorene benzo(a)anthracene benzo(a)pyrene, benzo(b)fluoranthene benzo(g,h,i)perylene benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene indeno(1,2,3-c,d)pyrene isophorone pyrene dibenzothiophene benzo(e)pyrene perthane perylene and biphenyl

f) Includes aldrin α benzene hexachloride (BHC) β-BHC (lindane) Δ=BHC ¥-BHC chlordane dieldrin trans-nonachlor endosulfan I endosulfan II endosulfan sulfate, endrin, endrin aldehyde, endrin keytone heptachlor heptachlor epoxide methoxychlor toxaphene, alpha chlordane gamma chlordane cis-nonachlor oxychlordane 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2 4- and 4 4-dichlorodiphenyldichloroethylene (DDE) and 2 4- and 4 4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18 28 37, 44 49 52 66 70 74 77 81 87 99 101 105 110 114 118 119 123 126 128 132/153 138/158 149 151 156 157 167 168 169 170 177 180 183 187 189 194 201 and 206)

h) Krone C A D W Brown D G Burrows R G Bogar S L Chan and U Varanasi 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18

i) National Oceanic and Atmospheric Administration 1993 Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects 1984–1992 Volume IV Comprehensive Descriptions of Trace Organic Analytical Methods July

j) Includes allethrin (bioallethrin) bifenthrin cyfluthrin-beta (baythroid) cypermethrin deltamethrin/tralomethrin fenpropathrin (danitol) fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]) phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin and lambda cyhalothrin

k) Except toxaphene, which is 1 000 micrograms per kilogram (parts per billion)

% = percent, µg/kg = micrograms per kilogram (parts per billion) ASTM = ASTM International GC = gas chromatography (M) = modified RL = reporting limit, mg/kg = milligrams per kilogram MS/MS = mass spectrometry N/A = not applicable NOAA = National Oceanic and Atmospheric Administration SIM = selective ion monitoring SM = Standard Method STLC = soluble threshold limit concentration TOC = total organic carbon TCLP = toxicity characteristic leaching procedure TTLC = total threshold limit concentration USEPA = United States Environmental Protection Agency

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-61000-1

Login Number: 61000
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-61136-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/30/2021 4:14:06 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 6
Surrogate Summary 24
QC Sample Results 28
QC Association Summary 54
Lab Chronicle 62
Certification Summary 66
Method Summary 68
Sample Summary 69
Chain of Custody 70
Receipt Checklists 72

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-61136-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-61136-1

Comments
No additional comments.

Receipt
The samples were received on 6/7/2021 6:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.2º C.

GC/MS Semi VOA
Method 8270C SIM: The method blank for preparation batch 570-156285 and analytical batch 570-157343 contained Di-n-butyl phthalate, Diethyl phthalate and Bis(2-ethylhexyl) phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Organotins SIM: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156226 and analytical batch 570-156390: Monobutyltin. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method Organotins SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-156226 and analytical batch 570-156390 recovered outside control limits for the following analytes: Monobutyltin and Dibutyltin .

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-155814 and 570-156226 and analytical batch 570-156390 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with 570-157667 recovered high and outside the control limits for Oxychlordane on one column. Results are confirmed on both columns and reported from the passing column. The associated sample is: (CCV 570-157667/5).

Method 8081A: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156282 and analytical batch 570-157667: beta-BHC. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-157461 was flagged as being outside control limits due to a LIMS limitation: (570-61058-B-1) and (570-61058-A-1 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

Method D4464: Shell debris may affect results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.29	0.094	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-28	ND		0.29	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-37	ND		0.29	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-44	ND		0.29	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-49	ND		0.29	0.072	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-52	ND		0.29	0.28	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-66	ND		0.29	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-70	ND		0.29	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-74	ND		0.29	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-77	ND		0.29	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-81	ND		0.29	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-87	ND		0.29	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-99	**1.8**		0.29	0.069	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-101	**2.3**		0.29	0.064	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-105	ND		0.29	0.078	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-110	**1.9**		0.29	0.049	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-114	ND		0.29	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-118	**2.4**		0.29	0.050	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-119	ND		0.29	0.091	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-123	ND		0.29	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-126	ND		0.29	0.080	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-128	ND		0.29	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-132/153	**4.6**		0.58	0.24	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-138/158	**3.9**		0.58	0.51	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-149	**2.7**		0.29	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-151	ND		0.29	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-156	ND		0.29	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-157	ND		0.29	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-167	ND		0.29	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-168	ND		0.29	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-169	ND		0.29	0.094	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-170	ND		0.29	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-177	ND		0.29	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-180	**2.3**		0.29	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-183	**0.61**		0.29	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-187	**1.8**		0.29	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-189	ND		0.29	0.093	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-194	ND		0.29	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-201	ND		0.29	0.049	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
PCB-206	ND		0.29	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1
Polychlorinated biphenyls, Total	**25**		0.58	0.51	ug/Kg	☼	06/09/21 22:33	06/15/21 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*	*06/09/21 22:33*	*06/15/21 18:35*	*1*
p-Terphenyl-d14	*90*		*37 - 165*	*06/09/21 22:33*	*06/15/21 18:35*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.27	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-28	ND		0.27	0.094	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-37	ND		0.27	0.082	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-44	ND		0.27	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-49	ND		0.27	0.067	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-52	ND		0.27	0.26	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-66	ND		0.27	0.17	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-70	ND		0.27	0.097	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-74	ND		0.27	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-77	ND		0.27	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-81	ND		0.27	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-87	ND		0.27	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-99	**0.74**		0.27	0.064	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-101	**1.2**		0.27	0.060	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-105	ND		0.27	0.073	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-110	**1.1**		0.27	0.046	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-114	ND		0.27	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-118	**0.82**		0.27	0.047	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-119	ND		0.27	0.085	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-123	ND		0.27	0.099	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-126	ND		0.27	0.075	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-128	ND		0.27	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-132/153	**1.9**		0.54	0.22	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-138/158	**2.1**		0.54	0.48	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-149	**1.3**		0.27	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-151	ND		0.27	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-156	ND		0.27	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-157	ND		0.27	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-167	ND		0.27	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-168	ND		0.27	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-169	ND		0.27	0.089	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-170	ND		0.27	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-177	ND		0.27	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-180	**0.96**		0.27	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-183	ND		0.27	0.13	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-187	**0.76**		0.27	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-189	ND		0.27	0.087	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-194	ND		0.27	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-201	ND		0.27	0.046	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
PCB-206	ND		0.27	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1
Polychlorinated biphenyls, Total	**12**		0.54	0.48	ug/Kg	☼	06/09/21 22:33	06/15/21 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*20 - 139*	*06/09/21 22:33*	*06/15/21 19:01*	*1*
p-Terphenyl-d14	*90*		*37 - 165*	*06/09/21 22:33*	*06/15/21 19:01*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		15	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
1-Methylnaphthalene	ND		15	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
1-Methylphenanthrene	ND		15	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,4,5-Trichlorophenol	ND		15	1.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,4,6-Trichlorophenol	ND		15	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,4-Dichlorophenol	ND		15	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,4-Dimethylphenol	ND		730	3.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,4-Dinitrophenol	ND		730	87	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2,6-Dimethylnaphthalene	ND		15	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2-Chlorophenol	ND		15	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2-Methylnaphthalene	ND		15	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2-Methylphenol	ND		15	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
2-Nitrophenol	ND		730	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
3/4-Methylphenol	ND		29	5.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
4,6-Dinitro-2-methylphenol	ND		730	96	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
4-Chloro-3-methylphenol	ND		15	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Acenaphthene	ND		15	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Acenaphthylene	**9.4**	**J**	15	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Anthracene	**9.1**	**J**	15	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[a]anthracene	**13**	**J**	15	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[a]pyrene	**66**		15	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[b]fluoranthene	**69**		15	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[e]pyrene	**29**		15	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[g,h,i]perylene	**39**		15	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Benzo[k]fluoranthene	**61**		15	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Biphenyl	ND		15	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Bis(2-ethylhexyl) phthalate	**45**	**J B**	73	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Butyl benzyl phthalate	**22**	**J**	73	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Chrysene	**19**		15	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Dibenz(a,h)anthracene	**12**	**J**	15	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Diethyl phthalate	**4.1**	**J B**	73	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Dimethyl phthalate	ND		73	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Di-n-butyl phthalate	**10**	**J B**	73	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Di-n-octyl phthalate	ND		73	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Fluoranthene	**17**		15	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Fluorene	ND		15	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Indeno[1,2,3-cd]pyrene	**38**		15	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Naphthalene	ND		15	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Pentachlorophenol	ND		730	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Phenanthrene	ND		15	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1
Pyrene	**21**		15	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*32 - 143*	*06/09/21 22:41*	*06/15/21 19:28*	*1*
2-Fluorophenol	*48*		*15 - 138*	*06/09/21 22:41*	*06/15/21 19:28*	*1*
Nitrobenzene-d5	*51*		*18 - 162*	*06/09/21 22:41*	*06/15/21 19:28*	*1*
Phenol-d6	*53*		*17 - 141*	*06/09/21 22:41*	*06/15/21 19:28*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/09/21 22:41*	*06/15/21 19:28*	*1*
2-Fluorobiphenyl (Surr)	*54*		*14 - 146*	*06/09/21 22:41*	*06/15/21 19:28*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		14	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
1-Methylnaphthalene	ND		14	1.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
1-Methylphenanthrene	ND		14	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,4,5-Trichlorophenol	ND		14	1.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,4,6-Trichlorophenol	ND		14	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,4-Dichlorophenol	ND		14	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,4-Dimethylphenol	ND		680	3.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,4-Dinitrophenol	ND		680	82	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2,6-Dimethylnaphthalene	ND		14	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2-Chlorophenol	ND		14	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2-Methylnaphthalene	ND		14	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2-Methylphenol	ND		14	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
2-Nitrophenol	ND		680	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
3/4-Methylphenol	ND		27	4.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
4,6-Dinitro-2-methylphenol	ND		680	90	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
4-Chloro-3-methylphenol	ND		14	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Acenaphthene	ND		14	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Acenaphthylene	**3.9**	**J**	14	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Anthracene	**3.2**	**J**	14	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[a]anthracene	**5.1**	**J**	14	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[a]pyrene	**26**		14	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[b]fluoranthene	**28**		14	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[e]pyrene	**8.7**	**J**	14	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[g,h,i]perylene	**16**		14	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Benzo[k]fluoranthene	**22**		14	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Biphenyl	ND		14	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Bis(2-ethylhexyl) phthalate	**24**	**J B**	68	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Butyl benzyl phthalate	**15**	**J**	68	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Chrysene	**5.8**	**J**	14	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Dibenz(a,h)anthracene	**4.8**	**J**	14	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Diethyl phthalate	**4.5**	**J B**	68	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Dimethyl phthalate	ND		68	2.7	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Di-n-butyl phthalate	**31**	**J B**	68	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Di-n-octyl phthalate	ND		68	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Fluoranthene	**5.5**	**J**	14	2.5	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Fluorene	ND		14	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Indeno[1,2,3-cd]pyrene	**15**		14	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Naphthalene	ND		14	2.0	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Pentachlorophenol	ND		680	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Phenanthrene	ND		14	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1
Pyrene	**6.8**	**J**	14	2.2	ug/Kg	☼	06/09/21 22:41	06/15/21 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*72*		*32 - 143*	*06/09/21 22:41*	*06/15/21 19:47*	*1*
2-Fluorophenol	*50*		*15 - 138*	*06/09/21 22:41*	*06/15/21 19:47*	*1*
Nitrobenzene-d5	*53*		*18 - 162*	*06/09/21 22:41*	*06/15/21 19:47*	*1*
Phenol-d6	*55*		*17 - 141*	*06/09/21 22:41*	*06/15/21 19:47*	*1*
p-Terphenyl-d14	*60*		*34 - 148*	*06/09/21 22:41*	*06/15/21 19:47*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*06/09/21 22:41*	*06/15/21 19:47*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.73	0.67	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Bifenthrin	ND		0.73	0.27	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Cyfluthrin	ND		0.73	0.33	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Cypermethrin	ND		0.73	0.23	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Deltamethrin/Tralomethrin	ND		0.73	0.38	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Fenpropathrin	ND		0.73	0.25	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Fenvalerate/Esfenvalerate	ND		0.73	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Fluvalinate	ND		0.73	0.24	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Lambda cyhalothrin	ND		0.73	0.47	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Permethrins (cis/trans)	ND		1.5	0.23	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Phenothrin	ND		0.73	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Resmethrin/Bioresmethrin	ND		0.73	0.33	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1
Tetramethrin	ND		0.73	0.15	ug/Kg	☼	06/09/21 22:44	06/16/21 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*108*		*14 - 116*	*06/09/21 22:44*	*06/16/21 21:27*	*1*

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.68	0.63	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Bifenthrin	ND		0.68	0.25	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Cyfluthrin	ND		0.68	0.31	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Cypermethrin	ND		0.68	0.22	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Deltamethrin/Tralomethrin	ND		0.68	0.35	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Fenpropathrin	ND		0.68	0.24	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Fenvalerate/Esfenvalerate	ND		0.68	0.25	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Fluvalinate	ND		0.68	0.22	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Lambda cyhalothrin	ND		0.68	0.44	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Permethrins (cis/trans)	ND		1.4	0.22	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Phenothrin	ND		0.68	0.27	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Resmethrin/Bioresmethrin	ND		0.68	0.31	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1
Tetramethrin	ND		0.68	0.14	ug/Kg	☼	06/09/21 22:44	06/16/21 22:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*115*		*14 - 116*	*06/09/21 22:44*	*06/16/21 22:04*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.4	1.1	ug/Kg	☼	06/09/21 17:26	06/10/21 18:54	1
Tributyltin	ND		4.4	2.2	ug/Kg	☼	06/09/21 17:26	06/10/21 18:54	1
Dibutyltin	**5.2**	***1**	4.4	1.1	ug/Kg	☼	06/09/21 17:26	06/10/21 18:54	1
Monobutyltin	ND	*- *1	4.4	2.0	ug/Kg	☼	06/09/21 17:26	06/10/21 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*60*		*10 - 120*	*06/09/21 17:26*	*06/10/21 18:54*	*1*

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.1	1.0	ug/Kg	☼	06/09/21 17:26	06/10/21 19:11	1
Tributyltin	ND		4.1	2.0	ug/Kg	☼	06/09/21 17:26	06/10/21 19:11	1
Dibutyltin	**3.3**	**J *1 F1**	4.1	0.99	ug/Kg	☼	06/09/21 17:26	06/10/21 19:11	1
Monobutyltin	ND	*- *1 F1	4.1	1.9	ug/Kg	☼	06/09/21 17:26	06/10/21 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*54*		*10 - 120*	*06/09/21 17:26*	*06/10/21 19:11*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C7 as C7	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C8 as C8	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C9-C10	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C11-C12	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C13-C14	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C15-C16	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C17-C18	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C19-C20	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C21-C22	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C23-C24	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C25-C28	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C29-C32	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C33-C36	ND		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C37-C40	**7.5**		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C41-C44	**11**		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1
C6-C44	**39**		7.3	5.6	mg/Kg	☼	06/17/21 12:43	06/17/21 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*06/17/21 12:43*	*06/17/21 22:26*	*1*

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C7 as C7	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C8 as C8	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C9-C10	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C11-C12	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C13-C14	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C15-C16	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C17-C18	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C19-C20	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C21-C22	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C23-C24	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C25-C28	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C29-C32	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C33-C36	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C37-C40	ND		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C41-C44	**7.7**		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1
C6-C44	**20**		7.2	5.5	mg/Kg	☼	06/17/21 12:43	06/17/21 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*99*		*60 - 138*	*06/17/21 12:43*	*06/17/21 22:45*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.4	0.093	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
4,4'-DDD	ND		1.4	0.72	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
2,4'-DDE	ND		2.9	0.14	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
4,4'-DDE	**0.28**	**J p**	1.4	0.10	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
2,4'-DDT	ND		1.4	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
4,4'-DDT	ND		1.4	0.26	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Aldrin	ND		1.4	0.10	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
alpha-BHC	ND		1.4	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
beta-BHC	ND	*+	1.4	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Chlordane	ND		7.2	0.47	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
delta-BHC	ND		1.4	0.093	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Dieldrin	ND		0.29	0.096	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
alpha-Chlordane	ND		1.4	0.067	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endosulfan I	ND		1.4	0.070	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endosulfan II	ND		1.4	0.33	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endosulfan sulfate	ND		1.4	0.16	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endrin	ND		1.4	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
cis-Nonachlor	ND		1.4	0.068	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endrin aldehyde	ND		1.4	0.71	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Endrin ketone	ND		1.4	0.28	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
gamma-BHC	ND		1.4	0.15	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Heptachlor	ND		1.4	0.086	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Heptachlor epoxide	ND		1.4	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Methoxychlor	ND		1.4	0.24	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Toxaphene	ND		7.2	1.4	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
gamma-Chlordane	ND		1.4	0.51	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
Oxychlordane	ND		1.4	0.22	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1
trans-Nonachlor	ND		1.4	0.054	ug/Kg	☼	06/09/21 22:30	06/16/21 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*61*		*20 - 131*	*06/09/21 22:30*	*06/16/21 16:04*	*1*
DCB Decachlorobiphenyl (Surr)	*90*		*20 - 180*	*06/09/21 22:30*	*06/16/21 16:04*	*1*

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.4	0.087	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
4,4'-DDD	ND		1.4	0.68	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
2,4'-DDE	ND		2.7	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
4,4'-DDE	ND		1.4	0.097	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
2,4'-DDT	ND		1.4	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
4,4'-DDT	ND		1.4	0.24	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Aldrin	ND		1.4	0.098	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
alpha-BHC	ND		1.4	0.11	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
beta-BHC	ND	*+	1.4	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Chlordane	ND		6.8	0.44	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
delta-BHC	ND		1.4	0.087	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Dieldrin	ND		0.27	0.090	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
alpha-Chlordane	ND		1.4	0.063	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-A-C3
Lab Sample ID: 570-61136-2
Date Collected: 06/04/21 07:30
Matrix: Sediment
Date Received: 06/07/21 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		1.4	0.066	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Endosulfan II	ND		1.4	0.31	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Endosulfan sulfate	ND		1.4	0.15	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Endrin	ND		1.4	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
cis-Nonachlor	ND		1.4	0.064	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Endrin aldehyde	ND		1.4	0.66	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Endrin ketone	ND		1.4	0.26	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
gamma-BHC	ND		1.4	0.14	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Heptachlor	ND		1.4	0.081	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Heptachlor epoxide	ND		1.4	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Methoxychlor	ND		1.4	0.22	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Toxaphene	ND		6.8	1.4	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
gamma-Chlordane	ND		1.4	0.48	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
Oxychlordane	ND		1.4	0.20	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1
trans-Nonachlor	ND		1.4	0.051	ug/Kg	☼	06/09/21 22:30	06/16/21 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*52*		*20 - 131*	*06/09/21 22:30*	*06/16/21 16:18*	*1*
DCB Decachlorobiphenyl (Surr)	*78*		*20 - 180*	*06/09/21 22:30*	*06/16/21 16:18*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		14	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1221	ND		14	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1232	ND		14	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1242	ND		14	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1248	ND		14	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1254	**24**		14	7.2	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1260	**24**		14	7.2	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1262	ND		14	7.2	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1
Aroclor-1268	ND		14	7.2	ug/Kg	☼	06/09/21 22:30	06/16/21 08:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*76*		*25 - 126*	*06/09/21 22:30*	*06/16/21 08:31*	*1*
DCB Decachlorobiphenyl (Surr)	*79*		*20 - 155*	*06/09/21 22:30*	*06/16/21 08:31*	*1*

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		14	7.5	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1221	ND		14	7.5	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1232	ND		14	7.5	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1242	ND		14	7.5	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1248	ND		14	7.5	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1254	**10**	**J**	14	6.8	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1260	**15**		14	6.8	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1262	ND		14	6.8	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1
Aroclor-1268	ND		14	6.8	ug/Kg	☼	06/09/21 22:30	06/16/21 08:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*58*		*25 - 126*	*06/09/21 22:30*	*06/16/21 08:13*	*1*
DCB Decachlorobiphenyl (Surr)	*68*		*20 - 155*	*06/09/21 22:30*	*06/16/21 08:13*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	420	J	590	300	ug/Kg	☼	06/08/21 13:59	06/09/21 16:09	10

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	300	J	540	280	ug/Kg	☼	06/08/21 14:06	06/09/21 16:20	10

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.94	0.410	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Arsenic	**2.94**		1.47	0.491	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Barium	**22.0**		1.47	0.306	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Beryllium	ND		1.47	0.304	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Cadmium	ND		1.47	0.661	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Chromium	**11.2**		2.94	0.441	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Cobalt	**2.68**		1.47	0.278	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Copper	**41.6**		1.47	0.395	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Lead	**15.1**		1.47	0.316	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Molybdenum	ND		1.47	0.453	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Nickel	**3.12**		1.47	0.397	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Selenium	ND		1.47	0.854	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Silver	ND		1.47	0.486	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Thallium	ND		1.47	0.322	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Vanadium	**17.8**		2.94	0.356	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20
Zinc	**59.2**		7.35	6.78	mg/Kg	☼	06/17/21 09:55	06/18/21 09:31	20

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.67	0.373	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Arsenic	**2.28**		1.34	0.446	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Barium	**24.1**		1.34	0.278	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Beryllium	ND		1.34	0.276	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Cadmium	ND		1.34	0.601	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Chromium	**6.95**		2.67	0.401	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Cobalt	**3.96**		1.34	0.252	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Copper	**22.1**		1.34	0.359	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Lead	**7.62**		1.34	0.287	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Molybdenum	ND		1.34	0.411	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Nickel	**3.34**		1.34	0.361	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Selenium	ND		1.34	0.776	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Silver	ND		1.34	0.442	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Thallium	ND		1.34	0.292	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Vanadium	**18.6**		2.67	0.323	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20
Zinc	**31.5**		6.68	6.16	mg/Kg	☼	06/17/21 09:55	06/18/21 09:35	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0357**	**J**	0.122	0.0197	mg/Kg	☼	06/17/21 15:05	06/18/21 13:24	1

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.109	0.0176	mg/Kg	☼	06/17/21 15:05	06/18/21 13:25	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry

Client Sample ID: FDD-A-C2
Lab Sample ID: 570-61136-1
Date Collected: 06/04/21 09:25
Matrix: Sediment
Date Received: 06/07/21 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	219		14.6	11.5	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	107		14.6	11.8	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	12.0		6.75	5.67	mg/Kg	☼	06/10/21 10:00	06/10/21 19:23	50
Trivalent Chromium	10.8		2.92	0.439	mg/Kg	☼		06/15/21 08:36	1
Carbon, Total Organic	0.997		0.0731	0.0254	%	☼		06/10/21 15:32	1
Percent Solids	68.4		0.1	0.1	%			06/08/21 12:30	1
Ammonia (as N)	4.95		0.731	0.402	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-A-C3
Lab Sample ID: 570-61136-2
Date Collected: 06/04/21 07:30
Matrix: Sediment
Date Received: 06/07/21 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	214		13.6	10.7	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	105		13.6	11.0	mg/Kg	☼	06/08/21 14:46	06/08/21 14:46	1
Sulfide	9.30		6.57	5.52	mg/Kg	☼	06/10/21 10:00	06/10/21 19:24	50
Trivalent Chromium	6.65		2.74	0.411	mg/Kg	☼		06/15/21 08:36	1
Carbon, Total Organic	0.283		0.0684	0.0238	%	☼		06/10/21 15:32	1
Percent Solids	73.1		0.1	0.1	%			06/08/21 12:30	1
Ammonia (as N)	2.64		0.684	0.376	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry - Soluble

Client Sample ID: FDD-A-C2
Lab Sample ID: 570-61136-1
Date Collected: 06/04/21 09:25
Matrix: Sediment
Date Received: 06/07/21 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0842	mg/Kg			06/10/21 19:44	1

Client Sample ID: FDD-A-C3
Lab Sample ID: 570-61136-2
Date Collected: 06/04/21 07:30
Matrix: Sediment
Date Received: 06/07/21 18:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0998	0.0838	mg/Kg			06/10/21 19:45	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-A-C2
Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	6.61		0.01	0.01	%			06/14/21 17:17	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/14/21 17:17	1
Fine Sand (0.125 to 0.25mm)	28.09		0.01	0.01	%			06/14/21 17:17	1
Gravel (greater than 2 mm)	10.41		0.01	0.01	%			06/14/21 17:17	1
Medium Sand (0.25 to 0.5 mm)	14.97		0.01	0.01	%			06/14/21 17:17	1
Silt (0.00391 to 0.0625mm)	26.15		0.01	0.01	%			06/14/21 17:17	1
Total Silt and Clay (0 to 0.0626mm)	32.75		0.01	0.01	%			06/14/21 17:17	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 17:17	1
Very Fine Sand (0.0625 to 0.125 mm)	13.78		0.01	0.01	%			06/14/21 17:17	1

Client Sample ID: FDD-A-C3
Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	4.19		0.01	0.01	%			06/14/21 17:22	1
Coarse Sand (0.5mm to 1mm)	10.96		0.01	0.01	%			06/14/21 17:22	1
Fine Sand (0.125 to 0.25mm)	32.10		0.01	0.01	%			06/14/21 17:22	1
Gravel (greater than 2 mm)	6.22		0.01	0.01	%			06/14/21 17:22	1
Medium Sand (0.25 to 0.5 mm)	22.74		0.01	0.01	%			06/14/21 17:22	1
Silt (0.00391 to 0.0625mm)	14.75		0.01	0.01	%			06/14/21 17:22	1
Total Silt and Clay (0 to 0.0626mm)	18.94		0.01	0.01	%			06/14/21 17:22	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/14/21 17:22	1
Very Fine Sand (0.0625 to 0.125 mm)	9.03		0.01	0.01	%			06/14/21 17:22	1

PARTICLE SIZE SUMMARY

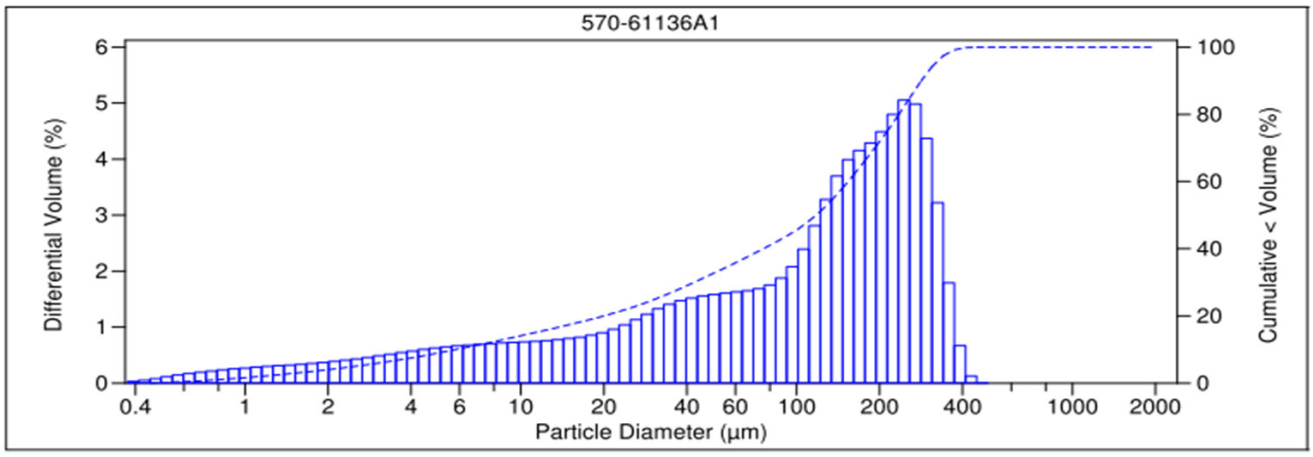
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/04/21
	Date Received:	06/07/21
	Work Order No:	570-61136
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-A-C2		Medium Sand	0.443

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
10.41	0.00	0.00	14.97	28.09	13.78	26.15	6.61	32.75



V 3.0

PARTICLE SIZE SUMMARY

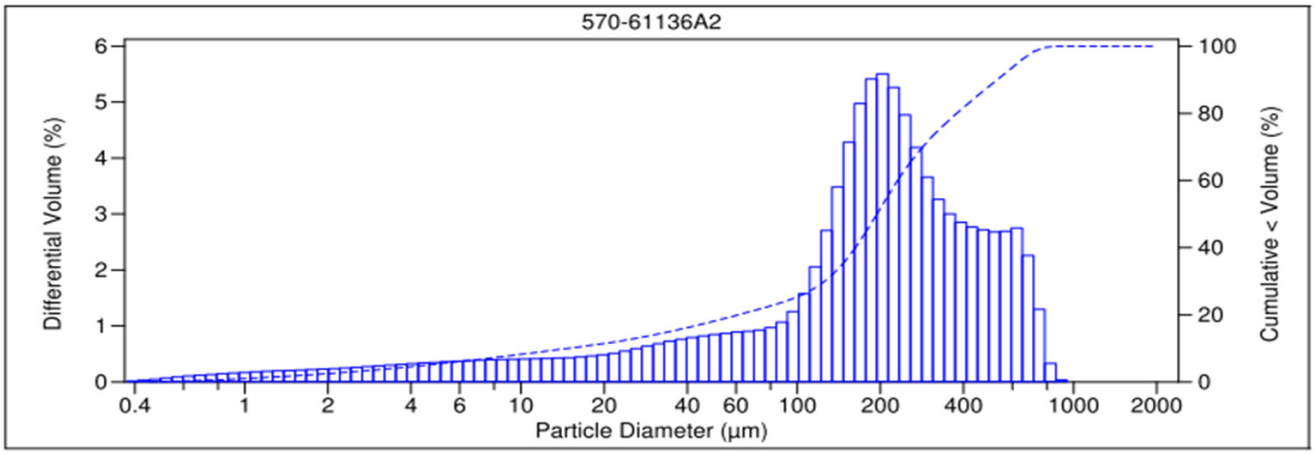
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/04/21
	Date Received:	06/07/21
	Work Order No:	570-61136
	Date Analyzed:	06/14/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-A-C3		Medium Sand	0.421

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
6.22	0.00	10.96	22.74	32.10	9.03	14.75	4.19	18.94



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61136-1	FDD-A-C2	69	48	51	53	63	54
570-61136-2	FDD-A-C3	72	50	53	55	60	53

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61000-B-4-M MS	Matrix Spike	61	54	48	57	60	53
570-61000-B-4-N MSD	Matrix Spike Duplicate	56	54	46	58	58	50
LCS 570-156285/2-A	Lab Control Sample	70	65	56	70	69	60
LCSD 570-156285/3-A	Lab Control Sample Dup	71	65	56	71	72	62
MB 570-156285/1-A	Method Blank	58	55	58	57	57	55

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61136-1	FDD-A-C2	62	90
570-61136-2	FDD-A-C3	65	90

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61058-A-1-O MS	Matrix Spike	61	80
570-61058-A-1-P MSD	Matrix Spike Duplicate	62	85

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
LCS 570-156283/2-A	Lab Control Sample	56	85
LCSD 570-156283/3-A	Lab Control Sample Dup	63	91
MB 570-156283/1-A	Method Blank	82	107

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-61136-1	FDD-A-C2	108
570-61136-2	FDD-A-C3	115

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-61000-B-4-P MS	Matrix Spike	136 S1+
570-61000-B-4-Q MSD	Matrix Spike Duplicate	120 S1+
LCS 570-156286/2-A	Lab Control Sample	115
LCSD 570-156286/3-A	Lab Control Sample Dup	115
MB 570-156286/1-A	Method Blank	111

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-61136-1	FDD-A-C2	60
570-61136-2	FDD-A-C3	54
570-61136-2 MS	FDD-A-C3	62
570-61136-2 MSD	FDD-A-C3	62

Surrogate Legend

TPTT = Tripentyltin

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
LCS 570-156226/2-A	Lab Control Sample	64
LCSD 570-156226/3-A	Lab Control Sample Dup	67
MB 570-156226/1-A	Method Blank	80

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-61136-1	FDD-A-C2	105
570-61136-2	FDD-A-C3	99

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-61138-A-1-B MS	Matrix Spike	97
570-61138-A-1-C MSD	Matrix Spike Duplicate	111
LCS 570-157983/2-A	Lab Control Sample	89
LCSD 570-157983/3-A	Lab Control Sample Dup	90
MB 570-157983/1-A	Method Blank	92

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)
570-61136-1	FDD-A-C2	61	90
570-61136-2	FDD-A-C3	52	78

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)
570-61058-A-1-J MS	Matrix Spike	48	77

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
570-61058-A-1-K MSD	Matrix Spike Duplicate	55	76
LCS 570-156282/2-A	Lab Control Sample	84	92
LCSD 570-156282/3-A	Lab Control Sample Dup	82	91
MB 570-156282/1-A	Method Blank	79	92

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(25-126)	(20-155)
570-61136-1	FDD-A-C2	76	79
570-61136-2	FDD-A-C3	58	68

Surrogate Legend

TCX = Tetrachloro-m-xylene (Surr)
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(25-126)	(20-155)
570-61000-B-4-J MS	Matrix Spike	55	83
570-61000-B-4-S MSD	Matrix Spike Duplicate	63	80
LCS 570-156282/6-A	Lab Control Sample	83	88
LCSD 570-156282/7-A	Lab Control Sample Dup	95	97
MB 570-156282/1-A	Method Blank	86	89

Surrogate Legend

TCX = Tetrachloro-m-xylene (Surr)
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Anthracene	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Biphenyl	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Bis(2-ethylhexyl) phthalate	17.90	J	50	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Chrysene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Diethyl phthalate	2.381	J	50	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-butyl phthalate	24.53	J	50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluoranthene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluorene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Naphthalene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Phenanthrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pyrene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*58*		*32 - 143*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
2-Fluorophenol	*55*		*15 - 138*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Nitrobenzene-d5	*58*		*18 - 162*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Phenol-d6	*57*		*17 - 141*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
p-Terphenyl-d14	*57*		*34 - 148*	*06/09/21 22:41*	*06/15/21 16:03*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	55		14 - 146	06/09/21 22:41	06/15/21 16:03	1

Lab Sample ID: LCS 570-156285/2-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	765.4		ug/Kg		77	40 - 160
2,4,6-Trichlorophenol	1000	705.4		ug/Kg		71	40 - 160
2,4-Dichlorophenol	1000	626.2		ug/Kg		63	40 - 160
2,4-Dimethylphenol	1000	666.0		ug/Kg		67	40 - 160
2,4-Dinitrophenol	1000	712.0		ug/Kg		71	40 - 160
2-Chlorophenol	1000	689.9		ug/Kg		69	40 - 160
2-Methylphenol	1000	752.8		ug/Kg		75	40 - 160
2-Nitrophenol	1000	601.4		ug/Kg		60	40 - 160
3/4-Methylphenol	2000	1283		ug/Kg		64	40 - 160
4,6-Dinitro-2-methylphenol	1000	768.4		ug/Kg		77	40 - 160
4-Chloro-3-methylphenol	1000	707.7		ug/Kg		71	40 - 160
Acenaphthene	1000	642.7		ug/Kg		64	48 - 108
Benzo[a]pyrene	1000	879.4		ug/Kg		88	17 - 163
Chrysene	1000	691.8		ug/Kg		69	17 - 168
Dimethyl phthalate	1000	718.9		ug/Kg		72	40 - 160
Di-n-butyl phthalate	1000	799.8		ug/Kg		80	40 - 160
Fluoranthene	1000	706.0		ug/Kg		71	26 - 137
Fluorene	1000	683.3		ug/Kg		68	59 - 121
Naphthalene	1000	528.9		ug/Kg		53	21 - 133
Phenanthrene	1000	711.2		ug/Kg		71	54 - 120
Pyrene	1000	681.6		ug/Kg		68	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	70		32 - 143
2-Fluorophenol	65		15 - 138
Nitrobenzene-d5	56		18 - 162
Phenol-d6	70		17 - 141
p-Terphenyl-d14	69		34 - 148
2-Fluorobiphenyl (Surr)	60		14 - 146

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	777.6		ug/Kg		78	40 - 160	2	20
2,4,6-Trichlorophenol	1000	733.7		ug/Kg		73	40 - 160	4	20
2,4-Dichlorophenol	1000	636.7		ug/Kg		64	40 - 160	2	20
2,4-Dimethylphenol	1000	657.6		ug/Kg		66	40 - 160	1	20
2,4-Dinitrophenol	1000	729.6		ug/Kg		73	40 - 160	2	20
2-Chlorophenol	1000	707.5		ug/Kg		71	40 - 160	3	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylphenol	1000	756.6		ug/Kg		76	40 - 160	1	20
2-Nitrophenol	1000	619.0		ug/Kg		62	40 - 160	3	20
3/4-Methylphenol	2000	1305		ug/Kg		65	40 - 160	2	20
4,6-Dinitro-2-methylphenol	1000	786.3		ug/Kg		79	40 - 160	2	20
4-Chloro-3-methylphenol	1000	696.3		ug/Kg		70	40 - 160	2	20
Acenaphthene	1000	651.0		ug/Kg		65	48 - 108	1	20
Benzo[a]pyrene	1000	884.7		ug/Kg		88	17 - 163	1	20
Chrysene	1000	697.1		ug/Kg		70	17 - 168	1	20
Dimethyl phthalate	1000	731.1		ug/Kg		73	40 - 160	2	20
Di-n-butyl phthalate	1000	804.9		ug/Kg		80	40 - 160	1	20
Fluoranthene	1000	690.8		ug/Kg		69	26 - 137	2	20
Fluorene	1000	690.1		ug/Kg		69	59 - 121	1	20
Naphthalene	1000	533.0		ug/Kg		53	21 - 133	1	20
Phenanthrene	1000	713.5		ug/Kg		71	54 - 120	0	20
Pyrene	1000	693.7		ug/Kg		69	28 - 106	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*32 - 143*
2-Fluorophenol	*65*		*15 - 138*
Nitrobenzene-d5	*56*		*18 - 162*
Phenol-d6	*71*		*17 - 141*
p-Terphenyl-d14	*72*		*34 - 148*
2-Fluorobiphenyl (Surr)	*62*		*14 - 146*

Lab Sample ID: 570-61000-B-4-M MS
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND	F2	1150	543.2		ug/Kg	☼	47	40 - 160		
2,4,6-Trichlorophenol	ND	F2	1150	513.5		ug/Kg	☼	45	40 - 160		
2,4-Dichlorophenol	ND	F2	1150	485.4		ug/Kg	☼	42	40 - 160		
2,4-Dimethylphenol	ND	F2	1150	542.0	J	ug/Kg	☼	47	40 - 160		
2,4-Dinitrophenol	ND	F2	1150	604.2		ug/Kg	☼	53	40 - 160		
2-Chlorophenol	ND	F2	1150	510.4		ug/Kg	☼	44	40 - 160		
2-Methylphenol	ND	F2	1150	557.9		ug/Kg	☼	49	40 - 160		
2-Nitrophenol	ND	F2	1150	469.0	J	ug/Kg	☼	41	40 - 160		
3/4-Methylphenol	ND	F2	2300	932.4		ug/Kg	☼	41	40 - 160		
4,6-Dinitro-2-methylphenol	ND	F2	1150	592.7		ug/Kg	☼	52	40 - 160		
4-Chloro-3-methylphenol	ND	F2	1150	511.9		ug/Kg	☼	45	8 - 160		
Acenaphthene	ND	F2	1150	478.3		ug/Kg	☼	42	40 - 160		
Benzo[a]pyrene	ND	F2	1150	593.6		ug/Kg	☼	52	17 - 163		
Chrysene	ND	F2	1150	474.0		ug/Kg	☼	41	17 - 168		
Dimethyl phthalate	ND	F2	1150	523.3		ug/Kg	☼	46	40 - 160		
Di-n-butyl phthalate	5.9	J B F2	1150	558.6		ug/Kg	☼	48	40 - 160		
Fluoranthene	ND	F2	1150	509.9		ug/Kg	☼	44	26 - 137		
Fluorene	ND	F1 F2	1150	505.3	F1	ug/Kg	☼	44	59 - 121		
Naphthalene	ND	F2	1150	417.9		ug/Kg	☼	36	21 - 133		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61000-B-4-M MS
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene	ND	F1 F2	1150	507.0	F1	ug/Kg	☼	44	54 - 120
Pyrene	ND		1150	487.2		ug/Kg	☼	42	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*61*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*48*		*18 - 162*
Phenol-d6	*57*		*17 - 141*
p-Terphenyl-d14	*60*		*34 - 148*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*

Lab Sample ID: 570-61000-B-4-N MSD
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND	F2	1150	726.0	F2	ug/Kg	☼	63	40 - 160	29	20
2,4,6-Trichlorophenol	ND	F2	1150	683.4	F2	ug/Kg	☼	59	40 - 160	28	20
2,4-Dichlorophenol	ND	F2	1150	625.1	F2	ug/Kg	☼	54	40 - 160	25	20
2,4-Dimethylphenol	ND	F2	1150	717.6	F2	ug/Kg	☼	62	40 - 160	28	20
2,4-Dinitrophenol	ND	F2	1150	802.9	F2	ug/Kg	☼	70	40 - 160	28	20
2-Chlorophenol	ND	F2	1150	687.8	F2	ug/Kg	☼	60	40 - 160	30	20
2-Methylphenol	ND	F2	1150	745.7	F2	ug/Kg	☼	65	40 - 160	29	20
2-Nitrophenol	ND	F2	1150	615.8	F2	ug/Kg	☼	54	40 - 160	27	20
3/4-Methylphenol	ND	F2	2300	1284	F2	ug/Kg	☼	56	40 - 160	32	20
4,6-Dinitro-2-methylphenol	ND	F2	1150	740.3	F2	ug/Kg	☼	64	40 - 160	22	20
4-Chloro-3-methylphenol	ND	F2	1150	659.1	F2	ug/Kg	☼	57	8 - 160	25	20
Acenaphthene	ND	F2	1150	634.9	F2	ug/Kg	☼	55	40 - 160	28	20
Benzo[a]pyrene	ND	F2	1150	774.5	F2	ug/Kg	☼	67	17 - 163	26	20
Chrysene	ND	F2	1150	633.3	F2	ug/Kg	☼	55	17 - 168	29	20
Dimethyl phthalate	ND	F2	1150	692.6	F2	ug/Kg	☼	60	40 - 160	28	20
Di-n-butyl phthalate	5.9	J B F2	1150	718.7	F2	ug/Kg	☼	62	40 - 160	25	20
Fluoranthene	ND	F2	1150	661.9	F2	ug/Kg	☼	58	26 - 137	26	20
Fluorene	ND	F1 F2	1150	664.3	F1 F2	ug/Kg	☼	58	59 - 121	27	20
Naphthalene	ND	F2	1150	538.1	F2	ug/Kg	☼	47	21 - 133	25	20
Phenanthrene	ND	F1 F2	1150	665.3	F2	ug/Kg	☼	58	54 - 120	27	20
Pyrene	ND		1150	641.0		ug/Kg	☼	56	6 - 156	27	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*56*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*46*		*18 - 162*
Phenol-d6	*58*		*17 - 141*
p-Terphenyl-d14	*58*		*34 - 148*
2-Fluorobiphenyl (Surr)	*50*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-156283/1-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-28	ND		0.20	0.069	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-37	ND		0.20	0.061	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-44	ND		0.20	0.15	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-49	ND		0.20	0.050	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-52	ND		0.20	0.19	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-66	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-70	ND		0.20	0.072	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-74	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-77	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-81	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-87	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-99	ND		0.20	0.047	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-101	ND		0.20	0.044	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-105	ND		0.20	0.053	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-110	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-114	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-118	ND		0.20	0.035	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-119	ND		0.20	0.063	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-123	ND		0.20	0.073	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-126	ND		0.20	0.055	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-128	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-149	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-151	ND		0.20	0.088	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-156	ND		0.20	0.077	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-157	ND		0.20	0.085	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-167	ND		0.20	0.13	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-168	ND		0.20	0.14	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-169	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-170	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-177	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-180	ND		0.20	0.092	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-183	ND		0.20	0.093	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-187	ND		0.20	0.10	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-189	ND		0.20	0.064	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-194	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-201	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-206	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*	*06/09/21 22:33*	*06/15/21 13:06*	*1*
p-Terphenyl-d14	*107*		*37 - 165*	*06/09/21 22:33*	*06/15/21 13:06*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-156283/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157377
Prep Batch: 156283

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18			50.0	40.87		ug/Kg		82	33 - 114		
PCB-28			50.0	47.15		ug/Kg		94	40 - 132		
PCB-44			50.0	48.13		ug/Kg		96	38 - 131		
PCB-52			50.0	47.24		ug/Kg		94	38 - 131		
PCB-66			50.0	54.29		ug/Kg		109	42 - 141		
PCB-77			50.0	49.78		ug/Kg		100	47 - 135		
PCB-101			50.0	49.39		ug/Kg		99	40 - 132		
PCB-105			50.0	53.45		ug/Kg		107	39 - 135		
PCB-118			50.0	48.52		ug/Kg		97	38 - 131		
PCB-126			50.0	55.31		ug/Kg		111	40 - 139		
PCB-128			50.0	61.65		ug/Kg		123	43 - 149		
PCB-132/153			50.0	54.59		ug/Kg		109	37 - 164		
PCB-138/158			50.0	49.32		ug/Kg		99	36 - 124		
PCB-170			50.0	52.59		ug/Kg		105	35 - 134		
PCB-180			50.0	61.67		ug/Kg		123	38 - 159		
PCB-187			50.0	59.83		ug/Kg		120	41 - 147		
PCB-201			50.0	60.94		ug/Kg		122	40 - 156		
PCB-206			50.0	62.01		ug/Kg		124	37 - 153		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*56*		*20 - 139*
p-Terphenyl-d14	*85*		*37 - 165*

Lab Sample ID: LCSD 570-156283/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 157377
Prep Batch: 156283

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18			50.0	43.59		ug/Kg		87	33 - 114	6	29
PCB-28			50.0	48.97		ug/Kg		98	40 - 132	4	29
PCB-44			50.0	50.00		ug/Kg		100	38 - 131	4	32
PCB-52			50.0	48.75		ug/Kg		97	38 - 131	3	32
PCB-66			50.0	56.92		ug/Kg		114	42 - 141	5	34
PCB-77			50.0	51.28		ug/Kg		103	47 - 135	3	35
PCB-101			50.0	51.66		ug/Kg		103	40 - 132	5	34
PCB-105			50.0	54.92		ug/Kg		110	39 - 135	3	37
PCB-118			50.0	50.50		ug/Kg		101	38 - 131	4	35
PCB-126			50.0	57.49		ug/Kg		115	40 - 139	4	39
PCB-128			50.0	64.16		ug/Kg		128	43 - 149	4	37
PCB-132/153			50.0	57.41		ug/Kg		115	37 - 164	5	38
PCB-138/158			50.0	51.75		ug/Kg		104	36 - 124	5	40
PCB-170			50.0	55.25		ug/Kg		110	35 - 134	5	31
PCB-180			50.0	63.97		ug/Kg		128	38 - 159	4	40
PCB-187			50.0	62.52		ug/Kg		125	41 - 147	4	40
PCB-201			50.0	62.97		ug/Kg		126	40 - 156	3	40
PCB-206			50.0	63.29		ug/Kg		127	37 - 153	2	36

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCSD 570-156283/3-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156283

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*
p-Terphenyl-d14	*91*		*37 - 165*

Lab Sample ID: 570-61058-A-1-O MS
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		108	67.97		ug/Kg	☼	63	29 - 127
PCB-28	ND		108	82.38		ug/Kg	☼	76	29 - 170
PCB-44	ND		108	81.14		ug/Kg	☼	75	33 - 150
PCB-52	ND		108	80.57		ug/Kg	☼	75	23 - 159
PCB-66	ND		108	92.84		ug/Kg	☼	86	29 - 166
PCB-77	ND		108	80.72		ug/Kg	☼	75	30 - 166
PCB-101	0.65		108	83.58		ug/Kg	☼	77	30 - 159
PCB-105	ND		108	88.98		ug/Kg	☼	83	22 - 173
PCB-118	0.73		108	80.88		ug/Kg	☼	74	24 - 162
PCB-126	ND		108	90.62		ug/Kg	☼	84	18 - 180
PCB-128	ND		108	100.9		ug/Kg	☼	94	18 - 180
PCB-132/153	1.2		108	94.22		ug/Kg	☼	86	27 - 180
PCB-138/158	ND		108	82.47		ug/Kg	☼	77	18 - 160
PCB-170	ND		108	91.85		ug/Kg	☼	85	25 - 165
PCB-180	ND		108	99.28		ug/Kg	☼	92	20 - 180
PCB-187	ND		108	98.09		ug/Kg	☼	91	14 - 180
PCB-201	ND		108	99.36		ug/Kg	☼	92	17 - 180
PCB-206	ND		108	91.35		ug/Kg	☼	85	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*
p-Terphenyl-d14	*80*		*37 - 165*

Lab Sample ID: 570-61058-A-1-P MSD
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		108	69.42		ug/Kg	☼	64	29 - 127	2	40
PCB-28	ND		108	85.15		ug/Kg	☼	79	29 - 170	3	32
PCB-44	ND		108	81.10		ug/Kg	☼	75	33 - 150	0	40
PCB-52	ND		108	82.91		ug/Kg	☼	77	23 - 159	3	40
PCB-66	ND		108	92.99		ug/Kg	☼	86	29 - 166	0	40
PCB-77	ND		108	80.60		ug/Kg	☼	74	30 - 166	0	40
PCB-101	0.65		108	84.00		ug/Kg	☼	77	30 - 159	0	40
PCB-105	ND		108	86.89		ug/Kg	☼	80	22 - 173	2	40
PCB-118	0.73		108	80.24		ug/Kg	☼	73	24 - 162	1	40
PCB-126	ND		108	92.63		ug/Kg	☼	85	18 - 180	2	40
PCB-128	ND		108	98.25		ug/Kg	☼	91	18 - 180	3	40
PCB-132/153	1.2		108	91.70		ug/Kg	☼	84	27 - 180	3	40

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-61058-A-1-P MSD
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-138/158	ND		108	80.84		ug/Kg	☼	75	18 - 160	2	40
PCB-170	ND		108	89.20		ug/Kg	☼	82	25 - 165	3	22
PCB-180	ND		108	95.16		ug/Kg	☼	88	20 - 180	4	40
PCB-187	ND		108	95.53		ug/Kg	☼	88	14 - 180	3	40
PCB-201	ND		108	94.55		ug/Kg	☼	87	17 - 180	5	40
PCB-206	ND		108	89.32		ug/Kg	☼	82	16 - 180	2	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*
p-Terphenyl-d14	*85*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-156286/1-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156286

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Cypermethrin	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/09/21 22:44	06/16/21 17:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*111*		*14 - 116*	*06/09/21 22:44*	*06/16/21 17:46*	*1*

Lab Sample ID: LCS 570-156286/2-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.770		ug/Kg		75	10 - 148
Bifenthrin	5.00	5.327		ug/Kg		107	26 - 128
Cyfluthrin	5.00	5.800		ug/Kg		116	10 - 131
Cypermethrin	5.00	5.895		ug/Kg		118	10 - 136
Deltamethrin/Tralomethrin	5.00	5.620		ug/Kg		112	13 - 190
Fenpropathrin	5.00	5.653		ug/Kg		113	10 - 148
Fenvalerate/Esfenvalerate	5.00	5.678		ug/Kg		114	10 - 149
Fluvalinate	5.00	5.361		ug/Kg		107	10 - 121

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCS 570-156286/2-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lambda cyhalothrin	5.00	5.165		ug/Kg		103	10 - 123
Permethrins (cis/trans)	5.00	5.789		ug/Kg		116	45 - 123
Phenothrin	5.00	6.057		ug/Kg		121	45 - 165
Resmethrin/Bioresmethrin	5.00	4.297		ug/Kg		86	38 - 164
Tetramethrin	5.00	4.934		ug/Kg		99	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: LCSD 570-156286/3-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.857		ug/Kg		77	10 - 148	2	25
Bifenthrin	5.00	5.411		ug/Kg		108	26 - 128	2	25
Cyfluthrin	5.00	5.675		ug/Kg		114	10 - 131	2	25
Cypermethrin	5.00	5.731		ug/Kg		115	10 - 136	3	25
Deltamethrin/Tralomethrin	5.00	5.514		ug/Kg		110	13 - 190	2	25
Fenpropathrin	5.00	5.469		ug/Kg		109	10 - 148	3	25
Fenvalerate/Esfenvalerate	5.00	5.508		ug/Kg		110	10 - 149	3	25
Fluvalinate	5.00	5.176		ug/Kg		104	10 - 121	4	25
Lambda cyhalothrin	5.00	5.051		ug/Kg		101	10 - 123	2	25
Permethrins (cis/trans)	5.00	5.675		ug/Kg		114	45 - 123	2	25
Phenothrin	5.00	6.013		ug/Kg		120	45 - 165	1	25
Resmethrin/Bioresmethrin	5.00	4.186		ug/Kg		84	38 - 164	3	25
Tetramethrin	5.00	5.021		ug/Kg		100	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: 570-61000-B-4-P MS
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	ND		5.74	4.865		ug/Kg	☼	85	10 - 148
Bifenthrin	ND		5.74	6.683		ug/Kg	☼	116	26 - 128
Cyfluthrin	ND		5.74	7.022		ug/Kg	☼	122	10 - 131
Cypermethrin	ND		5.74	7.379		ug/Kg	☼	129	10 - 136
Deltamethrin/Tralomethrin	ND		5.74	8.013		ug/Kg	☼	140	13 - 190
Fenpropathrin	ND		5.74	7.358		ug/Kg	☼	128	10 - 148
Fenvalerate/Esfenvalerate	ND		5.74	7.299		ug/Kg	☼	127	10 - 149
Fluvalinate	ND	F1	5.74	7.151	F1	ug/Kg	☼	125	10 - 121
Lambda cyhalothrin	ND		5.74	6.578		ug/Kg	☼	115	10 - 123
Permethrins (cis/trans)	ND	F1	5.74	6.963		ug/Kg	☼	121	45 - 123
Phenothrin	ND		5.74	7.939		ug/Kg	☼	138	45 - 165
Resmethrin/Bioresmethrin	ND		5.74	4.950		ug/Kg	☼	86	38 - 164

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-61000-B-4-P MS
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetramethrin	ND		5.74	6.586		ug/Kg	☼	115	15 - 153

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*136*	*S1+*	*14 - 116*

Lab Sample ID: 570-61000-B-4-Q MSD
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156286

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.71	4.962		ug/Kg	☼	87	10 - 148	2	30
Bifenthrin	ND		5.71	6.582		ug/Kg	☼	115	26 - 128	2	30
Cyfluthrin	ND		5.71	7.115		ug/Kg	☼	125	10 - 131	1	30
Cypermethrin	ND		5.71	7.420		ug/Kg	☼	130	10 - 136	1	30
Deltamethrin/Tralomethrin	ND		5.71	7.399		ug/Kg	☼	130	13 - 190	8	30
Fenpropathrin	ND		5.71	7.015		ug/Kg	☼	123	10 - 148	5	30
Fenvalerate/Esfenvalerate	ND		5.71	7.277		ug/Kg	☼	127	10 - 149	0	30
Fluvalinate	ND	F1	5.71	6.909		ug/Kg	☼	121	10 - 121	3	30
Lambda cyhalothrin	ND		5.71	5.964		ug/Kg	☼	104	10 - 123	10	30
Permethrins (cis/trans)	ND	F1	5.71	7.549	F1	ug/Kg	☼	132	45 - 123	8	30
Phenothrin	ND		5.71	8.066		ug/Kg	☼	141	45 - 165	2	30
Resmethrin/Bioresmethrin	ND		5.71	4.550		ug/Kg	☼	80	38 - 164	8	30
Tetramethrin	ND		5.71	6.126		ug/Kg	☼	107	15 - 153	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*120*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-156226/1-A
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156226

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/09/21 17:26	06/10/21 17:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*80*		*10 - 120*	*06/09/21 17:26*	*06/10/21 17:58*	*1*

Lab Sample ID: LCS 570-156226/2-A
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	80.23		ug/Kg		80	10 - 153

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: LCS 570-156226/2-A
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156226

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tributyltin			100	56.14		ug/Kg		56	10 - 126		
Dibutyltin			100	18.32		ug/Kg		18	14 - 174		
Monobutyltin			100	9.167	*-	ug/Kg		9	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*64*		*10 - 120*

Lab Sample ID: LCSD 570-156226/3-A
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156226

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin			100	87.13		ug/Kg		87	10 - 153	8	30
Tributyltin			100	62.98		ug/Kg		63	10 - 126	11	30
Dibutyltin			100	25.52	*1	ug/Kg		26	14 - 174	33	30
Monobutyltin			100	15.53	*1	ug/Kg		16	10 - 120	52	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*67*		*10 - 120*

Lab Sample ID: 570-61136-2 MS
Matrix: Sediment
Analysis Batch: 156390

Client Sample ID: FDD-A-C3
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrabutyltin	ND		136	112.4		ug/Kg	☼	83	10 - 140		
Tributyltin	ND		136	78.59		ug/Kg	☼	58	10 - 135		
Dibutyltin	3.3	J *1 F1	136	18.19		ug/Kg	☼	11	10 - 180		
Monobutyltin	ND	*- *1 F1	136	ND	F1	ug/Kg	☼	0	10 - 125		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Lab Sample ID: 570-61136-2 MSD
Matrix: Sediment
Analysis Batch: 156390

Client Sample ID: FDD-A-C3
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		134	115.5		ug/Kg	☼	86	10 - 140	3	40
Tributyltin	ND		134	77.48		ug/Kg	☼	58	10 - 135	1	40
Dibutyltin	3.3	J *1 F1	134	15.77	F1	ug/Kg	☼	9	10 - 180	14	40
Monobutyltin	ND	*- *1 F1	134	ND	F1	ug/Kg	☼	0	10 - 125	NC	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-157983/1-A
Matrix: Solid
Analysis Batch: 157903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 157983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C9-C10	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C11-C12	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C13-C14	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C15-C16	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C17-C18	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C19-C20	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C21-C22	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C23-C24	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C25-C28	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C29-C32	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C33-C36	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C37-C40	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C41-C44	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1
C6-C44	ND		5.0	3.8	mg/Kg		06/17/21 12:43	06/17/21 20:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*92*		*60 - 138*	*06/17/21 12:43*	*06/17/21 20:11*	*1*

Lab Sample ID: LCS 570-157983/2-A
Matrix: Solid
Analysis Batch: 157903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 157983

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			400	408.4		mg/Kg		102	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*89*		*60 - 138*

Lab Sample ID: LCSD 570-157983/3-A
Matrix: Solid
Analysis Batch: 157903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 157983

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	412.7		mg/Kg		103	80 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*90*		*60 - 138*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-61138-A-1-B MS
Matrix: Solid
Analysis Batch: 157903

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 157983

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	890	F1	396	1513		mg/Kg		159	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*97*		*60 - 138*

Lab Sample ID: 570-61138-A-1-C MSD
Matrix: Solid
Analysis Batch: 157903

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 157983

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	890	F1	405	1590	F1	mg/Kg		174	43 - 165	5	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*111*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Aldrin	ND		1.0	0.072	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Chlordane	ND		5.0	0.33	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin	ND		1.0	0.088	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*20 - 131*	*06/09/21 22:26*	*06/16/21 13:55*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*	*06/09/21 22:26*	*06/16/21 13:55*	*1*

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	5.523		ug/Kg		110	54 - 150
4,4'-DDE	5.00	5.602		ug/Kg		112	49 - 146
4,4'-DDT	5.00	5.672		ug/Kg		113	52 - 147
Aldrin	5.00	4.606		ug/Kg		92	28 - 116
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123
beta-BHC	5.00	6.594	*+ me	ug/Kg		132	48 - 127
delta-BHC	5.00	5.326		ug/Kg		107	10 - 149
Dieldrin	5.00	4.891		ug/Kg		98	48 - 132
alpha-Chlordane	5.00	4.803		ug/Kg		96	48 - 125
Endosulfan I	5.00	4.734		ug/Kg		95	44 - 125
Endosulfan II	5.00	4.846		ug/Kg		97	47 - 136
Endosulfan sulfate	5.00	4.943		ug/Kg		99	46 - 133
Endrin	5.00	5.107		ug/Kg		102	43 - 142
Endrin aldehyde	5.00	5.425		ug/Kg		108	29 - 141
gamma-BHC	5.00	4.756		ug/Kg		95	44 - 126
Heptachlor	5.00	4.713		ug/Kg		94	50 - 123
Heptachlor epoxide	5.00	4.836		ug/Kg		97	49 - 125
Methoxychlor	5.00	5.555		ug/Kg		111	49 - 145
gamma-Chlordane	5.00	4.826		ug/Kg		97	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*

Lab Sample ID: LCSD 570-156282/3-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	5.366		ug/Kg		107	54 - 150	3	29
4,4'-DDE	5.00	5.461		ug/Kg		109	49 - 146	3	28
4,4'-DDT	5.00	5.520		ug/Kg		110	52 - 147	3	32
Aldrin	5.00	4.725		ug/Kg		94	28 - 116	3	30
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123	0	27
beta-BHC	5.00	5.068		ug/Kg		101	48 - 127	26	28

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 570-156282/3-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156282

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
delta-BHC			5.00	5.304		ug/Kg		106	10 - 149	0	27
Dieldrin			5.00	4.779		ug/Kg		96	48 - 132	2	28
alpha-Chlordane			5.00	4.736		ug/Kg		95	48 - 125	1	27
Endosulfan I			5.00	4.579		ug/Kg		92	44 - 125	3	29
Endosulfan II			5.00	4.740		ug/Kg		95	47 - 136	2	29
Endosulfan sulfate			5.00	4.865		ug/Kg		97	46 - 133	2	28
Endrin			5.00	5.002		ug/Kg		100	43 - 142	2	27
Endrin aldehyde			5.00	5.159		ug/Kg		103	29 - 141	5	40
gamma-BHC			5.00	4.753		ug/Kg		95	44 - 126	0	28
Heptachlor			5.00	4.634		ug/Kg		93	50 - 123	2	28
Heptachlor epoxide			5.00	4.811		ug/Kg		96	49 - 125	1	28
Methoxychlor			5.00	5.426		ug/Kg		109	49 - 145	2	39
gamma-Chlordane			5.00	4.786		ug/Kg		96	29 - 153	1	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*82*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 180*

Lab Sample ID: 570-61058-A-1-J MS
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDD	ND		10.8	10.48		ug/Kg	☼	97	17 - 180		
4,4'-DDE	1.3	J	10.8	11.39		ug/Kg	☼	93	20 - 180		
4,4'-DDT	ND		10.8	10.65		ug/Kg	☼	99	10 - 180		
Aldrin	ND		10.8	8.049		ug/Kg	☼	75	27 - 146		
alpha-BHC	ND		10.8	8.890		ug/Kg	☼	82	33 - 160		
beta-BHC	ND	*+	10.8	7.428		ug/Kg	☼	69	14 - 178		
delta-BHC	ND		10.8	6.422		ug/Kg	☼	59	10 - 159		
Dieldrin	ND		10.8	9.278		ug/Kg	☼	86	25 - 180		
alpha-Chlordane	ND		10.8	8.901		ug/Kg	☼	82	24 - 164		
Endosulfan I	ND		10.8	8.879		ug/Kg	☼	82	31 - 146		
Endosulfan II	ND		10.8	8.888		ug/Kg	☼	82	14 - 176		
Endosulfan sulfate	ND		10.8	7.543		ug/Kg	☼	70	22 - 167		
Endrin	ND		10.8	9.735		ug/Kg	☼	90	23 - 174		
Endrin aldehyde	ND		10.8	4.829		ug/Kg	☼	45	10 - 180		
gamma-BHC	ND		10.8	7.968		ug/Kg	☼	74	27 - 160		
Heptachlor	ND		10.8	4.021		ug/Kg	☼	37	23 - 144		
Heptachlor epoxide	ND		10.8	8.883		ug/Kg	☼	82	25 - 173		
Methoxychlor	ND		10.8	10.81		ug/Kg	☼	100	10 - 180		
gamma-Chlordane	ND		10.8	9.196		ug/Kg	☼	85	26 - 180		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*48*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*77*		*20 - 180*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-61058-A-1-K MSD
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		10.8	10.07		ug/Kg	☼	93	17 - 180	4	40
4,4'-DDE	1.3	J	10.8	11.44		ug/Kg	☼	94	20 - 180	0	40
4,4'-DDT	ND		10.8	10.88		ug/Kg	☼	101	10 - 180	2	40
Aldrin	ND		10.8	8.249		ug/Kg	☼	76	27 - 146	2	40
alpha-BHC	ND		10.8	9.824		ug/Kg	☼	91	33 - 160	10	36
beta-BHC	ND	*+	10.8	7.898		ug/Kg	☼	73	14 - 178	6	40
delta-BHC	ND		10.8	8.223		ug/Kg	☼	76	10 - 159	25	40
Dieldrin	ND		10.8	10.02		ug/Kg	☼	93	25 - 180	8	40
alpha-Chlordane	ND		10.8	8.949		ug/Kg	☼	83	24 - 164	1	40
Endosulfan I	ND		10.8	8.388		ug/Kg	☼	78	31 - 146	6	34
Endosulfan II	ND		10.8	7.807		ug/Kg	☼	72	14 - 176	13	40
Endosulfan sulfate	ND		10.8	8.245		ug/Kg	☼	76	22 - 167	9	40
Endrin	ND		10.8	9.563		ug/Kg	☼	89	23 - 174	2	40
Endrin aldehyde	ND		10.8	4.801		ug/Kg	☼	45	10 - 180	1	40
gamma-BHC	ND		10.8	8.616		ug/Kg	☼	80	27 - 160	8	40
Heptachlor	ND		10.8	3.396		ug/Kg	☼	31	23 - 144	17	40
Heptachlor epoxide	ND		10.8	8.874		ug/Kg	☼	82	25 - 173	0	40
Methoxychlor	ND		10.8	8.962		ug/Kg	☼	83	10 - 180	19	40
gamma-Chlordane	ND		10.8	8.650		ug/Kg	☼	80	26 - 180	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*55*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*76*		*20 - 180*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*86*		*25 - 126*	*06/09/21 22:26*	*06/16/21 04:51*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 155*	*06/09/21 22:26*	*06/16/21 04:51*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 570-156282/6-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			20.0	23.67		ug/Kg		118	50 - 142		
Aroclor-1260			20.0	21.45		ug/Kg		107	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*83*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*88*		*20 - 155*

Lab Sample ID: LCSD 570-156282/7-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			20.0	23.87		ug/Kg		119	50 - 142	1	30
Aroclor-1260			20.0	23.10		ug/Kg		116	50 - 150	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*95*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 155*

Lab Sample ID: 570-61000-B-4-J MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016	ND		23.0	24.92		ug/Kg	☼	108	20 - 175		
Aroclor-1260	ND		23.0	23.97		ug/Kg	☼	104	20 - 180		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*55*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*83*		*20 - 155*

Lab Sample ID: 570-61000-B-4-S MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		22.8	23.58		ug/Kg	☼	104	20 - 175	6	40
Aroclor-1260	ND		22.8	23.67		ug/Kg	☼	104	20 - 180	1	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*63*		*25 - 126*
DCB Decachlorobiphenyl (Surr)	*80*		*20 - 155*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-155854/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155975 — **Prep Batch: 155854**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	200	ug/Kg		06/08/21 13:59	06/09/21 11:36	10

Lab Sample ID: LCS 570-155854/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155975 — **Prep Batch: 155854**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19610		ug/Kg		99	80 - 120

Lab Sample ID: LCSD 570-155854/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155975 — **Prep Batch: 155854**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20000	19950		ug/Kg		100	80 - 120	2	20

Lab Sample ID: 570-61060-A-40-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155975 — **Prep Batch: 155854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		20000	18450		ug/Kg		92	75 - 125

Lab Sample ID: 570-61060-A-40-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155975 — **Prep Batch: 155854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		20100	18970		ug/Kg		94	75 - 125	3	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-157922/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157908 — **Prep Batch: 157922**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.01	0.280	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Arsenic	ND		1.01	0.336	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Barium	ND		1.01	0.209	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Beryllium	ND		1.01	0.208	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Cadmium	ND		1.01	0.452	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Chromium	ND		2.01	0.302	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Cobalt	ND		1.01	0.190	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Copper	ND		1.01	0.270	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Lead	ND		1.01	0.216	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Molybdenum	ND		1.01	0.310	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Nickel	ND		1.01	0.271	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Selenium	ND		1.01	0.584	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Silver	ND		1.01	0.333	mg/Kg		06/17/21 09:55	06/17/21 19:34	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-157922/1-A ^20
Matrix: Solid
Analysis Batch: 157908

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 157922

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.01	0.220	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Vanadium	ND		2.01	0.243	mg/Kg		06/17/21 09:55	06/17/21 19:34	20
Zinc	ND		5.03	4.64	mg/Kg		06/17/21 09:55	06/17/21 19:34	20

Lab Sample ID: LCS 570-157922/2-A ^20
Matrix: Solid
Analysis Batch: 157908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 157922

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	26.0	25.19		mg/Kg		97	80 - 120
Arsenic	26.0	26.03		mg/Kg		100	80 - 120
Barium	26.0	24.65		mg/Kg		95	80 - 120
Beryllium	26.0	28.11		mg/Kg		108	80 - 120
Cadmium	26.0	26.78		mg/Kg		103	80 - 120
Chromium	26.0	25.43		mg/Kg		98	80 - 120
Cobalt	26.0	26.25		mg/Kg		101	80 - 120
Copper	26.0	26.07		mg/Kg		100	80 - 120
Lead	26.0	25.46		mg/Kg		98	80 - 120
Molybdenum	26.0	25.83		mg/Kg		99	80 - 120
Nickel	26.0	26.14		mg/Kg		100	80 - 120
Selenium	26.0	25.65		mg/Kg		99	80 - 120
Silver	13.0	12.24		mg/Kg		94	80 - 120
Thallium	26.0	24.25		mg/Kg		93	80 - 120
Vanadium	26.0	25.99		mg/Kg		100	80 - 120
Zinc	26.0	26.99		mg/Kg		104	80 - 120

Lab Sample ID: LCSD 570-157922/3-A ^20
Matrix: Solid
Analysis Batch: 157908

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 157922

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	26.3	25.43		mg/Kg		97	80 - 120	1	20
Arsenic	26.3	26.21		mg/Kg		100	80 - 120	1	20
Barium	26.3	25.38		mg/Kg		96	80 - 120	3	20
Beryllium	26.3	28.54		mg/Kg		108	80 - 120	2	20
Cadmium	26.3	26.84		mg/Kg		102	80 - 120	0	20
Chromium	26.3	25.91		mg/Kg		98	80 - 120	2	20
Cobalt	26.3	25.82		mg/Kg		98	80 - 120	2	20
Copper	26.3	26.76		mg/Kg		102	80 - 120	3	20
Lead	26.3	25.65		mg/Kg		97	80 - 120	1	20
Molybdenum	26.3	26.38		mg/Kg		100	80 - 120	2	20
Nickel	26.3	26.48		mg/Kg		101	80 - 120	1	20
Selenium	26.3	25.74		mg/Kg		98	80 - 120	0	20
Silver	13.2	12.30		mg/Kg		94	80 - 120	0	20
Thallium	26.3	24.03		mg/Kg		91	80 - 120	1	20
Vanadium	26.3	25.64		mg/Kg		97	80 - 120	1	20
Zinc	26.3	27.37		mg/Kg		104	80 - 120	1	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 440-284509-A-1-F MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157908 — **Prep Batch: 157922**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		24.9	8.070		mg/Kg		32	1 - 97
Arsenic	3.79		24.9	31.01		mg/Kg		109	72 - 132
Barium	54.0		24.9	80.98		mg/Kg		109	50 - 152
Beryllium	ND		24.9	29.33		mg/Kg		118	61 - 121
Cadmium	ND		24.9	28.13		mg/Kg		113	85 - 121
Chromium	6.80		24.9	35.09		mg/Kg		114	20 - 182
Cobalt	3.97		24.9	30.84		mg/Kg		108	40 - 166
Copper	8.65		24.9	36.40		mg/Kg		112	25 - 157
Lead	3.03		24.9	28.16		mg/Kg		101	62 - 134
Molybdenum	ND		24.9	23.61		mg/Kg		95	69 - 123
Nickel	6.19		24.9	33.41		mg/Kg		109	46 - 154
Selenium	ND		24.9	25.62		mg/Kg		103	54 - 132
Silver	ND	F1	12.4	2.525	F1	mg/Kg		20	78 - 126
Thallium	ND		24.9	25.83		mg/Kg		104	79 - 115
Vanadium	12.3		24.9	40.80		mg/Kg		115	28 - 178
Zinc	25.0		24.9	61.79		mg/Kg		148	23 - 173

Lab Sample ID: 440-284509-A-1-G MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157908 — **Prep Batch: 157922**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		25.0	11.46		mg/Kg		46	1 - 97	35	39
Arsenic	3.79		25.0	30.03		mg/Kg		105	72 - 132	3	13
Barium	54.0		25.0	76.64		mg/Kg		91	50 - 152	6	41
Beryllium	ND		25.0	28.90		mg/Kg		116	61 - 121	1	13
Cadmium	ND		25.0	28.35		mg/Kg		113	85 - 121	1	12
Chromium	6.80		25.0	33.72		mg/Kg		108	20 - 182	4	15
Cobalt	3.97		25.0	31.79		mg/Kg		111	40 - 166	3	14
Copper	8.65		25.0	36.29		mg/Kg		111	25 - 157	0	22
Lead	3.03		25.0	28.17		mg/Kg		101	62 - 134	0	23
Molybdenum	ND		25.0	23.03		mg/Kg		92	69 - 123	3	13
Nickel	6.19		25.0	34.00		mg/Kg		111	46 - 154	2	15
Selenium	ND		25.0	25.80		mg/Kg		103	54 - 132	1	14
Silver	ND	F1	12.5	2.597	F1	mg/Kg		21	78 - 126	3	15
Thallium	ND		25.0	25.34		mg/Kg		101	79 - 115	2	11
Vanadium	12.3		25.0	40.43		mg/Kg		113	28 - 178	1	28
Zinc	25.0		25.0	57.74		mg/Kg		131	23 - 173	7	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-158027/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158340 — **Prep Batch: 158027**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0877	0.0142	mg/Kg		06/17/21 15:05	06/18/21 12:38	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-158027/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158340 — **Prep Batch: 158027**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.7093		mg/Kg		85	85 - 121

Lab Sample ID: LCSD 570-158027/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158340 — **Prep Batch: 158027**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.847	0.7631		mg/Kg		90	85 - 121	7	10

Lab Sample ID: 570-61689-B-1-I MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158340 — **Prep Batch: 158027**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0401	J F2 F1	0.847	0.5262	F1	mg/Kg		57	71 - 137

Lab Sample ID: 570-61689-B-1-J MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158340 — **Prep Batch: 158027**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0401	J F2 F1	0.877	0.7691	F2	mg/Kg		83	71 - 137	37	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-155877/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/08/21 14:46	06/08/21 14:46	1

Lab Sample ID: LCS 570-155877/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-155877/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: 570-60879-B-4-N MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-60879-B-4-O MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114	0	18
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-156223/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.100	0.0840	mg/Kg		06/10/21 10:00	06/10/21 19:14	1

Lab Sample ID: LCS 570-156223/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.501	0.5344		mg/Kg		107	72 - 123

Lab Sample ID: LCSD 570-156223/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	0.501	0.5402		mg/Kg		108	72 - 123	1	11

Lab Sample ID: 570-61000-B-4-G DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide	ND		ND		mg/Kg	☼	NC	20

Lab Sample ID: MB 570-156227/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:35	1

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCS 570-156227/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5436		mg/Kg		108	72 - 123		

Lab Sample ID: LCSD 570-156227/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5456		mg/Kg		109	72 - 123	0	11

Lab Sample ID: 570-61000-B-4-I DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-156869/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Lab Sample ID: LCS 570-156869/5 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.147		%		105	80 - 120		

Lab Sample ID: LCSD 570-156869/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	3.010		%		100	80 - 120	4	20

Lab Sample ID: 570-57274-B-3-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic	2.05		6.04	7.426		%	☼	89	75 - 125		

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 570-57274-B-3-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	2.05		5.90	7.613		%	☼	94	75 - 125	2	25

Method: Moisture - Percent Moisture

Lab Sample ID: 320-74598-A-21 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155740

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	91.7			91.7		%				0	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-157805/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/16/21 19:05	06/17/21 21:44	1

Lab Sample ID: LCS 570-157805/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	218.1		mg/Kg		87	80 - 120		

Lab Sample ID: LCSD 570-157805/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	215.6		mg/Kg		86	80 - 120	1	20

Lab Sample ID: 570-61000-B-5-W MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	4.14		30.8	29.62		mg/Kg	☼	83	75 - 125		

Lab Sample ID: 570-61000-B-5-X MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	4.14		30.8	29.21		mg/Kg	☼	81	75 - 125	1	25

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: 570-61000-B-5-V DU
Matrix: Solid
Analysis Batch: 158115

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 157805

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	4.14			4.212		mg/Kg	☼			2	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	5.523		ug/Kg	110	54 - 150	38 - 166	
4,4'-DDE	5.00	5.602		ug/Kg	112	49 - 146	33 - 162	
4,4'-DDT	5.00	5.672		ug/Kg	113	52 - 147	36 - 163	
Aldrin	5.00	4.606		ug/Kg	92	28 - 116	13 - 131	
alpha-BHC	5.00	4.725		ug/Kg	94	44 - 123	31 - 136	
beta-BHC	5.00	6.594	*+ me	ug/Kg	132	48 - 127	35 - 140	ME
delta-BHC	5.00	5.326		ug/Kg	107	10 - 149	1 - 172	
Dieldrin	5.00	4.891		ug/Kg	98	48 - 132	34 - 146	
alpha-Chlordane	5.00	4.803		ug/Kg	96	48 - 125	35 - 138	
Endosulfan I	5.00	4.734		ug/Kg	95	44 - 125	31 - 139	
Endosulfan II	5.00	4.846		ug/Kg	97	47 - 136	32 - 151	
Endosulfan sulfate	5.00	4.943		ug/Kg	99	46 - 133	32 - 148	
Endrin	5.00	5.107		ug/Kg	102	43 - 142	27 - 159	
Endrin aldehyde	5.00	5.425		ug/Kg	108	29 - 141	10 - 160	
gamma-BHC	5.00	4.756		ug/Kg	95	44 - 126	30 - 140	
Heptachlor	5.00	4.713		ug/Kg	94	50 - 123	38 - 135	
Heptachlor epoxide	5.00	4.836		ug/Kg	97	49 - 125	36 - 138	
Methoxychlor	5.00	5.555		ug/Kg	111	49 - 145	33 - 161	
gamma-Chlordane	5.00	4.826		ug/Kg	97	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	1

ME = Marginal Exceedance

GC/MS Semi VOA

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Homogenize Prep	
570-61136-2	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	
570-61136-2 MS	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	
570-61136-2 MSD	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Organotin Prep	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	Organotin Prep	155814
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-61136-2 MS	FDD-A-C3	Total/NA	Sediment	Organotin Prep	155814
570-61136-2 MSD	FDD-A-C3	Total/NA	Sediment	Organotin Prep	155814

Prep Batch: 156283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3541	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3541	155814
MB 570-156283/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Prep Batch: 156285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3541	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3541	155814
MB 570-156285/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

GC/MS Semi VOA

Prep Batch: 156286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3541	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3541	155814
MB 570-156286/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Analysis Batch: 156390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Organotins SIM	156226
570-61136-2	FDD-A-C3	Total/NA	Sediment	Organotins SIM	156226
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotins SIM	156226
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	156226
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	156226
570-61136-2 MS	FDD-A-C3	Total/NA	Sediment	Organotins SIM	156226
570-61136-2 MSD	FDD-A-C3	Total/NA	Sediment	Organotins SIM	156226

Analysis Batch: 157343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8270C SIM	156285
570-61136-2	FDD-A-C3	Total/NA	Sediment	8270C SIM	156285
MB 570-156285/1-A	Method Blank	Total/NA	Solid	8270C SIM	156285
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	156285
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	156285
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	8270C SIM	156285
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM	156285

Analysis Batch: 157377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8270C SIM CON	156283
570-61136-2	FDD-A-C3	Total/NA	Sediment	8270C SIM CON	156283
MB 570-156283/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	156283
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	156283
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM CON	156283

Analysis Batch: 157739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8270D TQ	156286
570-61136-2	FDD-A-C3	Total/NA	Sediment	8270D TQ	156286
MB 570-156286/1-A	Method Blank	Total/NA	Solid	8270D TQ	156286
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	156286
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	156286
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	8270D TQ	156286
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	8270D TQ	156286

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

GC Semi VOA

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Homogenize Prep	
570-61136-2	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3541	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3541	155814
MB 570-156282/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Analysis Batch: 157510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8082	156282
570-61136-2	FDD-A-C3	Total/NA	Sediment	8082	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8082	156282
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	8082	156282
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	156282
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	8082	156282
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	8082	156282

Analysis Batch: 157667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8081A	156282
570-61136-2	FDD-A-C3	Total/NA	Sediment	8081A	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8081A	156282
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	8081A	156282
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	156282
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	8081A	156282
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	156282

Analysis Batch: 157903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	8015B	157983

GC Semi VOA (Continued)

Analysis Batch: 157903 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-2	FDD-A-C3	Total/NA	Sediment	8015B	157983
MB 570-157983/1-A	Method Blank	Total/NA	Solid	8015B	157983
LCS 570-157983/2-A	Lab Control Sample	Total/NA	Solid	8015B	157983
LCSD 570-157983/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	157983
570-61138-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B	157983
570-61138-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	157983

Prep Batch: 157983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3550C	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3550C	155814
MB 570-157983/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-157983/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-157983/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-61138-A-1-B MS	Matrix Spike	Total/NA	Solid	3550C	
570-61138-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

HPLC/IC

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Homogenize Prep	
570-61136-2	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 155854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3060A	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3060A	155814
MB 570-155854/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-155854/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-155854/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61060-A-40-D MS	Matrix Spike	Total/NA	Solid	3060A	
570-61060-A-40-E MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

Analysis Batch: 155975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	7199	155854
570-61136-2	FDD-A-C3	Total/NA	Sediment	7199	155854
MB 570-155854/1-A	Method Blank	Total/NA	Solid	7199	155854
LCS 570-155854/2-A	Lab Control Sample	Total/NA	Solid	7199	155854
LCSD 570-155854/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	155854
570-61060-A-40-D MS	Matrix Spike	Total/NA	Solid	7199	155854
570-61060-A-40-E MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	155854

Metals

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Homogenize Prep	

Metals (Continued)

Cleanup Batch: 155814 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-2	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 157908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-157922/1-A ^20	Method Blank	Total/NA	Solid	6020	157922
LCS 570-157922/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	157922
LCSD 570-157922/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	157922
440-284509-A-1-F MS ^20	Matrix Spike	Total/NA	Solid	6020	157922
440-284509-A-1-G MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	157922

Prep Batch: 157922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	3050B	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	3050B	155814
MB 570-157922/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-157922/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-157922/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
440-284509-A-1-F MS ^20	Matrix Spike	Total/NA	Solid	3050B	
440-284509-A-1-G MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Prep Batch: 158027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	7471A	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	7471A	155814
MB 570-158027/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-158027/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-158027/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-61689-B-1-I MS	Matrix Spike	Total/NA	Solid	7471A	
570-61689-B-1-J MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	

Analysis Batch: 158206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	6020	157922
570-61136-2	FDD-A-C3	Total/NA	Sediment	6020	157922

Analysis Batch: 158340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	7471A	158027
570-61136-2	FDD-A-C3	Total/NA	Sediment	7471A	158027
MB 570-158027/1-A	Method Blank	Total/NA	Solid	7471A	158027
LCS 570-158027/2-A	Lab Control Sample	Total/NA	Solid	7471A	158027
LCSD 570-158027/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	158027
570-61689-B-1-I MS	Matrix Spike	Total/NA	Solid	7471A	158027
570-61689-B-1-J MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	158027

General Chemistry

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	

General Chemistry (Continued)

Cleanup Batch: 155128 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	Homogenize Prep	
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 155740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	Moisture	
570-61136-2	FDD-A-C3	Total/NA	Sediment	Moisture	
320-74598-A-21 DU	Duplicate	Total/NA	Solid	Moisture	

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Soluble	Sediment	Homogenize Prep	
570-61136-1	FDD-A-C2	Total/NA	Sediment	Homogenize Prep	
570-61136-2	FDD-A-C3	Soluble	Sediment	Homogenize Prep	
570-61136-2	FDD-A-C3	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 155877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	1664A	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	1664A	155814
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155128
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155128

Analysis Batch: 156185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	1664A	155877
570-61136-2	FDD-A-C3	Total/NA	Sediment	1664A	155877

General Chemistry (Continued)

Analysis Batch: 156185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	155877
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	155877
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	155877
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155877
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155877

Prep Batch: 156223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	9030B	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	9030B	155814
MB 570-156223/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	9030B	155604

Leach Batch: 156227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Soluble	Sediment	DI Leach	155814
570-61136-2	FDD-A-C3	Soluble	Sediment	DI Leach	155814
MB 570-156227/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	DI Leach	155604

Analysis Batch: 156579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Soluble	Sediment	376.2 LL	156227
570-61136-1	FDD-A-C2	Total/NA	Sediment	376.2 LL	156223
570-61136-2	FDD-A-C3	Soluble	Sediment	376.2 LL	156227
570-61136-2	FDD-A-C3	Total/NA	Sediment	376.2 LL	156223
MB 570-156223/1-A	Method Blank	Total/NA	Solid	376.2 LL	156223
MB 570-156227/1-A	Method Blank	Soluble	Solid	376.2 LL	156227
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	156223
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	156227
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	156223
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	156227
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	376.2 LL	156223
570-61000-B-4-I DU	Duplicate	Soluble	Solid	376.2 LL	156227

Analysis Batch: 156869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	9060A	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	9060A	155814
MB 570-156869/4	Method Blank	Total/NA	Solid	9060A	
LCS 570-156869/5	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-156869/6	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-57274-B-3-G MS	Matrix Spike	Total/NA	Solid	9060A	155495
570-57274-B-3-H MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	155495

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

General Chemistry

Analysis Batch: 157293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	7199 CR3	
570-61136-2	FDD-A-C3	Total/NA	Sediment	7199 CR3	

Prep Batch: 157805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	SM4500 NH3 B LL	155814
570-61136-2	FDD-A-C3	Total/NA	Sediment	SM4500 NH3 B LL	155814
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604

Analysis Batch: 158115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61136-2	FDD-A-C3	Total/NA	Sediment	SM4500 NH3 C LL	157805
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	157805
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	157805
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805

Geotechnical

Analysis Batch: 157461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-1	FDD-A-C2	Total/NA	Sediment	D4464	
570-61136-2	FDD-A-C3	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Client Sample ID: FDD-A-C2

Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 19:28	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.16 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 18:35	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 21:27	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.0 g	5 mL	156226	06/09/21 17:26	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 18:54	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3550C			9.99 g	10 mL	157983	06/17/21 12:43	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157903	06/17/21 22:26	A1W	ECL 1
	Instrument ID:	GC50								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.22 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157667	06/16/21 16:04	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.22 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 08:31	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3060A			2.49 g	100 mL	155854	06/08/21 13:59	B7TT	ECL 1
Total/NA	Analysis	7199		10			155975	06/09/21 16:09	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	157922	06/17/21 09:55	WL8G	ECL 1
Total/NA	Analysis	6020		20			158206	06/18/21 09:31	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	158027	06/17/21 15:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158340	06/18/21 13:24	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	1664A			30.0 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Client Sample ID: FDD-A-C2

Date Collected: 06/04/21 09:25
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Soluble	Leach	DI Leach			19.95 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:44	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	9030B			21.66 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		50	7.5 mL	7.5 mL	156579	06/10/21 19:23	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157293	06/15/21 08:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Analysis	9060A		1	203.1 mg	203.1 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155740	06/08/21 12:30	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 17:17	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-A-C3

Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.10 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 19:47	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 19:01	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.09 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 22:04	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	Organotin Prep			10.1 g	5 mL	156226	06/09/21 17:26	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 19:11	AJ2Q	ECL 1
	Instrument ID:	GCMSY								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Client Sample ID: FDD-A-C3

Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3550C			9.56 g	10 mL	157983	06/17/21 12:43	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			157903	06/17/21 22:45	A1W	ECL 1
	Instrument ID:	GC50								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.14 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157667	06/16/21 16:18	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3541			20.14 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 08:13	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	155854	06/08/21 14:06	B7TT	ECL 1
Total/NA	Analysis	7199		10			155975	06/09/21 16:20	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	3050B			2.05 g	100 mL	157922	06/17/21 09:55	WL8G	ECL 1
Total/NA	Analysis	6020		20			158206	06/18/21 09:35	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	7471A			.63 g	100 mL	158027	06/17/21 15:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158340	06/18/21 13:25	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/08/21 14:46	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/08/21 14:46	USUL	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Soluble	Leach	DI Leach			20.05 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:45	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	9030B			20.84 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		50	7.5 mL	7.5 mL	156579	06/10/21 19:24	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157293	06/15/21 08:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Analysis	9060A		1	202.3 mg	202.3 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			155740	06/08/21 12:30	ULIN	ECL 1
	Instrument ID:	BAL87								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Client Sample ID: FDD-A-C3

Date Collected: 06/04/21 07:30
Date Received: 06/07/21 18:15

Lab Sample ID: 570-61136-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					155814	06/08/21 11:52	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			157461	06/14/21 17:22	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61136-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61136-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-61136-1	FDD-A-C2	Sediment	06/04/21 09:25	06/07/21 18:15	
570-61136-2	FDD-A-C3	Sediment	06/04/21 07:30	06/07/21 18:15	

61136

eurofins

Calscience

7440 Lincoln Way Garden Grove CA 92841 1427 • (714) 895-5494
For courier service / sample drop off information contact us26_sales@eurofinsus.com or call us

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY

DATE: 6/7/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions Inc

ADDRESS: 9177 Sky Park Ct

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie gobbi@woodplc com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

PO NO: 3151197955 04 PO 915

PROJECT CONTACT: kimbrie gobbi@woodplc com

SAMPLER(S) (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD")

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO OF CONT	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500 NH3 B/C (M))	Total and Soluble Sulfides (376 2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44) (8015B (M))	PAHs Phenols & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)		
	FDD-A-C2	6/4/21	0925	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	FDD-A-C3	6/4/21	0730	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

570-61136 Chain of Custody

Relinquished by (Signature)	Received by (Signature/Affiliation)	Date	Time
Stephen Campbell	ECI	6-7-21	1410
		06/07/21	1815

Page 70 of 72

6/30/2021 (Rev. 1)

06/02/14 Revision

61136

Analyte[l]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0 10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0 10%	0 10%
Total Organic Carbon (TOC)	USEPA 9060A	0 10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0 2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376 2M [c]	0 5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0 1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Barium	USEPA 6020 [d]	0 1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Chromium	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Cobalt	USEPA 6020 [d]	0 1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Lead	USEPA 6020[d]	0 1 mg/kg	0 1 mg/kg
Mercury	USEPA 7471A [d]	0 02 mg/kg	0 02 mg/kg
Molybdenum	USEPA 6020 [d]	0 1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Silver	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Thallium	USEPA 6020 [d]	0 1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1 0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0 10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418 1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0 5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0 2-0 4 µg/kg	0 5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [l]	GC/MS/MS	0 5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al [h]	3 0 µg/kg	3 0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories Inc.

c) Standard Methods for the Examination of Water and Wastewater 19th Edition American Public Health Association et al 1995

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods 3rd Edition

e) Includes 1-methylnaphthalene 1-methylphenanthrene, 1,6,7-trimethylnaphthalene 2-methylnaphthalene, 2 6-dimethylnaphthalene acenaphthene acenaphthylene, anthracene naphthalene phenanthrene fluorene benzo(a)anthracene benzo(a)pyrene benzo(b)fluoranthene benzo(g h i)perylene benzo(k)fluoranthene dibenz(a h)anthracene chrysene fluoranthene indeno(1 2 3-c,d)pyrene isophorone pyrene dibenzothiophene benzo(e)pyrene, perthane perylene and biphenyl

f) Includes aldrin α benzene hexachloride (BHC) β-BHC (lindane) Δ=BHC ¥-BHC chlordane dieldrin trans-nonachlor endosulfan I endosulfan II endosulfan sulfate endrin endrin aldehyde, endrin keytone heptachlor, heptachlor epoxide methoxychlor toxaphene alpha chlordane gamma chlordane cis-nonachlor oxychlordane 2 4- and 4 4-dichlorodiphenyldichloroethane (DDD) 2 4 and 4 4-dichlorodiphenyldichloroethylene (DDE) and 2 4- and 4 4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18 28 37 44 49 52 66 70 74 77 81 87 99 101 105 110 114 118 119 123 126 128 132/153 138/158 149 151 156 157 167 168 169 170 177 180 183 187 189 194 201 and 206)

h) Krone, C A. D W Brown D G Burrows R G Bogar S L Chan and U Varanasi 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18

i) National Oceanic and Atmospheric Administration 1993 Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects 1984–1992 Volume IV Comprehensive Descriptions of Trace Organic Analytical Methods July

j) Includes allethrin (bioallethrin) bifenthrin cyfluthrin beta (baythroid) cypermethrin deltamethrin/tralomethrin fenpropathrin (danitol) fenvalerate (sanmarton)/esfenvalerate fluvalinate permethrin (cis/trans [C13]) phenothrin (sumithrin) resmethrin/bioresmethrin tetramethrin and lambda cyhalothrin

k) Except toxaphene which is 1 000 micrograms per kilogram (parts per billion)

% = percent, µg/kg = micrograms per kilogram (parts per billion) ASTM = ASTM International GC = gas chromatography (M) = modified RL = reporting limit, mg/kg = milligrams per kilogram MS/MS = mass spectrometry N/A = not applicable NOAA = National Oceanic and Atmospheric Administration SIM = selective ion monitoring SM = Standard Method STLC = soluble threshold limit concentration TOC = total organic carbon TCLP = toxicity characteristic leaching procedure TTLC = total threshold limit concentration USEPA = United States Environmental Protection Agency

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-61136-1

Login Number: 61136
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-61234-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/30/2021 4:23:45 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 7
Surrogate Summary 21
QC Sample Results 25
QC Association Summary 51
Lab Chronicle 59
Certification Summary 61
Method Summary 63
Sample Summary 64
Chain of Custody 65
Receipt Checklists 67

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-61234-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-61234-1

Comments
No additional comments.

Receipt
The sample was received on 6/8/2021 6:35 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.2º C.

GC/MS Semi VOA
Method 8270C SIM: The method blank for preparation batch 570-156285 and analytical batch 570-157343 contained Di-n-butyl phthalate, Diethyl phthalate and Bis(2-ethylhexyl) phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Organotins SIM: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156226 and analytical batch 570-156390: Monobutyltin. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported. Unless there is a specific client QAPP requirement, the reported analyte list for batch quality control samples (LCS, LCSD, MS, and MSD) is in accordance with EPA Method Krone et. al. Refer to the QC Sample Results section of this report.

Method Organotins SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-156226 and analytical batch 570-156390 recovered outside control limits for the following analytes: Monobutyltin and Dibutyltin. Unless there is a specific client QAPP requirement, the reported analyte list for batch quality control samples (LCS, LCSD, MS, and MSD) is in accordance with EPA Method Krone et. al. Refer to the QC Sample Results section of this report.

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-155814 and 570-156226 and analytical batch 570-156390 were outside control limits. Sample matrix interference is suspected. Unless there is a specific client QAPP requirement, the reported analyte list for batch quality control samples (LCS, LCSD, MS, and MSD) is in accordance with EPA Method Krone et. al. Refer to the QC Sample Results section of this report.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with 570-157667 recovered high and outside the control limits for Oxychlordane on one column. Results are confirmed on both columns and reported from the passing column. The associated sample is: (CCV 570-157667/5).

Method 8081A: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156282 and analytical batch 570-157667: beta-BHC. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-158052 was flagged as

Job ID: 570-61234-1 (Continued)

Laboratory: Eurofins Calscience LLC (Continued)

being outside control limits due to a LIMS limitation: (570-57274-B-3) and (570-57274-B-3 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-C4
Lab Sample ID: 570-61234-1
Date Collected: 06/07/21 10:00
Matrix: Sediment
Date Received: 06/08/21 18:35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-28	ND		0.32	0.11	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-37	ND		0.32	0.097	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-44	ND		0.32	0.24	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-49	ND		0.32	0.080	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-52	ND		0.32	0.31	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-66	ND		0.32	0.20	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-70	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-74	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-77	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-81	ND		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-87	ND		0.32	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-99	**2.3**		0.32	0.076	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-101	**2.8**		0.32	0.071	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-105	ND		0.32	0.086	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-110	**2.0**		0.32	0.054	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-114	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-118	**2.4**		0.32	0.056	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-119	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-123	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-126	ND		0.32	0.088	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-128	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-132/153	**5.3**		0.64	0.26	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-138/158	**5.1**		0.64	0.57	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-149	**3.5**		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-151	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-156	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-157	ND		0.32	0.14	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-167	ND		0.32	0.21	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-168	ND		0.32	0.23	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-169	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-170	ND		0.32	0.18	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-177	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-180	**2.6**		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-183	**0.76**		0.32	0.15	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-187	**2.3**		0.32	0.16	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-189	ND		0.32	0.10	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-194	ND		0.32	0.12	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-201	ND		0.32	0.055	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
PCB-206	ND		0.32	0.19	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1
Polychlorinated biphenyls, Total	**30**		0.64	0.57	ug/Kg	☼	06/09/21 22:33	06/15/21 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*58*		*20 - 139*	*06/09/21 22:33*	*06/15/21 19:27*	*1*
p-Terphenyl-d14	*88*		*37 - 165*	*06/09/21 22:33*	*06/15/21 19:27*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		16	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
1-Methylnaphthalene	ND		16	1.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
1-Methylphenanthrene	ND		16	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,4,5-Trichlorophenol	ND		16	1.9	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,4,6-Trichlorophenol	ND		16	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,4-Dichlorophenol	ND		16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,4-Dimethylphenol	ND		810	4.2	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,4-Dinitrophenol	ND		810	97	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2,6-Dimethylnaphthalene	**13**	**J**	16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2-Chlorophenol	ND		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2-Methylnaphthalene	ND		16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2-Methylphenol	ND		16	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
2-Nitrophenol	ND		810	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
3/4-Methylphenol	ND		32	5.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
4,6-Dinitro-2-methylphenol	ND		810	110	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
4-Chloro-3-methylphenol	ND		16	3.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Acenaphthene	**6.3**	**J**	16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Acenaphthylene	**16**		16	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Anthracene	**21**		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[a]anthracene	**40**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[a]pyrene	**87**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[b]fluoranthene	**88**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[e]pyrene	**60**		16	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[g,h,i]perylene	**64**		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Benzo[k]fluoranthene	**80**		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Biphenyl	ND		16	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Bis(2-ethylhexyl) phthalate	**73**	**J B**	81	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Butyl benzyl phthalate	**16**	**J**	81	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Chrysene	**47**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Dibenz(a,h)anthracene	**16**		16	2.3	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Diethyl phthalate	**4.2**	**J B**	81	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Dimethyl phthalate	ND		81	3.2	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Di-n-butyl phthalate	**36**	**J B**	81	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Di-n-octyl phthalate	ND		81	3.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Fluoranthene	**74**		16	2.9	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Fluorene	**4.9**	**J**	16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Indeno[1,2,3-cd]pyrene	**57**		16	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Naphthalene	ND		16	2.4	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Pentachlorophenol	ND		810	2.1	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Phenanthrene	**38**		16	2.8	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1
Pyrene	**74**		16	2.6	ug/Kg	☼	06/09/21 22:41	06/15/21 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*32 - 143*	*06/09/21 22:41*	*06/15/21 20:06*	*1*
2-Fluorophenol	*45*		*15 - 138*	*06/09/21 22:41*	*06/15/21 20:06*	*1*
Nitrobenzene-d5	*49*		*18 - 162*	*06/09/21 22:41*	*06/15/21 20:06*	*1*
Phenol-d6	*49*		*17 - 141*	*06/09/21 22:41*	*06/15/21 20:06*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/09/21 22:41*	*06/15/21 20:06*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*06/09/21 22:41*	*06/15/21 20:06*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.81	0.74	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Bifenthrin	ND		0.81	0.30	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Cyfluthrin	ND		0.81	0.36	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Cypermethrin	ND		0.81	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Deltamethrin/Tralomethrin	ND		0.81	0.42	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Fenpropathrin	ND		0.81	0.28	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Fenvalerate/Esfenvalerate	ND		0.81	0.29	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Fluvalinate	ND		0.81	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Lambda cyhalothrin	ND		0.81	0.53	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Permethrins (cis/trans)	ND		1.6	0.26	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Phenothrin	ND		0.81	0.32	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Resmethrin/Bioresmethrin	ND		0.81	0.36	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1
Tetramethrin	ND		0.81	0.16	ug/Kg	☼	06/09/21 22:44	06/16/21 22:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*101*		*14 - 116*	*06/09/21 22:44*	*06/16/21 22:41*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.8	1.2	ug/Kg	☼	06/09/21 17:26	06/10/21 19:29	1
Tributyltin	ND		4.8	2.4	ug/Kg	☼	06/09/21 17:26	06/10/21 19:29	1
Dibutyltin	**4.6**	**J *1**	4.8	1.2	ug/Kg	☼	06/09/21 17:26	06/10/21 19:29	1
Monobutyltin	ND	*- *1	4.8	2.2	ug/Kg	☼	06/09/21 17:26	06/10/21 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*57*		*10 - 120*	*06/09/21 17:26*	*06/10/21 19:29*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C7 as C7	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C8 as C8	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C9-C10	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C11-C12	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C13-C14	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C15-C16	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C17-C18	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C19-C20	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C21-C22	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C23-C24	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C25-C28	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C29-C32	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C33-C36	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C37-C40	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C41-C44	ND		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1
C6-C44	**11**		8.2	6.3	mg/Kg	☼	06/18/21 11:17	06/19/21 08:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*109*		*60 - 138*	*06/18/21 11:17*	*06/19/21 08:46*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.6	0.10	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
4,4'-DDD	ND		1.6	0.80	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
2,4'-DDE	ND		3.2	0.16	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
4,4'-DDE	**0.53**	**J p**	1.6	0.11	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
2,4'-DDT	ND		1.6	0.15	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
4,4'-DDT	ND		1.6	0.28	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Aldrin	ND		1.6	0.12	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
alpha-BHC	ND		1.6	0.13	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
beta-BHC	ND	*+	1.6	0.15	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Chlordane	ND		8.0	0.52	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
delta-BHC	ND		1.6	0.10	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Dieldrin	ND		0.32	0.11	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
alpha-Chlordane	ND		1.6	0.074	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endosulfan I	ND		1.6	0.078	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endosulfan II	ND		1.6	0.36	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endosulfan sulfate	ND		1.6	0.17	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endrin	ND		1.6	0.14	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
cis-Nonachlor	ND		1.6	0.076	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endrin aldehyde	ND		1.6	0.79	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Endrin ketone	ND		1.6	0.31	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
gamma-BHC	ND		1.6	0.17	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Heptachlor	ND		1.6	0.096	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Heptachlor epoxide	ND		1.6	0.14	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Methoxychlor	ND		1.6	0.26	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Toxaphene	ND		8.0	1.6	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
gamma-Chlordane	ND		1.6	0.56	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
Oxychlordane	ND		1.6	0.24	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1
trans-Nonachlor	ND		1.6	0.060	ug/Kg	☼	06/09/21 22:30	06/16/21 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*20 - 131*	*06/09/21 22:30*	*06/16/21 16:32*	*1*
DCB Decachlorobiphenyl (Surr)	*103*		*20 - 180*	*06/09/21 22:30*	*06/16/21 16:32*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		16	8.9	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1221	ND		16	8.9	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1232	ND		16	8.9	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1242	ND		16	8.9	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1248	ND		16	8.9	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1254	**24**		16	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1260	**23**		16	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1262	ND		16	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1
Aroclor-1268	ND		16	8.0	ug/Kg	☼	06/09/21 22:30	06/16/21 07:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*74*		*20 - 155*	*06/09/21 22:30*	*06/16/21 07:54*	*1*
Tetrachloro-m-xylene (Surr)	*63*		*25 - 126*	*06/09/21 22:30*	*06/16/21 07:54*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		650	340	ug/Kg	☼	06/09/21 14:22	06/10/21 21:57	10

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.27	0.456	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Arsenic	**6.71**		1.63	0.545	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Barium	**109**		1.63	0.340	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Beryllium	**0.567**	**J**	1.63	0.338	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Cadmium	**1.30**	**J**	1.63	0.735	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Chromium	**55.5**		3.27	0.490	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Cobalt	**9.64**		1.63	0.309	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Copper	**173**		1.63	0.439	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Lead	**53.1**		1.63	0.351	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Molybdenum	**0.678**	**J**	1.63	0.503	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Nickel	**13.7**		1.63	0.441	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Selenium	**1.03**	**J**	1.63	0.949	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Silver	ND		1.63	0.540	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Thallium	**0.381**	**J**	1.63	0.358	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Vanadium	**60.8**		3.27	0.395	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20
Zinc	**248**		8.16	7.54	mg/Kg	☼	06/18/21 12:40	06/21/21 13:03	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.611		0.143	0.0231	mg/Kg	☼	06/18/21 12:05	06/21/21 14:06	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-61234-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry

Client Sample ID: FDD-A-C4
Lab Sample ID: 570-61234-1
Date Collected: 06/07/21 10:00
Matrix: Sediment
Date Received: 06/08/21 18:35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	140		16.2	12.8	mg/Kg	☼	06/09/21 12:00	06/09/21 12:00	1
SGT-HEM (TRPH)	75.6		16.2	13.1	mg/Kg	☼	06/09/21 12:00	06/09/21 12:00	1
Total Sulfide	30.6		16.2	13.6	mg/Kg	☼	06/10/21 10:00	06/10/21 19:26	100
Trivalent Chromium	55.5		3.25	0.487	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.590		0.0812	0.0282	%	☼		06/10/21 15:32	1
Percent Solids	61.5		0.1	0.1	%			06/09/21 19:13	1
Ammonia (as N)	3.87		0.812	0.447	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

General Chemistry - Soluble

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:46	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-A-C4
Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	**9.92**		0.01	0.01	%			06/16/21 15:08	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/16/21 15:08	1
Fine Sand (0.125 to 0.25mm)	**28.69**		0.01	0.01	%			06/16/21 15:08	1
Gravel (greater than 2 mm)	**8.07**		0.01	0.01	%			06/16/21 15:08	1
Medium Sand (0.25 to 0.5 mm)	**2.71**		0.01	0.01	%			06/16/21 15:08	1
Silt (0.00391 to 0.0625mm)	**32.82**		0.01	0.01	%			06/16/21 15:08	1
Total Silt and Clay (0 to 0.0626mm)	**42.74**		0.01	0.01	%			06/16/21 15:08	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/16/21 15:08	1
Very Fine Sand (0.0625 to 0.125 mm)	**17.79**		0.01	0.01	%			06/16/21 15:08	1

PARTICLE SIZE SUMMARY

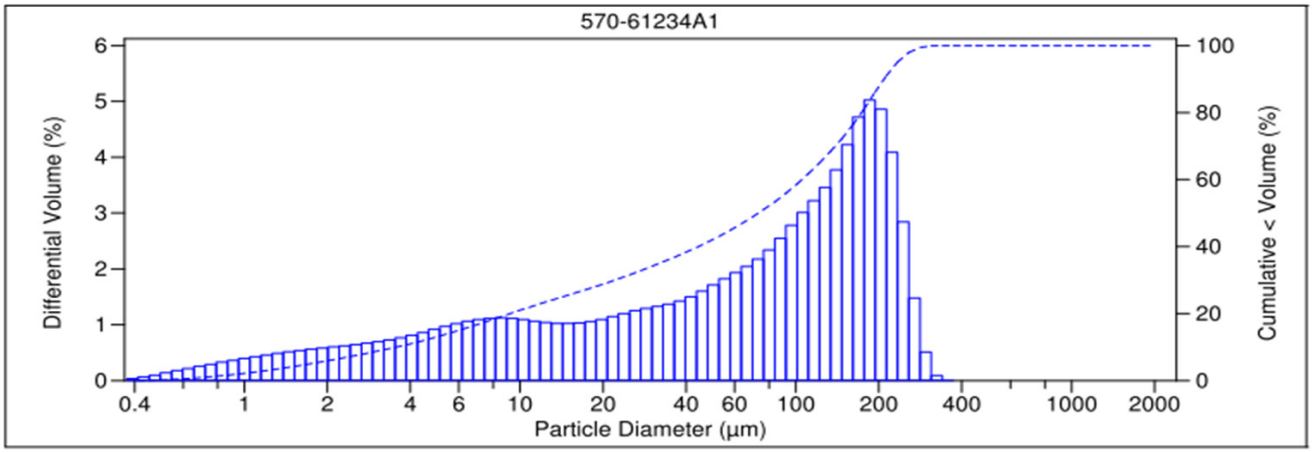
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/07/21
	Date Received:	06/08/21
	Work Order No:	570-61234
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-A-C4		Medium Sand	0.333

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
8.07	0.00	0.00	2.71	28.69	17.79	32.82	9.92	42.74



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61234-1	FDD-A-C4	69	45	49	49	63	53

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61000-B-4-M MS	Matrix Spike	61	54	48	57	60	53
570-61000-B-4-N MSD	Matrix Spike Duplicate	56	54	46	58	58	50
LCS 570-156285/2-A	Lab Control Sample	70	65	56	70	69	60
LCSD 570-156285/3-A	Lab Control Sample Dup	71	65	56	71	72	62
MB 570-156285/1-A	Method Blank	58	55	58	57	57	55

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61234-1	FDD-A-C4	58	88

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61058-A-1-O MS	Matrix Spike	61	80
570-61058-A-1-P MSD	Matrix Spike Duplicate	62	85
LCS 570-156283/2-A	Lab Control Sample	56	85
LCSD 570-156283/3-A	Lab Control Sample Dup	63	91

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61234-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	FBP (20-139)	TPHd14 (37-165)
MB 570-156283/1-A	Method Blank	82	107

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DBC (14-116)
570-61234-1	FDD-A-C4	101

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DBC (14-116)
570-61000-B-4-P MS	Matrix Spike	136 S1+
570-61000-B-4-Q MSD	Matrix Spike Duplicate	120 S1+
LCS 570-156286/2-A	Lab Control Sample	115
LCSD 570-156286/3-A	Lab Control Sample Dup	115
MB 570-156286/1-A	Method Blank	111

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
570-61234-1	FDD-A-C4	57

Surrogate Legend

TPTT = Tripentyltin

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TPTT (10-120)
570-61136-B-2-D MS	Matrix Spike	62
570-61136-B-2-M MSD	Matrix Spike Duplicate	62
LCS 570-156226/2-A	Lab Control Sample	64
LCSD 570-156226/3-A	Lab Control Sample Dup	67
MB 570-156226/1-A	Method Blank	80

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)								
570-61234-1	FDD-A-C4	109								

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)								
570-62132-A-42-A MS	Matrix Spike	100								
570-62132-A-42-B MSD	Matrix Spike Duplicate	110								
LCS 570-158219/2-A	Lab Control Sample	107								
LCSD 570-158219/3-A	Lab Control Sample Dup	111								
MB 570-158219/1-A	Method Blank	105								

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)							
570-61234-1	FDD-A-C4	79	103							

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)							
570-61058-A-1-J MS	Matrix Spike	48	77							
570-61058-A-1-K MSD	Matrix Spike Duplicate	55	76							
LCS 570-156282/2-A	Lab Control Sample	84	92							
LCSD 570-156282/3-A	Lab Control Sample Dup	82	91							
MB 570-156282/1-A	Method Blank	79	92							

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61234-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-61234-1	FDD-A-C4	74	63

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-61000-B-4-J MS	Matrix Spike	83	55
570-61000-B-4-S MSD	Matrix Spike Duplicate	80	63
LCS 570-156282/6-A	Lab Control Sample	88	83
LCSD 570-156282/7-A	Lab Control Sample Dup	97	95
MB 570-156282/1-A	Method Blank	89	86

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Anthracene	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Biphenyl	ND		10	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Bis(2-ethylhexyl) phthalate	17.90	J	50	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Chrysene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Diethyl phthalate	2.381	J	50	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-butyl phthalate	24.53	J	50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluoranthene	ND		10	1.8	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Fluorene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Naphthalene	ND		10	1.5	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Phenanthrene	ND		10	1.7	ug/Kg		06/09/21 22:41	06/15/21 16:03	1
Pyrene	ND		10	1.6	ug/Kg		06/09/21 22:41	06/15/21 16:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*58*		*32 - 143*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
2-Fluorophenol	*55*		*15 - 138*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Nitrobenzene-d5	*58*		*18 - 162*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
Phenol-d6	*57*		*17 - 141*	*06/09/21 22:41*	*06/15/21 16:03*	*1*
p-Terphenyl-d14	*57*		*34 - 148*	*06/09/21 22:41*	*06/15/21 16:03*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-156285/1-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156285

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	55		14 - 146	06/09/21 22:41	06/15/21 16:03	1

Lab Sample ID: LCS 570-156285/2-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	765.4		ug/Kg		77	40 - 160
2,4,6-Trichlorophenol	1000	705.4		ug/Kg		71	40 - 160
2,4-Dichlorophenol	1000	626.2		ug/Kg		63	40 - 160
2,4-Dimethylphenol	1000	666.0		ug/Kg		67	40 - 160
2,4-Dinitrophenol	1000	712.0		ug/Kg		71	40 - 160
2-Chlorophenol	1000	689.9		ug/Kg		69	40 - 160
2-Methylphenol	1000	752.8		ug/Kg		75	40 - 160
2-Nitrophenol	1000	601.4		ug/Kg		60	40 - 160
3/4-Methylphenol	2000	1283		ug/Kg		64	40 - 160
4,6-Dinitro-2-methylphenol	1000	768.4		ug/Kg		77	40 - 160
4-Chloro-3-methylphenol	1000	707.7		ug/Kg		71	40 - 160
Acenaphthene	1000	642.7		ug/Kg		64	48 - 108
Benzo[a]pyrene	1000	879.4		ug/Kg		88	17 - 163
Bis(2-ethylhexyl) phthalate	1000	887.5		ug/Kg		89	40 - 160
Butyl benzyl phthalate	1000	792.7		ug/Kg		79	40 - 160
Chrysene	1000	691.8		ug/Kg		69	17 - 168
Diethyl phthalate	1000	780.8		ug/Kg		78	40 - 160
Dimethyl phthalate	1000	718.9		ug/Kg		72	40 - 160
Di-n-butyl phthalate	1000	799.8		ug/Kg		80	40 - 160
Di-n-octyl phthalate	1000	856.4		ug/Kg		86	40 - 160
Fluoranthene	1000	706.0		ug/Kg		71	26 - 137
Fluorene	1000	683.3		ug/Kg		68	59 - 121
Naphthalene	1000	528.9		ug/Kg		53	21 - 133
Pentachlorophenol	1000	636.8		ug/Kg		64	40 - 160
Phenanthrene	1000	711.2		ug/Kg		71	54 - 120
Pyrene	1000	681.6		ug/Kg		68	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	70		32 - 143
2-Fluorophenol	65		15 - 138
Nitrobenzene-d5	56		18 - 162
Phenol-d6	70		17 - 141
p-Terphenyl-d14	69		34 - 148
2-Fluorobiphenyl (Surr)	60		14 - 146

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	777.6		ug/Kg		78	40 - 160	2	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-156285/3-A
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	1000	733.7		ug/Kg		73	40 - 160	4	20
2,4-Dichlorophenol	1000	636.7		ug/Kg		64	40 - 160	2	20
2,4-Dimethylphenol	1000	657.6		ug/Kg		66	40 - 160	1	20
2,4-Dinitrophenol	1000	729.6		ug/Kg		73	40 - 160	2	20
2-Chlorophenol	1000	707.5		ug/Kg		71	40 - 160	3	20
2-Methylphenol	1000	756.6		ug/Kg		76	40 - 160	1	20
2-Nitrophenol	1000	619.0		ug/Kg		62	40 - 160	3	20
3/4-Methylphenol	2000	1305		ug/Kg		65	40 - 160	2	20
4,6-Dinitro-2-methylphenol	1000	786.3		ug/Kg		79	40 - 160	2	20
4-Chloro-3-methylphenol	1000	696.3		ug/Kg		70	40 - 160	2	20
Acenaphthene	1000	651.0		ug/Kg		65	48 - 108	1	20
Benzo[a]pyrene	1000	884.7		ug/Kg		88	17 - 163	1	20
Bis(2-ethylhexyl) phthalate	1000	897.1		ug/Kg		90	40 - 160	1	20
Butyl benzyl phthalate	1000	809.0		ug/Kg		81	40 - 160	2	20
Chrysene	1000	697.1		ug/Kg		70	17 - 168	1	20
Diethyl phthalate	1000	786.9		ug/Kg		79	40 - 160	1	20
Dimethyl phthalate	1000	731.1		ug/Kg		73	40 - 160	2	20
Di-n-butyl phthalate	1000	804.9		ug/Kg		80	40 - 160	1	20
Di-n-octyl phthalate	1000	864.2		ug/Kg		86	40 - 160	1	20
Fluoranthene	1000	690.8		ug/Kg		69	26 - 137	2	20
Fluorene	1000	690.1		ug/Kg		69	59 - 121	1	20
Naphthalene	1000	533.0		ug/Kg		53	21 - 133	1	20
Pentachlorophenol	1000	652.1		ug/Kg		65	40 - 160	2	20
Phenanthrene	1000	713.5		ug/Kg		71	54 - 120	0	20
Pyrene	1000	693.7		ug/Kg		69	28 - 106	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*32 - 143*
2-Fluorophenol	*65*		*15 - 138*
Nitrobenzene-d5	*56*		*18 - 162*
Phenol-d6	*71*		*17 - 141*
p-Terphenyl-d14	*72*		*34 - 148*
2-Fluorobiphenyl (Surr)	*62*		*14 - 146*

Lab Sample ID: 570-61000-B-4-M MS
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	ND	F2	1150	543.2		ug/Kg	☼	47	40 - 160
2,4,6-Trichlorophenol	ND	F2	1150	513.5		ug/Kg	☼	45	40 - 160
2,4-Dichlorophenol	ND	F2	1150	485.4		ug/Kg	☼	42	40 - 160
2,4-Dimethylphenol	ND	F2	1150	542.0	J	ug/Kg	☼	47	40 - 160
2,4-Dinitrophenol	ND	F2	1150	604.2		ug/Kg	☼	53	40 - 160
2-Chlorophenol	ND	F2	1150	510.4		ug/Kg	☼	44	40 - 160
2-Methylphenol	ND	F2	1150	557.9		ug/Kg	☼	49	40 - 160
2-Nitrophenol	ND	F2	1150	469.0	J	ug/Kg	☼	41	40 - 160
3/4-Methylphenol	ND	F2	2300	932.4		ug/Kg	☼	41	40 - 160

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61000-B-4-M MS
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	ND	F2	1150	592.7		ug/Kg	☼	52	40 - 160
4-Chloro-3-methylphenol	ND	F2	1150	511.9		ug/Kg	☼	45	8 - 160
Acenaphthene	ND	F2	1150	478.3		ug/Kg	☼	42	40 - 160
Benzo[a]pyrene	ND	F2	1150	593.6		ug/Kg	☼	52	17 - 163
Bis(2-ethylhexyl) phthalate	8.9	J B F2	1150	595.7		ug/Kg	☼	51	40 - 160
Butyl benzyl phthalate	8.7	J F2	1150	551.1		ug/Kg	☼	47	40 - 160
Chrysene	ND	F2	1150	474.0		ug/Kg	☼	41	17 - 168
Diethyl phthalate	2.5	J B F2	1150	559.6		ug/Kg	☼	49	40 - 160
Dimethyl phthalate	ND	F2	1150	523.3		ug/Kg	☼	46	40 - 160
Di-n-butyl phthalate	5.9	J B F2	1150	558.6		ug/Kg	☼	48	40 - 160
Di-n-octyl phthalate	ND	F2	1150	574.9		ug/Kg	☼	50	40 - 160
Fluoranthene	ND	F2	1150	509.9		ug/Kg	☼	44	26 - 137
Fluorene	ND	F1 F2	1150	505.3	F1	ug/Kg	☼	44	59 - 121
Naphthalene	ND	F2	1150	417.9		ug/Kg	☼	36	21 - 133
Pentachlorophenol	ND	F2	1150	486.4	J	ug/Kg	☼	42	40 - 160
Phenanthrene	ND	F1 F2	1150	507.0	F1	ug/Kg	☼	44	54 - 120
Pyrene	ND		1150	487.2		ug/Kg	☼	42	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*61*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*48*		*18 - 162*
Phenol-d6	*57*		*17 - 141*
p-Terphenyl-d14	*60*		*34 - 148*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*

Lab Sample ID: 570-61000-B-4-N MSD
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND	F2	1150	726.0	F2	ug/Kg	☼	63	40 - 160	29	20
2,4,6-Trichlorophenol	ND	F2	1150	683.4	F2	ug/Kg	☼	59	40 - 160	28	20
2,4-Dichlorophenol	ND	F2	1150	625.1	F2	ug/Kg	☼	54	40 - 160	25	20
2,4-Dimethylphenol	ND	F2	1150	717.6	F2	ug/Kg	☼	62	40 - 160	28	20
2,4-Dinitrophenol	ND	F2	1150	802.9	F2	ug/Kg	☼	70	40 - 160	28	20
2-Chlorophenol	ND	F2	1150	687.8	F2	ug/Kg	☼	60	40 - 160	30	20
2-Methylphenol	ND	F2	1150	745.7	F2	ug/Kg	☼	65	40 - 160	29	20
2-Nitrophenol	ND	F2	1150	615.8	F2	ug/Kg	☼	54	40 - 160	27	20
3/4-Methylphenol	ND	F2	2300	1284	F2	ug/Kg	☼	56	40 - 160	32	20
4,6-Dinitro-2-methylphenol	ND	F2	1150	740.3	F2	ug/Kg	☼	64	40 - 160	22	20
4-Chloro-3-methylphenol	ND	F2	1150	659.1	F2	ug/Kg	☼	57	8 - 160	25	20
Acenaphthene	ND	F2	1150	634.9	F2	ug/Kg	☼	55	40 - 160	28	20
Benzo[a]pyrene	ND	F2	1150	774.5	F2	ug/Kg	☼	67	17 - 163	26	20
Bis(2-ethylhexyl) phthalate	8.9	J B F2	1150	789.5	F2	ug/Kg	☼	68	40 - 160	28	20
Butyl benzyl phthalate	8.7	J F2	1150	723.4	F2	ug/Kg	☼	62	40 - 160	27	20
Chrysene	ND	F2	1150	633.3	F2	ug/Kg	☼	55	17 - 168	29	20
Diethyl phthalate	2.5	J B F2	1150	734.2	F2	ug/Kg	☼	64	40 - 160	27	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61000-B-4-N MSD
Matrix: Solid
Analysis Batch: 157343

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	ND	F2	1150	692.6	F2	ug/Kg	☼	60	40 - 160	28	20
Di-n-butyl phthalate	5.9	J B F2	1150	718.7	F2	ug/Kg	☼	62	40 - 160	25	20
Di-n-octyl phthalate	ND	F2	1150	750.4	F2	ug/Kg	☼	65	40 - 160	26	20
Fluoranthene	ND	F2	1150	661.9	F2	ug/Kg	☼	58	26 - 137	26	20
Fluorene	ND	F1 F2	1150	664.3	F1 F2	ug/Kg	☼	58	59 - 121	27	20
Naphthalene	ND	F2	1150	538.1	F2	ug/Kg	☼	47	21 - 133	25	20
Pentachlorophenol	ND	F2	1150	614.7	F2	ug/Kg	☼	54	40 - 160	23	20
Phenanthrene	ND	F1 F2	1150	665.3	F2	ug/Kg	☼	58	54 - 120	27	20
Pyrene	ND		1150	641.0		ug/Kg	☼	56	6 - 156	27	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*56*		*32 - 143*
2-Fluorophenol	*54*		*15 - 138*
Nitrobenzene-d5	*46*		*18 - 162*
Phenol-d6	*58*		*17 - 141*
p-Terphenyl-d14	*58*		*34 - 148*
2-Fluorobiphenyl (Surr)	*50*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-156283/1-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-28	ND		0.20	0.069	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-37	ND		0.20	0.061	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-44	ND		0.20	0.15	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-49	ND		0.20	0.050	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-52	ND		0.20	0.19	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-66	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-70	ND		0.20	0.072	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-74	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-77	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-81	ND		0.20	0.090	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-87	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-99	ND		0.20	0.047	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-101	ND		0.20	0.044	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-105	ND		0.20	0.053	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-110	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-114	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-118	ND		0.20	0.035	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-119	ND		0.20	0.063	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-123	ND		0.20	0.073	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-126	ND		0.20	0.055	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-128	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-156283/1-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-149	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-151	ND		0.20	0.088	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-156	ND		0.20	0.077	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-157	ND		0.20	0.085	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-167	ND		0.20	0.13	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-168	ND		0.20	0.14	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-169	ND		0.20	0.065	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-170	ND		0.20	0.11	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-177	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-180	ND		0.20	0.092	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-183	ND		0.20	0.093	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-187	ND		0.20	0.10	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-189	ND		0.20	0.064	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-194	ND		0.20	0.074	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-201	ND		0.20	0.034	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
PCB-206	ND		0.20	0.12	ug/Kg		06/09/21 22:33	06/15/21 13:06	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/09/21 22:33	06/15/21 13:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*	*06/09/21 22:33*	*06/15/21 13:06*	*1*
p-Terphenyl-d14	*107*		*37 - 165*	*06/09/21 22:33*	*06/15/21 13:06*	*1*

Lab Sample ID: LCS 570-156283/2-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	40.87		ug/Kg		82	33 - 114
PCB-28	50.0	47.15		ug/Kg		94	40 - 132
PCB-44	50.0	48.13		ug/Kg		96	38 - 131
PCB-52	50.0	47.24		ug/Kg		94	38 - 131
PCB-66	50.0	54.29		ug/Kg		109	42 - 141
PCB-77	50.0	49.78		ug/Kg		100	47 - 135
PCB-101	50.0	49.39		ug/Kg		99	40 - 132
PCB-105	50.0	53.45		ug/Kg		107	39 - 135
PCB-118	50.0	48.52		ug/Kg		97	38 - 131
PCB-126	50.0	55.31		ug/Kg		111	40 - 139
PCB-128	50.0	61.65		ug/Kg		123	43 - 149
PCB-132/153	50.0	54.59		ug/Kg		109	37 - 164
PCB-138/158	50.0	49.32		ug/Kg		99	36 - 124
PCB-170	50.0	52.59		ug/Kg		105	35 - 134
PCB-180	50.0	61.67		ug/Kg		123	38 - 159
PCB-187	50.0	59.83		ug/Kg		120	41 - 147
PCB-201	50.0	60.94		ug/Kg		122	40 - 156
PCB-206	50.0	62.01		ug/Kg		124	37 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*56*		*20 - 139*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-156283/2-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156283

Surrogate	LCS %Recovery	LCS Qualifier	Limits
p-Terphenyl-d14	*85*		*37 - 165*

Lab Sample ID: LCSD 570-156283/3-A
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	43.59		ug/Kg		87	33 - 114	6	29
PCB-28	50.0	48.97		ug/Kg		98	40 - 132	4	29
PCB-44	50.0	50.00		ug/Kg		100	38 - 131	4	32
PCB-52	50.0	48.75		ug/Kg		97	38 - 131	3	32
PCB-66	50.0	56.92		ug/Kg		114	42 - 141	5	34
PCB-77	50.0	51.28		ug/Kg		103	47 - 135	3	35
PCB-101	50.0	51.66		ug/Kg		103	40 - 132	5	34
PCB-105	50.0	54.92		ug/Kg		110	39 - 135	3	37
PCB-118	50.0	50.50		ug/Kg		101	38 - 131	4	35
PCB-126	50.0	57.49		ug/Kg		115	40 - 139	4	39
PCB-128	50.0	64.16		ug/Kg		128	43 - 149	4	37
PCB-132/153	50.0	57.41		ug/Kg		115	37 - 164	5	38
PCB-138/158	50.0	51.75		ug/Kg		104	36 - 124	5	40
PCB-170	50.0	55.25		ug/Kg		110	35 - 134	5	31
PCB-180	50.0	63.97		ug/Kg		128	38 - 159	4	40
PCB-187	50.0	62.52		ug/Kg		125	41 - 147	4	40
PCB-201	50.0	62.97		ug/Kg		126	40 - 156	3	40
PCB-206	50.0	63.29		ug/Kg		127	37 - 153	2	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*
p-Terphenyl-d14	*91*		*37 - 165*

Lab Sample ID: 570-61058-A-1-O MS
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		108	67.97		ug/Kg	☼	63	29 - 127
PCB-28	ND		108	82.38		ug/Kg	☼	76	29 - 170
PCB-44	ND		108	81.14		ug/Kg	☼	75	33 - 150
PCB-52	ND		108	80.57		ug/Kg	☼	75	23 - 159
PCB-66	ND		108	92.84		ug/Kg	☼	86	29 - 166
PCB-77	ND		108	80.72		ug/Kg	☼	75	30 - 166
PCB-101	0.65		108	83.58		ug/Kg	☼	77	30 - 159
PCB-105	ND		108	88.98		ug/Kg	☼	83	22 - 173
PCB-118	0.73		108	80.88		ug/Kg	☼	74	24 - 162
PCB-126	ND		108	90.62		ug/Kg	☼	84	18 - 180
PCB-128	ND		108	100.9		ug/Kg	☼	94	18 - 180
PCB-132/153	1.2		108	94.22		ug/Kg	☼	86	27 - 180
PCB-138/158	ND		108	82.47		ug/Kg	☼	77	18 - 160

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-61058-A-1-O MS
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-170	ND		108	91.85		ug/Kg	☼	85	25 - 165
PCB-180	ND		108	99.28		ug/Kg	☼	92	20 - 180
PCB-187	ND		108	98.09		ug/Kg	☼	91	14 - 180
PCB-201	ND		108	99.36		ug/Kg	☼	92	17 - 180
PCB-206	ND		108	91.35		ug/Kg	☼	85	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*
p-Terphenyl-d14	*80*		*37 - 165*

Lab Sample ID: 570-61058-A-1-P MSD
Matrix: Solid
Analysis Batch: 157377

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		108	69.42		ug/Kg	☼	64	29 - 127	2	40
PCB-28	ND		108	85.15		ug/Kg	☼	79	29 - 170	3	32
PCB-44	ND		108	81.10		ug/Kg	☼	75	33 - 150	0	40
PCB-52	ND		108	82.91		ug/Kg	☼	77	23 - 159	3	40
PCB-66	ND		108	92.99		ug/Kg	☼	86	29 - 166	0	40
PCB-77	ND		108	80.60		ug/Kg	☼	74	30 - 166	0	40
PCB-101	0.65		108	84.00		ug/Kg	☼	77	30 - 159	0	40
PCB-105	ND		108	86.89		ug/Kg	☼	80	22 - 173	2	40
PCB-118	0.73		108	80.24		ug/Kg	☼	73	24 - 162	1	40
PCB-126	ND		108	92.63		ug/Kg	☼	85	18 - 180	2	40
PCB-128	ND		108	98.25		ug/Kg	☼	91	18 - 180	3	40
PCB-132/153	1.2		108	91.70		ug/Kg	☼	84	27 - 180	3	40
PCB-138/158	ND		108	80.84		ug/Kg	☼	75	18 - 160	2	40
PCB-170	ND		108	89.20		ug/Kg	☼	82	25 - 165	3	22
PCB-180	ND		108	95.16		ug/Kg	☼	88	20 - 180	4	40
PCB-187	ND		108	95.53		ug/Kg	☼	88	14 - 180	3	40
PCB-201	ND		108	94.55		ug/Kg	☼	87	17 - 180	5	40
PCB-206	ND		108	89.32		ug/Kg	☼	82	16 - 180	2	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*
p-Terphenyl-d14	*85*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-156286/1-A
Matrix: Solid
Analysis Batch: 157739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156286

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-156286/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cypermethrin	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/09/21 22:44	06/16/21 17:46	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/09/21 22:44	06/16/21 17:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*111*		*14 - 116*	*06/09/21 22:44*	*06/16/21 17:46*	*1*

Lab Sample ID: LCS 570-156286/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.770		ug/Kg		75	10 - 148
Bifenthrin	5.00	5.327		ug/Kg		107	26 - 128
Cyfluthrin	5.00	5.800		ug/Kg		116	10 - 131
Cypermethrin	5.00	5.895		ug/Kg		118	10 - 136
Deltamethrin/Tralomethrin	5.00	5.620		ug/Kg		112	13 - 190
Fenpropathrin	5.00	5.653		ug/Kg		113	10 - 148
Fenvalerate/Esfenvalerate	5.00	5.678		ug/Kg		114	10 - 149
Fluvalinate	5.00	5.361		ug/Kg		107	10 - 121
Lambda cyhalothrin	5.00	5.165		ug/Kg		103	10 - 123
Permethrins (cis/trans)	5.00	5.789		ug/Kg		116	45 - 123
Phenothrin	5.00	6.057		ug/Kg		121	45 - 165
Resmethrin/Bioresmethrin	5.00	4.297		ug/Kg		86	38 - 164
Tetramethrin	5.00	4.934		ug/Kg		99	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: LCSD 570-156286/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.857		ug/Kg		77	10 - 148	2	25
Bifenthrin	5.00	5.411		ug/Kg		108	26 - 128	2	25
Cyfluthrin	5.00	5.675		ug/Kg		114	10 - 131	2	25
Cypermethrin	5.00	5.731		ug/Kg		115	10 - 136	3	25
Deltamethrin/Tralomethrin	5.00	5.514		ug/Kg		110	13 - 190	2	25
Fenpropathrin	5.00	5.469		ug/Kg		109	10 - 148	3	25
Fenvalerate/Esfenvalerate	5.00	5.508		ug/Kg		110	10 - 149	3	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCSD 570-156286/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluvalinate			5.00	5.176		ug/Kg		104	10 - 121	4	25
Lambda cyhalothrin			5.00	5.051		ug/Kg		101	10 - 123	2	25
Permethrins (cis/trans)			5.00	5.675		ug/Kg		114	45 - 123	2	25
Phenothrin			5.00	6.013		ug/Kg		120	45 - 165	1	25
Resmethrin/Bioresmethrin			5.00	4.186		ug/Kg		84	38 - 164	3	25
Tetramethrin			5.00	5.021		ug/Kg		100	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*115*		*14 - 116*

Lab Sample ID: 570-61000-B-4-P MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Allethrin	ND		5.74	4.865		ug/Kg	☼	85	10 - 148		
Bifenthrin	ND		5.74	6.683		ug/Kg	☼	116	26 - 128		
Cyfluthrin	ND		5.74	7.022		ug/Kg	☼	122	10 - 131		
Cypermethrin	ND		5.74	7.379		ug/Kg	☼	129	10 - 136		
Deltamethrin/Tralomethrin	ND		5.74	8.013		ug/Kg	☼	140	13 - 190		
Fenpropathrin	ND		5.74	7.358		ug/Kg	☼	128	10 - 148		
Fenvalerate/Esfenvalerate	ND		5.74	7.299		ug/Kg	☼	127	10 - 149		
Fluvalinate	ND	F1	5.74	7.151	F1	ug/Kg	☼	125	10 - 121		
Lambda cyhalothrin	ND		5.74	6.578		ug/Kg	☼	115	10 - 123		
Permethrins (cis/trans)	ND	F1	5.74	6.963		ug/Kg	☼	121	45 - 123		
Phenothrin	ND		5.74	7.939		ug/Kg	☼	138	45 - 165		
Resmethrin/Bioresmethrin	ND		5.74	4.950		ug/Kg	☼	86	38 - 164		
Tetramethrin	ND		5.74	6.586		ug/Kg	☼	115	15 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*136*	*S1+*	*14 - 116*

Lab Sample ID: 570-61000-B-4-Q MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.71	4.962		ug/Kg	☼	87	10 - 148	2	30
Bifenthrin	ND		5.71	6.582		ug/Kg	☼	115	26 - 128	2	30
Cyfluthrin	ND		5.71	7.115		ug/Kg	☼	125	10 - 131	1	30
Cypermethrin	ND		5.71	7.420		ug/Kg	☼	130	10 - 136	1	30
Deltamethrin/Tralomethrin	ND		5.71	7.399		ug/Kg	☼	130	13 - 190	8	30
Fenpropathrin	ND		5.71	7.015		ug/Kg	☼	123	10 - 148	5	30
Fenvalerate/Esfenvalerate	ND		5.71	7.277		ug/Kg	☼	127	10 - 149	0	30
Fluvalinate	ND	F1	5.71	6.909		ug/Kg	☼	121	10 - 121	3	30
Lambda cyhalothrin	ND		5.71	5.964		ug/Kg	☼	104	10 - 123	10	30
Permethrins (cis/trans)	ND	F1	5.71	7.549	F1	ug/Kg	☼	132	45 - 123	8	30
Phenothrin	ND		5.71	8.066		ug/Kg	☼	141	45 - 165	2	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-61000-B-4-Q MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157739 — **Prep Batch: 156286**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Resmethrin/Bioresmethrin	ND		5.71	4.550		ug/Kg	☼	80	38 - 164	8	30
Tetramethrin	ND		5.71	6.126		ug/Kg	☼	107	15 - 153	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*120*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-156226/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/09/21 17:26	06/10/21 17:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*80*		*10 - 120*	*06/09/21 17:26*	*06/10/21 17:58*	*1*

Lab Sample ID: LCS 570-156226/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	80.23		ug/Kg		80	10 - 153
Tributyltin	100	56.14		ug/Kg		56	10 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*64*		*10 - 120*

Lab Sample ID: LCSD 570-156226/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	100	87.13		ug/Kg		87	10 - 153	8	30
Tributyltin	100	62.98		ug/Kg		63	10 - 126	11	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*67*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-61136-B-2-D MS
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		136	112.4		ug/Kg	☼	83	10 - 140
Tributyltin	ND		136	78.59		ug/Kg	☼	58	10 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Lab Sample ID: 570-61136-B-2-M MSD
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		134	115.5		ug/Kg	☼	86	10 - 140	3	40
Tributyltin	ND		134	77.48		ug/Kg	☼	58	10 - 135	1	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-158219/1-A
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158219

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C9-C10	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C11-C12	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C13-C14	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C15-C16	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C17-C18	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C19-C20	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C21-C22	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C23-C24	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C25-C28	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C29-C32	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C33-C36	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C37-C40	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C41-C44	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C6-C44	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*06/18/21 11:04*	*06/18/21 18:01*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 570-158219/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158304 — **Prep Batch: 158219**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	435.8		mg/Kg		109	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*107*		*60 - 138*

Lab Sample ID: LCSD 570-158219/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158304 — **Prep Batch: 158219**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	448.5		mg/Kg		112	80 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*111*		*60 - 138*

Lab Sample ID: 570-62132-A-42-A MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158304 — **Prep Batch: 158219**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	5.0		394	419.9		mg/Kg		105	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*100*		*60 - 138*

Lab Sample ID: 570-62132-A-42-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158304 — **Prep Batch: 158219**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	5.0		402	457.1		mg/Kg		113	43 - 165	8	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*110*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-156282/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157667 — **Prep Batch: 156282**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Aldrin	ND		1.0	0.072	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Chlordane	ND		5.0	0.33	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin	ND		1.0	0.088	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/09/21 22:26	06/16/21 13:55	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/09/21 22:26	06/16/21 13:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*20 - 131*	*06/09/21 22:26*	*06/16/21 13:55*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*	*06/09/21 22:26*	*06/16/21 13:55*	*1*

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	5.523		ug/Kg		110	54 - 150
4,4'-DDE	5.00	5.602		ug/Kg		112	49 - 146
4,4'-DDT	5.00	5.672		ug/Kg		113	52 - 147
Aldrin	5.00	4.606		ug/Kg		92	28 - 116
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123
beta-BHC	5.00	6.594	*+ me	ug/Kg		132	48 - 127
delta-BHC	5.00	5.326		ug/Kg		107	10 - 149
Dieldrin	5.00	4.891		ug/Kg		98	48 - 132
alpha-Chlordane	5.00	4.803		ug/Kg		96	48 - 125
Endosulfan I	5.00	4.734		ug/Kg		95	44 - 125
Endosulfan II	5.00	4.846		ug/Kg		97	47 - 136
Endosulfan sulfate	5.00	4.943		ug/Kg		99	46 - 133
Endrin	5.00	5.107		ug/Kg		102	43 - 142

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin aldehyde	5.00	5.425		ug/Kg		108	29 - 141
gamma-BHC	5.00	4.756		ug/Kg		95	44 - 126
Heptachlor	5.00	4.713		ug/Kg		94	50 - 123
Heptachlor epoxide	5.00	4.836		ug/Kg		97	49 - 125
Methoxychlor	5.00	5.555		ug/Kg		111	49 - 145
gamma-Chlordane	5.00	4.826		ug/Kg		97	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*

Lab Sample ID: LCSD 570-156282/3-A
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	5.366		ug/Kg		107	54 - 150	3	29
4,4'-DDE	5.00	5.461		ug/Kg		109	49 - 146	3	28
4,4'-DDT	5.00	5.520		ug/Kg		110	52 - 147	3	32
Aldrin	5.00	4.725		ug/Kg		94	28 - 116	3	30
alpha-BHC	5.00	4.725		ug/Kg		94	44 - 123	0	27
beta-BHC	5.00	5.068		ug/Kg		101	48 - 127	26	28
delta-BHC	5.00	5.304		ug/Kg		106	10 - 149	0	27
Dieldrin	5.00	4.779		ug/Kg		96	48 - 132	2	28
alpha-Chlordane	5.00	4.736		ug/Kg		95	48 - 125	1	27
Endosulfan I	5.00	4.579		ug/Kg		92	44 - 125	3	29
Endosulfan II	5.00	4.740		ug/Kg		95	47 - 136	2	29
Endosulfan sulfate	5.00	4.865		ug/Kg		97	46 - 133	2	28
Endrin	5.00	5.002		ug/Kg		100	43 - 142	2	27
Endrin aldehyde	5.00	5.159		ug/Kg		103	29 - 141	5	40
gamma-BHC	5.00	4.753		ug/Kg		95	44 - 126	0	28
Heptachlor	5.00	4.634		ug/Kg		93	50 - 123	2	28
Heptachlor epoxide	5.00	4.811		ug/Kg		96	49 - 125	1	28
Methoxychlor	5.00	5.426		ug/Kg		109	49 - 145	2	39
gamma-Chlordane	5.00	4.786		ug/Kg		96	29 - 153	1	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*82*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 180*

Lab Sample ID: 570-61058-A-1-J MS
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		10.8	10.48		ug/Kg	☼	97	17 - 180
4,4'-DDE	1.3	J	10.8	11.39		ug/Kg	☼	93	20 - 180
4,4'-DDT	ND		10.8	10.65		ug/Kg	☼	99	10 - 180

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-61058-A-1-J MS
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		10.8	8.049		ug/Kg	☼	75	27 - 146
alpha-BHC	ND		10.8	8.890		ug/Kg	☼	82	33 - 160
beta-BHC	ND	*+	10.8	7.428		ug/Kg	☼	69	14 - 178
delta-BHC	ND		10.8	6.422		ug/Kg	☼	59	10 - 159
Dieldrin	ND		10.8	9.278		ug/Kg	☼	86	25 - 180
alpha-Chlordane	ND		10.8	8.901		ug/Kg	☼	82	24 - 164
Endosulfan I	ND		10.8	8.879		ug/Kg	☼	82	31 - 146
Endosulfan II	ND		10.8	8.888		ug/Kg	☼	82	14 - 176
Endosulfan sulfate	ND		10.8	7.543		ug/Kg	☼	70	22 - 167
Endrin	ND		10.8	9.735		ug/Kg	☼	90	23 - 174
Endrin aldehyde	ND		10.8	4.829		ug/Kg	☼	45	10 - 180
gamma-BHC	ND		10.8	7.968		ug/Kg	☼	74	27 - 160
Heptachlor	ND		10.8	4.021		ug/Kg	☼	37	23 - 144
Heptachlor epoxide	ND		10.8	8.883		ug/Kg	☼	82	25 - 173
Methoxychlor	ND		10.8	10.81		ug/Kg	☼	100	10 - 180
gamma-Chlordane	ND		10.8	9.196		ug/Kg	☼	85	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*48*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*77*		*20 - 180*

Lab Sample ID: 570-61058-A-1-K MSD
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		10.8	10.07		ug/Kg	☼	93	17 - 180	4	40
4,4'-DDE	1.3	J	10.8	11.44		ug/Kg	☼	94	20 - 180	0	40
4,4'-DDT	ND		10.8	10.88		ug/Kg	☼	101	10 - 180	2	40
Aldrin	ND		10.8	8.249		ug/Kg	☼	76	27 - 146	2	40
alpha-BHC	ND		10.8	9.824		ug/Kg	☼	91	33 - 160	10	36
beta-BHC	ND	*+	10.8	7.898		ug/Kg	☼	73	14 - 178	6	40
delta-BHC	ND		10.8	8.223		ug/Kg	☼	76	10 - 159	25	40
Dieldrin	ND		10.8	10.02		ug/Kg	☼	93	25 - 180	8	40
alpha-Chlordane	ND		10.8	8.949		ug/Kg	☼	83	24 - 164	1	40
Endosulfan I	ND		10.8	8.388		ug/Kg	☼	78	31 - 146	6	34
Endosulfan II	ND		10.8	7.807		ug/Kg	☼	72	14 - 176	13	40
Endosulfan sulfate	ND		10.8	8.245		ug/Kg	☼	76	22 - 167	9	40
Endrin	ND		10.8	9.563		ug/Kg	☼	89	23 - 174	2	40
Endrin aldehyde	ND		10.8	4.801		ug/Kg	☼	45	10 - 180	1	40
gamma-BHC	ND		10.8	8.616		ug/Kg	☼	80	27 - 160	8	40
Heptachlor	ND		10.8	3.396		ug/Kg	☼	31	23 - 144	17	40
Heptachlor epoxide	ND		10.8	8.874		ug/Kg	☼	82	25 - 173	0	40
Methoxychlor	ND		10.8	8.962		ug/Kg	☼	83	10 - 180	19	40
gamma-Chlordane	ND		10.8	8.650		ug/Kg	☼	80	26 - 180	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*55*		*20 - 131*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-61058-A-1-K MSD
Matrix: Solid
Analysis Batch: 157667

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156282

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	76		20 - 180

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-156282/1-A
Matrix: Solid
Analysis Batch: 157510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/09/21 22:26	06/16/21 04:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	89		20 - 155	06/09/21 22:26	06/16/21 04:51	1
Tetrachloro-m-xylene (Surr)	86		25 - 126	06/09/21 22:26	06/16/21 04:51	1

Lab Sample ID: LCS 570-156282/6-A
Matrix: Solid
Analysis Batch: 157510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	20.0	23.67		ug/Kg		118	50 - 142
Aroclor-1260	20.0	21.45		ug/Kg		107	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	88		20 - 155
Tetrachloro-m-xylene (Surr)	83		25 - 126

Lab Sample ID: LCSD 570-156282/7-A
Matrix: Solid
Analysis Batch: 157510

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156282

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	20.0	23.87		ug/Kg		119	50 - 142	1	30
Aroclor-1260	20.0	23.10		ug/Kg		116	50 - 150	7	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	97		20 - 155
Tetrachloro-m-xylene (Surr)	95		25 - 126

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-61000-B-4-J MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	ND		23.0	24.92		ug/Kg	☼	108	20 - 175
Aroclor-1260	ND		23.0	23.97		ug/Kg	☼	104	20 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*83*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*55*		*25 - 126*

Lab Sample ID: 570-61000-B-4-S MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157510 — **Prep Batch: 156282**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		22.8	23.58		ug/Kg	☼	104	20 - 175	6	40
Aroclor-1260	ND		22.8	23.67		ug/Kg	☼	104	20 - 180	1	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*80*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*63*		*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-156160/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	210	ug/Kg		06/09/21 14:22	06/10/21 16:52	10

Lab Sample ID: LCS 570-156160/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19310		ug/Kg		97	80 - 120

Lab Sample ID: LCSD 570-156160/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20100	19290		ug/Kg		96	80 - 120	0	20

Lab Sample ID: 570-61178-A-3-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	5300		19900	23330		ug/Kg		90	75 - 125

Method: 7199 - Chromium, Hexavalent (IC) (Continued)

Lab Sample ID: 570-61178-A-3-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	5300		20000	20940		ug/Kg		78	75 - 125	11	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-158296/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	0.275	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Arsenic	ND		0.985	0.329	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Barium	ND		0.985	0.205	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Beryllium	ND		0.985	0.204	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Cadmium	ND		0.985	0.443	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Chromium	ND		1.97	0.296	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Cobalt	ND		0.985	0.186	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Copper	ND		0.985	0.265	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Lead	ND		0.985	0.212	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Molybdenum	ND		0.985	0.303	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Nickel	ND		0.985	0.266	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Selenium	ND		0.985	0.572	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Silver	ND		0.985	0.326	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Thallium	ND		0.985	0.216	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Vanadium	ND		1.97	0.238	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Zinc	ND		4.93	4.55	mg/Kg		06/18/21 12:40	06/21/21 12:19	20

Lab Sample ID: LCS 570-158296/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	25.0	24.38		mg/Kg		98	80 - 120
Arsenic	25.0	25.33		mg/Kg		101	80 - 120
Barium	25.0	23.92		mg/Kg		96	80 - 120
Beryllium	25.0	25.99		mg/Kg		104	80 - 120
Cadmium	25.0	26.15		mg/Kg		105	80 - 120
Chromium	25.0	25.24		mg/Kg		101	80 - 120
Cobalt	25.0	25.57		mg/Kg		102	80 - 120
Copper	25.0	25.73		mg/Kg		103	80 - 120
Lead	25.0	25.10		mg/Kg		100	80 - 120
Molybdenum	25.0	25.75		mg/Kg		103	80 - 120
Nickel	25.0	26.15		mg/Kg		105	80 - 120
Selenium	25.0	26.33		mg/Kg		105	80 - 120
Silver	12.5	12.16		mg/Kg		97	80 - 120
Thallium	25.0	24.38		mg/Kg		98	80 - 120
Vanadium	25.0	25.41		mg/Kg		102	80 - 120
Zinc	25.0	26.93		mg/Kg		108	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-158296/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony			24.4	24.15		mg/Kg		99	80 - 120	1	20
Arsenic			24.4	24.59		mg/Kg		101	80 - 120	3	20
Barium			24.4	23.35		mg/Kg		96	80 - 120	2	20
Beryllium			24.4	25.36		mg/Kg		104	80 - 120	2	20
Cadmium			24.4	25.84		mg/Kg		106	80 - 120	1	20
Chromium			24.4	24.13		mg/Kg		99	80 - 120	5	20
Cobalt			24.4	24.43		mg/Kg		100	80 - 120	5	20
Copper			24.4	24.97		mg/Kg		102	80 - 120	3	20
Lead			24.4	24.16		mg/Kg		99	80 - 120	4	20
Molybdenum			24.4	25.10		mg/Kg		103	80 - 120	3	20
Nickel			24.4	25.01		mg/Kg		103	80 - 120	4	20
Selenium			24.4	25.12		mg/Kg		103	80 - 120	5	20
Silver			12.2	11.84		mg/Kg		97	80 - 120	3	20
Thallium			24.4	23.31		mg/Kg		96	80 - 120	5	20
Vanadium			24.4	24.13		mg/Kg		99	80 - 120	5	20
Zinc			24.4	26.03		mg/Kg		107	80 - 120	3	20

Lab Sample ID: 570-61397-B-1-N MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Antimony	ND		36.3	1.205	J	mg/Kg	☼	3	1 - 97		
Arsenic	1.51		36.3	31.93		mg/Kg	☼	84	72 - 132		
Barium	121	F1	36.3	190.0	F1	mg/Kg	☼	191	50 - 152		
Beryllium	0.291	J	36.3	36.93		mg/Kg	☼	102	61 - 121		
Cadmium	ND		36.3	36.49		mg/Kg	☼	101	85 - 121		
Chromium	15.2		36.3	52.58		mg/Kg	☼	103	20 - 182		
Cobalt	8.54		36.3	44.89		mg/Kg	☼	100	40 - 166		
Copper	24.8		36.3	66.31		mg/Kg	☼	115	25 - 157		
Lead	5.78		36.3	40.40		mg/Kg	☼	95	62 - 134		
Molybdenum	ND	F1	36.3	14.62	F1	mg/Kg	☼	40	69 - 123		
Nickel	7.37		36.3	43.05		mg/Kg	☼	98	46 - 154		
Selenium	ND		36.3	27.29		mg/Kg	☼	75	54 - 132		
Silver	ND	F1	18.1	1.466	F1	mg/Kg	☼	8	78 - 126		
Thallium	ND		36.3	32.48		mg/Kg	☼	90	79 - 115		
Vanadium	39.3		36.3	82.90		mg/Kg	☼	120	28 - 178		
Zinc	51.5		36.3	101.4		mg/Kg	☼	138	23 - 173		

Lab Sample ID: 570-61397-B-1-O MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		36.4	1.131	J	mg/Kg	☼	3	1 - 97	6	39
Arsenic	1.51		36.4	31.64		mg/Kg	☼	83	72 - 132	1	13
Barium	121	F1	36.4	185.1	F1	mg/Kg	☼	177	50 - 152	3	41
Beryllium	0.291	J	36.4	35.49		mg/Kg	☼	97	61 - 121	4	13
Cadmium	ND		36.4	36.00		mg/Kg	☼	99	85 - 121	1	12

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-61397-B-1-O MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	15.2		36.4	50.86		mg/Kg	☼	98	20 - 182	3	15
Cobalt	8.54		36.4	43.05		mg/Kg	☼	95	40 - 166	4	14
Copper	24.8		36.4	64.62		mg/Kg	☼	109	25 - 157	3	22
Lead	5.78		36.4	39.41		mg/Kg	☼	92	62 - 134	2	23
Molybdenum	ND	F1	36.4	14.18	F1	mg/Kg	☼	39	69 - 123	3	13
Nickel	7.37		36.4	42.91		mg/Kg	☼	98	46 - 154	0	15
Selenium	ND		36.4	26.81		mg/Kg	☼	74	54 - 132	2	14
Silver	ND	F1	18.2	1.543	F1	mg/Kg	☼	8	78 - 126	5	15
Thallium	ND		36.4	32.29		mg/Kg	☼	89	79 - 115	1	11
Vanadium	39.3		36.4	79.79		mg/Kg	☼	111	28 - 178	4	28
Zinc	51.5		36.4	98.62		mg/Kg	☼	129	23 - 173	3	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-158288/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0135	mg/Kg		06/18/21 12:05	06/21/21 13:20	1

Lab Sample ID: LCS 570-158288/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.820	0.8867		mg/Kg		108	85 - 121

Lab Sample ID: LCSD 570-158288/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.806	0.8875		mg/Kg		110	85 - 121	0	10

Lab Sample ID: 570-61859-A-45-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0645	J F1 F2	0.847	0.5176	F1	mg/Kg		53	71 - 137

Lab Sample ID: 570-61859-A-45-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0645	J F1 F2	0.877	0.3796	F1 F2	mg/Kg		36	71 - 137	31	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-155877/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/08/21 14:46	06/08/21 14:46	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/08/21 14:46	06/08/21 14:46	1

Lab Sample ID: LCS 570-155877/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-155877/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Lab Sample ID: 570-60879-B-4-N MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-60879-B-4-O MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156185 — **Prep Batch: 155877**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	181		48.4	221.8		mg/Kg	☼	85	78 - 114	0	18
SGT-HEM (TRPH)	92.4		24.2	112.9		mg/Kg	☼	85	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-156223/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.100	0.0840	mg/Kg		06/10/21 10:00	06/10/21 19:14	1

Lab Sample ID: LCS 570-156223/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.501	0.5344		mg/Kg		107	72 - 123

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCSD 570-156223/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide			0.501	0.5402		mg/Kg		108	72 - 123	1	11

Lab Sample ID: 570-61000-B-4-G DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Sulfide	ND			ND		mg/Kg	☼			NC	20

Lab Sample ID: MB 570-156227/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:35	1

Lab Sample ID: LCS 570-156227/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5436		mg/Kg		108	72 - 123		

Lab Sample ID: LCSD 570-156227/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5456		mg/Kg		109	72 - 123	0	11

Lab Sample ID: 570-61000-B-4-I DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-156869/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 570-156869/50 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Lab Sample ID: LCS 570-156869/34 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	3.00	3.079		%		102	80 - 120

Lab Sample ID: LCSD 570-156869/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	3.01	2.906		%		97	80 - 120	6	20

Lab Sample ID: 570-61058-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	1.31		6.53	7.761		%	☼	99	75 - 125

Lab Sample ID: 570-61058-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	1.31		6.52	7.220		%	☼	91	75 - 125	7	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-61168-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156257

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	89.4		88.8		%		0.6	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-157805/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/16/21 19:05	06/17/21 21:44	1

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: LCS 570-157805/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	218.1		mg/Kg		87	80 - 120		

Lab Sample ID: LCSD 570-157805/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	215.6		mg/Kg		86	80 - 120	1	20

Lab Sample ID: 570-61000-B-5-W MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	4.14		30.8	29.62		mg/Kg	☼	83	75 - 125		

Lab Sample ID: 570-61000-B-5-X MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	4.14		30.8	29.21		mg/Kg	☼	81	75 - 125	1	25

Lab Sample ID: 570-61000-B-5-V DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	4.14			4.212		mg/Kg	☼			2	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 570-156282/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	5.523		ug/Kg	110	54 - 150	38 - 166	
4,4'-DDE	5.00	5.602		ug/Kg	112	49 - 146	33 - 162	
4,4'-DDT	5.00	5.672		ug/Kg	113	52 - 147	36 - 163	
Aldrin	5.00	4.606		ug/Kg	92	28 - 116	13 - 131	
alpha-BHC	5.00	4.725		ug/Kg	94	44 - 123	31 - 136	
beta-BHC	5.00	6.594	*+ me	ug/Kg	132	48 - 127	35 - 140	ME
delta-BHC	5.00	5.326		ug/Kg	107	10 - 149	1 - 172	
Dieldrin	5.00	4.891		ug/Kg	98	48 - 132	34 - 146	
alpha-Chlordane	5.00	4.803		ug/Kg	96	48 - 125	35 - 138	
Endosulfan I	5.00	4.734		ug/Kg	95	44 - 125	31 - 139	
Endosulfan II	5.00	4.846		ug/Kg	97	47 - 136	32 - 151	
Endosulfan sulfate	5.00	4.943		ug/Kg	99	46 - 133	32 - 148	
Endrin	5.00	5.107		ug/Kg	102	43 - 142	27 - 159	
Endrin aldehyde	5.00	5.425		ug/Kg	108	29 - 141	10 - 160	
gamma-BHC	5.00	4.756		ug/Kg	95	44 - 126	30 - 140	
Heptachlor	5.00	4.713		ug/Kg	94	50 - 123	38 - 135	
Heptachlor epoxide	5.00	4.836		ug/Kg	97	49 - 125	36 - 138	
Methoxychlor	5.00	5.555		ug/Kg	111	49 - 145	33 - 161	
gamma-Chlordane	5.00	4.826		ug/Kg	97	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	1

ME = Marginal Exceedance

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

GC/MS Semi VOA

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 156055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Organotin Prep	
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Organotin Prep	155814
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotin Prep	155814

Prep Batch: 156283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3541	156055
MB 570-156283/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Prep Batch: 156285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3541	156055
MB 570-156285/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

GC/MS Semi VOA

Prep Batch: 156286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3541	156055
MB 570-156286/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Analysis Batch: 156390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Organotins SIM	156226
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotins SIM	156226
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	156226
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	156226
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Organotins SIM	156226
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotins SIM	156226

Analysis Batch: 157343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8270C SIM	156285
MB 570-156285/1-A	Method Blank	Total/NA	Solid	8270C SIM	156285
LCS 570-156285/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	156285
LCSD 570-156285/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	156285
570-61000-B-4-M MS	Matrix Spike	Total/NA	Solid	8270C SIM	156285
570-61000-B-4-N MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM	156285

Analysis Batch: 157377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8270C SIM CON	156283
MB 570-156283/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	156283
LCS 570-156283/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	156283
LCSD 570-156283/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-O MS	Matrix Spike	Total/NA	Solid	8270C SIM CON	156283
570-61058-A-1-P MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM CON	156283

Analysis Batch: 157739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8270D TQ	156286
MB 570-156286/1-A	Method Blank	Total/NA	Solid	8270D TQ	156286
LCS 570-156286/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	156286
LCSD 570-156286/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	156286
570-61000-B-4-P MS	Matrix Spike	Total/NA	Solid	8270D TQ	156286
570-61000-B-4-Q MSD	Matrix Spike Duplicate	Total/NA	Solid	8270D TQ	156286

GC Semi VOA

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

GC Semi VOA (Continued)

Cleanup Batch: 155604 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 156055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3541	156055
MB 570-156282/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	3541	155604
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	155604

Analysis Batch: 157510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8082	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8082	156282
LCS 570-156282/6-A	Lab Control Sample	Total/NA	Solid	8082	156282
LCSD 570-156282/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	156282
570-61000-B-4-J MS	Matrix Spike	Total/NA	Solid	8082	156282
570-61000-B-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	8082	156282

Analysis Batch: 157667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8081A	156282
MB 570-156282/1-A	Method Blank	Total/NA	Solid	8081A	156282
LCS 570-156282/2-A	Lab Control Sample	Total/NA	Solid	8081A	156282
LCSD 570-156282/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	156282
570-61058-A-1-J MS	Matrix Spike	Total/NA	Solid	8081A	156282
570-61058-A-1-K MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	156282

Prep Batch: 158219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3550C	156055
MB 570-158219/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-158219/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-158219/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-62132-A-42-A MS	Matrix Spike	Total/NA	Solid	3550C	
570-62132-A-42-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

GC Semi VOA

Analysis Batch: 158304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	8015B	158219
MB 570-158219/1-A	Method Blank	Total/NA	Solid	8015B	158219
LCS 570-158219/2-A	Lab Control Sample	Total/NA	Solid	8015B	158219
LCSD 570-158219/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	158219
570-62132-A-42-A MS	Matrix Spike	Total/NA	Solid	8015B	158219
570-62132-A-42-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	158219

HPLC/IC

Cleanup Batch: 156055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3060A	156055
MB 570-156160/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	3060A	
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

Analysis Batch: 156295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	7199	156160
MB 570-156160/1-A	Method Blank	Total/NA	Solid	7199	156160
LCS 570-156160/2-A	Lab Control Sample	Total/NA	Solid	7199	156160
LCSD 570-156160/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	156160
570-61178-A-3-B MS	Matrix Spike	Total/NA	Solid	7199	156160
570-61178-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	156160

Metals

Cleanup Batch: 156055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-B-1-N MS ^20	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61397-B-1-O MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 158288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	7471A	156055
MB 570-158288/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-158288/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-158288/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-61859-A-45-H MS	Matrix Spike	Total/NA	Solid	7471A	

Metals (Continued)

Prep Batch: 158288 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61859-A-45-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	

Prep Batch: 158296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	3050B	156055
MB 570-158296/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-158296/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-158296/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-61397-B-1-N MS ^20	Matrix Spike	Total/NA	Solid	3050B	156366
570-61397-B-1-O MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	156366

Analysis Batch: 158645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	6020	158296
MB 570-158296/1-A ^20	Method Blank	Total/NA	Solid	6020	158296
LCS 570-158296/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	158296
LCSD 570-158296/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	158296
570-61397-B-1-N MS ^20	Matrix Spike	Total/NA	Solid	6020	158296
570-61397-B-1-O MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	158296

Analysis Batch: 158748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	7471A	158288
MB 570-158288/1-A	Method Blank	Total/NA	Solid	7471A	158288
LCS 570-158288/2-A	Lab Control Sample	Total/NA	Solid	7471A	158288
LCSD 570-158288/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	158288
570-61859-A-45-H MS	Matrix Spike	Total/NA	Solid	7471A	158288
570-61859-A-45-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	158288

General Chemistry

Cleanup Batch: 155128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-E MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	Homogenize Prep	
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	Homogenize Prep	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

General Chemistry

Prep Batch: 155877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	1664A	156055
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155128
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155128

Cleanup Batch: 156055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Soluble	Sediment	Homogenize Prep	
570-61234-1	FDD-A-C4	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 156185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	1664A	155877
MB 570-155877/1-A	Method Blank	Total/NA	Solid	1664A	155877
LCS 570-155877/2-A	Lab Control Sample	Total/NA	Solid	1664A	155877
LCSD 570-155877/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	155877
570-60879-B-4-N MS	Matrix Spike	Total/NA	Solid	1664A	155877
570-60879-B-4-O MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	155877

Prep Batch: 156223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	9030B	156055
MB 570-156223/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	9030B	155604

Leach Batch: 156227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Soluble	Sediment	DI Leach	156055
MB 570-156227/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	DI Leach	155604

Analysis Batch: 156257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	Moisture	
570-61168-A-1 DU	Duplicate	Total/NA	Solid	Moisture	

Analysis Batch: 156579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Soluble	Sediment	376.2 LL	156227
570-61234-1	FDD-A-C4	Total/NA	Sediment	376.2 LL	156223
MB 570-156223/1-A	Method Blank	Total/NA	Solid	376.2 LL	156223
MB 570-156227/1-A	Method Blank	Soluble	Solid	376.2 LL	156227
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	156223
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	156227

General Chemistry (Continued)

Analysis Batch: 156579 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	156223
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	156227
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	376.2 LL	156223
570-61000-B-4-I DU	Duplicate	Soluble	Solid	376.2 LL	156227

Analysis Batch: 156869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	9060A	156055
MB 570-156869/4	Method Blank	Total/NA	Solid	9060A	
MB 570-156869/50	Method Blank	Total/NA	Solid	9060A	
LCS 570-156869/34	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-156869/35	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-61058-A-1-E MS	Matrix Spike	Total/NA	Solid	9060A	155604
570-61058-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	155604

Analysis Batch: 157473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	7199 CR3	

Prep Batch: 157805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	SM4500 NH3 B LL	156055
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604

Analysis Batch: 158115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	SM4500 NH3 C LL	157805
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	157805
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	157805
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Geotechnical

Analysis Batch: 158052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61234-1	FDD-A-C4	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Client Sample ID: FDD-A-C4

Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	156285	06/09/21 22:41	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157343	06/15/21 20:06	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3541			20.22 g	2 mL	156283	06/09/21 22:33	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157377	06/15/21 19:27	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	156286	06/09/21 22:44	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			157739	06/16/21 22:41	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.2 g	5 mL	156226	06/09/21 17:26	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 19:29	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3550C			9.95 g	10 mL	158219	06/18/21 11:17	UFLU	ECL 1
Total/NA	Analysis	8015B		1			158304	06/19/21 08:46	N5Y3	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157667	06/16/21 16:32	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	156282	06/09/21 22:30	UM1W	ECL 1
Total/NA	Analysis	8082		1			157510	06/16/21 07:54	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3060A			2.49 g	100 mL	156160	06/09/21 14:22	B7TT	ECL 1
Total/NA	Analysis	7199		10			156295	06/10/21 21:57	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 13:03	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	7471A			.57 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 14:06	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	155877	06/09/21 12:00	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156185	06/09/21 12:00	USUL	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Client Sample ID: FDD-A-C4

Date Collected: 06/07/21 10:00
Date Received: 06/08/21 18:35

Lab Sample ID: 570-61234-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Soluble	Leach	DI Leach			20.01 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:46	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	9030B			20.06 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:26	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Analysis	9060A		1	203.2 mg	203.2 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156257	06/09/21 19:13	UAPD	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156055	06/09/21 10:06	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 15:08	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61234-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61234-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-61234-1	FDD-A-C4	Sediment	06/07/21 10:00	06/08/21 18:35	

61234

eurofins | Calscience

CHAIN OF CUSTODY RECORD

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

WO # / LAB USE ONLY

DATE: 6/8/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P O NO: 3151197955 04 PO 915

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes. Please report totals for PCBs and PAHs.

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size baggie for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376.2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44); (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)		
1	FDD-A-C4	6/7/21	1000	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

570-61234 Chain of Custody

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
[signature]	[signature] ECI	6/8/21	1415
[signature]	[signature]	06/08/21	1835

2.8/3 2 SCS

06/02/14 Revision

61234

Analyte[l]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0.10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1 0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis; tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners. 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C.A., D W Brown, D G. Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27· 1–18.

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes: allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion), ASTM = ASTM International, GC = gas chromatography; (M) = modified, RL = reporting limit; mg/kg = milligrams per kilogram, MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration, SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration, TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration, USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-61234-1

Login Number: 61234
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-61397-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/30/2021 4:23:05 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 7
Surrogate Summary 44
QC Sample Results 49
QC Association Summary 78
Lab Chronicle 89
Certification Summary 97
Method Summary 99
Sample Summary 100
Chain of Custody 101
Receipt Checklists 103

Definitions/Glossary

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-61397-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-61397-1

Comments
No additional comments.

Receipt
The samples were received on 6/9/2021 7:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.7º C.

GC/MS Semi VOA
Method 8270C SIM: The method blank for preparation batch 570-156592 and analytical batch 570-157654 contained 2,3,4,6-Tetrachlorophenol, Bis(2-ethylhexyl) phthalate, Di-n-butyl phthalate and Phenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270D TQ: Surrogate recovery for the following sample was outside the upper control limit: FDD-A-C1 (570-61397-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method Organotins SIM: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 570-156226 and analytical batch 570-156390: Monobutyltin. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method Organotins SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-156226 and analytical batch 570-156390 recovered outside control limits for the following analytes: Monobutyltin and Dibutyltin .

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-155814 and 570-156226 and analytical batch 570-156390 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-158715 and analytical batch 570-158672 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8081A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-156594 and analytical batch 570-157781 recovered outside control limits for the following analytes: Endosulfan I and gamma-BHC. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8081A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-156594 and analytical batch 570-157781 recovered outside control limits for the following analytes: gamma-BHC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-156366 and 570-158296 and analytical batch 570-158645 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Job ID: 570-61397-1 (Continued)

Laboratory: Eurofins Calscience LLC (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-158052 was flagged as being outside control limits due to a LIMS limitation: (570-57274-B-3) and (570-57274-B-3 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.29	0.094	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-28	ND		0.29	0.10	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-37	ND		0.29	0.088	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-44	ND		0.29	0.22	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-49	ND		0.29	0.072	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-52	ND		0.29	0.28	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-66	ND		0.29	0.18	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-70	ND		0.29	0.10	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-74	ND		0.29	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-77	ND		0.29	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-81	ND		0.29	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-87	ND		0.29	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-99	**0.81**		0.29	0.069	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-101	**1.0**		0.29	0.064	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-105	ND		0.29	0.078	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-110	**1.2**		0.29	0.049	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-114	ND		0.29	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-118	**1.2**		0.29	0.050	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-119	ND		0.29	0.091	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-123	ND		0.29	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-126	ND		0.29	0.080	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-128	ND		0.29	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-132/153	**2.2**		0.58	0.24	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-138/158	**2.0**		0.58	0.51	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-149	**1.4**		0.29	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-151	ND		0.29	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-156	ND		0.29	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-157	ND		0.29	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-167	ND		0.29	0.19	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-168	ND		0.29	0.21	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-169	ND		0.29	0.095	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-170	ND		0.29	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-177	ND		0.29	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-180	**1.1**		0.29	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-183	**0.26**	**J**	0.29	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-187	**0.82**		0.29	0.15	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-189	ND		0.29	0.093	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-194	ND		0.29	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-201	ND		0.29	0.049	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
PCB-206	ND		0.29	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1
Polychlorinated biphenyls, Total	**12**		0.58	0.51	ug/Kg	☼	06/10/21 22:01	06/16/21 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*20 - 139*	*06/10/21 22:01*	*06/16/21 23:26*	*1*
p-Terphenyl-d14	*91*		*37 - 165*	*06/10/21 22:01*	*06/16/21 23:26*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-28	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-37	ND		0.36	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-44	ND		0.36	0.27	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-49	ND		0.36	0.089	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-52	ND		0.36	0.34	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-66	**6.4**		0.36	0.22	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-70	**3.6**		0.36	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-74	ND		0.36	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-77	ND		0.36	0.21	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-81	ND		0.36	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-87	**5.8**		0.36	0.20	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-99	**12**		0.36	0.085	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-101	**21**		0.36	0.079	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-105	**7.6**		0.36	0.096	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-110	**17**		0.36	0.061	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-114	ND		0.36	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-118	**17**		0.36	0.062	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-119	ND		0.36	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-123	ND		0.36	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-126	ND		0.36	0.099	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-128	ND		0.36	0.22	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-132/153	**35**		0.72	0.29	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-138/158	**35**		0.72	0.63	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-149	**26**		0.36	0.21	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-151	**8.8**		0.36	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-156	ND		0.36	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-157	ND		0.36	0.15	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-167	ND		0.36	0.24	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-168	ND		0.36	0.26	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-169	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-170	**14**		0.36	0.20	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-177	**5.0**		0.36	0.21	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-180	**23**		0.36	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-183	**5.5**		0.36	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-187	**15**		0.36	0.18	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-189	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-194	ND		0.36	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-201	ND		0.36	0.061	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
PCB-206	ND		0.36	0.21	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1
Polychlorinated biphenyls, Total	**300**		0.72	0.63	ug/Kg	☼	06/10/21 22:01	06/16/21 23:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*20 - 139*	*06/10/21 22:01*	*06/16/21 23:50*	*1*
p-Terphenyl-d14	*97*		*37 - 165*	*06/10/21 22:01*	*06/16/21 23:50*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.23	0.076	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-28	ND		0.23	0.082	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-37	ND		0.23	0.071	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-44	ND		0.23	0.18	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-49	ND		0.23	0.058	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-52	ND		0.23	0.22	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-66	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-70	ND		0.23	0.084	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-74	ND		0.23	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-77	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-81	ND		0.23	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-87	ND		0.23	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-99	ND		0.23	0.056	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-101	ND		0.23	0.052	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-105	ND		0.23	0.063	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-110	ND		0.23	0.040	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-114	ND		0.23	0.087	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-118	ND		0.23	0.041	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-119	ND		0.23	0.073	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-123	ND		0.23	0.086	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-126	ND		0.23	0.065	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-128	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-132/153	ND		0.47	0.19	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-138/158	ND		0.47	0.41	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-149	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-151	ND		0.23	0.10	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-156	ND		0.23	0.091	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-157	ND		0.23	0.10	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-167	ND		0.23	0.16	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-168	ND		0.23	0.17	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-169	ND		0.23	0.076	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-170	ND		0.23	0.13	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-177	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-180	ND		0.23	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-183	ND		0.23	0.11	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-187	ND		0.23	0.12	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-189	ND		0.23	0.075	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-194	ND		0.23	0.087	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-201	ND		0.23	0.040	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
PCB-206	ND		0.23	0.14	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1
Polychlorinated biphenyls, Total	ND		0.47	0.41	ug/Kg	☼	06/10/21 22:01	06/16/21 23:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*20 - 139*	*06/10/21 22:01*	*06/16/21 23:02*	*1*
p-Terphenyl-d14	*89*		*37 - 165*	*06/10/21 22:01*	*06/16/21 23:02*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-28	ND		0.37	0.13	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-37	ND		0.37	0.11	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-44	ND		0.37	0.28	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-49	ND		0.37	0.091	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-52	ND		0.37	0.35	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-66	**3.6**		0.37	0.23	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-70	**1.9**		0.37	0.13	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-74	ND		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-77	ND		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-81	ND		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-87	ND		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-99	**7.4**		0.37	0.087	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-101	**12**		0.37	0.081	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-105	ND		0.37	0.098	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-110	**11**		0.37	0.062	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-114	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-118	**9.3**		0.37	0.064	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-119	ND		0.37	0.11	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-123	ND		0.37	0.13	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-126	ND		0.37	0.10	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-128	ND		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-132/153	**23**		0.74	0.30	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-138/158	**23**		0.74	0.65	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-149	**15**		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-151	**5.9**		0.37	0.16	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-156	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-157	ND		0.37	0.16	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-167	ND		0.37	0.24	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-168	ND		0.37	0.26	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-169	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-170	**6.9**		0.37	0.20	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-177	ND		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-180	**15**		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-183	**3.5**		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-187	**8.5**		0.37	0.19	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-189	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-194	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-201	ND		0.37	0.063	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
PCB-206	ND		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1
Polychlorinated biphenyls, Total	**160**		0.74	0.65	ug/Kg	☼	06/10/21 22:01	06/17/21 00:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*20 - 139*	*06/10/21 22:01*	*06/17/21 00:15*	*1*
p-Terphenyl-d14	*101*		*37 - 165*	*06/10/21 22:01*	*06/17/21 00:15*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-28	ND		0.37	0.13	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-37	ND		0.37	0.11	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-44	ND		0.37	0.28	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-49	ND		0.37	0.092	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-52	ND		0.37	0.35	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-66	**5.1**		0.37	0.23	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-70	**2.9**		0.37	0.13	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-74	ND		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-77	ND		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-81	ND		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-87	ND		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-99	**10**		0.37	0.088	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-101	**16**		0.37	0.082	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-105	**6.1**		0.37	0.099	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-110	**15**		0.37	0.063	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-114	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-118	**16**		0.37	0.064	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-119	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-123	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-126	ND		0.37	0.10	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-128	ND		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-132/153	**28**		0.74	0.30	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-138/158	**31**		0.74	0.65	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-149	**20**		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-151	**7.9**		0.37	0.16	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-156	ND		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-157	ND		0.37	0.16	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-167	ND		0.37	0.25	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-168	ND		0.37	0.26	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-169	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-170	**7.9**		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-177	ND		0.37	0.22	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-180	**17**		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-183	**3.9**		0.37	0.17	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-187	**12**		0.37	0.19	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-189	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-194	**4.7**		0.37	0.14	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-201	ND		0.37	0.063	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
PCB-206	**5.6**		0.37	0.21	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1
Polychlorinated biphenyls, Total	**230**		0.74	0.65	ug/Kg	☼	06/10/21 22:01	06/17/21 00:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*20 - 139*	*06/10/21 22:01*	*06/17/21 00:41*	*1*
p-Terphenyl-d14	*98*		*37 - 165*	*06/10/21 22:01*	*06/17/21 00:41*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		14	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
1-Methylnaphthalene	ND		14	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
1-Methylphenanthrene	ND		14	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,4,5-Trichlorophenol	ND		14	1.7	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,4,6-Trichlorophenol	ND		14	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,4-Dichlorophenol	ND		14	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,4-Dimethylphenol	ND		720	3.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,4-Dinitrophenol	ND		720	87	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2,6-Dimethylnaphthalene	ND		14	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2-Chlorophenol	ND		14	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2-Methylnaphthalene	ND		14	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2-Methylphenol	ND		14	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
2-Nitrophenol	ND		720	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
3/4-Methylphenol	ND		29	5.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
4,6-Dinitro-2-methylphenol	ND		720	96	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
4-Chloro-3-methylphenol	ND		14	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Acenaphthene	ND		14	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Acenaphthylene	**3.8**	**J**	14	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Anthracene	**3.2**	**J**	14	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[a]anthracene	**7.3**	**J**	14	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[a]pyrene	**23**		14	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[b]fluoranthene	**24**		14	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[e]pyrene	**10**	**J**	14	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[g,h,i]perylene	**13**	**J**	14	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Benzo[k]fluoranthene	**23**		14	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Biphenyl	ND		14	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Bis(2-ethylhexyl) phthalate	**21**	**J B**	72	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Butyl benzyl phthalate	**18**	**J**	72	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Chrysene	**7.9**	**J**	14	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Dibenz(a,h)anthracene	ND		14	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Diethyl phthalate	**5.8**	**J B**	72	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Dimethyl phthalate	ND		72	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Di-n-butyl phthalate	**67**	**J B**	72	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Di-n-octyl phthalate	ND		72	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Fluoranthene	**8.6**	**J**	14	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Fluorene	ND		14	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Indeno[1,2,3-cd]pyrene	**13**	**J**	14	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Naphthalene	ND		14	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Pentachlorophenol	ND		720	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Phenanthrene	ND		14	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1
Pyrene	**11**	**J**	14	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*		*32 - 143*	*06/10/21 22:04*	*06/16/21 18:51*	*1*
2-Fluorophenol	*60*		*15 - 138*	*06/10/21 22:04*	*06/16/21 18:51*	*1*
Nitrobenzene-d5	*68*		*18 - 162*	*06/10/21 22:04*	*06/16/21 18:51*	*1*
Phenol-d6	*62*		*17 - 141*	*06/10/21 22:04*	*06/16/21 18:51*	*1*
p-Terphenyl-d14	*66*		*34 - 148*	*06/10/21 22:04*	*06/16/21 18:51*	*1*
2-Fluorobiphenyl (Surr)	*64*		*14 - 146*	*06/10/21 22:04*	*06/16/21 18:51*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		18	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
1-Methylnaphthalene	ND		18	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
1-Methylphenanthrene	ND		18	3.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,4,5-Trichlorophenol	ND		18	2.1	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,4,6-Trichlorophenol	ND		18	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,4-Dichlorophenol	ND		18	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,4-Dimethylphenol	ND		890	4.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,4-Dinitrophenol	ND		890	110	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2,6-Dimethylnaphthalene	**23**		18	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2-Chlorophenol	ND		18	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2-Methylnaphthalene	ND		18	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2-Methylphenol	ND		18	3.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
2-Nitrophenol	ND		890	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
3/4-Methylphenol	ND		36	6.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
4,6-Dinitro-2-methylphenol	ND		890	120	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
4-Chloro-3-methylphenol	ND		18	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Acenaphthene	ND		18	2.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Acenaphthylene	**63**		18	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Anthracene	**54**		18	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[a]anthracene	**66**		18	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[a]pyrene	**500**		18	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[b]fluoranthene	**500**		18	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[e]pyrene	**280**		18	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[g,h,i]perylene	**270**		18	2.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Benzo[k]fluoranthene	**500**		18	2.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Biphenyl	ND		18	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Bis(2-ethylhexyl) phthalate	**300**	**B**	89	2.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Butyl benzyl phthalate	**54**	**J**	89	3.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Chrysene	**110**		18	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Dibenz(a,h)anthracene	**80**		18	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Diethyl phthalate	**11**	**J B**	89	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Dimethyl phthalate	ND		89	3.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Di-n-butyl phthalate	**44**	**J B**	89	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Di-n-octyl phthalate	ND		89	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Fluoranthene	**68**		18	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Fluorene	ND		18	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Indeno[1,2,3-cd]pyrene	**250**		18	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Naphthalene	**5.7**	**J**	18	2.7	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Pentachlorophenol	ND		890	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Phenanthrene	**15**	**J**	18	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1
Pyrene	**150**		18	2.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*74*		*32 - 143*	*06/10/21 22:04*	*06/16/21 19:09*	*1*
2-Fluorophenol	*45*		*15 - 138*	*06/10/21 22:04*	*06/16/21 19:09*	*1*
Nitrobenzene-d5	*52*		*18 - 162*	*06/10/21 22:04*	*06/16/21 19:09*	*1*
Phenol-d6	*49*		*17 - 141*	*06/10/21 22:04*	*06/16/21 19:09*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/10/21 22:04*	*06/16/21 19:09*	*1*
2-Fluorobiphenyl (Surr)	*61*		*14 - 146*	*06/10/21 22:04*	*06/16/21 19:09*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		12	2.1	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
1-Methylnaphthalene	ND		12	1.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
1-Methylphenanthrene	ND		12	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,4,5-Trichlorophenol	ND		12	1.4	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,4,6-Trichlorophenol	ND		12	1.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,4-Dichlorophenol	ND		12	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,4-Dimethylphenol	ND		580	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,4-Dinitrophenol	ND	F2	580	70	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2,6-Dimethylnaphthalene	ND		12	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2-Chlorophenol	ND		12	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2-Methylnaphthalene	ND		12	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2-Methylphenol	ND		12	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
2-Nitrophenol	ND		580	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
3/4-Methylphenol	ND		23	4.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
4,6-Dinitro-2-methylphenol	ND		580	78	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
4-Chloro-3-methylphenol	ND		12	2.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Acenaphthene	ND		12	1.8	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Acenaphthylene	ND		12	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Anthracene	ND		12	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[a]anthracene	ND		12	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[a]pyrene	ND		12	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[b]fluoranthene	ND		12	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[e]pyrene	ND		12	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[g,h,i]perylene	ND		12	1.8	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Benzo[k]fluoranthene	ND		12	1.8	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Biphenyl	ND		12	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Bis(2-ethylhexyl) phthalate	**14**	**J B**	58	1.8	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Butyl benzyl phthalate	**13**	**J**	58	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Chrysene	ND		12	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Dibenz(a,h)anthracene	ND		12	1.6	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Diethyl phthalate	**4.0**	**J B**	58	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Dimethyl phthalate	ND		58	2.3	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Di-n-butyl phthalate	**23**	**J B**	58	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Di-n-octyl phthalate	ND		58	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Fluoranthene	ND		12	2.1	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Fluorene	ND		12	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Indeno[1,2,3-cd]pyrene	ND		12	1.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Naphthalene	ND		12	1.8	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Pentachlorophenol	ND		580	1.5	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Phenanthrene	ND		12	2.0	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1
Pyrene	ND		12	1.9	ug/Kg	☼	06/10/21 22:04	06/16/21 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*72*		*32 - 143*	*06/10/21 22:04*	*06/16/21 19:28*	*1*
2-Fluorophenol	*59*		*15 - 138*	*06/10/21 22:04*	*06/16/21 19:28*	*1*
Nitrobenzene-d5	*66*		*18 - 162*	*06/10/21 22:04*	*06/16/21 19:28*	*1*
Phenol-d6	*61*		*17 - 141*	*06/10/21 22:04*	*06/16/21 19:28*	*1*
p-Terphenyl-d14	*61*		*34 - 148*	*06/10/21 22:04*	*06/16/21 19:28*	*1*
2-Fluorobiphenyl (Surr)	*63*		*14 - 146*	*06/10/21 22:04*	*06/16/21 19:28*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		91	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
1-Methylnaphthalene	ND		91	10	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
1-Methylphenanthrene	ND		91	18	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,4,5-Trichlorophenol	ND		91	11	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,4,6-Trichlorophenol	ND		91	12	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,4-Dichlorophenol	ND		91	19	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,4-Dimethylphenol	ND		4600	24	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,4-Dinitrophenol	ND		4600	550	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2,6-Dimethylnaphthalene	ND		91	19	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2-Chlorophenol	ND		91	17	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2-Methylnaphthalene	ND		91	15	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2-Methylphenol	ND		91	18	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
2-Nitrophenol	ND		4600	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
3/4-Methylphenol	ND		180	33	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
4,6-Dinitro-2-methylphenol	ND		4600	600	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
4-Chloro-3-methylphenol	ND		91	19	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Acenaphthene	ND		91	14	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Acenaphthylene	**48**	**J**	91	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Anthracene	**38**	**J**	91	17	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[a]anthracene	**59**	**J**	91	13	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[a]pyrene	**320**		91	13	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[b]fluoranthene	**330**		91	13	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[e]pyrene	**170**		91	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[g,h,i]perylene	**160**		91	14	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Benzo[k]fluoranthene	**300**		91	14	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Biphenyl	ND		91	17	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Bis(2-ethylhexyl) phthalate	**320**	**J B**	460	14	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Butyl benzyl phthalate	**60**	**J**	460	18	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Chrysene	**78**	**J**	91	13	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Dibenz(a,h)anthracene	**56**	**J**	91	13	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Diethyl phthalate	ND		460	15	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Dimethyl phthalate	ND		460	18	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Di-n-butyl phthalate	**49**	**J B**	460	17	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Di-n-octyl phthalate	ND		460	17	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Fluoranthene	**60**	**J**	91	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Fluorene	ND		91	15	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Indeno[1,2,3-cd]pyrene	**160**		91	12	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Naphthalene	ND		91	14	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Pentachlorophenol	ND		4600	12	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Phenanthrene	ND		91	16	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5
Pyrene	**83**	**J**	91	15	ug/Kg	☼	06/10/21 22:04	06/16/21 19:47	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*73*		*32 - 143*	*06/10/21 22:04*	*06/16/21 19:47*	*5*
2-Fluorophenol	*49*		*15 - 138*	*06/10/21 22:04*	*06/16/21 19:47*	*5*
Nitrobenzene-d5	*55*		*18 - 162*	*06/10/21 22:04*	*06/16/21 19:47*	*5*
Phenol-d6	*53*		*17 - 141*	*06/10/21 22:04*	*06/16/21 19:47*	*5*
p-Terphenyl-d14	*69*		*34 - 148*	*06/10/21 22:04*	*06/16/21 19:47*	*5*
2-Fluorobiphenyl (Surr)	*64*		*14 - 146*	*06/10/21 22:04*	*06/16/21 19:47*	*5*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		19	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
1-Methylnaphthalene	ND		19	2.1	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
1-Methylphenanthrene	ND		19	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,4,5-Trichlorophenol	ND		19	2.2	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,4,6-Trichlorophenol	ND		19	2.4	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,4-Dichlorophenol	ND		19	3.9	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,4-Dimethylphenol	ND		930	4.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,4-Dinitrophenol	ND		930	110	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2,6-Dimethylnaphthalene	**20**		19	3.9	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2-Chlorophenol	ND		19	3.5	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2-Methylnaphthalene	**4.1**	**J**	19	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2-Methylphenol	ND		19	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
2-Nitrophenol	ND		930	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
3/4-Methylphenol	ND		37	6.7	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
4,6-Dinitro-2-methylphenol	ND		930	120	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
4-Chloro-3-methylphenol	ND		19	3.9	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Acenaphthene	**4.6**	**J**	19	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Acenaphthylene	**83**		19	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Anthracene	**74**		19	3.5	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[a]anthracene	**100**		19	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[a]pyrene	**610**		19	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[b]fluoranthene	**600**		19	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[e]pyrene	**330**		19	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[g,h,i]perylene	**260**		19	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Benzo[k]fluoranthene	**560**		19	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Biphenyl	ND		19	3.5	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Bis(2-ethylhexyl) phthalate	**350**	**B**	93	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Butyl benzyl phthalate	**48**	**J**	93	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Chrysene	**150**		19	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Dibenz(a,h)anthracene	**90**		19	2.6	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Diethyl phthalate	**11**	**J B**	93	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Dimethyl phthalate	**5.8**	**J**	93	3.7	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Di-n-butyl phthalate	**61**	**J B**	93	3.5	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Di-n-octyl phthalate	ND		93	3.5	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Fluoranthene	**110**		19	3.4	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Fluorene	**4.6**	**J**	19	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Indeno[1,2,3-cd]pyrene	**270**		19	2.4	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Naphthalene	**6.0**	**J**	19	2.8	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Pentachlorophenol	ND		930	2.4	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Phenanthrene	**21**		19	3.2	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1
Pyrene	**130**		19	3.0	ug/Kg	☼	06/10/21 22:04	06/16/21 20:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*86*		*32 - 143*	*06/10/21 22:04*	*06/16/21 20:05*	*1*
2-Fluorophenol	*51*		*15 - 138*	*06/10/21 22:04*	*06/16/21 20:05*	*1*
Nitrobenzene-d5	*58*		*18 - 162*	*06/10/21 22:04*	*06/16/21 20:05*	*1*
Phenol-d6	*57*		*17 - 141*	*06/10/21 22:04*	*06/16/21 20:05*	*1*
p-Terphenyl-d14	*70*		*34 - 148*	*06/10/21 22:04*	*06/16/21 20:05*	*1*
2-Fluorobiphenyl (Surr)	*68*		*14 - 146*	*06/10/21 22:04*	*06/16/21 20:05*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.73	0.67	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Bifenthrin	ND		0.73	0.27	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Cyfluthrin	ND		0.73	0.33	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Cypermethrin	ND		0.73	0.23	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Deltamethrin/Tralomethrin	ND		0.73	0.38	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Fenpropathrin	ND		0.73	0.25	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Fenvalerate/Esfenvalerate	ND		0.73	0.26	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Fluvalinate	ND		0.73	0.24	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Lambda cyhalothrin	ND		0.73	0.47	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Permethrins (cis/trans)	ND		1.5	0.23	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Phenothrin	ND		0.73	0.28	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Resmethrin/Bioresmethrin	ND		0.73	0.33	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1
Tetramethrin	ND		0.73	0.15	ug/Kg	☼	06/10/21 22:05	06/17/21 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*125*	*S1+*	*14 - 116*	*06/10/21 22:05*	*06/17/21 20:32*	*1*

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.90	0.83	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Bifenthrin	ND		0.90	0.34	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Cyfluthrin	ND		0.90	0.41	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Cypermethrin	ND		0.90	0.29	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Deltamethrin/Tralomethrin	ND		0.90	0.47	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Fenpropathrin	ND		0.90	0.31	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Fenvalerate/Esfenvalerate	ND		0.90	0.33	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Fluvalinate	ND		0.90	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Lambda cyhalothrin	ND		0.90	0.59	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Permethrins (cis/trans)	ND		1.8	0.29	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Phenothrin	ND		0.90	0.35	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Resmethrin/Bioresmethrin	ND		0.90	0.41	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1
Tetramethrin	ND		0.90	0.18	ug/Kg	☼	06/10/21 22:05	06/17/21 21:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*105*		*14 - 116*	*06/10/21 22:05*	*06/17/21 21:09*	*1*

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.58	0.54	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Bifenthrin	ND		0.58	0.22	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Cyfluthrin	ND	F1	0.58	0.26	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Cypermethrin	ND	F1	0.58	0.19	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Deltamethrin/Tralomethrin	ND		0.58	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Fenpropathrin	ND		0.58	0.20	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Fenvalerate/Esfenvalerate	ND	F1	0.58	0.21	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Fluvalinate	ND	F1	0.58	0.19	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND	F1	0.58	0.38	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Permethrins (cis/trans)	ND	F1	1.2	0.19	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Phenothrin	ND		0.58	0.23	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Resmethrin/Bioresmethrin	ND		0.58	0.26	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1
Tetramethrin	ND		0.58	0.12	ug/Kg	☼	06/10/21 22:05	06/17/21 21:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*106*		*14 - 116*	*06/10/21 22:05*	*06/17/21 21:46*	*1*

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.92	0.85	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Bifenthrin	ND		0.92	0.34	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Cyfluthrin	ND		0.92	0.41	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Cypermethrin	ND		0.92	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Deltamethrin/Tralomethrin	ND		0.92	0.48	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Fenpropathrin	ND		0.92	0.32	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Fenvalerate/Esfenvalerate	ND		0.92	0.33	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Fluvalinate	ND		0.92	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Lambda cyhalothrin	ND		0.92	0.60	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Permethrins (cis/trans)	ND		1.8	0.29	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Phenothrin	ND		0.92	0.36	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Resmethrin/Bioresmethrin	ND		0.92	0.41	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1
Tetramethrin	ND		0.92	0.19	ug/Kg	☼	06/10/21 22:05	06/17/21 22:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*104*		*14 - 116*	*06/10/21 22:05*	*06/17/21 22:23*	*1*

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.93	0.86	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Bifenthrin	ND		0.93	0.35	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Cyfluthrin	ND		0.93	0.42	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Cypermethrin	ND		0.93	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Deltamethrin/Tralomethrin	ND		0.93	0.48	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Fenpropathrin	ND		0.93	0.32	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Fenvalerate/Esfenvalerate	ND		0.93	0.34	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Fluvalinate	ND		0.93	0.31	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Lambda cyhalothrin	ND		0.93	0.61	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Permethrins (cis/trans)	ND		1.9	0.30	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Phenothrin	ND		0.93	0.37	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Resmethrin/Bioresmethrin	ND		0.93	0.42	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1
Tetramethrin	ND		0.93	0.19	ug/Kg	☼	06/10/21 22:05	06/17/21 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*92*		*14 - 116*	*06/10/21 22:05*	*06/17/21 23:00*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.2	1.1	ug/Kg	☼	06/10/21 11:05	06/10/21 19:46	1
Tributyltin	ND		4.2	2.1	ug/Kg	☼	06/10/21 11:05	06/10/21 19:46	1
Dibutyltin	**2.1**	**J *1**	4.2	1.0	ug/Kg	☼	06/10/21 11:05	06/10/21 19:46	1
Monobutyltin	ND	*- *1	4.2	2.0	ug/Kg	☼	06/10/21 11:05	06/10/21 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*54*		*10 - 120*	*06/10/21 11:05*	*06/10/21 19:46*	*1*

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.3	1.3	ug/Kg	☼	06/10/21 11:05	06/10/21 20:04	1
Tributyltin	ND		5.3	2.7	ug/Kg	☼	06/10/21 11:05	06/10/21 20:04	1
Dibutyltin	**21**	***1**	5.3	1.3	ug/Kg	☼	06/10/21 11:05	06/10/21 20:04	1
Monobutyltin	ND	*- *1	5.3	2.5	ug/Kg	☼	06/10/21 11:05	06/10/21 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*57*		*10 - 120*	*06/10/21 11:05*	*06/10/21 20:04*	*1*

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.5	0.87	ug/Kg	☼	06/10/21 11:05	06/10/21 20:21	1
Tributyltin	ND		3.5	1.7	ug/Kg	☼	06/10/21 11:05	06/10/21 20:21	1
Dibutyltin	ND	*1	3.5	0.86	ug/Kg	☼	06/10/21 11:05	06/10/21 20:21	1
Monobutyltin	ND	*- *1	3.5	1.6	ug/Kg	☼	06/10/21 11:05	06/10/21 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*62*		*10 - 120*	*06/10/21 11:05*	*06/10/21 20:21*	*1*

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.5	1.4	ug/Kg	☼	06/10/21 11:05	06/23/21 12:37	1
Tributyltin	ND		5.5	2.7	ug/Kg	☼	06/10/21 11:05	06/23/21 12:37	1
Dibutyltin	**17**	***1**	5.5	1.3	ug/Kg	☼	06/10/21 11:05	06/23/21 12:37	1
Monobutyltin	ND	*- *1	5.5	2.5	ug/Kg	☼	06/10/21 11:05	06/23/21 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*60*		*10 - 120*	*06/10/21 11:05*	*06/23/21 12:37*	*1*

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.5	1.4	ug/Kg	☼	06/10/21 11:05	06/10/21 20:56	1
Tributyltin	ND		5.5	2.7	ug/Kg	☼	06/10/21 11:05	06/10/21 20:56	1
Dibutyltin	**32**	***1**	5.5	1.3	ug/Kg	☼	06/10/21 11:05	06/10/21 20:56	1

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-C11
Lab Sample ID: 570-61397-5
Date Collected: 06/04/21 11:15
Matrix: Sediment
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monobutyltin	ND	*- *1	5.5	2.5	ug/Kg	☼	06/10/21 11:05	06/10/21 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*58*		*10 - 120*	*06/10/21 11:05*	*06/10/21 20:56*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C7 as C7	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C8 as C8	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C9-C10	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C11-C12	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C13-C14	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C15-C16	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C17-C18	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C19-C20	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C21-C22	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C23-C24	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C25-C28	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C29-C32	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C33-C36	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C37-C40	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C41-C44	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1
C6-C44	ND		7.0	5.4	mg/Kg	☼	06/21/21 14:54	06/22/21 07:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*94*		*60 - 138*	*06/21/21 14:54*	*06/22/21 07:43*	*1*

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C7 as C7	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C8 as C8	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C9-C10	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C11-C12	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C13-C14	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C15-C16	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C17-C18	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C19-C20	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C21-C22	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C23-C24	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C25-C28	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C29-C32	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C33-C36	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C37-C40	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C41-C44	ND		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1
C6-C44	**12**		8.7	6.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*91*		*60 - 138*	*06/21/21 14:54*	*06/22/21 08:06*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C7 as C7	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C8 as C8	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C9-C10	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C11-C12	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C13-C14	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C15-C16	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C17-C18	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C19-C20	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C21-C22	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C23-C24	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C25-C28	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C29-C32	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C33-C36	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C37-C40	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C41-C44	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1
C6-C44	ND		6.1	4.7	mg/Kg	☼	06/21/21 14:54	06/22/21 08:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*106*		*60 - 138*	*06/21/21 14:54*	*06/22/21 08:27*	*1*

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C7 as C7	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C8 as C8	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C9-C10	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C11-C12	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C13-C14	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C15-C16	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C17-C18	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C19-C20	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C21-C22	**8.4**	**J**	8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C23-C24	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C25-C28	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C29-C32	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C33-C36	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C37-C40	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C41-C44	ND		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1
C6-C44	**38**		8.8	6.7	mg/Kg	☼	06/21/21 13:39	06/22/21 09:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*06/21/21 13:39*	*06/22/21 09:59*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C7 as C7	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C8 as C8	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C9-C10	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C11-C12	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C13-C14	ND		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C15-C16	**15**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C17-C18	**20**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C19-C20	**38**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C21-C22	**39**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C23-C24	**31**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C25-C28	**78**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C29-C32	**77**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C33-C36	**55**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C37-C40	**38**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C41-C44	**26**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1
C6-C44	**430**		9.3	7.1	mg/Kg	☼	06/18/21 18:20	06/21/21 20:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*135*		*60 - 138*	*06/18/21 18:20*	*06/21/21 20:48*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.4	0.093	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
4,4'-DDD	ND		1.4	0.72	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
2,4'-DDE	ND		2.9	0.14	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
4,4'-DDE	ND		1.4	0.10	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
2,4'-DDT	ND		1.4	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
4,4'-DDT	ND		1.4	0.26	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Aldrin	ND		1.4	0.10	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
alpha-BHC	ND		1.4	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
beta-BHC	ND		1.4	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Chlordane	ND		7.2	0.47	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
delta-BHC	ND		1.4	0.093	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Dieldrin	ND		0.29	0.096	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
alpha-Chlordane	ND		1.4	0.067	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endosulfan I	ND	*+	1.4	0.070	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endosulfan II	ND		1.4	0.33	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endosulfan sulfate	ND		1.4	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endrin	ND		1.4	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
cis-Nonachlor	ND		1.4	0.069	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endrin aldehyde	ND		1.4	0.71	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Endrin ketone	ND		1.4	0.28	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
gamma-BHC	ND	*+ *1	1.4	0.15	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Heptachlor	ND		1.4	0.086	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Heptachlor epoxide	ND		1.4	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Methoxychlor	ND		1.4	0.24	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Toxaphene	ND		7.2	1.4	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
gamma-Chlordane	ND		1.4	0.51	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
Oxychlordane	ND		1.4	0.22	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1
trans-Nonachlor	ND		1.4	0.054	ug/Kg	☼	06/10/21 22:09	06/17/21 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*20 - 131*	*06/10/21 22:09*	*06/17/21 12:04*	*1*
DCB Decachlorobiphenyl (Surr)	*86*		*20 - 180*	*06/10/21 22:09*	*06/17/21 12:04*	*1*

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.8	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
4,4'-DDD	ND		1.8	0.90	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
2,4'-DDE	ND		3.6	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
4,4'-DDE	**4.0**	**p**	1.8	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
2,4'-DDT	ND		1.8	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
4,4'-DDT	ND		1.8	0.32	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Aldrin	ND		1.8	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
alpha-BHC	ND		1.8	0.14	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
beta-BHC	ND		1.8	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Chlordane	ND		9.0	0.59	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
delta-BHC	ND		1.8	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Dieldrin	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
alpha-Chlordane	ND		1.8	0.083	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND	*+	1.8	0.088	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Endosulfan II	ND		1.8	0.41	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Endosulfan sulfate	ND		1.8	0.20	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Endrin	ND		1.8	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
cis-Nonachlor	ND		1.8	0.085	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Endrin aldehyde	ND		1.8	0.88	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Endrin ketone	ND		1.8	0.34	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
gamma-BHC	ND	*+ *1	1.8	0.19	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Heptachlor	ND		1.8	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Heptachlor epoxide	ND		1.8	0.15	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Methoxychlor	ND		1.8	0.30	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Toxaphene	ND		9.0	1.8	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
gamma-Chlordane	ND		1.8	0.63	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
Oxychlordane	ND		1.8	0.27	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1
trans-Nonachlor	ND		1.8	0.067	ug/Kg	☼	06/10/21 22:09	06/17/21 12:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*20 - 131*	*06/10/21 22:09*	*06/17/21 12:18*	*1*
DCB Decachlorobiphenyl (Surr)	*148*		*20 - 180*	*06/10/21 22:09*	*06/17/21 12:18*	*1*

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.2	0.075	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
4,4'-DDD	ND		1.2	0.58	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
2,4'-DDE	ND		2.3	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
4,4'-DDE	ND		1.2	0.083	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
2,4'-DDT	ND		1.2	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
4,4'-DDT	ND		1.2	0.21	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Aldrin	ND		1.2	0.084	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
alpha-BHC	ND		1.2	0.094	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
beta-BHC	ND		1.2	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Chlordane	ND		5.8	0.38	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
delta-BHC	ND		1.2	0.075	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Dieldrin	ND		0.23	0.077	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
alpha-Chlordane	ND		1.2	0.054	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endosulfan I	ND	*+	1.2	0.057	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endosulfan II	ND		1.2	0.26	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endosulfan sulfate	ND		1.2	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endrin	ND		1.2	0.10	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
cis-Nonachlor	ND		1.2	0.055	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endrin aldehyde	ND		1.2	0.57	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Endrin ketone	ND		1.2	0.22	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
gamma-BHC	ND	*+ *1	1.2	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Heptachlor	ND		1.2	0.070	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Heptachlor epoxide	ND		1.2	0.10	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Methoxychlor	ND		1.2	0.19	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
Toxaphene	ND		5.8	1.2	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
gamma-Chlordane	ND		1.2	0.41	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		1.2	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1
trans-Nonachlor	ND		1.2	0.044	ug/Kg	☼	06/10/21 22:09	06/17/21 10:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*74*		*20 - 131*	*06/10/21 22:09*	*06/17/21 10:24*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 180*	*06/10/21 22:09*	*06/17/21 10:24*	*1*

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.8	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
4,4'-DDD	ND		1.8	0.91	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
2,4'-DDE	ND		3.6	0.18	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
4,4'-DDE	**1.8**	**p**	1.8	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
2,4'-DDT	ND		1.8	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
4,4'-DDT	ND		1.8	0.32	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Aldrin	ND		1.8	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
alpha-BHC	ND		1.8	0.15	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
beta-BHC	ND		1.8	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Chlordane	ND		9.1	0.59	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
delta-BHC	ND		1.8	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Dieldrin	ND		0.36	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
alpha-Chlordane	ND		1.8	0.084	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endosulfan I	ND	*+	1.8	0.088	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endosulfan II	ND		1.8	0.41	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endosulfan sulfate	ND		1.8	0.20	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endrin	ND		1.8	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
cis-Nonachlor	ND		1.8	0.086	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endrin aldehyde	ND		1.8	0.89	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Endrin ketone	ND		1.8	0.35	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
gamma-BHC	ND	*+ *1	1.8	0.19	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Heptachlor	ND		1.8	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Heptachlor epoxide	ND		1.8	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Methoxychlor	ND		1.8	0.30	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Toxaphene	ND		9.1	1.8	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
gamma-Chlordane	ND		1.8	0.64	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
Oxychlordane	ND		1.8	0.27	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1
trans-Nonachlor	ND		1.8	0.068	ug/Kg	☼	06/10/21 22:09	06/17/21 12:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*20 - 131*	*06/10/21 22:09*	*06/17/21 12:32*	*1*
DCB Decachlorobiphenyl (Surr)	*124*		*20 - 180*	*06/10/21 22:09*	*06/17/21 12:32*	*1*

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.9	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
4,4'-DDD	ND		1.9	0.93	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDE	ND		3.7	0.18	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
4,4'-DDE	**1.8**	**J p**	1.9	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
2,4'-DDT	ND		1.9	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
4,4'-DDT	ND		1.9	0.33	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Aldrin	ND		1.9	0.13	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
alpha-BHC	ND		1.9	0.15	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
beta-BHC	ND		1.9	0.17	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Chlordane	ND		9.3	0.61	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
delta-BHC	ND		1.9	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Dieldrin	ND		0.37	0.12	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
alpha-Chlordane	ND		1.9	0.086	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endosulfan I	ND	*+	1.9	0.090	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endosulfan II	ND		1.9	0.42	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endosulfan sulfate	ND		1.9	0.20	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endrin	ND		1.9	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
cis-Nonachlor	ND		1.9	0.088	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endrin aldehyde	ND		1.9	0.91	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Endrin ketone	ND		1.9	0.35	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
gamma-BHC	ND	*+ *1	1.9	0.20	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Heptachlor	ND		1.9	0.11	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Heptachlor epoxide	ND		1.9	0.16	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Methoxychlor	ND		1.9	0.30	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Toxaphene	ND		9.3	1.9	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
gamma-Chlordane	ND		1.9	0.65	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
Oxychlordane	ND		1.9	0.28	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1
trans-Nonachlor	ND		1.9	0.069	ug/Kg	☼	06/10/21 22:09	06/17/21 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*20 - 131*	*06/10/21 22:09*	*06/17/21 12:47*	*1*
DCB Decachlorobiphenyl (Surr)	*139*		*20 - 180*	*06/10/21 22:09*	*06/17/21 12:47*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		14	8.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1221	ND		14	8.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1232	ND		14	8.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1242	ND		14	8.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1248	**11**	**J**	14	8.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1254	**9.8**	**J**	14	7.2	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1260	**10**	**J**	14	7.2	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1262	ND		14	7.2	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1
Aroclor-1268	ND		14	7.2	ug/Kg	☼	06/10/21 22:09	06/17/21 13:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*86*		*20 - 155*	*06/10/21 22:09*	*06/17/21 13:41*	*1*
Tetrachloro-m-xylene (Surr)	*69*		*25 - 126*	*06/10/21 22:09*	*06/17/21 13:41*	*1*

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1221	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1232	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1242	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1248	**52**		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1254	**98**		18	9.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1260	**130**		18	9.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1262	ND		18	9.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1
Aroclor-1268	ND		18	9.0	ug/Kg	☼	06/10/21 22:09	06/17/21 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*150*		*20 - 155*	*06/10/21 22:09*	*06/17/21 13:59*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*25 - 126*	*06/10/21 22:09*	*06/17/21 13:59*	*1*

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		12	6.4	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1221	ND		12	6.4	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1232	ND		12	6.4	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1242	ND		12	6.4	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1248	ND		12	6.4	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1254	ND		12	5.8	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1260	ND		12	5.8	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1262	ND		12	5.8	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1
Aroclor-1268	ND		12	5.8	ug/Kg	☼	06/10/21 22:09	06/17/21 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*90*		*20 - 155*	*06/10/21 22:09*	*06/17/21 14:17*	*1*
Tetrachloro-m-xylene (Surr)	*76*		*25 - 126*	*06/10/21 22:09*	*06/17/21 14:17*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1221	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1232	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1242	ND		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1248	**40**		18	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1254	**90**		18	9.1	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1260	**100**		18	9.1	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1262	ND		18	9.1	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1
Aroclor-1268	ND		18	9.1	ug/Kg	☼	06/10/21 22:09	06/17/21 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*142*		*20 - 155*	*06/10/21 22:09*	*06/17/21 14:35*	*1*
Tetrachloro-m-xylene (Surr)	*67*		*25 - 126*	*06/10/21 22:09*	*06/17/21 14:35*	*1*

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		19	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1221	ND		19	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1232	ND		19	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1242	ND		19	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1248	**42**		19	10	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1254	**130**		19	9.3	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1260	**140**		19	9.3	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1262	ND		19	9.3	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1
Aroclor-1268	ND		19	9.3	ug/Kg	☼	06/10/21 22:09	06/17/21 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*154*		*20 - 155*	*06/10/21 22:09*	*06/17/21 14:53*	*1*
Tetrachloro-m-xylene (Surr)	*71*		*25 - 126*	*06/10/21 22:09*	*06/17/21 14:53*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-A-C1 — **Lab Sample ID: 570-61397-1**
Date Collected: 06/08/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		580	300	ug/Kg	☼	06/10/21 16:02	06/11/21 03:54	10

Client Sample ID: FDD-B-C1 — **Lab Sample ID: 570-61397-2**
Date Collected: 06/08/21 07:30 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		720	370	ug/Kg	☼	06/10/21 16:02	06/11/21 04:05	10

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		470	240	ug/Kg	☼	06/10/21 16:02	06/11/21 04:16	10

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**460**	**J**	740	380	ug/Kg	☼	06/10/21 16:02	06/11/21 04:26	10

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		740	390	ug/Kg	☼	06/10/21 16:02	06/11/21 04:37	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.82	0.393	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Arsenic	**1.51**		1.41	0.470	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Barium	**121**	**F1**	1.41	0.293	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Beryllium	**0.291**	**J**	1.41	0.291	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Cadmium	ND		1.41	0.634	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Chromium	**15.2**		2.82	0.422	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Cobalt	**8.54**		1.41	0.266	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Copper	**24.8**		1.41	0.379	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Lead	**5.78**		1.41	0.303	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Molybdenum	ND	F1	1.41	0.434	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Nickel	**7.37**		1.41	0.380	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Selenium	ND		1.41	0.818	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Silver	ND	F1	1.41	0.466	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Thallium	ND		1.41	0.308	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Vanadium	**39.3**		2.82	0.341	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20
Zinc	**51.5**		7.04	6.50	mg/Kg	☼	06/18/21 12:40	06/21/21 12:32	20

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.71	0.517	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Arsenic	**8.73**		1.85	0.619	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Barium	**102**		1.85	0.385	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Beryllium	**0.555**	**J**	1.85	0.384	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Cadmium	**1.35**	**J**	1.85	0.834	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Chromium	**62.2**		3.71	0.556	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Cobalt	**8.42**		1.85	0.350	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Copper	**235**		1.85	0.498	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Lead	**101**		1.85	0.398	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Molybdenum	**0.934**	**J**	1.85	0.571	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Nickel	**13.0**		1.85	0.500	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Selenium	ND		1.85	1.08	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Silver	**1.26**	**J**	1.85	0.613	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Thallium	ND		1.85	0.406	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Vanadium	**56.5**		3.71	0.448	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20
Zinc	**309**		9.26	8.55	mg/Kg	☼	06/18/21 12:40	06/21/21 12:44	20

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.42	0.337	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Arsenic	**0.588**	**J**	1.21	0.404	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Barium	**25.0**		1.21	0.251	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Beryllium	ND		1.21	0.250	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Cadmium	ND		1.21	0.544	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Chromium	**4.70**		2.42	0.362	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Cobalt	**1.90**		1.21	0.228	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Copper	**3.78**		1.21	0.325	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.878	J	1.21	0.260	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Molybdenum	ND		1.21	0.372	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Nickel	2.05		1.21	0.326	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Selenium	ND		1.21	0.702	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Silver	ND		1.21	0.400	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Thallium	ND		1.21	0.265	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Vanadium	16.5		2.42	0.292	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20
Zinc	11.6		6.04	5.58	mg/Kg	☼	06/18/21 12:40	06/21/21 12:54	20

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.78	0.527	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Arsenic	6.18		1.89	0.631	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Barium	89.9		1.89	0.393	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Beryllium	0.464	J	1.89	0.391	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Cadmium	ND		1.89	0.850	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Chromium	42.6		3.78	0.566	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Cobalt	7.50		1.89	0.357	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Copper	139		1.89	0.508	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Lead	42.1		1.89	0.406	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Molybdenum	ND		1.89	0.582	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Nickel	10.2		1.89	0.510	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Selenium	ND		1.89	1.10	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Silver	0.806	J	1.89	0.625	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Thallium	ND		1.89	0.413	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Vanadium	48.2		3.78	0.457	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20
Zinc	201		9.44	8.72	mg/Kg	☼	06/18/21 12:40	06/21/21 12:57	20

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.93	0.548	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Arsenic	9.08		1.96	0.656	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Barium	146		1.96	0.409	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Beryllium	0.769	J	1.96	0.407	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Cadmium	1.36	J	1.96	0.884	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Chromium	70.1		3.93	0.589	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Cobalt	11.7		1.96	0.371	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Copper	226		1.96	0.528	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Lead	72.4		1.96	0.422	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Molybdenum	0.820	J	1.96	0.605	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Nickel	17.4		1.96	0.530	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Selenium	1.25	J	1.96	1.14	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Silver	0.826	J	1.96	0.650	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Thallium	0.458	J	1.96	0.430	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Vanadium	76.1		3.93	0.475	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20
Zinc	314		9.82	9.07	mg/Kg	☼	06/18/21 12:40	06/21/21 13:00	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-C1 — **Lab Sample ID: 570-61397-1**
Date Collected: 06/08/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.122	J	0.124	0.0200	mg/Kg	☼	06/18/21 12:05	06/21/21 13:53	1

Client Sample ID: FDD-B-C1 — **Lab Sample ID: 570-61397-2**
Date Collected: 06/08/21 07:30 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.02		0.151	0.0244	mg/Kg	☼	06/18/21 12:05	06/21/21 13:55	1

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0982	0.0159	mg/Kg	☼	06/18/21 12:05	06/21/21 14:01	1

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.689		0.147	0.0238	mg/Kg	☼	06/18/21 12:05	06/21/21 14:02	1

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.06		0.159	0.0258	mg/Kg	☼	06/18/21 12:05	06/21/21 14:04	1

General Chemistry

Client Sample ID: FDD-A-C1 — **Lab Sample ID: 570-61397-1**
Date Collected: 06/08/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	63.1		14.6	11.5	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	38.9		14.6	11.8	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
Total Sulfide	13.8		7.10	5.97	mg/Kg	☼	06/10/21 10:00	06/10/21 19:25	50
Trivalent Chromium	15.2		2.91	0.437	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	0.157		0.0729	0.0253	%	☼		06/10/21 15:32	1
Percent Solids	68.6		0.1	0.1	%			06/10/21 10:33	1
Ammonia (as N)	15.1		0.729	0.401	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C1 — **Lab Sample ID: 570-61397-2**
Date Collected: 06/08/21 07:30 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	114		18.0	14.2	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	60.2		18.0	14.6	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
Total Sulfide	77.0		17.1	14.4	mg/Kg	☼	06/10/21 10:00	06/10/21 19:27	100
Trivalent Chromium	62.2		3.61	0.542	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.34		0.0903	0.0314	%	☼		06/10/21 15:32	1
Percent Solids	55.4		0.1	0.1	%			06/10/21 10:33	1
Ammonia (as N)	11.6		0.903	0.497	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	50.9		11.8	9.26	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	23.5		11.8	9.51	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
Total Sulfide	0.884		0.117	0.0985	mg/Kg	☼	06/10/21 10:00	06/10/21 19:30	1
Trivalent Chromium	4.70		2.36	0.353	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	ND		0.0589	0.0205	%	☼		06/10/21 15:32	1
Percent Solids	84.9		0.1	0.1	%			06/10/21 10:33	1
Ammonia (as N)	7.19		0.589	0.324	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	123		18.5	14.6	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	55.5		18.5	15.0	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
Total Sulfide	52.8		18.4	15.4	mg/Kg	☼	06/10/21 10:00	06/10/21 19:31	100
Trivalent Chromium	42.1		3.70	0.555	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.19		0.0925	0.0321	%	☼		06/10/21 15:32	1
Percent Solids	54.0		0.1	0.1	%			06/10/21 10:33	1
Ammonia (as N)	9.95		0.925	0.509	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	131		18.7	14.8	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	62.5		18.7	15.2	mg/Kg	☼	06/11/21 14:53	06/12/21 14:54	1

General Chemistry (Continued)

Client Sample ID: FDD-B-C11
Lab Sample ID: 570-61397-5
Date Collected: 06/04/21 11:15
Matrix: Sediment
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	39.1		18.1	15.2	mg/Kg	☼	06/10/21 10:00	06/10/21 19:32	100
Trivalent Chromium	70.1		3.75	0.563	mg/Kg	☼		06/15/21 16:58	1
Carbon, Total Organic	1.14		0.0938	0.0326	%	☼		06/10/21 15:32	1
Percent Solids	53.3		0.1	0.1	%			06/10/21 10:33	1
Ammonia (as N)	11.1		0.938	0.516	mg/Kg	☼	06/16/21 19:05	06/17/21 21:44	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry - Soluble

Client Sample ID: FDD-A-C1 — **Lab Sample ID: 570-61397-1**
Date Collected: 06/08/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0998	0.0838	mg/Kg			06/10/21 19:47	1

Client Sample ID: FDD-B-C1 — **Lab Sample ID: 570-61397-2**
Date Collected: 06/08/21 07:30 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/10/21 19:48	1

Client Sample ID: FDD-C-C6 — **Lab Sample ID: 570-61397-3**
Date Collected: 06/08/21 08:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0842	mg/Kg			06/10/21 19:51	1

Client Sample ID: FDD-B-C12 — **Lab Sample ID: 570-61397-4**
Date Collected: 06/07/21 13:45 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0841	mg/Kg			06/10/21 19:52	1

Client Sample ID: FDD-B-C11 — **Lab Sample ID: 570-61397-5**
Date Collected: 06/04/21 11:15 — **Matrix: Sediment**
Date Received: 06/09/21 19:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0842	mg/Kg			06/10/21 19:53	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-A-C1
Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	6.22		0.01	0.01	%			06/16/21 15:27	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/16/21 15:27	1
Fine Sand (0.125 to 0.25mm)	28.82		0.01	0.01	%			06/16/21 15:27	1
Gravel (greater than 2 mm)	6.10		0.01	0.01	%			06/16/21 15:27	1
Medium Sand (0.25 to 0.5 mm)	4.14		0.01	0.01	%			06/16/21 15:27	1
Silt (0.00391 to 0.0625mm)	32.35		0.01	0.01	%			06/16/21 15:27	1
Total Silt and Clay (0 to 0.0626mm)	38.58		0.01	0.01	%			06/16/21 15:27	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/16/21 15:27	1
Very Fine Sand (0.0625 to 0.125 mm)	22.37		0.01	0.01	%			06/16/21 15:27	1

Client Sample ID: FDD-B-C1
Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	21.57		0.01	0.01	%			06/16/21 15:34	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/16/21 15:34	1
Fine Sand (0.125 to 0.25mm)	4.21		0.01	0.01	%			06/16/21 15:34	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/16/21 15:34	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/16/21 15:34	1
Silt (0.00391 to 0.0625mm)	59.31		0.01	0.01	%			06/16/21 15:34	1
Total Silt and Clay (0 to 0.0626mm)	80.89		0.01	0.01	%			06/16/21 15:34	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/16/21 15:34	1
Very Fine Sand (0.0625 to 0.125 mm)	14.90		0.01	0.01	%			06/16/21 15:34	1

Client Sample ID: FDD-C-C6
Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	0.77		0.01	0.01	%			06/16/21 16:25	1
Coarse Sand (0.5mm to 1mm)	31.09		0.01	0.01	%			06/16/21 16:25	1
Fine Sand (0.125 to 0.25mm)	14.72		0.01	0.01	%			06/16/21 16:25	1
Gravel (greater than 2 mm)	7.86		0.01	0.01	%			06/16/21 16:25	1
Medium Sand (0.25 to 0.5 mm)	31.22		0.01	0.01	%			06/16/21 16:25	1
Silt (0.00391 to 0.0625mm)	2.87		0.01	0.01	%			06/16/21 16:25	1
Total Silt and Clay (0 to 0.0626mm)	3.64		0.01	0.01	%			06/16/21 16:25	1
Very Coarse Sand (1 to 2mm)	7.55		0.01	0.01	%			06/16/21 16:25	1
Very Fine Sand (0.0625 to 0.125 mm)	3.91		0.01	0.01	%			06/16/21 16:25	1

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	19.31		0.01	0.01	%			06/16/21 16:32	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/16/21 16:32	1
Fine Sand (0.125 to 0.25mm)	12.21		0.01	0.01	%			06/16/21 16:32	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/16/21 16:32	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/16/21 16:32	1
Silt (0.00391 to 0.0625mm)	54.63		0.01	0.01	%			06/16/21 16:32	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering) (Continued)

Client Sample ID: FDD-B-C12
Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15
Lab Sample ID: 570-61397-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Silt and Clay (0 to 0.0626mm)	**73.94**		0.01	0.01	%			06/16/21 16:32	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/16/21 16:32	1
Very Fine Sand (0.0625 to 0.125 mm)	**13.84**		0.01	0.01	%			06/16/21 16:32	1

Client Sample ID: FDD-B-C11
Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15
Lab Sample ID: 570-61397-5
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	**19.80**		0.01	0.01	%			06/16/21 16:37	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/16/21 16:37	1
Fine Sand (0.125 to 0.25mm)	**7.39**		0.01	0.01	%			06/16/21 16:37	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/16/21 16:37	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/16/21 16:37	1
Silt (0.00391 to 0.0625mm)	**58.86**		0.01	0.01	%			06/16/21 16:37	1
Total Silt and Clay (0 to 0.0626mm)	**78.66**		0.01	0.01	%			06/16/21 16:37	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/16/21 16:37	1
Very Fine Sand (0.0625 to 0.125 mm)	**13.95**		0.01	0.01	%			06/16/21 16:37	1

PARTICLE SIZE SUMMARY

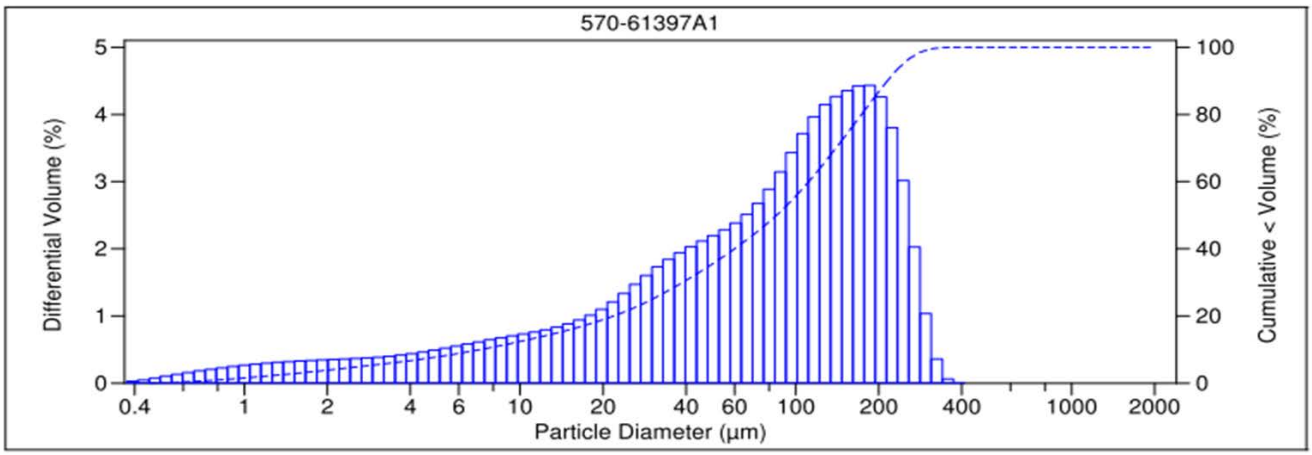
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/08/21
	Date Received:	06/09/21
	Work Order No:	570-61397
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FCC-A-C1		Medium Sand	0.282

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
6.10	0.00	0.00	4.14	28.82	22.37	32.35	6.22	38.58



V 3.0

PARTICLE SIZE SUMMARY

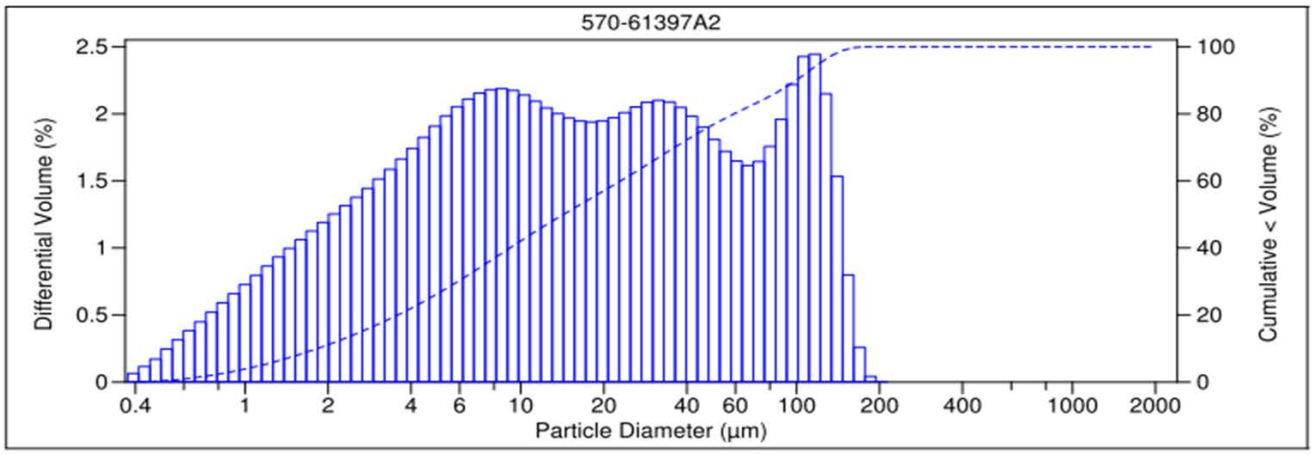
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/08/21
	Date Received:	06/09/21
	Work Order No:	570-61397
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FCC-B-C1		Silt	0.032

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
0.00	0.00	0.00	0.00	4.21	14.90	59.31	21.57	80.89



V 3.0

PARTICLE SIZE SUMMARY

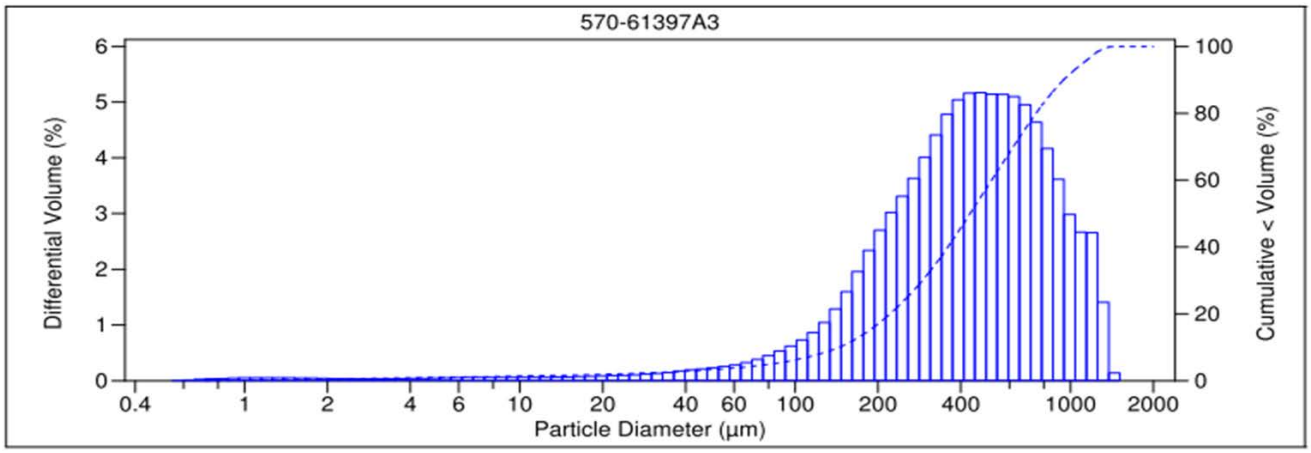
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/08/21
	Date Received:	06/09/21
	Work Order No:	570-61397
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FCC-C-C6		Coarse Sand	0.728

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
7.86	7.55	31.09	31.22	14.72	3.91	2.87	0.77	3.64



V 3.0

PARTICLE SIZE SUMMARY

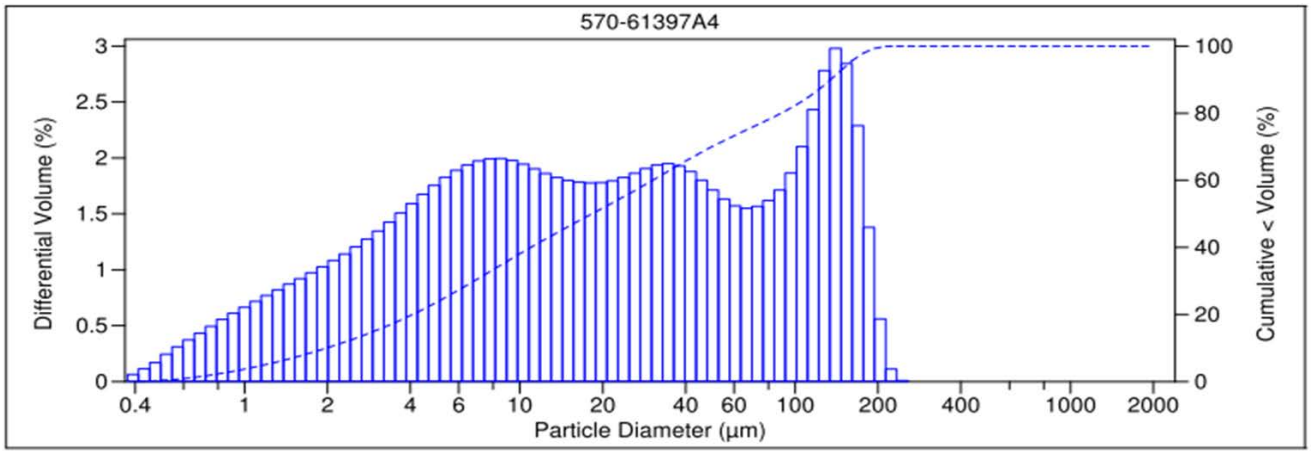
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/07/21
	Date Received:	06/09/21
	Work Order No:	570-61397
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FCC-B-C12		Silt	0.044

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	12.21	13.84	54.63	19.31	73.94



V 3.0

PARTICLE SIZE SUMMARY

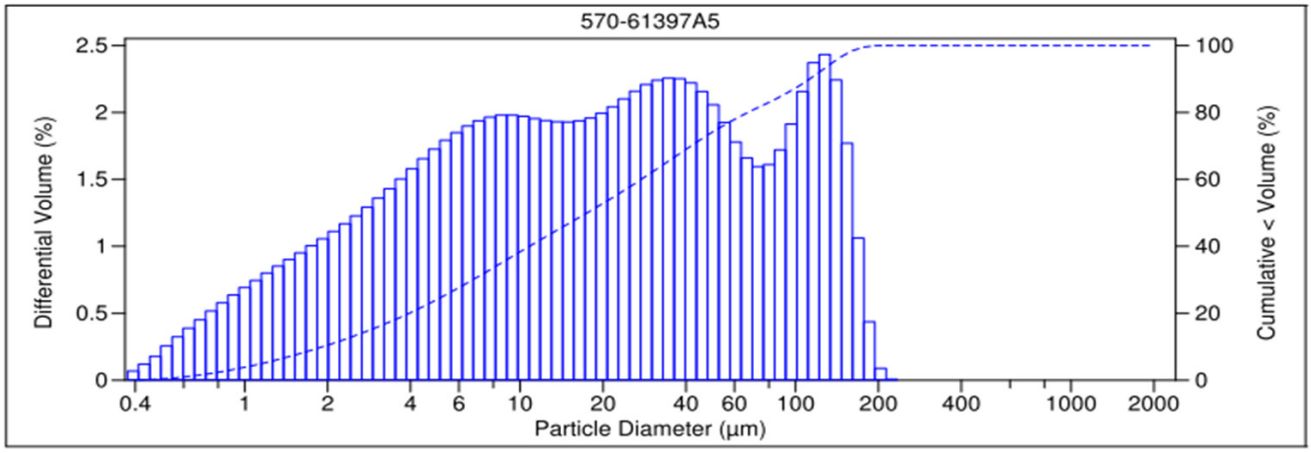
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/04/21
	Date Received:	06/09/21
	Work Order No:	570-61397
	Date Analyzed:	06/16/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FCC-B-C11		Silt	0.037

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	7.39	13.95	58.86	19.80	78.66



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-61397-1	FDD-A-C1	76	60	68	62	66	64
570-61397-2	FDD-B-C1	74	45	52	49	63	61
570-61397-3	FDD-C-C6	72	59	66	61	61	63
570-61397-3 MS	FDD-C-C6	72	68	57	68	72	65
570-61397-3 MSD	FDD-C-C6	71	66	57	67	71	63
570-61397-4	FDD-B-C12	73	49	55	53	69	64
570-61397-5	FDD-B-C11	86	51	58	57	70	68

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
LCS 570-156592/2-A	Lab Control Sample	73	70	59	71	71	66
LCSD 570-156592/3-A	Lab Control Sample Dup	75	66	56	69	71	65
MB 570-156592/1-A	Method Blank	70	58	63	59	63	64

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-61397-1	FDD-A-C1	72	91
570-61397-2	FDD-B-C1	77	97
570-61397-3	FDD-C-C6	64	89
570-61397-3 MS	FDD-C-C6	70	91
570-61397-3 MSD	FDD-C-C6	70	93
570-61397-4	FDD-B-C12	76	101
570-61397-5	FDD-B-C11	72	98

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
LCS 570-156591/2-A	Lab Control Sample	79	106
LCSD 570-156591/3-A	Lab Control Sample Dup	77	101
MB 570-156591/1-A	Method Blank	64	96

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-61397-1	FDD-A-C1	125 S1+
570-61397-2	FDD-B-C1	105
570-61397-3	FDD-C-C6	106
570-61397-3 MS	FDD-C-C6	98
570-61397-3 MSD	FDD-C-C6	116
570-61397-4	FDD-B-C12	104
570-61397-5	FDD-B-C11	92

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
LCS 570-156593/2-A	Lab Control Sample	129 S1+
LCSD 570-156593/3-A	Lab Control Sample Dup	130 S1+
MB 570-156593/1-A	Method Blank	116

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-61397-1	FDD-A-C1	54
570-61397-2	FDD-B-C1	57
570-61397-3	FDD-C-C6	62
570-61397-4	FDD-B-C12	60
570-61397-5	FDD-B-C11	58

Surrogate Legend

TPTT = Tripentyltin

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	TPTT (10-120)
570-61136-B-2-D MS	Matrix Spike	62
570-61136-B-2-M MSD	Matrix Spike Duplicate	62
LCS 570-156226/2-A	Lab Control Sample	64
LCSD 570-156226/3-A	Lab Control Sample Dup	67
MB 570-156226/1-A	Method Blank	80

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-61397-1	FDD-A-C1	94
570-61397-2	FDD-B-C1	91
570-61397-3	FDD-C-C6	106
570-61397-4	FDD-B-C12	105
570-61397-5	FDD-B-C11	135

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-61369-A-1-H MS	Matrix Spike	120
570-61369-A-1-I MSD	Matrix Spike Duplicate	117
570-61859-A-46-D MS - RA	Matrix Spike	107
570-61859-A-46-E MSD - RA	Matrix Spike Duplicate	126
570-62132-A-42-A MS	Matrix Spike	100
570-62132-A-42-B MSD	Matrix Spike Duplicate	110
LCS 570-158219/2-A	Lab Control Sample	107
LCS 570-158686/2-A	Lab Control Sample	109
LCS 570-158715/2-A	Lab Control Sample	120
LCSD 570-158219/3-A	Lab Control Sample Dup	111
LCSD 570-158686/3-A	Lab Control Sample Dup	108
LCSD 570-158715/3-A	Lab Control Sample Dup	118
MB 570-158219/1-A	Method Blank	105
MB 570-158686/1-A	Method Blank	107
MB 570-158715/1-A	Method Blank	124

Percent Surrogate Recovery (Acceptance Limits)

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
570-61397-1	FDD-A-C1	59	86
570-61397-2	FDD-B-C1	66	148
570-61397-3	FDD-C-C6	74	97
570-61397-3 MS	FDD-C-C6	67	98
570-61397-3 MSD	FDD-C-C6	59	100
570-61397-4	FDD-B-C12	62	124
570-61397-5	FDD-B-C11	66	139

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
LCS 570-156594/2-A	Lab Control Sample	94	111
LCSD 570-156594/3-A	Lab Control Sample Dup	69	78
MB 570-156594/1-A	Method Blank	77	89

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-61397-1	FDD-A-C1	86	69
570-61397-2	FDD-B-C1	150	68
570-61397-3	FDD-C-C6	90	76
570-61397-3 MS	FDD-C-C6	98	81
570-61397-3 MSD	FDD-C-C6	104	84
570-61397-4	FDD-B-C12	142	67
570-61397-5	FDD-B-C11	154	71

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
LCS 570-156594/6-A	Lab Control Sample	102	75
LCSD 570-156594/7-A	Lab Control Sample Dup	100	87
MB 570-156594/1-A	Method Blank	106	91

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-156592/1-A
Matrix: Solid
Analysis Batch: 157654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156592

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Acenaphthene	ND		10	1.5	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Anthracene	ND		10	1.9	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Biphenyl	ND		10	1.9	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Bis(2-ethylhexyl) phthalate	10.84	J	50	1.5	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Butyl benzyl phthalate	ND		50	2.0	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Chrysene	ND		10	1.4	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Diethyl phthalate	2.776	J	50	1.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Di-n-butyl phthalate	12.82	J	50	1.9	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Fluoranthene	ND		10	1.8	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Fluorene	ND		10	1.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Naphthalene	ND		10	1.5	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Phenanthrene	ND		10	1.7	ug/Kg		06/10/21 22:04	06/16/21 17:18	1
Pyrene	ND		10	1.6	ug/Kg		06/10/21 22:04	06/16/21 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*70*		*32 - 143*	*06/10/21 22:04*	*06/16/21 17:18*	*1*
2-Fluorophenol	*58*		*15 - 138*	*06/10/21 22:04*	*06/16/21 17:18*	*1*
Nitrobenzene-d5	*63*		*18 - 162*	*06/10/21 22:04*	*06/16/21 17:18*	*1*
Phenol-d6	*59*		*17 - 141*	*06/10/21 22:04*	*06/16/21 17:18*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*06/10/21 22:04*	*06/16/21 17:18*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-156592/1-A
Matrix: Solid
Analysis Batch: 157654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156592

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		14 - 146	06/10/21 22:04	06/16/21 17:18	1

Lab Sample ID: LCS 570-156592/2-A
Matrix: Solid
Analysis Batch: 157654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	795.4		ug/Kg		80	40 - 160
2,4,6-Trichlorophenol	1000	762.4		ug/Kg		76	40 - 160
2,4-Dichlorophenol	1000	642.3		ug/Kg		64	40 - 160
2,4-Dimethylphenol	1000	731.4		ug/Kg		73	40 - 160
2,4-Dinitrophenol	1000	834.9		ug/Kg		83	40 - 160
2-Chlorophenol	1000	712.2		ug/Kg		71	40 - 160
2-Methylphenol	1000	757.2		ug/Kg		76	40 - 160
2-Nitrophenol	1000	642.3		ug/Kg		64	40 - 160
3/4-Methylphenol	2000	1281		ug/Kg		64	40 - 160
4,6-Dinitro-2-methylphenol	1000	825.2		ug/Kg		83	40 - 160
4-Chloro-3-methylphenol	1000	673.8		ug/Kg		67	40 - 160
Acenaphthene	1000	685.4		ug/Kg		69	48 - 108
Benzo[a]pyrene	1000	935.3		ug/Kg		94	17 - 163
Bis(2-ethylhexyl) phthalate	1000	826.0		ug/Kg		83	40 - 160
Butyl benzyl phthalate	1000	788.9		ug/Kg		79	40 - 160
Chrysene	1000	713.1		ug/Kg		71	17 - 168
Diethyl phthalate	1000	766.9		ug/Kg		77	40 - 160
Dimethyl phthalate	1000	738.3		ug/Kg		74	40 - 160
Di-n-butyl phthalate	1000	759.9		ug/Kg		76	40 - 160
Di-n-octyl phthalate	1000	822.8		ug/Kg		82	40 - 160
Fluoranthene	1000	734.0		ug/Kg		73	26 - 137
Fluorene	1000	709.7		ug/Kg		71	59 - 121
Naphthalene	1000	554.1		ug/Kg		55	21 - 133
Pentachlorophenol	1000	694.2		ug/Kg		69	40 - 160
Phenanthrene	1000	740.6		ug/Kg		74	54 - 120
Pyrene	1000	711.1		ug/Kg		71	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	73		32 - 143
2-Fluorophenol	70		15 - 138
Nitrobenzene-d5	59		18 - 162
Phenol-d6	71		17 - 141
p-Terphenyl-d14	71		34 - 148
2-Fluorobiphenyl (Surr)	66		14 - 146

Lab Sample ID: LCSD 570-156592/3-A
Matrix: Solid
Analysis Batch: 157654

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	838.0		ug/Kg		84	40 - 160	5	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-156592/3-A
Matrix: Solid
Analysis Batch: 157654

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156592

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol			1000	797.4		ug/Kg		80	40 - 160	4	20
2,4-Dichlorophenol			1000	669.6		ug/Kg		67	40 - 160	4	20
2,4-Dimethylphenol			1000	717.5		ug/Kg		72	40 - 160	2	20
2,4-Dinitrophenol			1000	755.2		ug/Kg		76	40 - 160	10	20
2-Chlorophenol			1000	736.4		ug/Kg		74	40 - 160	3	20
2-Methylphenol			1000	777.7		ug/Kg		78	40 - 160	3	20
2-Nitrophenol			1000	666.9		ug/Kg		67	40 - 160	4	20
3/4-Methylphenol			2000	1318		ug/Kg		66	40 - 160	3	20
4,6-Dinitro-2-methylphenol			1000	848.5		ug/Kg		85	40 - 160	3	20
4-Chloro-3-methylphenol			1000	689.4		ug/Kg		69	40 - 160	2	20
Acenaphthene			1000	715.6		ug/Kg		72	48 - 108	4	20
Benzo[a]pyrene			1000	1008		ug/Kg		101	17 - 163	8	20
Bis(2-ethylhexyl) phthalate			1000	882.6		ug/Kg		88	40 - 160	7	20
Butyl benzyl phthalate			1000	838.3		ug/Kg		84	40 - 160	6	20
Chrysene			1000	767.7		ug/Kg		77	17 - 168	7	20
Diethyl phthalate			1000	809.6		ug/Kg		81	40 - 160	5	20
Dimethyl phthalate			1000	765.2		ug/Kg		77	40 - 160	4	20
Di-n-butyl phthalate			1000	801.4		ug/Kg		80	40 - 160	5	20
Di-n-octyl phthalate			1000	870.7		ug/Kg		87	40 - 160	6	20
Fluoranthene			1000	782.8		ug/Kg		78	26 - 137	6	20
Fluorene			1000	742.1		ug/Kg		74	59 - 121	4	20
Naphthalene			1000	562.0		ug/Kg		56	21 - 133	1	20
Pentachlorophenol			1000	717.6		ug/Kg		72	40 - 160	3	20
Phenanthrene			1000	779.7		ug/Kg		78	54 - 120	5	20
Pyrene			1000	756.5		ug/Kg		76	28 - 106	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*75*		*32 - 143*
2-Fluorophenol	*66*		*15 - 138*
Nitrobenzene-d5	*56*		*18 - 162*
Phenol-d6	*69*		*17 - 141*
p-Terphenyl-d14	*71*		*34 - 148*
2-Fluorobiphenyl (Surr)	*65*		*14 - 146*

Lab Sample ID: 570-61397-3 MS
Matrix: Sediment
Analysis Batch: 157654

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND		1170	915.8		ug/Kg	☼	78	40 - 160		
2,4,6-Trichlorophenol	ND		1170	869.8		ug/Kg	☼	74	40 - 160		
2,4-Dichlorophenol	ND		1170	748.1		ug/Kg	☼	64	40 - 160		
2,4-Dimethylphenol	ND		1170	810.1		ug/Kg	☼	69	40 - 160		
2,4-Dinitrophenol	ND	F2	1170	986.4		ug/Kg	☼	84	40 - 160		
2-Chlorophenol	ND		1170	850.6		ug/Kg	☼	73	40 - 160		
2-Methylphenol	ND		1170	912.8		ug/Kg	☼	78	40 - 160		
2-Nitrophenol	ND		1170	752.1		ug/Kg	☼	64	40 - 160		
3/4-Methylphenol	ND		2340	1516		ug/Kg	☼	65	40 - 160		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61397-3 MS
Matrix: Sediment
Analysis Batch: 157654

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	ND		1170	969.7		ug/Kg	☼	83	40 - 160
4-Chloro-3-methylphenol	ND		1170	758.3		ug/Kg	☼	65	8 - 160
Acenaphthene	ND		1170	798.9		ug/Kg	☼	68	40 - 160
Benzo[a]pyrene	ND		1170	1107		ug/Kg	☼	95	17 - 163
Bis(2-ethylhexyl) phthalate	14	J B	1170	988.2		ug/Kg	☼	83	40 - 160
Butyl benzyl phthalate	13	J	1170	929.6		ug/Kg	☼	78	40 - 160
Chrysene	ND		1170	877.6		ug/Kg	☼	75	17 - 168
Diethyl phthalate	4.0	J B	1170	883.2		ug/Kg	☼	75	40 - 160
Dimethyl phthalate	ND		1170	838.6		ug/Kg	☼	72	40 - 160
Di-n-butyl phthalate	23	J B	1170	927.6		ug/Kg	☼	77	40 - 160
Di-n-octyl phthalate	ND		1170	963.2		ug/Kg	☼	82	40 - 160
Fluoranthene	ND		1170	872.3		ug/Kg	☼	75	26 - 137
Fluorene	ND		1170	821.3		ug/Kg	☼	70	59 - 121
Naphthalene	ND		1170	649.3		ug/Kg	☼	55	21 - 133
Pentachlorophenol	ND		1170	826.5		ug/Kg	☼	71	40 - 160
Phenanthrene	ND		1170	859.6		ug/Kg	☼	73	54 - 120
Pyrene	ND		1170	854.6		ug/Kg	☼	73	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*72*		*32 - 143*
2-Fluorophenol	*68*		*15 - 138*
Nitrobenzene-d5	*57*		*18 - 162*
Phenol-d6	*68*		*17 - 141*
p-Terphenyl-d14	*72*		*34 - 148*
2-Fluorobiphenyl (Surr)	*65*		*14 - 146*

Lab Sample ID: 570-61397-3 MSD
Matrix: Sediment
Analysis Batch: 157654

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND		1160	870.7		ug/Kg	☼	75	40 - 160	5	20
2,4,6-Trichlorophenol	ND		1160	814.1		ug/Kg	☼	70	40 - 160	7	20
2,4-Dichlorophenol	ND		1160	714.9		ug/Kg	☼	62	40 - 160	5	20
2,4-Dimethylphenol	ND		1160	791.4		ug/Kg	☼	68	40 - 160	2	20
2,4-Dinitrophenol	ND	F2	1160	733.9	F2	ug/Kg	☼	63	40 - 160	29	20
2-Chlorophenol	ND		1160	815.2		ug/Kg	☼	70	40 - 160	4	20
2-Methylphenol	ND		1160	932.3		ug/Kg	☼	80	40 - 160	2	20
2-Nitrophenol	ND		1160	738.9		ug/Kg	☼	64	40 - 160	2	20
3/4-Methylphenol	ND		2320	1445		ug/Kg	☼	62	40 - 160	5	20
4,6-Dinitro-2-methylphenol	ND		1160	878.2		ug/Kg	☼	76	40 - 160	10	20
4-Chloro-3-methylphenol	ND		1160	756.7		ug/Kg	☼	65	8 - 160	0	20
Acenaphthene	ND		1160	758.6		ug/Kg	☼	65	40 - 160	5	20
Benzo[a]pyrene	ND		1160	1058		ug/Kg	☼	91	17 - 163	5	20
Bis(2-ethylhexyl) phthalate	14	J B	1160	940.5		ug/Kg	☼	80	40 - 160	5	20
Butyl benzyl phthalate	13	J	1160	882.9		ug/Kg	☼	75	40 - 160	5	20
Chrysene	ND		1160	844.8		ug/Kg	☼	73	17 - 168	4	20
Diethyl phthalate	4.0	J B	1160	847.4		ug/Kg	☼	73	40 - 160	4	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-61397-3 MSD
Matrix: Sediment
Analysis Batch: 157654

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156592

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	ND		1160	799.3		ug/Kg	☼	69	40 - 160	5	20
Di-n-butyl phthalate	23	J B	1160	894.2		ug/Kg	☼	75	40 - 160	4	20
Di-n-octyl phthalate	ND		1160	926.6		ug/Kg	☼	80	40 - 160	4	20
Fluoranthene	ND		1160	830.1		ug/Kg	☼	72	26 - 137	5	20
Fluorene	ND		1160	776.1		ug/Kg	☼	67	59 - 121	6	20
Naphthalene	ND		1160	638.8		ug/Kg	☼	55	21 - 133	2	20
Pentachlorophenol	ND		1160	771.0		ug/Kg	☼	66	40 - 160	7	20
Phenanthrene	ND		1160	821.2		ug/Kg	☼	71	54 - 120	5	20
Pyrene	ND		1160	823.3		ug/Kg	☼	71	6 - 156	4	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*32 - 143*
2-Fluorophenol	*66*		*15 - 138*
Nitrobenzene-d5	*57*		*18 - 162*
Phenol-d6	*67*		*17 - 141*
p-Terphenyl-d14	*71*		*34 - 148*
2-Fluorobiphenyl (Surr)	*63*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-156591/1-A
Matrix: Solid
Analysis Batch: 157649

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156591

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-28	ND		0.20	0.069	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-37	ND		0.20	0.061	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-44	ND		0.20	0.15	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-49	ND		0.20	0.050	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-52	ND		0.20	0.19	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-66	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-70	ND		0.20	0.072	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-74	ND		0.20	0.090	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-77	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-81	ND		0.20	0.090	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-87	ND		0.20	0.11	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-99	ND		0.20	0.047	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-101	ND		0.20	0.044	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-105	ND		0.20	0.053	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-110	ND		0.20	0.034	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-114	ND		0.20	0.074	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-118	ND		0.20	0.035	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-119	ND		0.20	0.063	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-123	ND		0.20	0.073	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-126	ND		0.20	0.055	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-128	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/10/21 22:01	06/16/21 21:00	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-156591/1-A
Matrix: Solid
Analysis Batch: 157649

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156591

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-149	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-151	ND		0.20	0.088	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-156	ND		0.20	0.077	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-157	ND		0.20	0.085	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-167	ND		0.20	0.13	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-168	ND		0.20	0.14	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-169	ND		0.20	0.065	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-170	ND		0.20	0.11	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-177	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-180	ND		0.20	0.092	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-183	ND		0.20	0.093	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-187	ND		0.20	0.10	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-189	ND		0.20	0.064	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-194	ND		0.20	0.074	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-201	ND		0.20	0.034	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
PCB-206	ND		0.20	0.12	ug/Kg		06/10/21 22:01	06/16/21 21:00	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/10/21 22:01	06/16/21 21:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*20 - 139*	*06/10/21 22:01*	*06/16/21 21:00*	*1*
p-Terphenyl-d14	*96*		*37 - 165*	*06/10/21 22:01*	*06/16/21 21:00*	*1*

Lab Sample ID: LCS 570-156591/2-A
Matrix: Solid
Analysis Batch: 157649

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156591

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	48.64		ug/Kg		97	33 - 114
PCB-28	50.0	57.66		ug/Kg		115	40 - 132
PCB-44	50.0	57.79		ug/Kg		116	38 - 131
PCB-52	50.0	56.93		ug/Kg		114	38 - 131
PCB-66	50.0	67.19		ug/Kg		134	42 - 141
PCB-77	50.0	59.42		ug/Kg		119	47 - 135
PCB-101	50.0	60.00		ug/Kg		120	40 - 132
PCB-105	50.0	62.35		ug/Kg		125	39 - 135
PCB-118	50.0	57.26		ug/Kg		115	38 - 131
PCB-126	50.0	63.79		ug/Kg		128	40 - 139
PCB-128	50.0	69.87		ug/Kg		140	43 - 149
PCB-132/153	50.0	64.50		ug/Kg		129	37 - 164
PCB-138/158	50.0	58.26		ug/Kg		117	36 - 124
PCB-170	50.0	62.92		ug/Kg		126	35 - 134
PCB-180	50.0	68.33		ug/Kg		137	38 - 159
PCB-187	50.0	69.04		ug/Kg		138	41 - 147
PCB-201	50.0	69.20		ug/Kg		138	40 - 156
PCB-206	50.0	69.83		ug/Kg		140	37 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*20 - 139*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-156591/2-A
Matrix: Solid
Analysis Batch: 157649

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156591

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
p-Terphenyl-d14	*106*		*37 - 165*

Lab Sample ID: LCSD 570-156591/3-A
Matrix: Solid
Analysis Batch: 157649

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156591

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	47.65		ug/Kg		95	33 - 114	2	29
PCB-28	50.0	57.10		ug/Kg		114	40 - 132	1	29
PCB-44	50.0	57.53		ug/Kg		115	38 - 131	0	32
PCB-52	50.0	56.92		ug/Kg		114	38 - 131	0	32
PCB-66	50.0	65.87		ug/Kg		132	42 - 141	2	34
PCB-77	50.0	58.56		ug/Kg		117	47 - 135	1	35
PCB-101	50.0	58.49		ug/Kg		117	40 - 132	3	34
PCB-105	50.0	62.96		ug/Kg		126	39 - 135	1	37
PCB-118	50.0	56.88		ug/Kg		114	38 - 131	1	35
PCB-126	50.0	63.21		ug/Kg		126	40 - 139	1	39
PCB-128	50.0	69.10		ug/Kg		138	43 - 149	1	37
PCB-132/153	50.0	64.75		ug/Kg		130	37 - 164	0	38
PCB-138/158	50.0	57.23		ug/Kg		114	36 - 124	2	40
PCB-170	50.0	61.49		ug/Kg		123	35 - 134	2	31
PCB-180	50.0	68.77		ug/Kg		138	38 - 159	1	40
PCB-187	50.0	68.18		ug/Kg		136	41 - 147	1	40
PCB-201	50.0	68.02		ug/Kg		136	40 - 156	2	40
PCB-206	50.0	68.08		ug/Kg		136	37 - 153	3	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*77*		*20 - 139*
p-Terphenyl-d14	*101*		*37 - 165*

Lab Sample ID: 570-61397-3 MS
Matrix: Sediment
Analysis Batch: 157649

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156591

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		58.2	48.48		ug/Kg	☼	83	29 - 127
PCB-28	ND		58.2	58.15		ug/Kg	☼	100	29 - 170
PCB-44	ND		58.2	59.57		ug/Kg	☼	102	33 - 150
PCB-52	ND		58.2	56.99		ug/Kg	☼	98	23 - 159
PCB-66	ND		58.2	68.14		ug/Kg	☼	117	29 - 166
PCB-77	ND		58.2	61.58		ug/Kg	☼	106	30 - 166
PCB-101	ND		58.2	61.87		ug/Kg	☼	106	30 - 159
PCB-105	ND		58.2	66.57		ug/Kg	☼	114	22 - 173
PCB-118	ND		58.2	60.71		ug/Kg	☼	104	24 - 162
PCB-126	ND		58.2	66.40		ug/Kg	☼	114	18 - 180
PCB-128	ND		58.2	74.60		ug/Kg	☼	128	18 - 180
PCB-132/153	ND		58.2	68.93		ug/Kg	☼	118	27 - 180
PCB-138/158	ND		58.2	61.51		ug/Kg	☼	106	18 - 160

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-61397-3 MS
Matrix: Sediment
Analysis Batch: 157649

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156591

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-170	ND		58.2	64.97		ug/Kg	☼	112	25 - 165
PCB-180	ND		58.2	72.88		ug/Kg	☼	125	20 - 180
PCB-187	ND		58.2	73.45		ug/Kg	☼	126	14 - 180
PCB-201	ND		58.2	73.43		ug/Kg	☼	126	17 - 180
PCB-206	ND		58.2	71.64		ug/Kg	☼	123	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*70*		*20 - 139*
p-Terphenyl-d14	*91*		*37 - 165*

Lab Sample ID: 570-61397-3 MSD
Matrix: Sediment
Analysis Batch: 157649

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156591

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		58.5	47.92		ug/Kg	☼	82	29 - 127	1	40
PCB-28	ND		58.5	56.65		ug/Kg	☼	97	29 - 170	3	32
PCB-44	ND		58.5	57.00		ug/Kg	☼	97	33 - 150	4	40
PCB-52	ND		58.5	56.71		ug/Kg	☼	97	23 - 159	0	40
PCB-66	ND		58.5	68.28		ug/Kg	☼	117	29 - 166	0	40
PCB-77	ND		58.5	62.71		ug/Kg	☼	107	30 - 166	2	40
PCB-101	ND		58.5	62.24		ug/Kg	☼	106	30 - 159	1	40
PCB-105	ND		58.5	66.32		ug/Kg	☼	113	22 - 173	0	40
PCB-118	ND		58.5	60.72		ug/Kg	☼	104	24 - 162	0	40
PCB-126	ND		58.5	67.97		ug/Kg	☼	116	18 - 180	2	40
PCB-128	ND		58.5	75.97		ug/Kg	☼	130	18 - 180	2	40
PCB-132/153	ND		58.5	69.20		ug/Kg	☼	118	27 - 180	0	40
PCB-138/158	ND		58.5	61.67		ug/Kg	☼	105	18 - 160	0	40
PCB-170	ND		58.5	66.79		ug/Kg	☼	114	25 - 165	3	22
PCB-180	ND		58.5	74.36		ug/Kg	☼	127	20 - 180	2	40
PCB-187	ND		58.5	73.62		ug/Kg	☼	126	14 - 180	0	40
PCB-201	ND		58.5	74.60		ug/Kg	☼	127	17 - 180	2	40
PCB-206	ND		58.5	70.96		ug/Kg	☼	121	16 - 180	1	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*70*		*20 - 139*
p-Terphenyl-d14	*93*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-156593/1-A
Matrix: Solid
Analysis Batch: 158060

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156593

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/10/21 22:05	06/17/21 19:56	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-156593/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cypermethrin	ND		0.50	0.16	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/10/21 22:05	06/17/21 19:56	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/10/21 22:05	06/17/21 19:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*116*		*14 - 116*	*06/10/21 22:05*	*06/17/21 19:56*	*1*

Lab Sample ID: LCS 570-156593/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.998		ug/Kg		80	10 - 148
Bifenthrin	5.00	5.841		ug/Kg		117	26 - 128
Cyfluthrin	5.00	6.274		ug/Kg		125	10 - 131
Cypermethrin	5.00	6.326		ug/Kg		127	10 - 136
Deltamethrin/Tralomethrin	5.00	5.882		ug/Kg		118	13 - 190
Fenpropathrin	5.00	6.144		ug/Kg		123	10 - 148
Fenvalerate/Esfenvalerate	5.00	6.086		ug/Kg		122	10 - 149
Fluvalinate	5.00	5.772		ug/Kg		115	10 - 121
Lambda cyhalothrin	5.00	5.552		ug/Kg		111	10 - 123
Permethrins (cis/trans)	5.00	5.950		ug/Kg		119	45 - 123
Phenothrin	5.00	6.263		ug/Kg		125	45 - 165
Resmethrin/Bioresmethrin	5.00	4.324		ug/Kg		86	38 - 164
Tetramethrin	5.00	5.049		ug/Kg		101	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate	*129*	*S1+*	*14 - 116*

Lab Sample ID: LCSD 570-156593/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	5.00	3.957		ug/Kg		79	10 - 148	1	25
Bifenthrin	5.00	5.719		ug/Kg		114	26 - 128	2	25
Cyfluthrin	5.00	6.004		ug/Kg		120	10 - 131	4	25
Cypermethrin	5.00	6.370		ug/Kg		127	10 - 136	1	25
Deltamethrin/Tralomethrin	5.00	5.978		ug/Kg		120	13 - 190	2	25
Fenpropathrin	5.00	5.974		ug/Kg		119	10 - 148	3	25
Fenvalerate/Esfenvalerate	5.00	5.884		ug/Kg		118	10 - 149	3	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: LCSD 570-156593/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluvalinate			5.00	5.476		ug/Kg		110	10 - 121	5	25
Lambda cyhalothrin			5.00	5.361		ug/Kg		107	10 - 123	3	25
Permethrins (cis/trans)			5.00	5.953		ug/Kg		119	45 - 123	0	25
Phenothrin			5.00	6.147		ug/Kg		123	45 - 165	2	25
Resmethrin/Bioresmethrin			5.00	4.401		ug/Kg		88	38 - 164	2	25
Tetramethrin			5.00	5.057		ug/Kg		101	15 - 153	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*130*	*S1+*	*14 - 116*

Lab Sample ID: 570-61397-3 MS — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Allethrin	ND		5.87	4.822		ug/Kg	☼	82	10 - 148		
Bifenthrin	ND		5.87	7.011		ug/Kg	☼	120	26 - 128		
Cyfluthrin	ND	F1	5.87	7.893	F1	ug/Kg	☼	135	10 - 131		
Cypermethrin	ND	F1	5.87	9.040	F1	ug/Kg	☼	154	10 - 136		
Deltamethrin/Tralomethrin	ND		5.87	9.480		ug/Kg	☼	162	13 - 190		
Fenpropathrin	ND		5.87	7.888		ug/Kg	☼	134	10 - 148		
Fenvalerate/Esfenvalerate	ND	F1	5.87	9.110	F1	ug/Kg	☼	155	10 - 149		
Fluvalinate	ND	F1	5.87	9.018	F1	ug/Kg	☼	154	10 - 121		
Lambda cyhalothrin	ND	F1	5.87	7.799	F1	ug/Kg	☼	133	10 - 123		
Permethrins (cis/trans)	ND	F1	5.87	7.569	F1	ug/Kg	☼	129	45 - 123		
Phenothrin	ND		5.87	7.588		ug/Kg	☼	129	45 - 165		
Resmethrin/Bioresmethrin	ND		5.87	4.851		ug/Kg	☼	83	38 - 164		
Tetramethrin	ND		5.87	6.505		ug/Kg	☼	111	15 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*98*		*14 - 116*

Lab Sample ID: 570-61397-3 MSD — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		5.88	5.161		ug/Kg	☼	88	10 - 148	7	30
Bifenthrin	ND		5.88	6.919		ug/Kg	☼	118	26 - 128	1	30
Cyfluthrin	ND	F1	5.88	8.162	F1	ug/Kg	☼	139	10 - 131	3	30
Cypermethrin	ND	F1	5.88	8.718	F1	ug/Kg	☼	148	10 - 136	4	30
Deltamethrin/Tralomethrin	ND		5.88	9.168		ug/Kg	☼	156	13 - 190	3	30
Fenpropathrin	ND		5.88	7.439		ug/Kg	☼	126	10 - 148	6	30
Fenvalerate/Esfenvalerate	ND	F1	5.88	8.809	F1	ug/Kg	☼	150	10 - 149	3	30
Fluvalinate	ND	F1	5.88	8.787	F1	ug/Kg	☼	149	10 - 121	3	30
Lambda cyhalothrin	ND	F1	5.88	6.942		ug/Kg	☼	118	10 - 123	12	30
Permethrins (cis/trans)	ND	F1	5.88	7.822	F1	ug/Kg	☼	133	45 - 123	3	30
Phenothrin	ND		5.88	7.743		ug/Kg	☼	132	45 - 165	2	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-61397-3 MSD — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158060 — **Prep Batch: 156593**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Resmethrin/Bioresmethrin	ND		5.88	4.677		ug/Kg	☼	80	38 - 164	4	30
Tetramethrin	ND		5.88	6.421		ug/Kg	☼	109	15 - 153	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*116*		*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-156226/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/09/21 17:26	06/10/21 17:58	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/09/21 17:26	06/10/21 17:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*80*		*10 - 120*	*06/09/21 17:26*	*06/10/21 17:58*	*1*

Lab Sample ID: LCS 570-156226/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	80.23		ug/Kg		80	10 - 153
Tributyltin	100	56.14		ug/Kg		56	10 - 126
Dibutyltin	100	18.32		ug/Kg		18	14 - 174
Monobutyltin	100	9.167	*-	ug/Kg		9	10 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*64*		*10 - 120*

Lab Sample ID: LCSD 570-156226/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156390 — **Prep Batch: 156226**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	100	87.13		ug/Kg		87	10 - 153	8	30
Tributyltin	100	62.98		ug/Kg		63	10 - 126	11	30
Dibutyltin	100	25.52	*1	ug/Kg		26	14 - 174	33	30
Monobutyltin	100	15.53	*1	ug/Kg		16	10 - 120	52	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*67*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-61136-B-2-D MS
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		136	112.4		ug/Kg	☼	83	10 - 140
Tributyltin	ND		136	78.59		ug/Kg	☼	58	10 - 135
Dibutyltin	3.3	J *1 F1	136	18.19		ug/Kg	☼	11	10 - 180
Monobutyltin	ND	*- *1 F1	136	ND	F1	ug/Kg	☼	0	10 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Lab Sample ID: 570-61136-B-2-M MSD
Matrix: Solid
Analysis Batch: 156390

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 156226

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		134	115.5		ug/Kg	☼	86	10 - 140	3	40
Tributyltin	ND		134	77.48		ug/Kg	☼	58	10 - 135	1	40
Dibutyltin	3.3	J *1 F1	134	15.77	F1	ug/Kg	☼	9	10 - 180	14	40
Monobutyltin	ND	*- *1 F1	134	ND	F1	ug/Kg	☼	0	10 - 125	NC	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-158219/1-A
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158219

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C9-C10	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C11-C12	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C13-C14	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C15-C16	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C17-C18	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C19-C20	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C21-C22	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C23-C24	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C25-C28	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C29-C32	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C33-C36	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C37-C40	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C41-C44	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1
C6-C44	ND		5.0	3.8	mg/Kg		06/18/21 11:04	06/18/21 18:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*06/18/21 11:04*	*06/18/21 18:01*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: LCS 570-158219/2-A
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158219

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			400	435.8		mg/Kg		109	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*107*		*60 - 138*

Lab Sample ID: LCSD 570-158219/3-A
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 158219

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	448.5		mg/Kg		112	80 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*111*		*60 - 138*

Lab Sample ID: 570-62132-A-42-A MS
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 158219

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	5.0		394	419.9		mg/Kg		105	43 - 165		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*100*		*60 - 138*

Lab Sample ID: 570-62132-A-42-B MSD
Matrix: Solid
Analysis Batch: 158304

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 158219

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	5.0		402	457.1		mg/Kg		113	43 - 165	8	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*110*		*60 - 138*

Lab Sample ID: MB 570-158686/1-A
Matrix: Solid
Analysis Batch: 158681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158686

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C9-C10	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 570-158686/1-A
Matrix: Solid
Analysis Batch: 158681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158686

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C11-C12	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C13-C14	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C15-C16	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C17-C18	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C19-C20	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C21-C22	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C23-C24	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C25-C28	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C29-C32	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C33-C36	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C37-C40	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C41-C44	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1
C6-C44	ND		5.0	3.8	mg/Kg		06/21/21 13:13	06/21/21 21:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*06/21/21 13:13*	*06/21/21 21:48*	*1*

Lab Sample ID: LCS 570-158686/2-A
Matrix: Solid
Analysis Batch: 158681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 158686

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			400	410.3		mg/Kg		103	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*109*		*60 - 138*

Lab Sample ID: LCSD 570-158686/3-A
Matrix: Solid
Analysis Batch: 158681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 158686

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	401.7		mg/Kg		100	80 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*108*		*60 - 138*

Lab Sample ID: MB 570-158715/1-A
Matrix: Solid
Analysis Batch: 158672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 158715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C9-C10	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 570-158715/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158672 — **Prep Batch: 158715**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C11-C12	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C13-C14	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C15-C16	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C17-C18	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C19-C20	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C21-C22	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C23-C24	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C25-C28	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C29-C32	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C33-C36	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C37-C40	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C41-C44	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1
C6-C44	ND		5.0	3.8	mg/Kg		06/21/21 14:54	06/21/21 21:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 138*	*06/21/21 14:54*	*06/21/21 21:29*	*1*

Lab Sample ID: LCS 570-158715/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158672 — **Prep Batch: 158715**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	421.1		mg/Kg		105	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*120*		*60 - 138*

Lab Sample ID: LCSD 570-158715/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158672 — **Prep Batch: 158715**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	448.4		mg/Kg		112	80 - 130	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*118*		*60 - 138*

Lab Sample ID: 570-61369-A-1-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158672 — **Prep Batch: 158715**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	650	F1	400	593.9	F1	mg/Kg		-14	43 - 165

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-61369-A-1-H MS
Matrix: Solid
Analysis Batch: 158672

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 158715

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane (Surr)	120		60 - 138

Lab Sample ID: 570-61369-A-1-I MSD
Matrix: Solid
Analysis Batch: 158672

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 158715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	650	F1	418	755.3	F1	mg/Kg		25	43 - 165	24	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane (Surr)	117		60 - 138

Method: 8015B - Diesel Range Organics (DRO) (GC) - RA

Lab Sample ID: 570-61859-A-46-D MS
Matrix: Solid
Analysis Batch: 158936

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 158686

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28] - RA	47	F1	415	531.0		mg/Kg		117	43 - 165		

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane (Surr) - RA	107		60 - 138

Lab Sample ID: 570-61859-A-46-E MSD
Matrix: Solid
Analysis Batch: 158936

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 158686

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28] - RA	47	F1	379	564.4		mg/Kg		136	43 - 165	6	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane (Surr) - RA	126		60 - 138

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-156594/1-A
Matrix: Solid
Analysis Batch: 157781

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/10/21 22:07	06/17/21 07:05	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-156594/1-A
Matrix: Solid
Analysis Batch: 157781

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Aldrin	ND		1.0	0.072	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Chlordane	ND		5.0	0.33	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endrin	ND		1.0	0.088	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/10/21 22:07	06/17/21 07:05	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/10/21 22:07	06/17/21 07:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*77*		*20 - 131*	*06/10/21 22:07*	*06/17/21 07:05*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 180*	*06/10/21 22:07*	*06/17/21 07:05*	*1*

Lab Sample ID: LCS 570-156594/2-A
Matrix: Solid
Analysis Batch: 157781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	7.290		ug/Kg		146	54 - 150
4,4'-DDE	5.00	6.824		ug/Kg		136	49 - 146
4,4'-DDT	5.00	6.609		ug/Kg		132	52 - 147
Aldrin	5.00	5.814		ug/Kg		116	28 - 116
alpha-BHC	5.00	5.978		ug/Kg		120	44 - 123
beta-BHC	5.00	6.270		ug/Kg		125	48 - 127
delta-BHC	5.00	6.844		ug/Kg		137	10 - 149
Dieldrin	5.00	6.244		ug/Kg		125	48 - 132
alpha-Chlordane	5.00	5.696		ug/Kg		114	48 - 125
Endosulfan I	5.00	6.407	*+ me	ug/Kg		128	44 - 125
Endosulfan II	5.00	6.075		ug/Kg		122	47 - 136
Endosulfan sulfate	5.00	6.149		ug/Kg		123	46 - 133
Endrin	5.00	6.253		ug/Kg		125	43 - 142
Endrin aldehyde	5.00	6.542		ug/Kg		131	29 - 141
gamma-BHC	5.00	6.408	*+ me	ug/Kg		128	44 - 126

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-156594/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157781 — **Prep Batch: 156594**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Heptachlor	5.00	6.040		ug/Kg		121	50 - 123
Heptachlor epoxide	5.00	6.110		ug/Kg		122	49 - 125
Methoxychlor	5.00	6.198		ug/Kg		124	49 - 145
gamma-Chlordane	5.00	6.398		ug/Kg		128	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*94*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*111*		*20 - 180*

Lab Sample ID: LCSD 570-156594/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157781 — **Prep Batch: 156594**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	5.678		ug/Kg		114	54 - 150	25	29
4,4'-DDE	5.00	5.594		ug/Kg		112	49 - 146	20	28
4,4'-DDT	5.00	5.575		ug/Kg		112	52 - 147	17	32
Aldrin	5.00	4.919		ug/Kg		98	28 - 116	17	30
alpha-BHC	5.00	4.702		ug/Kg		94	44 - 123	24	27
beta-BHC	5.00	5.078		ug/Kg		102	48 - 127	21	28
delta-BHC	5.00	5.421		ug/Kg		108	10 - 149	23	27
Dieldrin	5.00	4.864		ug/Kg		97	48 - 132	25	28
alpha-Chlordane	5.00	4.789		ug/Kg		96	48 - 125	17	27
Endosulfan I	5.00	5.076		ug/Kg		102	44 - 125	23	29
Endosulfan II	5.00	4.772		ug/Kg		95	47 - 136	24	29
Endosulfan sulfate	5.00	4.875		ug/Kg		98	46 - 133	23	28
Endrin	5.00	5.033		ug/Kg		101	43 - 142	22	27
Endrin aldehyde	5.00	5.074		ug/Kg		101	29 - 141	25	40
gamma-BHC	5.00	4.794	*1	ug/Kg		96	44 - 126	29	28
Heptachlor	5.00	4.760		ug/Kg		95	50 - 123	24	28
Heptachlor epoxide	5.00	4.895		ug/Kg		98	49 - 125	22	28
Methoxychlor	5.00	5.456		ug/Kg		109	49 - 145	13	39
gamma-Chlordane	5.00	5.201		ug/Kg		104	29 - 153	21	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*69*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*78*		*20 - 180*

Lab Sample ID: 570-61397-3 MS — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157781 — **Prep Batch: 156594**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND		5.86	6.382		ug/Kg	☼	109	17 - 180
4,4'-DDE	ND		5.86	6.291		ug/Kg	☼	107	20 - 180
4,4'-DDT	ND		5.86	6.869		ug/Kg	☼	117	10 - 180
Aldrin	ND		5.86	4.628		ug/Kg	☼	79	27 - 146
alpha-BHC	ND		5.86	4.879		ug/Kg	☼	83	33 - 160

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-61397-3 MS
Matrix: Sediment
Analysis Batch: 157781

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156594

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
beta-BHC	ND		5.86	4.845		ug/Kg	☼	83	14 - 178
delta-BHC	ND		5.86	4.911		ug/Kg	☼	84	10 - 159
Dieldrin	ND		5.86	5.334		ug/Kg	☼	91	25 - 180
alpha-Chlordane	ND		5.86	5.273		ug/Kg	☼	90	24 - 164
Endosulfan I	ND	*+	5.86	4.918		ug/Kg	☼	84	31 - 146
Endosulfan II	ND		5.86	5.783		ug/Kg	☼	99	14 - 176
Endosulfan sulfate	ND		5.86	5.567		ug/Kg	☼	95	22 - 167
Endrin	ND		5.86	5.644		ug/Kg	☼	96	23 - 174
Endrin aldehyde	ND		5.86	8.151		ug/Kg	☼	139	10 - 180
gamma-BHC	ND	*+ *1	5.86	4.860		ug/Kg	☼	83	27 - 160
Heptachlor	ND		5.86	4.964		ug/Kg	☼	85	23 - 144
Heptachlor epoxide	ND		5.86	5.304		ug/Kg	☼	90	25 - 173
Methoxychlor	ND		5.86	6.686		ug/Kg	☼	114	10 - 180
gamma-Chlordane	ND		5.86	5.324		ug/Kg	☼	91	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*67*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*98*		*20 - 180*

Lab Sample ID: 570-61397-3 MSD
Matrix: Sediment
Analysis Batch: 157781

Client Sample ID: FDD-C-C6
Prep Type: Total/NA
Prep Batch: 156594

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND		5.82	6.600		ug/Kg	☼	113	17 - 180	3	40
4,4'-DDE	ND		5.82	6.572		ug/Kg	☼	113	20 - 180	4	40
4,4'-DDT	ND		5.82	6.728		ug/Kg	☼	116	10 - 180	2	40
Aldrin	ND		5.82	4.937		ug/Kg	☼	85	27 - 146	6	40
alpha-BHC	ND		5.82	5.337		ug/Kg	☼	92	33 - 160	9	36
beta-BHC	ND		5.82	5.390		ug/Kg	☼	93	14 - 178	11	40
delta-BHC	ND		5.82	5.881		ug/Kg	☼	101	10 - 159	18	40
Dieldrin	ND		5.82	5.661		ug/Kg	☼	97	25 - 180	6	40
alpha-Chlordane	ND		5.82	5.590		ug/Kg	☼	96	24 - 164	6	40
Endosulfan I	ND	*+	5.82	5.177		ug/Kg	☼	89	31 - 146	5	34
Endosulfan II	ND		5.82	5.888		ug/Kg	☼	101	14 - 176	2	40
Endosulfan sulfate	ND		5.82	5.810		ug/Kg	☼	100	22 - 167	4	40
Endrin	ND		5.82	5.902		ug/Kg	☼	101	23 - 174	4	40
Endrin aldehyde	ND		5.82	7.354		ug/Kg	☼	126	10 - 180	10	40
gamma-BHC	ND	*+ *1	5.82	5.408		ug/Kg	☼	93	27 - 160	11	40
Heptachlor	ND		5.82	5.303		ug/Kg	☼	91	23 - 144	7	40
Heptachlor epoxide	ND		5.82	5.551		ug/Kg	☼	95	25 - 173	5	40
Methoxychlor	ND		5.82	6.404		ug/Kg	☼	110	10 - 180	4	40
gamma-Chlordane	ND		5.82	5.596		ug/Kg	☼	96	26 - 180	5	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*59*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*100*		*20 - 180*

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-156594/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/10/21 22:07	06/17/21 12:11	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/10/21 22:07	06/17/21 12:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*106*		*20 - 155*	*06/10/21 22:07*	*06/17/21 12:11*	*1*
Tetrachloro-m-xylene (Surr)	*91*		*25 - 126*	*06/10/21 22:07*	*06/17/21 12:11*	*1*

Lab Sample ID: LCS 570-156594/6-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			20.0	22.64		ug/Kg		113	50 - 142		
Aroclor-1260			20.0	23.70		ug/Kg		119	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*102*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*75*		*25 - 126*

Lab Sample ID: LCSD 570-156594/7-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			20.0	22.94		ug/Kg		115	50 - 142	1	30
Aroclor-1260			20.0	23.52		ug/Kg		118	50 - 150	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*100*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*87*		*25 - 126*

Lab Sample ID: 570-61397-3 MS — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016	ND		23.4	27.73		ug/Kg	☼	118	20 - 175		
Aroclor-1260	ND		23.4	24.69		ug/Kg	☼	105	20 - 180		

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-61397-3 MS — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	98		20 - 155
Tetrachloro-m-xylene (Surr)	81		25 - 126

Lab Sample ID: 570-61397-3 MSD — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 157766 — **Prep Batch: 156594**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		23.4	36.68		ug/Kg	☼	157	20 - 175	28	40
Aroclor-1260	ND		23.4	28.51		ug/Kg	☼	122	20 - 180	14	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	104		20 - 155
Tetrachloro-m-xylene (Surr)	84		25 - 126

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-156414/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156414**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	210	ug/Kg		06/10/21 11:38	06/11/21 00:16	10

Lab Sample ID: LCS 570-156414/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156414**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	18380		ug/Kg		92	80 - 120

Lab Sample ID: LCSD 570-156414/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156414**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	19900	18910		ug/Kg		95	80 - 120	3	20

Lab Sample ID: 570-61247-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		20000	18290		ug/Kg		91	75 - 125

Method: 7199 - Chromium, Hexavalent (IC) (Continued)

Lab Sample ID: 570-61247-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156295 — **Prep Batch: 156414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		19900	18310		ug/Kg		92	75 - 125	0	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-158296/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	0.275	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Arsenic	ND		0.985	0.329	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Barium	ND		0.985	0.205	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Beryllium	ND		0.985	0.204	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Cadmium	ND		0.985	0.443	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Chromium	ND		1.97	0.296	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Cobalt	ND		0.985	0.186	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Copper	ND		0.985	0.265	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Lead	ND		0.985	0.212	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Molybdenum	ND		0.985	0.303	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Nickel	ND		0.985	0.266	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Selenium	ND		0.985	0.572	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Silver	ND		0.985	0.326	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Thallium	ND		0.985	0.216	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Vanadium	ND		1.97	0.238	mg/Kg		06/18/21 12:40	06/21/21 12:19	20
Zinc	ND		4.93	4.55	mg/Kg		06/18/21 12:40	06/21/21 12:19	20

Lab Sample ID: LCS 570-158296/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	25.0	24.38		mg/Kg		98	80 - 120
Arsenic	25.0	25.33		mg/Kg		101	80 - 120
Barium	25.0	23.92		mg/Kg		96	80 - 120
Beryllium	25.0	25.99		mg/Kg		104	80 - 120
Cadmium	25.0	26.15		mg/Kg		105	80 - 120
Chromium	25.0	25.24		mg/Kg		101	80 - 120
Cobalt	25.0	25.57		mg/Kg		102	80 - 120
Copper	25.0	25.73		mg/Kg		103	80 - 120
Lead	25.0	25.10		mg/Kg		100	80 - 120
Molybdenum	25.0	25.75		mg/Kg		103	80 - 120
Nickel	25.0	26.15		mg/Kg		105	80 - 120
Selenium	25.0	26.33		mg/Kg		105	80 - 120
Silver	12.5	12.16		mg/Kg		97	80 - 120
Thallium	25.0	24.38		mg/Kg		98	80 - 120
Vanadium	25.0	25.41		mg/Kg		102	80 - 120
Zinc	25.0	26.93		mg/Kg		108	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-158296/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony			24.4	24.15		mg/Kg		99	80 - 120	1	20
Arsenic			24.4	24.59		mg/Kg		101	80 - 120	3	20
Barium			24.4	23.35		mg/Kg		96	80 - 120	2	20
Beryllium			24.4	25.36		mg/Kg		104	80 - 120	2	20
Cadmium			24.4	25.84		mg/Kg		106	80 - 120	1	20
Chromium			24.4	24.13		mg/Kg		99	80 - 120	5	20
Cobalt			24.4	24.43		mg/Kg		100	80 - 120	5	20
Copper			24.4	24.97		mg/Kg		102	80 - 120	3	20
Lead			24.4	24.16		mg/Kg		99	80 - 120	4	20
Molybdenum			24.4	25.10		mg/Kg		103	80 - 120	3	20
Nickel			24.4	25.01		mg/Kg		103	80 - 120	4	20
Selenium			24.4	25.12		mg/Kg		103	80 - 120	5	20
Silver			12.2	11.84		mg/Kg		97	80 - 120	3	20
Thallium			24.4	23.31		mg/Kg		96	80 - 120	5	20
Vanadium			24.4	24.13		mg/Kg		99	80 - 120	5	20
Zinc			24.4	26.03		mg/Kg		107	80 - 120	3	20

Lab Sample ID: 570-61397-1 MS — **Client Sample ID: FDD-A-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Antimony	ND		36.3	1.205	J	mg/Kg	☼	3	1 - 97		
Arsenic	1.51		36.3	31.93		mg/Kg	☼	84	72 - 132		
Barium	121	F1	36.3	190.0	F1	mg/Kg	☼	191	50 - 152		
Beryllium	0.291	J	36.3	36.93		mg/Kg	☼	102	61 - 121		
Cadmium	ND		36.3	36.49		mg/Kg	☼	101	85 - 121		
Chromium	15.2		36.3	52.58		mg/Kg	☼	103	20 - 182		
Cobalt	8.54		36.3	44.89		mg/Kg	☼	100	40 - 166		
Copper	24.8		36.3	66.31		mg/Kg	☼	115	25 - 157		
Lead	5.78		36.3	40.40		mg/Kg	☼	95	62 - 134		
Molybdenum	ND	F1	36.3	14.62	F1	mg/Kg	☼	40	69 - 123		
Nickel	7.37		36.3	43.05		mg/Kg	☼	98	46 - 154		
Selenium	ND		36.3	27.29		mg/Kg	☼	75	54 - 132		
Silver	ND	F1	18.1	1.466	F1	mg/Kg	☼	8	78 - 126		
Thallium	ND		36.3	32.48		mg/Kg	☼	90	79 - 115		
Vanadium	39.3		36.3	82.90		mg/Kg	☼	120	28 - 178		
Zinc	51.5		36.3	101.4		mg/Kg	☼	138	23 - 173		

Lab Sample ID: 570-61397-1 MSD — **Client Sample ID: FDD-A-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		36.4	1.131	J	mg/Kg	☼	3	1 - 97	6	39
Arsenic	1.51		36.4	31.64		mg/Kg	☼	83	72 - 132	1	13
Barium	121	F1	36.4	185.1	F1	mg/Kg	☼	177	50 - 152	3	41
Beryllium	0.291	J	36.4	35.49		mg/Kg	☼	97	61 - 121	4	13
Cadmium	ND		36.4	36.00		mg/Kg	☼	99	85 - 121	1	12

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-61397-1 MSD — **Client Sample ID: FDD-A-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 158645 — **Prep Batch: 158296**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	15.2		36.4	50.86		mg/Kg	☼	98	20 - 182	3	15
Cobalt	8.54		36.4	43.05		mg/Kg	☼	95	40 - 166	4	14
Copper	24.8		36.4	64.62		mg/Kg	☼	109	25 - 157	3	22
Lead	5.78		36.4	39.41		mg/Kg	☼	92	62 - 134	2	23
Molybdenum	ND	F1	36.4	14.18	F1	mg/Kg	☼	39	69 - 123	3	13
Nickel	7.37		36.4	42.91		mg/Kg	☼	98	46 - 154	0	15
Selenium	ND		36.4	26.81		mg/Kg	☼	74	54 - 132	2	14
Silver	ND	F1	18.2	1.543	F1	mg/Kg	☼	8	78 - 126	5	15
Thallium	ND		36.4	32.29		mg/Kg	☼	89	79 - 115	1	11
Vanadium	39.3		36.4	79.79		mg/Kg	☼	111	28 - 178	4	28
Zinc	51.5		36.4	98.62		mg/Kg	☼	129	23 - 173	3	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-158288/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0135	mg/Kg		06/18/21 12:05	06/21/21 13:20	1

Lab Sample ID: LCS 570-158288/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.820	0.8867		mg/Kg		108	85 - 121

Lab Sample ID: LCSD 570-158288/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.806	0.8875		mg/Kg		110	85 - 121	0	10

Lab Sample ID: 570-61859-A-45-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0645	J F1 F2	0.847	0.5176	F1	mg/Kg		53	71 - 137

Lab Sample ID: 570-61859-A-45-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158748 — **Prep Batch: 158288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0645	J F1 F2	0.877	0.3796	F1 F2	mg/Kg		36	71 - 137	31	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-156803/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156965 — **Prep Batch: 156803**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/11/21 14:53	06/12/21 14:54	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/11/21 14:53	06/12/21 14:54	1

Lab Sample ID: LCS 570-156803/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156965 — **Prep Batch: 156803**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-156803/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156965 — **Prep Batch: 156803**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33		mg/Kg		83	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Lab Sample ID: 570-61397-3 MS — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156965 — **Prep Batch: 156803**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	50.9		47.0	90.16		mg/Kg	☼	83	78 - 114
SGT-HEM (TRPH)	23.5		23.5	43.12		mg/Kg	☼	83	64 - 132

Lab Sample ID: 570-61397-3 MSD — **Client Sample ID: FDD-C-C6**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156965 — **Prep Batch: 156803**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	50.9		47.0	90.04		mg/Kg	☼	83	78 - 114	0	18
SGT-HEM (TRPH)	23.5		23.5	43.06		mg/Kg	☼	83	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-156223/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.100	0.0840	mg/Kg		06/10/21 10:00	06/10/21 19:14	1

Lab Sample ID: LCS 570-156223/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.501	0.5344		mg/Kg		107	72 - 123

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCSD 570-156223/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide			0.501	0.5402		mg/Kg		108	72 - 123	1	11

Lab Sample ID: 570-61000-B-4-G DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156579 — **Prep Batch: 156223**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Sulfide	ND			ND		mg/Kg	☼			NC	20

Lab Sample ID: MB 570-156227/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/10/21 19:35	1

Lab Sample ID: LCS 570-156227/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5436		mg/Kg		108	72 - 123		

Lab Sample ID: LCSD 570-156227/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5456		mg/Kg		109	72 - 123	0	11

Lab Sample ID: 570-61000-B-4-I DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 156579

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-156869/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 570-156869/50 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/10/21 15:32	1

Lab Sample ID: LCS 570-156869/34 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	3.00	3.079		%		102	80 - 120

Lab Sample ID: LCSD 570-156869/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	3.01	2.906		%		97	80 - 120	6	20

Lab Sample ID: 570-61058-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	1.31		6.53	7.761		%	☼	99	75 - 125

Lab Sample ID: 570-61058-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	1.31		6.52	7.220		%	☼	91	75 - 125	7	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-61397-1 DU — **Client Sample ID: FDD-A-C1**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 156395

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	68.6		67.8		%		1	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-157805/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 158115 — **Prep Batch: 157805**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/16/21 19:05	06/17/21 21:44	1

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: LCS 570-157805/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	218.1		mg/Kg		87	80 - 120		

Lab Sample ID: LCSD 570-157805/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	215.6		mg/Kg		86	80 - 120	1	20

Lab Sample ID: 570-61000-B-5-W MS
Client Sample ID: Matrix Spike
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	4.14		30.8	29.62		mg/Kg	☼	83	75 - 125		

Lab Sample ID: 570-61000-B-5-X MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	4.14		30.8	29.21		mg/Kg	☼	81	75 - 125	1	25

Lab Sample ID: 570-61000-B-5-V DU
Client Sample ID: Duplicate
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 158115
Prep Batch: 157805

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	4.14			4.212		mg/Kg	☼			2	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 570-156594/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
4,4'-DDD	5.00	7.290		ug/Kg	146	54 - 150	38 - 166	
4,4'-DDE	5.00	6.824		ug/Kg	136	49 - 146	33 - 162	
4,4'-DDT	5.00	6.609		ug/Kg	132	52 - 147	36 - 163	
Aldrin	5.00	5.814		ug/Kg	116	28 - 116	13 - 131	
alpha-BHC	5.00	5.978		ug/Kg	120	44 - 123	31 - 136	
beta-BHC	5.00	6.270		ug/Kg	125	48 - 127	35 - 140	
delta-BHC	5.00	6.844		ug/Kg	137	10 - 149	1 - 172	
Dieldrin	5.00	6.244		ug/Kg	125	48 - 132	34 - 146	
alpha-Chlordane	5.00	5.696		ug/Kg	114	48 - 125	35 - 138	
Endosulfan I	5.00	6.407	*+ me	ug/Kg	128	44 - 125	31 - 139	ME[1]
Endosulfan II	5.00	6.075		ug/Kg	122	47 - 136	32 - 151	
Endosulfan sulfate	5.00	6.149		ug/Kg	123	46 - 133	32 - 148	
Endrin	5.00	6.253		ug/Kg	125	43 - 142	27 - 159	
Endrin aldehyde	5.00	6.542		ug/Kg	131	29 - 141	10 - 160	
gamma-BHC	5.00	6.408	*+ me	ug/Kg	128	44 - 126	30 - 140	ME[1]
Heptachlor	5.00	6.040		ug/Kg	121	50 - 123	38 - 135	
Heptachlor epoxide	5.00	6.110		ug/Kg	122	49 - 125	36 - 138	
Methoxychlor	5.00	6.198		ug/Kg	124	49 - 145	33 - 161	
gamma-Chlordane	5.00	6.398		ug/Kg	128	29 - 153	8 - 174	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
19	1	2

ME[1] = Marginal Exceedance and number of ME's found greater than allowed

GC/MS Semi VOA

Cleanup Batch: 155814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 156226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Organotin Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Organotin Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Organotin Prep	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Organotin Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Organotin Prep	
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Organotin Prep	155814
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotin Prep	155814

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 156390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Organotins SIM	156226
570-61397-2	FDD-B-C1	Total/NA	Sediment	Organotins SIM	156226
570-61397-3	FDD-C-C6	Total/NA	Sediment	Organotins SIM	156226
570-61397-5	FDD-B-C11	Total/NA	Sediment	Organotins SIM	156226
MB 570-156226/1-A	Method Blank	Total/NA	Solid	Organotins SIM	156226
LCS 570-156226/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	156226
LCSD 570-156226/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	156226
570-61136-B-2-D MS	Matrix Spike	Total/NA	Solid	Organotins SIM	156226
570-61136-B-2-M MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotins SIM	156226

Prep Batch: 156591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3541	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3541	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3541	156366

GC/MS Semi VOA (Continued)

Prep Batch: 156591 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-5	FDD-B-C11	Total/NA	Sediment	3541	156366
MB 570-156591/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156591/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156591/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	3541	156366

Prep Batch: 156592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3541	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3541	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3541	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	3541	156366
MB 570-156592/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156592/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156592/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	3541	156366

Prep Batch: 156593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3541	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3541	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3541	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	3541	156366
MB 570-156593/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156593/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156593/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	3541	156366

Analysis Batch: 157649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8270C SIM CON	156591
570-61397-2	FDD-B-C1	Total/NA	Sediment	8270C SIM CON	156591
570-61397-3	FDD-C-C6	Total/NA	Sediment	8270C SIM CON	156591
570-61397-4	FDD-B-C12	Total/NA	Sediment	8270C SIM CON	156591
570-61397-5	FDD-B-C11	Total/NA	Sediment	8270C SIM CON	156591
MB 570-156591/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	156591
LCS 570-156591/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	156591
LCSD 570-156591/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	156591
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	8270C SIM CON	156591
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	8270C SIM CON	156591

Analysis Batch: 157654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8270C SIM	156592
570-61397-2	FDD-B-C1	Total/NA	Sediment	8270C SIM	156592
570-61397-3	FDD-C-C6	Total/NA	Sediment	8270C SIM	156592

GC/MS Semi VOA (Continued)

Analysis Batch: 157654 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-4	FDD-B-C12	Total/NA	Sediment	8270C SIM	156592
570-61397-5	FDD-B-C11	Total/NA	Sediment	8270C SIM	156592
MB 570-156592/1-A	Method Blank	Total/NA	Solid	8270C SIM	156592
LCS 570-156592/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	156592
LCSD 570-156592/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	156592
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	8270C SIM	156592
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	8270C SIM	156592

Analysis Batch: 158060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8270D TQ	156593
570-61397-2	FDD-B-C1	Total/NA	Sediment	8270D TQ	156593
570-61397-3	FDD-C-C6	Total/NA	Sediment	8270D TQ	156593
570-61397-4	FDD-B-C12	Total/NA	Sediment	8270D TQ	156593
570-61397-5	FDD-B-C11	Total/NA	Sediment	8270D TQ	156593
MB 570-156593/1-A	Method Blank	Total/NA	Solid	8270D TQ	156593
LCS 570-156593/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	156593
LCSD 570-156593/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	156593
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	8270D TQ	156593
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	8270D TQ	156593

Analysis Batch: 159159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-4	FDD-B-C12	Total/NA	Sediment	Organotins SIM	156226

GC Semi VOA

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3541	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3541	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3541	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	3541	156366
MB 570-156594/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-156594/2-A	Lab Control Sample	Total/NA	Solid	3541	

GC Semi VOA (Continued)

Prep Batch: 156594 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-156594/6-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-156594/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-156594/7-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	3541	156366
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	3541	156366

Analysis Batch: 157766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8082	156594
570-61397-2	FDD-B-C1	Total/NA	Sediment	8082	156594
570-61397-3	FDD-C-C6	Total/NA	Sediment	8082	156594
570-61397-4	FDD-B-C12	Total/NA	Sediment	8082	156594
570-61397-5	FDD-B-C11	Total/NA	Sediment	8082	156594
MB 570-156594/1-A	Method Blank	Total/NA	Solid	8082	156594
LCS 570-156594/6-A	Lab Control Sample	Total/NA	Solid	8082	156594
LCSD 570-156594/7-A	Lab Control Sample Dup	Total/NA	Solid	8082	156594
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	8082	156594
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	8082	156594

Analysis Batch: 157781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8081A	156594
570-61397-2	FDD-B-C1	Total/NA	Sediment	8081A	156594
570-61397-3	FDD-C-C6	Total/NA	Sediment	8081A	156594
570-61397-4	FDD-B-C12	Total/NA	Sediment	8081A	156594
570-61397-5	FDD-B-C11	Total/NA	Sediment	8081A	156594
MB 570-156594/1-A	Method Blank	Total/NA	Solid	8081A	156594
LCS 570-156594/2-A	Lab Control Sample	Total/NA	Solid	8081A	156594
LCSD 570-156594/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	156594
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	8081A	156594
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	8081A	156594

Prep Batch: 158219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-5	FDD-B-C11	Total/NA	Sediment	3550C	156366
MB 570-158219/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-158219/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-158219/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-62132-A-42-A MS	Matrix Spike	Total/NA	Solid	3550C	
570-62132-A-42-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Analysis Batch: 158304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-158219/1-A	Method Blank	Total/NA	Solid	8015B	158219
LCS 570-158219/2-A	Lab Control Sample	Total/NA	Solid	8015B	158219
LCSD 570-158219/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	158219
570-62132-A-42-A MS	Matrix Spike	Total/NA	Solid	8015B	158219
570-62132-A-42-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	158219

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

GC Semi VOA

Analysis Batch: 158672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	8015B	158715
570-61397-2	FDD-B-C1	Total/NA	Sediment	8015B	158715
570-61397-3	FDD-C-C6	Total/NA	Sediment	8015B	158715
MB 570-158715/1-A	Method Blank	Total/NA	Solid	8015B	158715
LCS 570-158715/2-A	Lab Control Sample	Total/NA	Solid	8015B	158715
LCSD 570-158715/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	158715
570-61369-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B	158715
570-61369-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	158715

Analysis Batch: 158681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-4	FDD-B-C12	Total/NA	Sediment	8015B	158686
570-61397-5	FDD-B-C11	Total/NA	Sediment	8015B	158219
MB 570-158686/1-A	Method Blank	Total/NA	Solid	8015B	158686
LCS 570-158686/2-A	Lab Control Sample	Total/NA	Solid	8015B	158686
LCSD 570-158686/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	158686

Prep Batch: 158686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-4	FDD-B-C12	Total/NA	Sediment	3550C	156366
MB 570-158686/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-158686/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-158686/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-61859-A-46-D MS - RA	Matrix Spike	Total/NA	Solid	3550C	
570-61859-A-46-E MSD - RA	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Prep Batch: 158715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3550C	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3550C	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3550C	156366
MB 570-158715/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-158715/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-158715/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-61369-A-1-H MS	Matrix Spike	Total/NA	Solid	3550C	
570-61369-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Analysis Batch: 158936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61859-A-46-D MS - RA	Matrix Spike	Total/NA	Solid	8015B	158686
570-61859-A-46-E MSD - RA	Matrix Spike Duplicate	Total/NA	Solid	8015B	158686

HPLC/IC

Analysis Batch: 156295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	7199	156414
570-61397-2	FDD-B-C1	Total/NA	Sediment	7199	156414
570-61397-3	FDD-C-C6	Total/NA	Sediment	7199	156414
570-61397-4	FDD-B-C12	Total/NA	Sediment	7199	156414
570-61397-5	FDD-B-C11	Total/NA	Sediment	7199	156414

HPLC/IC (Continued)

Analysis Batch: 156295 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-156414/1-A	Method Blank	Total/NA	Solid	7199	156414
LCS 570-156414/2-A	Lab Control Sample	Total/NA	Solid	7199	156414
LCSD 570-156414/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	156414
570-61247-A-1-C MS	Matrix Spike	Total/NA	Solid	7199	156414
570-61247-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	156414

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3060A	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3060A	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3060A	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3060A	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	3060A	156366
MB 570-156414/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-156414/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-156414/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-61247-A-1-C MS	Matrix Spike	Total/NA	Solid	3060A	
570-61247-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	

Metals

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Homogenize Prep	
570-61397-1 MS	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-1 MSD	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 158288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	7471A	156366

Metals (Continued)

Prep Batch: 158288 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-2	FDD-B-C1	Total/NA	Sediment	7471A	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	7471A	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	7471A	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	7471A	156366
MB 570-158288/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-158288/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-158288/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-61859-A-45-H MS	Matrix Spike	Total/NA	Solid	7471A	
570-61859-A-45-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	

Prep Batch: 158296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	3050B	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	3050B	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	3050B	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	3050B	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	3050B	156366
MB 570-158296/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-158296/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-158296/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-61397-1 MS	FDD-A-C1	Total/NA	Sediment	3050B	156366
570-61397-1 MSD	FDD-A-C1	Total/NA	Sediment	3050B	156366

Analysis Batch: 158645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	6020	158296
570-61397-2	FDD-B-C1	Total/NA	Sediment	6020	158296
570-61397-3	FDD-C-C6	Total/NA	Sediment	6020	158296
570-61397-4	FDD-B-C12	Total/NA	Sediment	6020	158296
570-61397-5	FDD-B-C11	Total/NA	Sediment	6020	158296
MB 570-158296/1-A ^20	Method Blank	Total/NA	Solid	6020	158296
LCS 570-158296/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	158296
LCSD 570-158296/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	158296
570-61397-1 MS	FDD-A-C1	Total/NA	Sediment	6020	158296
570-61397-1 MSD	FDD-A-C1	Total/NA	Sediment	6020	158296

Analysis Batch: 158748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	7471A	158288
570-61397-2	FDD-B-C1	Total/NA	Sediment	7471A	158288
570-61397-3	FDD-C-C6	Total/NA	Sediment	7471A	158288
570-61397-4	FDD-B-C12	Total/NA	Sediment	7471A	158288
570-61397-5	FDD-B-C11	Total/NA	Sediment	7471A	158288
MB 570-158288/1-A	Method Blank	Total/NA	Solid	7471A	158288
LCS 570-158288/2-A	Lab Control Sample	Total/NA	Solid	7471A	158288
LCSD 570-158288/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	158288
570-61859-A-45-H MS	Matrix Spike	Total/NA	Solid	7471A	158288
570-61859-A-45-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	158288

General Chemistry

Cleanup Batch: 155604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-E MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-61058-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	Homogenize Prep	
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 156223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	9030B	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	9030B	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	9030B	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	9030B	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	9030B	156366
MB 570-156223/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	9030B	155604

Leach Batch: 156227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Soluble	Sediment	DI Leach	156366
570-61397-2	FDD-B-C1	Soluble	Sediment	DI Leach	156366
570-61397-3	FDD-C-C6	Soluble	Sediment	DI Leach	156366
570-61397-4	FDD-B-C12	Soluble	Sediment	DI Leach	156366
570-61397-5	FDD-B-C11	Soluble	Sediment	DI Leach	156366
MB 570-156227/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-61000-B-4-I DU	Duplicate	Soluble	Solid	DI Leach	155604

Cleanup Batch: 156366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Soluble	Sediment	Homogenize Prep	
570-61397-1	FDD-A-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Soluble	Sediment	Homogenize Prep	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Soluble	Sediment	Homogenize Prep	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-4	FDD-B-C12	Soluble	Sediment	Homogenize Prep	

General Chemistry (Continued)

Cleanup Batch: 156366 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-4	FDD-B-C12	Total/NA	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Soluble	Sediment	Homogenize Prep	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 156395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	Moisture	
570-61397-2	FDD-B-C1	Total/NA	Sediment	Moisture	
570-61397-3	FDD-C-C6	Total/NA	Sediment	Moisture	
570-61397-4	FDD-B-C12	Total/NA	Sediment	Moisture	
570-61397-5	FDD-B-C11	Total/NA	Sediment	Moisture	
570-61397-1 DU	FDD-A-C1	Total/NA	Sediment	Moisture	

Analysis Batch: 156579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Soluble	Sediment	376.2 LL	156227
570-61397-1	FDD-A-C1	Total/NA	Sediment	376.2 LL	156223
570-61397-2	FDD-B-C1	Soluble	Sediment	376.2 LL	156227
570-61397-2	FDD-B-C1	Total/NA	Sediment	376.2 LL	156223
570-61397-3	FDD-C-C6	Soluble	Sediment	376.2 LL	156227
570-61397-3	FDD-C-C6	Total/NA	Sediment	376.2 LL	156223
570-61397-4	FDD-B-C12	Soluble	Sediment	376.2 LL	156227
570-61397-4	FDD-B-C12	Total/NA	Sediment	376.2 LL	156223
570-61397-5	FDD-B-C11	Soluble	Sediment	376.2 LL	156227
570-61397-5	FDD-B-C11	Total/NA	Sediment	376.2 LL	156223
MB 570-156223/1-A	Method Blank	Total/NA	Solid	376.2 LL	156223
MB 570-156227/1-A	Method Blank	Soluble	Solid	376.2 LL	156227
LCS 570-156223/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	156223
LCS 570-156227/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	156227
LCSD 570-156223/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	156223
LCSD 570-156227/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	156227
570-61000-B-4-G DU	Duplicate	Total/NA	Solid	376.2 LL	156223
570-61000-B-4-I DU	Duplicate	Soluble	Solid	376.2 LL	156227

Prep Batch: 156803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	1664A	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	1664A	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	1664A	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	1664A	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	1664A	156366
MB 570-156803/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-156803/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-156803/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	1664A	156366

General Chemistry (Continued)

Prep Batch: 156803 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	1664A	156366

Analysis Batch: 156869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	9060A	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	9060A	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	9060A	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	9060A	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	9060A	156366
MB 570-156869/4	Method Blank	Total/NA	Solid	9060A	
MB 570-156869/50	Method Blank	Total/NA	Solid	9060A	
LCS 570-156869/34	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-156869/35	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-61058-A-1-E MS	Matrix Spike	Total/NA	Solid	9060A	155604
570-61058-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	155604

Analysis Batch: 156965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	1664A	156803
570-61397-2	FDD-B-C1	Total/NA	Sediment	1664A	156803
570-61397-3	FDD-C-C6	Total/NA	Sediment	1664A	156803
570-61397-4	FDD-B-C12	Total/NA	Sediment	1664A	156803
570-61397-5	FDD-B-C11	Total/NA	Sediment	1664A	156803
MB 570-156803/1-A	Method Blank	Total/NA	Solid	1664A	156803
LCS 570-156803/2-A	Lab Control Sample	Total/NA	Solid	1664A	156803
LCSD 570-156803/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	156803
570-61397-3 MS	FDD-C-C6	Total/NA	Sediment	1664A	156803
570-61397-3 MSD	FDD-C-C6	Total/NA	Sediment	1664A	156803

Analysis Batch: 157473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	7199 CR3	
570-61397-2	FDD-B-C1	Total/NA	Sediment	7199 CR3	
570-61397-3	FDD-C-C6	Total/NA	Sediment	7199 CR3	
570-61397-4	FDD-B-C12	Total/NA	Sediment	7199 CR3	
570-61397-5	FDD-B-C11	Total/NA	Sediment	7199 CR3	

Prep Batch: 157805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	SM4500 NH3 B LL	156366
570-61397-2	FDD-B-C1	Total/NA	Sediment	SM4500 NH3 B LL	156366
570-61397-3	FDD-C-C6	Total/NA	Sediment	SM4500 NH3 B LL	156366
570-61397-4	FDD-B-C12	Total/NA	Sediment	SM4500 NH3 B LL	156366
570-61397-5	FDD-B-C11	Total/NA	Sediment	SM4500 NH3 B LL	156366
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	

General Chemistry (Continued)

Prep Batch: 157805 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 B LL	155604

Analysis Batch: 158115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61397-2	FDD-B-C1	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61397-3	FDD-C-C6	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61397-4	FDD-B-C12	Total/NA	Sediment	SM4500 NH3 C LL	157805
570-61397-5	FDD-B-C11	Total/NA	Sediment	SM4500 NH3 C LL	157805
MB 570-157805/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	157805
LCS 570-157805/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	157805
LCSD 570-157805/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-W MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-X MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805
570-61000-B-5-V DU	Duplicate	Total/NA	Solid	SM4500 NH3 C LL	157805

Geotechnical

Analysis Batch: 158052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-61397-1	FDD-A-C1	Total/NA	Sediment	D4464	
570-61397-2	FDD-B-C1	Total/NA	Sediment	D4464	
570-61397-3	FDD-C-C6	Total/NA	Sediment	D4464	
570-61397-4	FDD-B-C12	Total/NA	Sediment	D4464	
570-61397-5	FDD-B-C11	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-A-C1

Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156592	06/10/21 22:04	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157654	06/16/21 18:51	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	156591	06/10/21 22:01	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157649	06/16/21 23:26	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.09 g	2 mL	156593	06/10/21 22:05	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			158060	06/17/21 20:32	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.3 g	5 mL	156226	06/10/21 11:05	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 19:46	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3550C			10.43 g	10 mL	158715	06/21/21 14:54	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			158672	06/22/21 07:43	N1A	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 12:04	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8082		1			157766	06/17/21 13:41	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156414	06/10/21 16:02	P6WT	ECL 1
Total/NA	Analysis	7199		10			156295	06/11/21 03:54	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3050B			2.07 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 12:32	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 13:53	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	1664A			30.01 g	30 g	156803	06/11/21 14:53	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156965	06/12/21 14:54	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-A-C1

Date Collected: 06/08/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Soluble	Leach	DI Leach			20.04 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:47	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	9030B			20.52 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		50	7.5 mL	7.5 mL	156579	06/10/21 19:25	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Analysis	9060A		1	201.4 mg	201.4 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156395	06/10/21 10:33	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 15:27	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C1

Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.26 g	2 mL	156592	06/10/21 22:04	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157654	06/16/21 19:09	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156591	06/10/21 22:01	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157649	06/16/21 23:50	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.04 g	2 mL	156593	06/10/21 22:05	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			158060	06/17/21 21:09	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.13 g	5 mL	156226	06/10/21 11:05	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 20:04	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3550C			10.40 g	10 mL	158715	06/21/21 14:54	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			158672	06/22/21 08:06	N1A	ECL 1
	Instrument ID:	GC47								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-B-C1

Date Collected: 06/08/21 07:30
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.04 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 12:18	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.04 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8082		1			157766	06/17/21 13:59	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156414	06/10/21 16:02	P6WT	ECL 1
Total/NA	Analysis	7199		10			156295	06/11/21 04:05	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3050B			1.95 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 12:44	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 13:55	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	1664A			30.03 g	30 g	156803	06/11/21 14:53	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156965	06/12/21 14:54	F7UI	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Soluble	Leach	DI Leach			19.98 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:48	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	9030B			21.12 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:27	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Analysis	9060A		1	208.6 mg	208.6 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156395	06/10/21 10:33	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 15:34	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-C-C6

Date Collected: 06/08/21 08:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	156592	06/10/21 22:04	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157654	06/16/21 19:28	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.06 g	2 mL	156591	06/10/21 22:01	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157649	06/16/21 23:02	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.16 g	2 mL	156593	06/10/21 22:05	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			158060	06/17/21 21:46	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.06 g	5 mL	156226	06/10/21 11:05	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 20:21	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3550C			9.58 g	10 mL	158715	06/21/21 14:54	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			158672	06/22/21 08:27	N1A	ECL 1
	Instrument ID:	GC47								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 10:24	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8082		1			157766	06/17/21 14:17	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	156414	06/10/21 16:02	P6WT	ECL 1
Total/NA	Analysis	7199		10			156295	06/11/21 04:16	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3050B			1.95 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 12:54	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 14:01	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	1664A			30.06 g	30 g	156803	06/11/21 14:53	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156965	06/12/21 14:54	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-C-C6

Lab Sample ID: 570-61397-3

Date Collected: 06/08/21 08:45
Matrix: Sediment
Date Received: 06/09/21 19:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Soluble	Leach	DI Leach			19.96 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:51	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	9030B			20.10 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:30	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Analysis	9060A		1	206.4 mg	206.4 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156395	06/10/21 10:33	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 16:25	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-C12

Lab Sample ID: 570-61397-4

Date Collected: 06/07/21 13:45
Matrix: Sediment
Date Received: 06/09/21 19:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.29 g	2 mL	156592	06/10/21 22:04	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		5			157654	06/16/21 19:47	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	156591	06/10/21 22:01	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157649	06/17/21 00:15	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	156593	06/10/21 22:05	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			158060	06/17/21 22:23	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.18 g	5 mL	156226	06/10/21 11:05	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			159159	06/23/21 12:37	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3550C			10.56 g	10 mL	158686	06/21/21 13:39	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			158681	06/22/21 09:59	N1A	ECL 1
	Instrument ID:	GC45								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-B-C12

Date Collected: 06/07/21 13:45
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.31 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 12:32	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.31 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8082		1			157766	06/17/21 14:35	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3060A			2.51 g	100 mL	156414	06/10/21 16:02	P6WT	ECL 1
Total/NA	Analysis	7199		10			156295	06/11/21 04:26	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3050B			1.96 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 12:57	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	7471A			.63 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 14:02	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	1664A			30.01 g	30 g	156803	06/11/21 14:53	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156965	06/12/21 14:54	F7UI	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Soluble	Leach	DI Leach			19.98 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:52	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	9030B			20.15 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:31	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Analysis	9060A		1	204.8 mg	204.8 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156395	06/10/21 10:33	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 16:32	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-B-C11

Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	156592	06/10/21 22:04	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			157654	06/16/21 20:05	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.22 g	2 mL	156591	06/10/21 22:01	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			157649	06/17/21 00:41	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.07 g	2 mL	156593	06/10/21 22:05	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			158060	06/17/21 23:00	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.26 g	5 mL	156226	06/10/21 11:05	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			156390	06/10/21 20:56	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3550C			10.14 g	10 mL	158219	06/18/21 18:20	UFLU	ECL 1
Total/NA	Analysis	8015B		1			158681	06/21/21 20:48	N1A	ECL 1
	Instrument ID:	GC45								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8081A		1			157781	06/17/21 12:47	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	156594	06/10/21 22:09	UM1W	ECL 1
Total/NA	Analysis	8082		1			157766	06/17/21 14:53	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3060A			2.52 g	100 mL	156414	06/10/21 16:02	P6WT	ECL 1
Total/NA	Analysis	7199		10			156295	06/11/21 04:37	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	3050B			1.91 g	100 mL	158296	06/18/21 12:40	WL8G	ECL 1
Total/NA	Analysis	6020		20			158645	06/21/21 13:00	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	158288	06/18/21 12:05	WL8G	ECL 1
Total/NA	Analysis	7471A		1			158748	06/21/21 14:04	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	1664A			30.02 g	30 g	156803	06/11/21 14:53	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			156965	06/12/21 14:54	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Client Sample ID: FDD-B-C11

Date Collected: 06/04/21 11:15
Date Received: 06/09/21 19:15

Lab Sample ID: 570-61397-5

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Soluble	Leach	DI Leach			19.96 g	20 mL	156227	06/10/21 13:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	156579	06/10/21 19:53	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	9030B			20.70 g	20 mL	156223	06/10/21 10:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	156579	06/10/21 19:32	CY2M	ECL 1
	Instrument ID:	UV9								
Total/NA	Analysis	7199 CR3		1			157473	06/15/21 16:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Analysis	9060A		1	205.6 mg	205.6 mg	156869	06/10/21 15:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			156395	06/10/21 10:33	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					156366	06/10/21 09:26	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	157805	06/16/21 19:05	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	158115	06/17/21 21:44	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			158052	06/16/21 16:37	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-61397-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-61397-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-61397-1	FDD-A-C1	Sediment	06/08/21 11:15	06/09/21 19:15	
570-61397-2	FDD-B-C1	Sediment	06/08/21 07:30	06/09/21 19:15	
570-61397-3	FDD-C-C6	Sediment	06/08/21 08:45	06/09/21 19:15	
570-61397-4	FDD-B-C12	Sediment	06/07/21 13:45	06/09/21 19:15	
570-61397-5	FDD-B-C11	Sediment	06/04/21 11:15	06/09/21 19:15	

61397

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN OF CUSTODY RECORD

WO #/ LAB USE ONLY

DATE: 6/9/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL. 858-300-4300 E-MAIL. kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

PO NO. 3151187382 ~~3151107955.04~~ KB PO 9915

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID QUOTE NUMBER 965646 LOG CODE.

SPECIAL INSTRUCTIONS: Carla Hollowell is PM
RETAIN remaining material for potential future tests
Please only report requested analytes Please report totals for PCBs and PAHs.
Please report to MDL in dry weight. Please see attached sheet for details.
2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376.2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418.1 M)	TPH (C6-C44); (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)
1	FDD-A-C1	6/8/21	1115	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	FDD-B-C1	6/8/21	0730	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	FDD-C-C6	6/8/21	0845	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	FDD-B-C12	6/7/21	1345	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	FDD-B-C11	6/4/21	1115	Sed	2	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

570-61397 Chain of Custody

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time
[signature]	[signature] ECI	06/09/21	1435
[signature]	[signature]	06/09/21	1915

3 3/37 SCS

06/02/14 Revision

Page 101 of 103

6/30/2021 (Rev. 1)

61397

Analyte[j]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0.10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M)[c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M[c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020[d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020[d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020[d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020[d]	0.1 mg/kg	N/A
Copper	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A[d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020[d]	0.1 mg/kg	N/A
Nickel	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020[d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020[d]	0.1 mg/kg	N/A
Zinc	USEPA 6020[d]	1.0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993[i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M[d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M)[d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM[d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides[f]	USEPA 8270C SIM/8081A[d]	1 0–20 µg/kg[k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners[g]	USEPA 8270C SIM[d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM[d]	10–500 µg/kg	N/A
Pyrethroids[j]	GC/MS/MS	0.5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM[d]	50 µg/kg	N/A
Organotins	Krone, et al[h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners. 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C.A., D W Brown, D G Burrows, R.G Bogar, S.L. Chan, and U Varanasi, 1989. A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18.

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes. allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion); ASTM = ASTM International, GC = gas chromatography; (M) = modified, RL = reporting limit; mg/kg = milligrams per kilogram, MS/MS = mass spectrometry; N/A = not applicable, NOAA = National Oceanic and Atmospheric Administration, SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration, TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration, USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-61397-1

Login Number: 61397
List Number: 1
Creator: Patel, Jayesh

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-60626-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
6/16/2021 5:01:36 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Client Sample Results 5
Surrogate Summary 20
QC Sample Results 24
QC Association Summary 44
Lab Chronicle 50
Certification Summary 52
Method Summary 54
Sample Summary 55
Chain of Custody 56
Receipt Checklists 58

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-60626-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-60626-1

Comments
No additional comments.

Receipt
The sample was received on 6/1/2021 6:35 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 570-154601 and 570-154683 and analytical batch 570-155510 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8270C SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-154683 and analytical batch 570-155510 recovered outside control limits for the following analytes: 2,4-Dimethylphenol, 2-Nitrophenol 3/4-Methylphenol, Di-n-butyl phthalate, Fluoranthene, Isophorone and 2-Methylphenol.

Method 8270C SIM CON: The continuing calibration verification (CCV) associated with batch 570-155879 recovered above the upper control limit for PCB-169, PCB-189, PCB-194 and PCB-206. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270D TQ: Surrogate recovery for the following samples were outside the upper control limit: (MB 570-154684/1-A), (570-60626-A-1-K MS) and (570-60626-A-1-L MSD). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-154588 and analytical batch 570-155594 recovered outside control limits for the following analytes: Aldrin, Methoxychlor and, Endrin.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.31	0.10	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-28	ND		0.31	0.11	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-37	ND		0.31	0.094	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-44	ND		0.31	0.24	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-49	ND		0.31	0.077	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-52	ND		0.31	0.29	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-66	ND		0.31	0.19	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-70	ND		0.31	0.11	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-74	ND		0.31	0.14	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-77	ND		0.31	0.18	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-81	ND		0.31	0.14	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-87	ND		0.31	0.17	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-99	ND		0.31	0.073	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-101	ND		0.31	0.069	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-105	ND		0.31	0.083	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-110	ND		0.31	0.052	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-114	ND		0.31	0.11	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-118	ND		0.31	0.054	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-119	ND		0.31	0.097	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-123	ND		0.31	0.11	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-126	ND		0.31	0.085	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-128	ND		0.31	0.19	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-132/153	ND		0.62	0.25	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-138/158	ND		0.62	0.55	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-149	ND		0.31	0.18	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-151	ND		0.31	0.14	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-156	ND		0.31	0.12	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-157	ND		0.31	0.13	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-167	ND		0.31	0.21	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-168	ND		0.31	0.22	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-169	ND		0.31	0.10	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-170	ND		0.31	0.17	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-177	ND		0.31	0.18	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-180	ND		0.31	0.14	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-183	ND		0.31	0.14	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-187	ND		0.31	0.16	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-189	ND		0.31	0.099	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-194	ND		0.31	0.11	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-201	ND		0.31	0.053	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
PCB-206	ND		0.31	0.18	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1
Polychlorinated biphenyls, Total	ND		0.62	0.55	ug/Kg	☼	06/02/21 18:34	06/08/21 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*	*06/02/21 18:34*	*06/08/21 20:43*	*1*
p-Terphenyl-d14	*92*		*37 - 165*	*06/02/21 18:34*	*06/08/21 20:43*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		15	2.8	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
1-Methylnaphthalene	ND	F2	15	1.7	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
1-Methylphenanthrene	ND		15	3.1	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,6-Dimethylnaphthalene	**8.6**	**J**	15	3.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2-Methylnaphthalene	ND	F2	15	2.5	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Acenaphthene	ND	F2	15	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Acenaphthylene	ND	F2	15	2.6	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Anthracene	ND		15	2.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[a]anthracene	ND		15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[a]pyrene	**6.0**	**J F2**	15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[b]fluoranthene	**5.4**	**J F2**	15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[e]pyrene	ND		15	2.6	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[g,h,i]perylene	**4.5**	**J**	15	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Benzo[k]fluoranthene	ND	F2	15	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Biphenyl	ND		15	2.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Chrysene	**4.0**	**J**	15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Dibenz(a,h)anthracene	ND		15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Dibenzothiophene	ND		15	2.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Fluoranthene	**4.9**	**J *1**	15	2.8	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Fluorene	ND	F1 F2	15	2.5	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Indeno[1,2,3-cd]pyrene	**3.4**	**J**	15	2.0	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Isophorone	ND	*1 F2	770	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Naphthalene	ND	F2	15	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Perthane	ND		15	3.1	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Perylene	**5.3**	**J**	15	1.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Phenanthrene	ND		15	2.6	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Pyrene	**5.2**	**J**	15	2.5	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,4,5-Trichlorophenol	ND	F2	15	1.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,4-Dimethylphenol	ND	*1 F2	770	4.0	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,4-Dichlorophenol	ND	F2	15	3.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
4-Chloro-3-methylphenol	ND		15	3.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2-Nitrophenol	ND	*1 F2	770	2.6	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,4-Dinitrophenol	ND		770	92	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,4,6-Trichlorophenol	ND	F2	15	2.0	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Pentachlorophenol	**31**	**J**	770	2.0	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
4,6-Dinitro-2-methylphenol	ND		770	100	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2-Methylphenol	ND	*1 F2	15	3.1	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,6-Dichlorophenol	ND	F2	15	3.2	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
4-Nitrophenol	ND		770	130	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2-Chlorophenol	ND	F1 F2	15	2.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Phenol	ND	F1 F2	15	3.5	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
2,3,4,6-Tetrachlorophenol	ND	F2	15	6.0	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
3/4-Methylphenol	ND	*1	31	5.6	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Dimethyl phthalate	ND	F2	77	3.1	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Bis(2-ethylhexyl) phthalate	**29**	**J B**	77	2.3	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Di-n-octyl phthalate	**40**	**J**	77	2.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Di-n-butyl phthalate	**10**	**J B *1**	77	2.9	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Diethyl phthalate	**3.5**	**J B F2**	77	2.5	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1
Butyl benzyl phthalate	**8.3**	**J B**	77	3.1	ug/Kg	☼	06/02/21 18:58	06/07/21 14:38	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	62		32 - 143	06/02/21 18:58	06/07/21 14:38	1
2-Fluorophenol	52		15 - 138	06/02/21 18:58	06/07/21 14:38	1
Nitrobenzene-d5	46		18 - 162	06/02/21 18:58	06/07/21 14:38	1
Phenol-d6	55		17 - 141	06/02/21 18:58	06/07/21 14:38	1
p-Terphenyl-d14	60		34 - 148	06/02/21 18:58	06/07/21 14:38	1
2-Fluorobiphenyl (Surr)	58		14 - 146	06/02/21 18:58	06/07/21 14:38	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.77	0.71	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Bifenthrin	ND		0.77	0.29	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Cyfluthrin	ND		0.77	0.35	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Cypermethrin	ND		0.77	0.25	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Deltamethrin/Tralomethrin	ND		0.77	0.40	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Fenpropathrin	ND		0.77	0.27	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Fenvalerate/Esfenvalerate	ND		0.77	0.28	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Fluvalinate	ND		0.77	0.25	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Lambda cyhalothrin	ND		0.77	0.50	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Permethrins (cis/trans)	ND		1.5	0.25	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Phenothrin	ND		0.77	0.30	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Resmethrin/Bioresmethrin	ND		0.77	0.35	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1
Tetramethrin	ND		0.77	0.16	ug/Kg	☼	06/02/21 19:01	06/10/21 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*106*		*14 - 116*	*06/02/21 19:01*	*06/10/21 21:36*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.6	1.1	ug/Kg	☼	06/03/21 10:10	06/04/21 20:08	1
Tributyltin	ND		4.6	2.3	ug/Kg	☼	06/03/21 10:10	06/04/21 20:08	1
Dibutyltin	ND		4.6	1.1	ug/Kg	☼	06/03/21 10:10	06/04/21 20:08	1
Monobutyltin	ND		4.6	2.1	ug/Kg	☼	06/03/21 10:10	06/04/21 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*62*		*10 - 120*	*06/03/21 10:10*	*06/04/21 20:08*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C7 as C7	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C8 as C8	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C9-C10	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C11-C12	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C13-C14	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C15-C16	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C17-C18	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C19-C20	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C21-C22	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C23-C24	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C25-C28	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C29-C32	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C33-C36	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C37-C40	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C41-C44	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1
C6-C44	ND		7.6	5.9	mg/Kg	☼	06/11/21 13:56	06/12/21 08:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*82*		*60 - 138*	*06/11/21 13:56*	*06/12/21 08:46*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.5	0.099	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
4,4'-DDD	ND		1.5	0.77	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
2,4'-DDE	ND		3.1	0.15	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
4,4'-DDE	**1.5**		1.5	0.11	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
2,4'-DDT	ND		1.5	0.14	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
4,4'-DDT	ND		1.5	0.27	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Aldrin	ND	*1	1.5	0.11	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
alpha-BHC	ND		1.5	0.12	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
beta-BHC	ND		1.5	0.14	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Chlordane	ND		7.7	0.50	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
delta-BHC	ND		1.5	0.099	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Dieldrin	ND		0.31	0.10	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
alpha-Chlordane	ND		1.5	0.071	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endosulfan I	ND		1.5	0.075	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endosulfan II	ND		1.5	0.35	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endosulfan sulfate	ND		1.5	0.17	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endrin	ND	*1	1.5	0.13	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
cis-Nonachlor	ND		1.5	0.073	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endrin aldehyde	ND		1.5	0.75	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Endrin ketone	ND		1.5	0.29	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
gamma-BHC	ND		1.5	0.16	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Heptachlor	ND		1.5	0.092	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Heptachlor epoxide	ND		1.5	0.13	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Methoxychlor	ND	*1	1.5	0.25	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Toxaphene	ND		7.7	1.5	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
gamma-Chlordane	ND		1.5	0.54	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
Oxychlordane	ND		1.5	0.23	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1
trans-Nonachlor	ND		1.5	0.058	ug/Kg	☼	06/02/21 18:36	06/08/21 13:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*47*		*20 - 131*	*06/02/21 18:36*	*06/08/21 13:20*	*1*
DCB Decachlorobiphenyl (Surr)	*61*		*20 - 180*	*06/02/21 18:36*	*06/08/21 13:20*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		15	8.5	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1221	ND		15	8.5	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1232	ND		15	8.5	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1242	ND		15	8.5	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1248	ND		15	8.5	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1254	ND		15	7.7	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1260	ND		15	7.7	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1262	ND		15	7.7	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1
Aroclor-1268	ND		15	7.7	ug/Kg	☼	06/02/21 18:36	06/07/21 13:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 155*	*06/02/21 18:36*	*06/07/21 13:32*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*25 - 126*	*06/02/21 18:36*	*06/07/21 13:32*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		620	320	ug/Kg	☼	06/08/21 13:59	06/09/21 15:58	10

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.06	0.426	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Arsenic	**2.49**		1.53	0.510	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Barium	**269**		1.53	0.318	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Beryllium	ND		1.53	0.316	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Cadmium	ND		1.53	0.688	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Chromium	**7.40**		3.06	0.458	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Cobalt	**2.55**		1.53	0.289	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Copper	**8.11**		1.53	0.411	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Lead	**1.95**		1.53	0.328	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Molybdenum	ND		1.53	0.471	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Nickel	**5.19**		1.53	0.413	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Selenium	ND		1.53	0.888	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Silver	ND		1.53	0.506	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Thallium	ND		1.53	0.335	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Vanadium	**26.0**		3.06	0.370	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20
Zinc	**30.7**		7.64	7.05	mg/Kg	☼	06/11/21 05:30	06/11/21 10:44	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0254	J	0.147	0.0237	mg/Kg	☼	06/11/21 06:00	06/11/21 12:51	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-60626-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry

Client Sample ID: LA5
Lab Sample ID: 570-60626-1
Date Collected: 05/31/21 12:05
Matrix: Sediment
Date Received: 06/01/21 18:35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	**20.6**		15.5	12.2	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	ND		15.5	12.5	mg/Kg	☼	06/03/21 16:18	06/03/21 20:41	1
Total Sulfide	**6.31**		1.45	1.21	mg/Kg	☼	06/03/21 00:00	06/03/21 01:38	10
Trivalent Chromium	**7.40**		3.10	0.465	mg/Kg	☼		06/15/21 08:36	1
Carbon, Total Organic	**0.782**		0.0775	0.0269	%	☼		06/03/21 09:03	1
Percent Solids	**64.5**		0.1	0.1	%			06/02/21 22:30	1
Ammonia (as N)	**3.21**		0.775	0.426	mg/Kg	☼	06/03/21 20:30	06/04/21 10:43	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

General Chemistry - Soluble

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:51	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: LA5
Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay(less than 0.00391 mm)	**6.63**		0.01	0.01	%			06/08/21 17:35	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			06/08/21 17:35	1
Fine Sand (0.125 to 0.25mm)	**5.70**		0.01	0.01	%			06/08/21 17:35	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			06/08/21 17:35	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			06/08/21 17:35	1
Silt (0.00391 to 0.0625mm)	**49.47**		0.01	0.01	%			06/08/21 17:35	1
Total Silt and Clay (0 to 0.0626mm)	**56.10**		0.01	0.01	%			06/08/21 17:35	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			06/08/21 17:35	1
Very Fine Sand (0.0625 to 0.125 mm)	**38.20**		0.01	0.01	%			06/08/21 17:35	1

PARTICLE SIZE SUMMARY

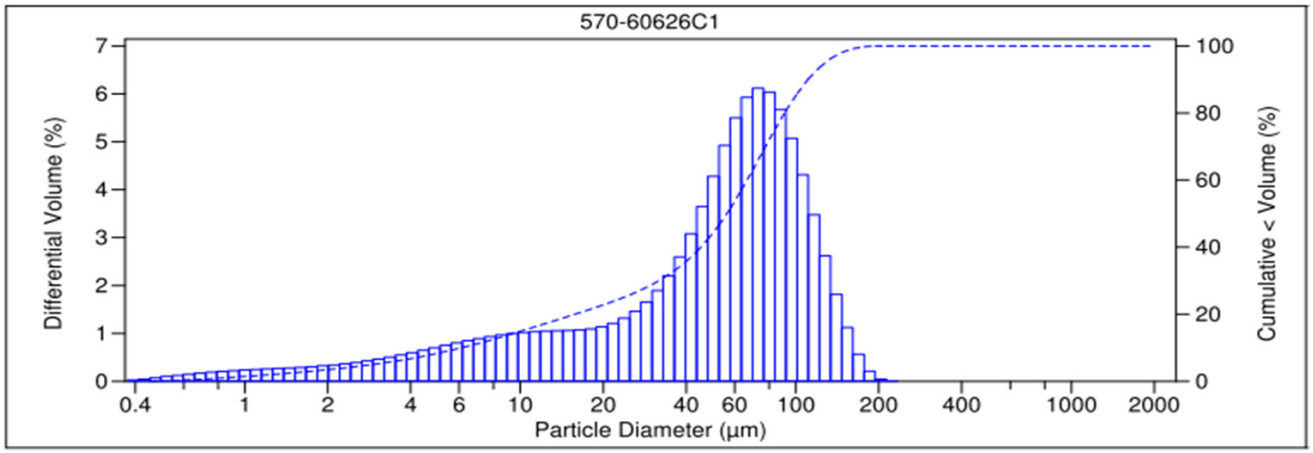
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	06/01/21
	Date Received:	06/01/21
	Work Order No:	570-60626
	Date Analyzed:	06/08/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
LA 5		Silt	0.058

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
0.00	0.00	0.00	0.00	5.70	38.20	49.47	6.63	56.10



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-60626-1	LA5	62	52	46	55	60	58
570-60626-1 MS	LA5	79	60	49	62	73	75
570-60626-1 MSD	LA5	66	34	37	37	66	45

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
LCS 570-154683/2-A	Lab Control Sample	76	96	60	94	73	65
LCSD 570-154683/3-A	Lab Control Sample Dup	75	52	42	74	73	65
MB 570-154683/1-A	Method Blank	66	52	88	62	47	53

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-60626-1	LA5	62	92

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-60471-C-9-M MS	Matrix Spike	65	95
570-60471-C-9-N MSD	Matrix Spike Duplicate	67	95
LCS 570-154595/2-A	Lab Control Sample	86	95
LCSD 570-154595/3-A	Lab Control Sample Dup	83	91

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60626-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	FBP (20-139)	TPHd14 (37-165)							
MB 570-154595/1-A	Method Blank	82	95							

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DBC (14-116)								
570-60626-1	LA5	106								
570-60626-1 MS	LA5	127 S1+								
570-60626-1 MSD	LA5	123 S1+								

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DBC (14-116)								
LCS 570-154684/2-A	Lab Control Sample	104								
LCSD 570-154684/3-A	Lab Control Sample Dup	104								
MB 570-154684/1-A	Method Blank	119 S1+								

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	TPTT (10-120)								
570-60626-1	LA5	62								

Surrogate Legend

TPTT = Tripentyltin

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	TPTT (10-120)								
570-60732-A-6-N MS	Matrix Spike	81								
570-60732-A-6-O MSD	Matrix Spike Duplicate	70								
LCS 570-154813/2-A	Lab Control Sample	65								
LCSD 570-154813/3-A	Lab Control Sample Dup	62								
MB 570-154813/1-A	Method Blank	78								

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**OTCSN1 (60-138)**
570-60626-1	LA5	82

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**OTCSN1 (60-138)**
570-61247-A-8-E MS	Matrix Spike	83
570-61247-A-8-F MSD	Matrix Spike Duplicate	87
LCS 570-156780/2-A	Lab Control Sample	90
LCSD 570-156780/3-A	Lab Control Sample Dup	84
MB 570-156780/1-A	Method Blank	99

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	**Client Sample ID**	**TCX1 (20-131)**	**DCB1 (20-180)**
570-60626-1	LA5	47	61

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	**Client Sample ID**	**TCX1 (20-131)**	**DCB1 (20-180)**
570-60471-C-9-P MS	Matrix Spike	45	62
570-60471-C-9-Q MSD	Matrix Spike Duplicate	24	61
LCS 570-154588/2-A	Lab Control Sample	81	93
LCSD 570-154588/3-A	Lab Control Sample Dup	98	100
MB 570-154588/1-A	Method Blank	69	91

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60626-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-60626-1	LA5	73	59
570-60626-1 MS	LA5	79	46
570-60626-1 MSD	LA5	77	57

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
LCS 570-154588/12-A	Lab Control Sample	79	54
LCSD 570-154588/13-A	Lab Control Sample Dup	76	52
MB 570-154588/1-A	Method Blank	79	60

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-154683/1-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154683

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Acenaphthene	ND		10	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Acenaphthylene	ND		10	1.7	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Anthracene	ND		10	1.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Biphenyl	ND		10	1.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Chrysene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Dibenzothiophene	ND		10	1.4	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Fluoranthene	ND		10	1.8	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Fluorene	ND		10	1.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Isophorone	ND		500	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Naphthalene	ND		10	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Perthane	ND		10	2.0	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Perylene	ND		10	1.2	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Phenanthrene	ND		10	1.7	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Pyrene	ND		10	1.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2-Nitrophenol	ND		500	1.7	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,4-Dinitrophenol	ND		500	60	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Pentachlorophenol	ND		500	1.3	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2-Methylphenol	ND		10	2.0	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,6-Dichlorophenol	ND		10	2.1	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
4-Nitrophenol	ND		500	81	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2-Chlorophenol	ND		10	1.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Phenol	ND		10	2.3	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
2,3,4,6-Tetrachlorophenol	ND		10	3.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Bis(2-ethylhexyl) phthalate	8.449	J	50	1.5	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Di-n-octyl phthalate	ND		50	1.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Di-n-butyl phthalate	32.33	J	50	1.9	ug/Kg		06/02/21 18:58	06/07/21 13:04	1
Diethyl phthalate	3.021	J	50	1.6	ug/Kg		06/02/21 18:58	06/07/21 13:04	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-154683/1-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154683

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butyl benzyl phthalate	2.926	J	50	2.0	ug/Kg		06/02/21 18:58	06/07/21 13:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*66*		*32 - 143*	*06/02/21 18:58*	*06/07/21 13:04*	*1*
2-Fluorophenol	*52*		*15 - 138*	*06/02/21 18:58*	*06/07/21 13:04*	*1*
Nitrobenzene-d5	*88*		*18 - 162*	*06/02/21 18:58*	*06/07/21 13:04*	*1*
Phenol-d6	*62*		*17 - 141*	*06/02/21 18:58*	*06/07/21 13:04*	*1*
p-Terphenyl-d14	*47*		*34 - 148*	*06/02/21 18:58*	*06/07/21 13:04*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*06/02/21 18:58*	*06/07/21 13:04*	*1*

Lab Sample ID: LCS 570-154683/2-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154683

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	1000	631.8		ug/Kg		63	48 - 108
Benzo[a]pyrene	1000	889.8		ug/Kg		89	17 - 163
Chrysene	1000	693.2		ug/Kg		69	17 - 168
Fluoranthene	1000	539.2		ug/Kg		54	26 - 137
Fluorene	1000	647.3		ug/Kg		65	59 - 121
Isophorone	1000	635.8		ug/Kg		64	40 - 160
Naphthalene	1000	539.7		ug/Kg		54	21 - 133
Phenanthrene	1000	695.7		ug/Kg		70	54 - 120
Pyrene	1000	684.6		ug/Kg		68	28 - 106
2,4,5-Trichlorophenol	1000	741.4		ug/Kg		74	40 - 160
2,4-Dimethylphenol	1000	660.7		ug/Kg		66	40 - 160
2,4-Dichlorophenol	1000	619.6		ug/Kg		62	40 - 160
4-Chloro-3-methylphenol	1000	610.2		ug/Kg		61	40 - 160
2-Nitrophenol	1000	631.2		ug/Kg		63	40 - 160
2,4-Dinitrophenol	1000	637.0		ug/Kg		64	40 - 160
2,4,6-Trichlorophenol	1000	702.4		ug/Kg		70	40 - 160
Pentachlorophenol	1000	709.4		ug/Kg		71	40 - 160
4,6-Dinitro-2-methylphenol	1000	751.7		ug/Kg		75	40 - 160
2-Methylphenol	1000	679.7		ug/Kg		68	40 - 160
2,6-Dichlorophenol	1000	593.7		ug/Kg		59	40 - 160
4-Nitrophenol	1000	772.2		ug/Kg		77	40 - 160
2-Chlorophenol	1000	855.7		ug/Kg		86	40 - 160
Phenol	1000	886.5		ug/Kg		89	40 - 160
3/4-Methylphenol	2000	1711		ug/Kg		86	40 - 160
Dimethyl phthalate	1000	670.8		ug/Kg		67	40 - 160
Bis(2-ethylhexyl) phthalate	1000	825.8		ug/Kg		83	40 - 160
Di-n-octyl phthalate	1000	814.2		ug/Kg		81	40 - 160
Di-n-butyl phthalate	1000	575.9		ug/Kg		58	40 - 160
Diethyl phthalate	1000	699.8		ug/Kg		70	40 - 160
Butyl benzyl phthalate	1000	775.8		ug/Kg		78	40 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*76*		*32 - 143*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 570-154683/2-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154683

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol	96		15 - 138
Nitrobenzene-d5	60		18 - 162
Phenol-d6	94		17 - 141
p-Terphenyl-d14	73		34 - 148
2-Fluorobiphenyl (Surr)	65		14 - 146

Lab Sample ID: LCSD 570-154683/3-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154683

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			1000	670.8		ug/Kg		67	48 - 108	6	20
Benzo[a]pyrene			1000	956.3		ug/Kg		96	17 - 163	7	20
Chrysene			1000	750.7		ug/Kg		75	17 - 168	8	20
Fluoranthene			1000	727.6	*1	ug/Kg		73	26 - 137	30	20
Fluorene			1000	683.9		ug/Kg		68	59 - 121	6	20
Isophorone			1000	464.7	J *1	ug/Kg		46	40 - 160	31	20
Naphthalene			1000	557.4		ug/Kg		56	21 - 133	3	20
Phenanthrene			1000	744.1		ug/Kg		74	54 - 120	7	20
Pyrene			1000	728.4		ug/Kg		73	28 - 106	6	20
2,4,5-Trichlorophenol			1000	793.0		ug/Kg		79	40 - 160	7	20
2,4-Dimethylphenol			1000	516.0	*1	ug/Kg		52	40 - 160	25	20
2,4-Dichlorophenol			1000	636.0		ug/Kg		64	40 - 160	3	20
4-Chloro-3-methylphenol			1000	646.8		ug/Kg		65	40 - 160	6	20
2-Nitrophenol			1000	477.0	J *1	ug/Kg		48	40 - 160	28	20
2,4-Dinitrophenol			1000	694.2		ug/Kg		69	40 - 160	9	20
2,4,6-Trichlorophenol			1000	745.5		ug/Kg		75	40 - 160	6	20
Pentachlorophenol			1000	758.8		ug/Kg		76	40 - 160	7	20
4,6-Dinitro-2-methylphenol			1000	800.2		ug/Kg		80	40 - 160	6	20
2-Methylphenol			1000	539.3	*1	ug/Kg		54	40 - 160	23	20
2,6-Dichlorophenol			1000	622.5		ug/Kg		62	40 - 160	5	20
4-Nitrophenol			1000	829.7		ug/Kg		83	40 - 160	7	20
2-Chlorophenol			1000	762.0		ug/Kg		76	40 - 160	12	20
Phenol			1000	746.2		ug/Kg		75	40 - 160	17	20
3/4-Methylphenol			2000	959.9	*1	ug/Kg		48	40 - 160	56	20
Dimethyl phthalate			1000	711.1		ug/Kg		71	40 - 160	6	20
Bis(2-ethylhexyl) phthalate			1000	877.8		ug/Kg		88	40 - 160	6	20
Di-n-octyl phthalate			1000	850.4		ug/Kg		85	40 - 160	4	20
Di-n-butyl phthalate			1000	776.7	*1	ug/Kg		78	40 - 160	30	20
Diethyl phthalate			1000	735.9		ug/Kg		74	40 - 160	5	20
Butyl benzyl phthalate			1000	819.4		ug/Kg		82	40 - 160	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	75		32 - 143
2-Fluorophenol	52		15 - 138
Nitrobenzene-d5	42		18 - 162
Phenol-d6	74		17 - 141
p-Terphenyl-d14	73		34 - 148

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-154683/3-A
Matrix: Solid
Analysis Batch: 155510

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154683

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*65*		*14 - 146*

Lab Sample ID: 570-60626-1 MS
Matrix: Sediment
Analysis Batch: 155510

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154683

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND	F2	1550	1009		ug/Kg	☼	65	40 - 160
Benzo[a]pyrene	6.0	J F2	1550	1157		ug/Kg	☼	74	17 - 163
Chrysene	4.0	J	1550	1147		ug/Kg	☼	74	17 - 168
Fluoranthene	4.9	J *1	1550	1123		ug/Kg	☼	72	26 - 137
Fluorene	ND	F1 F2	1550	1079		ug/Kg	☼	70	59 - 121
Isophorone	ND	*1 F2	1550	859.8		ug/Kg	☼	55	40 - 160
Naphthalene	ND	F2	1550	751.8		ug/Kg	☼	49	21 - 133
Phenanthrene	ND		1550	1181		ug/Kg	☼	76	54 - 120
Pyrene	5.2	J	1550	1156		ug/Kg	☼	74	6 - 156
2,4,5-Trichlorophenol	ND	F2	1550	1571		ug/Kg	☼	101	40 - 160
2,4-Dimethylphenol	ND	*1 F2	1550	1023		ug/Kg	☼	66	40 - 160
2,4-Dichlorophenol	ND	F2	1550	940.7		ug/Kg	☼	61	40 - 160
4-Chloro-3-methylphenol	ND		1550	978.4		ug/Kg	☼	63	8 - 160
2-Nitrophenol	ND	*1 F2	1550	853.1		ug/Kg	☼	55	40 - 160
2,4-Dinitrophenol	ND		1550	1269		ug/Kg	☼	82	40 - 160
2,4,6-Trichlorophenol	ND	F2	1550	1470		ug/Kg	☼	95	40 - 160
Pentachlorophenol	31	J	1550	1150		ug/Kg	☼	72	40 - 160
4,6-Dinitro-2-methylphenol	ND		1550	1253		ug/Kg	☼	81	40 - 160
2-Methylphenol	ND	*1 F2	1550	1238		ug/Kg	☼	80	40 - 160
2,6-Dichlorophenol	ND	F2	1550	874.6		ug/Kg	☼	56	40 - 160
4-Nitrophenol	ND		1550	1370		ug/Kg	☼	88	40 - 160
2-Chlorophenol	ND	F1 F2	1550	971.4		ug/Kg	☼	63	40 - 160
Phenol	ND	F1 F2	1550	985.5		ug/Kg	☼	64	40 - 160
3/4-Methylphenol	ND	*1	3100	1886		ug/Kg	☼	61	40 - 160
Dimethyl phthalate	ND	F2	1550	1110		ug/Kg	☼	72	40 - 160
Bis(2-ethylhexyl) phthalate	29	J B	1550	1385		ug/Kg	☼	87	40 - 160
Di-n-octyl phthalate	40	J	1550	1052		ug/Kg	☼	65	40 - 160
Di-n-butyl phthalate	10	J B *1	1550	1237		ug/Kg	☼	79	40 - 160
Diethyl phthalate	3.5	J B F2	1550	1190		ug/Kg	☼	77	40 - 160
Butyl benzyl phthalate	8.3	J B	1550	1302		ug/Kg	☼	83	40 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*79*		*32 - 143*
2-Fluorophenol	*60*		*15 - 138*
Nitrobenzene-d5	*49*		*18 - 162*
Phenol-d6	*62*		*17 - 141*
p-Terphenyl-d14	*73*		*34 - 148*
2-Fluorobiphenyl (Surr)	*75*		*14 - 146*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-60626-1 MSD
Matrix: Sediment
Analysis Batch: 155510

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154683

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND	F2	1540	782.0	F2	ug/Kg	☼	51	40 - 160	25	20
Benzo[a]pyrene	6.0	J F2	1540	903.8	F2	ug/Kg	☼	58	17 - 163	25	20
Chrysene	4.0	J	1540	1018		ug/Kg	☼	66	17 - 168	12	20
Fluoranthene	4.9	J *1	1540	967.2		ug/Kg	☼	62	26 - 137	15	20
Fluorene	ND	F1 F2	1540	862.6	F1 F2	ug/Kg	☼	56	59 - 121	22	20
Isophorone	ND	*1 F2	1540	667.6	J F2	ug/Kg	☼	43	40 - 160	25	20
Naphthalene	ND	F2	1540	550.0	F2	ug/Kg	☼	36	21 - 133	31	20
Phenanthrene	ND		1540	982.7		ug/Kg	☼	64	54 - 120	18	20
Pyrene	5.2	J	1540	1004		ug/Kg	☼	65	6 - 156	14	46
2,4,5-Trichlorophenol	ND	F2	1540	1046	F2	ug/Kg	☼	68	40 - 160	40	20
2,4-Dimethylphenol	ND	*1 F2	1540	818.6	F2	ug/Kg	☼	53	40 - 160	22	20
2,4-Dichlorophenol	ND	F2	1540	735.1	F2	ug/Kg	☼	48	40 - 160	25	20
4-Chloro-3-methylphenol	ND		1540	864.2		ug/Kg	☼	56	8 - 160	12	20
2-Nitrophenol	ND	*1 F2	1540	641.6	J F2	ug/Kg	☼	42	40 - 160	28	20
2,4-Dinitrophenol	ND		1540	1135		ug/Kg	☼	74	40 - 160	11	20
2,4,6-Trichlorophenol	ND	F2	1540	926.5	F2	ug/Kg	☼	60	40 - 160	45	20
Pentachlorophenol	31	J	1540	968.8		ug/Kg	☼	61	40 - 160	17	20
4,6-Dinitro-2-methylphenol	ND		1540	1103		ug/Kg	☼	72	40 - 160	13	20
2-Methylphenol	ND	*1 F2	1540	994.3	F2	ug/Kg	☼	65	40 - 160	22	20
2,6-Dichlorophenol	ND	F2	1540	683.4	F2	ug/Kg	☼	44	40 - 160	25	20
4-Nitrophenol	ND		1540	1154		ug/Kg	☼	75	40 - 160	17	20
2-Chlorophenol	ND	F1 F2	1540	566.1	F1 F2	ug/Kg	☼	37	40 - 160	53	20
Phenol	ND	F1 F2	1540	573.3	F1 F2	ug/Kg	☼	37	40 - 160	53	20
3/4-Methylphenol	ND	*1	3080	1657		ug/Kg	☼	54	40 - 160	13	20
Dimethyl phthalate	ND	F2	1540	856.9	F2	ug/Kg	☼	56	40 - 160	26	20
Bis(2-ethylhexyl) phthalate	29	J B	1540	1231		ug/Kg	☼	78	40 - 160	12	20
Di-n-octyl phthalate	40	J	1540	1071		ug/Kg	☼	67	40 - 160	2	20
Di-n-butyl phthalate	10	J B *1	1540	1025		ug/Kg	☼	66	40 - 160	19	20
Diethyl phthalate	3.5	J B F2	1540	946.7	F2	ug/Kg	☼	61	40 - 160	23	20
Butyl benzyl phthalate	8.3	J B	1540	1088		ug/Kg	☼	70	40 - 160	18	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*66*		*32 - 143*
2-Fluorophenol	*34*		*15 - 138*
Nitrobenzene-d5	*37*		*18 - 162*
Phenol-d6	*37*		*17 - 141*
p-Terphenyl-d14	*66*		*34 - 148*
2-Fluorobiphenyl (Surr)	*45*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-154595/1-A
Matrix: Solid
Analysis Batch: 155879

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154595

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-28	ND		0.20	0.069	ug/Kg		06/02/21 13:57	06/08/21 17:26	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-154595/1-A
Matrix: Solid
Analysis Batch: 155879

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154595

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-37	ND		0.20	0.061	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-44	ND		0.20	0.15	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-49	ND		0.20	0.050	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-52	ND		0.20	0.19	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-66	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-70	ND		0.20	0.072	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-74	ND		0.20	0.090	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-77	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-81	ND		0.20	0.090	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-87	ND		0.20	0.11	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-99	ND		0.20	0.047	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-101	ND		0.20	0.044	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-105	ND		0.20	0.053	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-110	ND		0.20	0.034	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-114	ND		0.20	0.074	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-118	ND		0.20	0.035	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-119	ND		0.20	0.063	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-123	ND		0.20	0.073	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-126	ND		0.20	0.055	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-128	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-132/153	ND		0.40	0.16	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-138/158	ND		0.40	0.35	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-149	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-151	ND		0.20	0.088	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-156	ND		0.20	0.077	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-157	ND		0.20	0.085	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-167	ND		0.20	0.13	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-168	ND		0.20	0.14	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-169	ND		0.20	0.065	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-170	ND		0.20	0.11	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-177	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-180	ND		0.20	0.092	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-183	ND		0.20	0.093	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-187	ND		0.20	0.10	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-189	ND		0.20	0.064	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-194	ND		0.20	0.074	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-201	ND		0.20	0.034	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
PCB-206	ND		0.20	0.12	ug/Kg		06/02/21 13:57	06/08/21 17:26	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		06/02/21 13:57	06/08/21 17:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*20 - 139*	*06/02/21 13:57*	*06/08/21 17:26*	*1*
p-Terphenyl-d14	*95*		*37 - 165*	*06/02/21 13:57*	*06/08/21 17:26*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-154595/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 155879
Prep Batch: 154595

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	36.70		ug/Kg		73	33 - 114
PCB-28	50.0	42.93		ug/Kg		86	40 - 132
PCB-44	50.0	43.01		ug/Kg		86	38 - 131
PCB-52	50.0	43.10		ug/Kg		86	38 - 131
PCB-66	50.0	51.02		ug/Kg		102	42 - 141
PCB-77	50.0	45.29		ug/Kg		91	47 - 135
PCB-101	50.0	46.58		ug/Kg		93	40 - 132
PCB-105	50.0	47.91		ug/Kg		96	39 - 135
PCB-118	50.0	44.21		ug/Kg		88	38 - 131
PCB-126	50.0	49.16		ug/Kg		98	40 - 139
PCB-128	50.0	55.90		ug/Kg		112	43 - 149
PCB-132/153	50.0	50.48		ug/Kg		101	37 - 164
PCB-138/158	50.0	44.96		ug/Kg		90	36 - 124
PCB-170	50.0	51.46		ug/Kg		103	35 - 134
PCB-180	50.0	55.02		ug/Kg		110	38 - 159
PCB-187	50.0	54.28		ug/Kg		109	41 - 147
PCB-201	50.0	56.49		ug/Kg		113	40 - 156
PCB-206	50.0	58.16		ug/Kg		116	37 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*86*		*20 - 139*
p-Terphenyl-d14	*95*		*37 - 165*

Lab Sample ID: LCSD 570-154595/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 155879
Prep Batch: 154595

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	38.10		ug/Kg		76	33 - 114	4	29
PCB-28	50.0	43.88		ug/Kg		88	40 - 132	2	29
PCB-44	50.0	44.49		ug/Kg		89	38 - 131	3	32
PCB-52	50.0	43.35		ug/Kg		87	38 - 131	1	32
PCB-66	50.0	51.85		ug/Kg		104	42 - 141	2	34
PCB-77	50.0	46.11		ug/Kg		92	47 - 135	2	35
PCB-101	50.0	46.25		ug/Kg		92	40 - 132	1	34
PCB-105	50.0	48.26		ug/Kg		97	39 - 135	1	37
PCB-118	50.0	44.99		ug/Kg		90	38 - 131	2	35
PCB-126	50.0	50.60		ug/Kg		101	40 - 139	3	39
PCB-128	50.0	55.64		ug/Kg		111	43 - 149	0	37
PCB-132/153	50.0	51.03		ug/Kg		102	37 - 164	1	38
PCB-138/158	50.0	46.28		ug/Kg		93	36 - 124	3	40
PCB-170	50.0	54.03		ug/Kg		108	35 - 134	5	31
PCB-180	50.0	56.85		ug/Kg		114	38 - 159	3	40
PCB-187	50.0	55.73		ug/Kg		111	41 - 147	3	40
PCB-201	50.0	57.53		ug/Kg		115	40 - 156	2	40
PCB-206	50.0	61.39		ug/Kg		123	37 - 153	5	36

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCSD 570-154595/3-A
Matrix: Solid
Analysis Batch: 155879

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154595

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	83		20 - 139
p-Terphenyl-d14	91		37 - 165

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-154684/1-A
Matrix: Solid
Analysis Batch: 156500

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154684

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Bifenthrin	ND		0.50	0.19	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Cyfluthrin	ND		0.50	0.23	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Cypermethrin	ND		0.50	0.16	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Fluvalinate	ND		0.50	0.16	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Phenothrin	ND		0.50	0.20	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		06/02/21 19:01	06/10/21 20:23	1
Tetramethrin	ND		0.50	0.10	ug/Kg		06/02/21 19:01	06/10/21 20:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibutylchlorendate	119	S1+	14 - 116	06/02/21 19:01	06/10/21 20:23	1

Lab Sample ID: LCS 570-154684/2-A
Matrix: Solid
Analysis Batch: 156500

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154684

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	5.00	3.143		ug/Kg		63	10 - 148
Bifenthrin	5.00	4.917		ug/Kg		98	26 - 128
Cyfluthrin	5.00	4.715		ug/Kg		94	10 - 131
Cypermethrin	5.00	5.041		ug/Kg		101	10 - 136
Deltamethrin/Tralomethrin	5.00	3.964		ug/Kg		79	13 - 190
Fenpropathrin	5.00	4.774		ug/Kg		95	10 - 148
Fenvalerate/Esfenvalerate	5.00	4.680		ug/Kg		94	10 - 149
Fluvalinate	5.00	3.352		ug/Kg		67	10 - 121
Lambda cyhalothrin	5.00	4.951		ug/Kg		99	10 - 123
Permethrins (cis/trans)	5.00	4.914		ug/Kg		98	45 - 123
Phenothrin	5.00	5.521		ug/Kg		110	45 - 165
Resmethrin/Bioresmethrin	5.00	3.357		ug/Kg		67	38 - 164
Tetramethrin	5.00	3.992		ug/Kg		80	15 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibutylchlorendate	104		14 - 116

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: LCSD 570-154684/3-A
Matrix: Solid
Analysis Batch: 156500

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154684

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin			5.00	3.266		ug/Kg		65	10 - 148	4	25
Bifenthrin			5.00	4.894		ug/Kg		98	26 - 128	0	25
Cyfluthrin			5.00	4.529		ug/Kg		91	10 - 131	4	25
Cypermethrin			5.00	4.660		ug/Kg		93	10 - 136	8	25
Deltamethrin/Tralomethrin			5.00	4.151		ug/Kg		83	13 - 190	5	25
Fenpropathrin			5.00	5.077		ug/Kg		102	10 - 148	6	25
Fenvalerate/Esfenvalerate			5.00	4.684		ug/Kg		94	10 - 149	0	25
Fluvalinate			5.00	3.335		ug/Kg		67	10 - 121	1	25
Lambda cyhalothrin			5.00	5.158		ug/Kg		103	10 - 123	4	25
Permethrins (cis/trans)			5.00	4.825		ug/Kg		96	45 - 123	2	25
Phenothrin			5.00	5.245		ug/Kg		105	45 - 165	5	25
Resmethrin/Bioresmethrin			5.00	3.603		ug/Kg		72	38 - 164	7	25
Tetramethrin			5.00	4.033		ug/Kg		81	15 - 153	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate	*104*		*14 - 116*

Lab Sample ID: 570-60626-1 MS
Matrix: Sediment
Analysis Batch: 156500

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154684

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Allethrin	ND		7.68	5.929		ug/Kg	☼	77	10 - 148		
Bifenthrin	ND		7.68	9.465		ug/Kg	☼	123	26 - 128		
Cyfluthrin	ND		7.68	7.712		ug/Kg	☼	100	10 - 131		
Cypermethrin	ND		7.68	8.315		ug/Kg	☼	108	10 - 136		
Deltamethrin/Tralomethrin	ND		7.68	10.43		ug/Kg	☼	136	13 - 190		
Fenpropathrin	ND		7.68	10.50		ug/Kg	☼	137	10 - 148		
Fenvalerate/Esfenvalerate	ND		7.68	9.458		ug/Kg	☼	123	10 - 149		
Fluvalinate	ND		7.68	6.176		ug/Kg	☼	80	10 - 121		
Lambda cyhalothrin	ND		7.68	8.039		ug/Kg	☼	105	10 - 123		
Permethrins (cis/trans)	ND		7.68	9.188		ug/Kg	☼	120	45 - 123		
Phenothrin	ND		7.68	10.96		ug/Kg	☼	143	45 - 165		
Resmethrin/Bioresmethrin	ND		7.68	6.693		ug/Kg	☼	87	38 - 164		
Tetramethrin	ND		7.68	8.997		ug/Kg	☼	117	15 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*127*	*S1+*	*14 - 116*

Lab Sample ID: 570-60626-1 MSD
Matrix: Sediment
Analysis Batch: 156500

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154684

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		7.72	5.871		ug/Kg	☼	76	10 - 148	1	30
Bifenthrin	ND		7.72	9.611		ug/Kg	☼	125	26 - 128	2	30
Cyfluthrin	ND		7.72	7.392		ug/Kg	☼	96	10 - 131	4	30
Cypermethrin	ND		7.72	8.039		ug/Kg	☼	104	10 - 136	3	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-60626-1 MSD
Matrix: Sediment
Analysis Batch: 156500

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154684

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Deltamethrin/Tralomethrin	ND		7.72	10.59		ug/Kg	☼	137	13 - 190	2	30
Fenpropathrin	ND		7.72	10.52		ug/Kg	☼	136	10 - 148	0	30
Fenvalerate/Esfenvalerate	ND		7.72	9.172		ug/Kg	☼	119	10 - 149	3	30
Fluvalinate	ND		7.72	5.993		ug/Kg	☼	78	10 - 121	3	30
Lambda cyhalothrin	ND		7.72	7.659		ug/Kg	☼	99	10 - 123	5	30
Permethrins (cis/trans)	ND		7.72	9.115		ug/Kg	☼	118	45 - 123	1	30
Phenothrin	ND		7.72	12.07		ug/Kg	☼	156	45 - 165	10	30
Resmethrin/Bioresmethrin	ND		7.72	6.902		ug/Kg	☼	89	38 - 164	3	30
Tetramethrin	ND		7.72	8.863		ug/Kg	☼	115	15 - 153	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*123*	*S1+*	*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-154813/1-A
Matrix: Solid
Analysis Batch: 155150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154813

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Tributyltin	ND		3.0	1.5	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Dibutyltin	ND		3.0	0.73	ug/Kg		06/03/21 10:10	06/04/21 16:54	1
Monobutyltin	ND		3.0	1.4	ug/Kg		06/03/21 10:10	06/04/21 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*78*		*10 - 120*	*06/03/21 10:10*	*06/04/21 16:54*	*1*

Lab Sample ID: LCS 570-154813/2-A
Matrix: Solid
Analysis Batch: 155808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154813

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	100	95.38		ug/Kg		95	10 - 153
Tributyltin	100	64.93		ug/Kg		65	10 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*65*		*10 - 120*

Lab Sample ID: LCSD 570-154813/3-A
Matrix: Solid
Analysis Batch: 155808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154813

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	100	95.07		ug/Kg		95	10 - 153	0	30
Tributyltin	100	63.63		ug/Kg		64	10 - 126	2	30

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-154813/3-A
Matrix: Solid
Analysis Batch: 155808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154813

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*62*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-156780/1-A
Matrix: Solid
Analysis Batch: 156840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C7 as C7	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C8 as C8	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C9-C10	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C11-C12	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C13-C14	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C15-C16	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C17-C18	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C19-C20	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C21-C22	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C23-C24	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C25-C28	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C29-C32	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C33-C36	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C37-C40	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C41-C44	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1
C6-C44	ND		5.0	3.8	mg/Kg		06/11/21 13:53	06/11/21 19:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*99*		*60 - 138*	*06/11/21 13:53*	*06/11/21 19:58*	*1*

Lab Sample ID: LCS 570-156780/2-A
Matrix: Solid
Analysis Batch: 156840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156780

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			400	441.7		mg/Kg		110	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*90*		*60 - 138*

Lab Sample ID: LCSD 570-156780/3-A
Matrix: Solid
Analysis Batch: 156840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156780

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	424.9		mg/Kg		106	80 - 130	4	20

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 570-156780/3-A
Matrix: Solid
Analysis Batch: 156840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156780

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*84*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-154588/1-A
Matrix: Solid
Analysis Batch: 155594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
4,4'-DDE	ND		1.0	0.071	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Aldrin	ND		1.0	0.072	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
alpha-BHC	ND		1.0	0.080	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
beta-BHC	ND		1.0	0.091	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Chlordane	ND		5.0	0.33	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
delta-BHC	ND		1.0	0.064	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Dieldrin	ND		0.20	0.066	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endosulfan I	ND		1.0	0.049	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endosulfan II	ND		1.0	0.23	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endrin	ND		1.0	0.088	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Endrin ketone	ND		1.0	0.19	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
gamma-BHC	ND		1.0	0.11	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Heptachlor	ND		1.0	0.060	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Methoxychlor	ND		1.0	0.16	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Toxaphene	ND		5.0	1.0	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
Oxychlordane	ND		1.0	0.15	ug/Kg		06/02/21 13:42	06/07/21 21:15	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		06/02/21 13:42	06/07/21 21:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*20 - 131*	*06/02/21 13:42*	*06/07/21 21:15*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*20 - 180*	*06/02/21 13:42*	*06/07/21 21:15*	*1*

Lab Sample ID: LCS 570-154588/2-A
Matrix: Solid
Analysis Batch: 155594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	5.712		ug/Kg		114	54 - 150

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-154588/2-A
Matrix: Solid
Analysis Batch: 155594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDE	5.00	5.167		ug/Kg		103	49 - 146
4,4'-DDT	5.00	5.465		ug/Kg		109	52 - 147
Aldrin	5.00	3.380		ug/Kg		68	28 - 116
alpha-BHC	5.00	4.745		ug/Kg		95	44 - 123
beta-BHC	5.00	5.166		ug/Kg		103	48 - 127
delta-BHC	5.00	4.871		ug/Kg		97	10 - 149
Dieldrin	5.00	4.855		ug/Kg		97	48 - 132
alpha-Chlordane	5.00	4.757		ug/Kg		95	48 - 125
Endosulfan I	5.00	5.015		ug/Kg		100	44 - 125
Endosulfan II	5.00	4.870		ug/Kg		97	47 - 136
Endosulfan sulfate	5.00	5.058		ug/Kg		101	46 - 133
Endrin	5.00	5.045		ug/Kg		101	43 - 142
Endrin aldehyde	5.00	5.452		ug/Kg		109	29 - 141
gamma-BHC	5.00	4.815		ug/Kg		96	44 - 126
Heptachlor	5.00	4.806		ug/Kg		96	50 - 123
Heptachlor epoxide	5.00	4.837		ug/Kg		97	49 - 125
Methoxychlor	5.00	5.648		ug/Kg		113	49 - 145
gamma-Chlordane	5.00	4.730		ug/Kg		95	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*81*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*93*		*20 - 180*

Lab Sample ID: LCSD 570-154588/3-A
Matrix: Solid
Analysis Batch: 155594

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	5.470		ug/Kg		109	54 - 150	4	29
4,4'-DDE	5.00	5.838		ug/Kg		117	49 - 146	12	28
4,4'-DDT	5.00	5.851		ug/Kg		117	52 - 147	7	32
Aldrin	5.00	5.049	*1	ug/Kg		101	28 - 116	40	30
alpha-BHC	5.00	5.643		ug/Kg		113	44 - 123	17	27
beta-BHC	5.00	5.358		ug/Kg		107	48 - 127	4	28
delta-BHC	5.00	5.658		ug/Kg		113	10 - 149	15	27
Dieldrin	5.00	5.494		ug/Kg		110	48 - 132	12	28
alpha-Chlordane	5.00	5.466		ug/Kg		109	48 - 125	14	27
Endosulfan I	5.00	5.400		ug/Kg		108	44 - 125	7	29
Endosulfan II	5.00	4.205		ug/Kg		84	47 - 136	15	29
Endosulfan sulfate	5.00	4.054		ug/Kg		81	46 - 133	22	28
Endrin	5.00	3.596	*1	ug/Kg		72	43 - 142	34	27
Endrin aldehyde	5.00	4.165		ug/Kg		83	29 - 141	27	40
gamma-BHC	5.00	5.667		ug/Kg		113	44 - 126	16	28
Heptachlor	5.00	5.313		ug/Kg		106	50 - 123	10	28
Heptachlor epoxide	5.00	5.576		ug/Kg		112	49 - 125	14	28
Methoxychlor	5.00	3.111	*1	ug/Kg		62	49 - 145	58	39
gamma-Chlordane	5.00	5.463		ug/Kg		109	29 - 153	14	40

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 570-154588/3-A
Matrix: Solid
Analysis Batch: 155594

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154588

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	98		20 - 131
DCB Decachlorobiphenyl (Surr)	100		20 - 180

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-154588/1-A
Matrix: Solid
Analysis Batch: 155467

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 154588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1221	ND		10	5.5	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1232	ND		10	5.5	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1242	ND		10	5.5	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1248	ND		10	5.5	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1254	ND		10	5.0	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1260	ND		10	5.0	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1262	ND		10	5.0	ug/Kg		06/02/21 13:42	06/07/21 12:05	1
Aroclor-1268	ND		10	5.0	ug/Kg		06/02/21 13:42	06/07/21 12:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	79		20 - 155	06/02/21 13:42	06/07/21 12:05	1
Tetrachloro-m-xylene (Surr)	60		25 - 126	06/02/21 13:42	06/07/21 12:05	1

Lab Sample ID: LCS 570-154588/12-A
Matrix: Solid
Analysis Batch: 155467

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	20.0	26.94		ug/Kg		135	50 - 142
Aroclor-1260	20.0	22.07		ug/Kg		110	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	79		20 - 155
Tetrachloro-m-xylene (Surr)	54		25 - 126

Lab Sample ID: LCSD 570-154588/13-A
Matrix: Solid
Analysis Batch: 155467

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	20.0	21.35		ug/Kg		107	50 - 142	23	30
Aroclor-1260	20.0	20.69		ug/Kg		103	50 - 150	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	76		20 - 155
Tetrachloro-m-xylene (Surr)	52		25 - 126

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-60626-1 MS
Matrix: Sediment
Analysis Batch: 155467

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	ND		30.9	43.15		ug/Kg	☼	140	20 - 175
Aroclor-1260	ND		30.9	31.90		ug/Kg	☼	103	20 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*79*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*46*		*25 - 126*

Lab Sample ID: 570-60626-1 MSD
Matrix: Sediment
Analysis Batch: 155467

Client Sample ID: LA5
Prep Type: Total/NA
Prep Batch: 154588

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		30.7	43.75		ug/Kg	☼	143	20 - 175	1	40
Aroclor-1260	ND		30.7	33.23		ug/Kg	☼	108	20 - 180	4	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*77*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*57*		*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-155854/1-A
Matrix: Solid
Analysis Batch: 155975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 155854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		400	200	ug/Kg		06/08/21 13:59	06/09/21 11:36	10

Lab Sample ID: LCS 570-155854/2-A
Matrix: Solid
Analysis Batch: 155975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 155854

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19900	19610		ug/Kg		99	80 - 120

Lab Sample ID: LCSD 570-155854/3-A
Matrix: Solid
Analysis Batch: 155975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 155854

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	20000	19950		ug/Kg		100	80 - 120	2	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-156604/1-A ^20
Matrix: Solid
Analysis Batch: 156740

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 156604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.00	0.279	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Arsenic	ND		1.00	0.334	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Barium	ND		1.00	0.208	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Beryllium	ND		1.00	0.207	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Cadmium	ND		1.00	0.450	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Chromium	ND		2.00	0.300	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Cobalt	ND		1.00	0.189	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Copper	ND		1.00	0.269	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Lead	ND		1.00	0.215	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Molybdenum	ND		1.00	0.308	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Nickel	ND		1.00	0.270	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Selenium	ND		1.00	0.581	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Silver	ND		1.00	0.331	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Thallium	ND		1.00	0.219	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Vanadium	ND		2.00	0.242	mg/Kg		06/11/21 05:30	06/11/21 09:21	20
Zinc	ND		5.00	4.62	mg/Kg		06/11/21 05:30	06/11/21 09:21	20

Lab Sample ID: LCS 570-156604/2-A ^20
Matrix: Solid
Analysis Batch: 156740

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 156604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.6	23.95		mg/Kg		97	80 - 120
Arsenic	24.6	24.42		mg/Kg		99	80 - 120
Barium	24.6	24.18		mg/Kg		98	80 - 120
Beryllium	24.6	24.71		mg/Kg		100	80 - 120
Cadmium	24.6	25.41		mg/Kg		103	80 - 120
Chromium	24.6	24.92		mg/Kg		101	80 - 120
Cobalt	24.6	24.16		mg/Kg		98	80 - 120
Copper	24.6	25.80		mg/Kg		105	80 - 120
Lead	24.6	23.41		mg/Kg		95	80 - 120
Molybdenum	24.6	24.33		mg/Kg		99	80 - 120
Nickel	24.6	25.10		mg/Kg		102	80 - 120
Selenium	24.6	24.43		mg/Kg		99	80 - 120
Silver	12.3	12.18		mg/Kg		99	80 - 120
Thallium	24.6	23.06		mg/Kg		94	80 - 120
Vanadium	24.6	24.30		mg/Kg		99	80 - 120
Zinc	24.6	26.35		mg/Kg		107	80 - 120

Lab Sample ID: LCSD 570-156604/3-A ^20
Matrix: Solid
Analysis Batch: 156740

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 156604

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	24.9	24.90		mg/Kg		100	80 - 120	4	20
Arsenic	24.9	25.44		mg/Kg		102	80 - 120	4	20
Barium	24.9	24.96		mg/Kg		100	80 - 120	3	20
Beryllium	24.9	25.18		mg/Kg		101	80 - 120	2	20
Cadmium	24.9	25.93		mg/Kg		104	80 - 120	2	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-156604/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156740 — **Prep Batch: 156604**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	24.9	24.99		mg/Kg		100	80 - 120	0	20
Cobalt	24.9	25.16		mg/Kg		101	80 - 120	4	20
Copper	24.9	26.32		mg/Kg		106	80 - 120	2	20
Lead	24.9	24.12		mg/Kg		97	80 - 120	3	20
Molybdenum	24.9	24.96		mg/Kg		100	80 - 120	3	20
Nickel	24.9	25.67		mg/Kg		103	80 - 120	2	20
Selenium	24.9	25.32		mg/Kg		102	80 - 120	4	20
Silver	12.4	12.52		mg/Kg		101	80 - 120	3	20
Thallium	24.9	23.40		mg/Kg		94	80 - 120	1	20
Vanadium	24.9	25.05		mg/Kg		101	80 - 120	3	20
Zinc	24.9	27.31		mg/Kg		110	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-156605/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156807 — **Prep Batch: 156605**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0847	0.0137	mg/Kg		06/11/21 06:00	06/11/21 11:25	1

Lab Sample ID: LCS 570-156605/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156807 — **Prep Batch: 156605**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.7684		mg/Kg		92	85 - 121

Lab Sample ID: LCSD 570-156605/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 156807 — **Prep Batch: 156605**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.833	0.7618		mg/Kg		91	85 - 121	1	10

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-154938/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		10.0	7.88	mg/Kg		06/03/21 16:18	06/03/21 20:41	1
SGT-HEM (TRPH)	ND		10.0	8.09	mg/Kg		06/03/21 16:18	06/03/21 20:41	1

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: LCS 570-154938/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	36.67		mg/Kg		92	78 - 114
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132

Lab Sample ID: LCSD 570-154938/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154986 — **Prep Batch: 154938**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	36.67		mg/Kg		92	78 - 114	0	18
SGT-HEM (TRPH)	20.0	16.67		mg/Kg		83	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-154704/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.100	0.0840	mg/Kg		06/03/21 00:00	06/03/21 01:35	1

Lab Sample ID: LCS 570-154704/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.502	0.5161		mg/Kg		103	72 - 123

Lab Sample ID: LCSD 570-154704/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide	0.502	0.5165		mg/Kg		103	72 - 123	0	11

Lab Sample ID: 570-60626-1 DU — **Client Sample ID: LA5**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 154706 — **Prep Batch: 154704**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Sulfide	6.31		5.912		mg/Kg	☼	6	20

Lab Sample ID: MB 570-154705/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			06/03/21 01:48	1

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCS 570-154705/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.4755		mg/Kg		95	72 - 123		

Lab Sample ID: LCSD 570-154705/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5158		mg/Kg		103	72 - 123	8	11

Lab Sample ID: 570-60626-1 DU — **Client Sample ID: LA5**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 154706

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-154708/33 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			06/01/21 18:27	1

Lab Sample ID: LCS 570-154708/34 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.302		%		110	80 - 120		

Lab Sample ID: LCSD 570-154708/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 154708

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	3.148		%		105	80 - 120	5	20

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-155099/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 155106 — **Prep Batch: 155099**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		5.00	2.75	mg/Kg		06/03/21 20:30	06/04/21 10:43	1

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: LCS 570-155099/2-A
Matrix: Solid
Analysis Batch: 155106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 155099

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			250	287.6		mg/Kg		115	80 - 120		

Lab Sample ID: LCSD 570-155099/3-A
Matrix: Solid
Analysis Batch: 155106

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 155099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			250	285.6		mg/Kg		114	80 - 120	1	20

GC/MS Semi VOA

Prep Batch: 154595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3541	154601
MB 570-154595/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154595/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154595/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Homogenize Prep	
570-60626-1 MS	LA5	Total/NA	Sediment	Homogenize Prep	
570-60626-1 MSD	LA5	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 154683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3541	154601
MB 570-154683/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154683/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154683/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60626-1 MS	LA5	Total/NA	Sediment	3541	154601
570-60626-1 MSD	LA5	Total/NA	Sediment	3541	154601

Prep Batch: 154684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3541	154601
MB 570-154684/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154684/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154684/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60626-1 MS	LA5	Total/NA	Sediment	3541	154601
570-60626-1 MSD	LA5	Total/NA	Sediment	3541	154601

Prep Batch: 154813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Organotin Prep	
MB 570-154813/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-154813/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-154813/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	

Analysis Batch: 155150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Organotins SIM	154813
MB 570-154813/1-A	Method Blank	Total/NA	Solid	Organotins SIM	154813

Analysis Batch: 155510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8270C SIM	154683
MB 570-154683/1-A	Method Blank	Total/NA	Solid	8270C SIM	154683
LCS 570-154683/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	154683
LCSD 570-154683/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	154683
570-60626-1 MS	LA5	Total/NA	Sediment	8270C SIM	154683
570-60626-1 MSD	LA5	Total/NA	Sediment	8270C SIM	154683

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

GC/MS Semi VOA

Analysis Batch: 155808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-154813/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	154813
LCSD 570-154813/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	154813

Analysis Batch: 155879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8270C SIM CON	154595
MB 570-154595/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	154595
LCS 570-154595/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	154595
LCSD 570-154595/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	154595

Analysis Batch: 156500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8270D TQ	154684
MB 570-154684/1-A	Method Blank	Total/NA	Solid	8270D TQ	154684
LCS 570-154684/2-A	Lab Control Sample	Total/NA	Solid	8270D TQ	154684
LCSD 570-154684/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	154684
570-60626-1 MS	LA5	Total/NA	Sediment	8270D TQ	154684
570-60626-1 MSD	LA5	Total/NA	Sediment	8270D TQ	154684

GC Semi VOA

Prep Batch: 154588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3541	154601
MB 570-154588/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-154588/12-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-154588/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-154588/13-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-154588/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-60626-1 MS	LA5	Total/NA	Sediment	3541	154601
570-60626-1 MSD	LA5	Total/NA	Sediment	3541	154601

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Homogenize Prep	
570-60626-1 MS	LA5	Total/NA	Sediment	Homogenize Prep	
570-60626-1 MSD	LA5	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 155467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8082	154588
MB 570-154588/1-A	Method Blank	Total/NA	Solid	8082	154588
LCS 570-154588/12-A	Lab Control Sample	Total/NA	Solid	8082	154588
LCSD 570-154588/13-A	Lab Control Sample Dup	Total/NA	Solid	8082	154588
570-60626-1 MS	LA5	Total/NA	Sediment	8082	154588
570-60626-1 MSD	LA5	Total/NA	Sediment	8082	154588

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

GC Semi VOA

Analysis Batch: 155594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8081A	154588
MB 570-154588/1-A	Method Blank	Total/NA	Solid	8081A	154588
LCS 570-154588/2-A	Lab Control Sample	Total/NA	Solid	8081A	154588
LCSD 570-154588/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	154588

Prep Batch: 156780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3550C	154601
MB 570-156780/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-156780/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-156780/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 156840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	8015B	156780
MB 570-156780/1-A	Method Blank	Total/NA	Solid	8015B	156780
LCS 570-156780/2-A	Lab Control Sample	Total/NA	Solid	8015B	156780
LCSD 570-156780/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	156780

HPLC/IC

Cleanup Batch: 155602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 155854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3060A	155602
MB 570-155854/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-155854/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-155854/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	

Analysis Batch: 155975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	7199	155854
MB 570-155854/1-A	Method Blank	Total/NA	Solid	7199	155854
LCS 570-155854/2-A	Lab Control Sample	Total/NA	Solid	7199	155854
LCSD 570-155854/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	155854

Metals

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 156604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	3050B	154601
MB 570-156604/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-156604/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 156604 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-156604/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	

Prep Batch: 156605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	7471A	154601
MB 570-156605/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-156605/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-156605/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Analysis Batch: 156740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	6020	156604
MB 570-156604/1-A ^20	Method Blank	Total/NA	Solid	6020	156604
LCS 570-156604/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	156604
LCSD 570-156604/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	156604

Analysis Batch: 156807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	7471A	156605
MB 570-156605/1-A	Method Blank	Total/NA	Solid	7471A	156605
LCS 570-156605/2-A	Lab Control Sample	Total/NA	Solid	7471A	156605
LCSD 570-156605/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	156605

General Chemistry

Analysis Batch: 154423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	Moisture	

Cleanup Batch: 154601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Soluble	Sediment	Homogenize Prep	
570-60626-1	LA5	Total/NA	Sediment	Homogenize Prep	
570-60626-1 DU	LA5	Soluble	Sediment	Homogenize Prep	
570-60626-1 DU	LA5	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 154704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	9030B	154601
MB 570-154704/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-60626-1 DU	LA5	Total/NA	Sediment	9030B	154601

Leach Batch: 154705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Soluble	Sediment	DI Leach	154601
MB 570-154705/1-A	Method Blank	Soluble	Solid	DI Leach	

General Chemistry (Continued)

Leach Batch: 154705 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-60626-1 DU	LA5	Soluble	Sediment	DI Leach	154601

Analysis Batch: 154706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Soluble	Sediment	376.2 LL	154705
570-60626-1	LA5	Total/NA	Sediment	376.2 LL	154704
MB 570-154704/1-A	Method Blank	Total/NA	Solid	376.2 LL	154704
MB 570-154705/1-A	Method Blank	Soluble	Solid	376.2 LL	154705
LCS 570-154704/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	154704
LCS 570-154705/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	154705
LCSD 570-154704/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	154704
LCSD 570-154705/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	154705
570-60626-1 DU	LA5	Soluble	Sediment	376.2 LL	154705
570-60626-1 DU	LA5	Total/NA	Sediment	376.2 LL	154704

Analysis Batch: 154708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	9060A	154601
MB 570-154708/33	Method Blank	Total/NA	Solid	9060A	
LCS 570-154708/34	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-154708/35	Lab Control Sample Dup	Total/NA	Solid	9060A	

Prep Batch: 154938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	1664A	154601
MB 570-154938/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-154938/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-154938/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	

Analysis Batch: 154986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	1664A	154938
MB 570-154938/1-A	Method Blank	Total/NA	Solid	1664A	154938
LCS 570-154938/2-A	Lab Control Sample	Total/NA	Solid	1664A	154938
LCSD 570-154938/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	154938

Prep Batch: 155099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	SM4500 NH3 B LL	154601
MB 570-155099/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-155099/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-155099/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

General Chemistry

Analysis Batch: 155106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	SM4500 NH3 C LL	155099
MB 570-155099/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	155099
LCS 570-155099/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	155099
LCSD 570-155099/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	155099

Analysis Batch: 157293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	7199 CR3	

Geotechnical

Analysis Batch: 156167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-60626-1	LA5	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Client Sample ID: LA5

Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3541			20.10 g	2 mL	154683	06/02/21 18:58	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			155510	06/07/21 14:38	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3541			20.03 g	2 mL	154595	06/02/21 18:34	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			155879	06/08/21 20:43	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3541			20.10 g	2 mL	154684	06/02/21 19:01	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			156500	06/10/21 21:36	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.03 g	5 mL	154813	06/03/21 10:10	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			155150	06/04/21 20:08	ULLI	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3550C			10.15 g	10 mL	156780	06/11/21 13:56	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			156840	06/12/21 08:46	N1A	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	154588	06/02/21 18:36	UM1W	ECL 1
Total/NA	Analysis	8081A		1			155594	06/08/21 13:20	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	154588	06/02/21 18:36	UM1W	ECL 1
Total/NA	Analysis	8082		1			155467	06/07/21 13:32	UHHN	ECL 1
	Instrument ID:	GC58								
Total/NA	Cleanup	Homogenize Prep					155602	06/07/21 15:23	C4LT	ECL 1
Total/NA	Prep	3060A			2.49 g	100 mL	155854	06/08/21 13:59	B7TT	ECL 1
Total/NA	Analysis	7199		10			155975	06/09/21 15:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	3050B			2.03 g	100 mL	156604	06/11/21 05:30	WL8G	ECL 1
Total/NA	Analysis	6020		20			156740	06/11/21 10:44	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	7471A			.529 g	100 mL	156605	06/11/21 06:00	WL8G	ECL 1
Total/NA	Analysis	7471A		1			156807	06/11/21 12:51	UWCT	ECL 1
	Instrument ID:	HG8								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	1664A			30.1 g	30 g	154938	06/03/21 16:18	UWEZ	ECL 1
Total/NA	Analysis	1664A		1			154986	06/03/21 20:41	F7UI	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Client Sample ID: LA5

Date Collected: 05/31/21 12:05
Date Received: 06/01/21 18:35

Lab Sample ID: 570-60626-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Soluble	Leach	DI Leach			20.00 g	20 mL	154705	06/03/21 00:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	154706	06/03/21 01:51	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	9030B			21.46 g	20 mL	154704	06/03/21 00:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		10	7.5 mL	7.5 mL	154706	06/03/21 01:38	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			157293	06/15/21 08:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Analysis	9060A		1	206.6 mg	206.6 mg	154708	06/03/21 09:03	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			154423	06/02/21 22:30	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					154601	06/02/21 14:12	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			100 g	200 mL	155099	06/03/21 20:30	UAPD	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	155106	06/04/21 10:43	UAPD	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			156167	06/08/21 17:35	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-60626-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM	3541	Sediment	Perthane
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

8270C SIM CON	3541	Sediment	PCB-99
8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay(less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-60626-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-60626-1	LA5	Sediment	05/31/21 12:05	06/01/21 18:35	

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-60626 Chain of Custody

CHAIN OF CUSTODY RECORD

DATE: 6/1/21

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O. NO: 3151197955 04

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests.

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376 2M)	Oil & Grease (376 2M)	Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44), (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)		
	LA S	5/31/21	~~1305~~ 1205	Sed	3				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
			KB 6/1/21																							
			1205																							
			EM 6/1/21																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
[signature]	[signature] ECI	06/01/21	1444
[signature]	Dannyle ECI	06/01/21	1835

31 / 3.5 SCS

06/02/14 Revision

Analyte[j]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0.10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0.10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0.1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1 0 mg/kg	1 0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1 0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0.4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1.0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al. [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners. 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C.A., D W Brown, D G Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound. Marine Environmental Research 27 1–18.

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes. allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion), ASTM = ASTM International, GC = gas chromatography; (M) = modified, RL = reporting limit; mg/kg = milligrams per kilogram, MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration; SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration, TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration, USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-60626-1

Login Number: 60626
List Number: 1
Creator: Cruise, Noel

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-65784-1
Laboratory Sample Delivery Group: 3151187382
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
8/25/2021 11:19:14 AM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 7
Surrogate Summary 39
QC Sample Results 43
QC Association Summary 71
Lab Chronicle 81
Certification Summary 88
Method Summary 90
Sample Summary 91
Chain of Custody 92
Receipt Checklists 94

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-65784-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-65784-1

Comments
No additional comments.

Receipt
The samples were received on 7/29/2021 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1º C.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168103 and 570-168540 and analytical batch 570-169973 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8270C SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with preparation batch 570-168540 and analytical batch 570-170767: 2,4-Dinitrophenol, Pentachlorophenol and 4,6-Dinitro-2-methylphenol. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method 8270C SIM: The method blank for preparation batch 570-168540 and analytical batch 570-169973 contained 2,4-Dinitrophenol, Di-n-octyl phthalate, Bis(2-ethylhexyl) phthalate, Pentachlorophenol, 2,3,4,6-Tetrachlorophenol, Butyl benzyl phthalate and Perylene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270D TQ: Surrogate recovery for the following sample was outside the upper control limit: FDD-D-Comp (Composite D) (570-65784-4). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8270D TQ: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the Permethrins (cis/trans) with preparation batch 570-167955 and 570-168103 and analytical batch 570-169532 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method Organotins SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with preparation batch 570-168407 and analytical batch 570-168750: Monobutyltin. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168407 and analytical batch 570-169128 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168103 and 570-168544 and analytical batch 570-169920 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168103, 570-169952 and 570-169952 and analytical batch 570-170125 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Job ID: 570-65784-1 (Continued)

Laboratory: Eurofins Calscience LLC (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Methods 376.2, 376.2 LL: The following samples were received outside of holding time: FDD-A-Comp (Composite A) (570-65784-1), FDD-B-Comp (Composite B) (570-65784-2), FDD-C-Comp (Composite C) (570-65784-3), FDD-D-Comp (Composite D) (570-65784-4) and FDD-D-Comp (Composite D) (570-65784-4[DU]).

Method 9060A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168103 and analytical batch 570-169471 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-169687 was flagged as being outside control limits due to a L.I.MS limitation: FDD-D-Comp (Composite D) (570-65784-4) and FDD-D-Comp (Composite D) (570-65784-4[DU]). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria. D-4464.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.28	0.092	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-28	ND		0.28	0.098	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-37	ND		0.28	0.086	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-44	ND		0.28	0.22	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-49	ND		0.28	0.070	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-52	ND		0.28	0.27	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-66	ND		0.28	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-70	ND		0.28	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-74	ND		0.28	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-77	ND		0.28	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-81	ND		0.28	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-87	ND		0.28	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-99	**1.1**		0.28	0.067	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-101	**1.3**		0.28	0.063	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-105	ND		0.28	0.076	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-110	**1.5**		0.28	0.048	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-114	ND		0.28	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-118	**1.4**		0.28	0.049	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-119	ND		0.28	0.088	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-123	ND		0.28	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-126	ND		0.28	0.078	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-128	ND		0.28	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-132/153	**2.8**		0.57	0.23	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-138/158	**2.6**		0.57	0.50	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-149	**1.7**		0.28	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-151	ND		0.28	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-156	ND		0.28	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-157	ND		0.28	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-167	ND		0.28	0.19	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-168	ND		0.28	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-169	ND		0.28	0.092	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-170	ND		0.28	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-177	ND		0.28	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-180	ND		0.28	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-183	ND		0.28	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-187	ND		0.28	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-189	ND		0.28	0.091	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-194	ND		0.28	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-201	ND		0.28	0.048	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
PCB-206	ND		0.28	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1
Polychlorinated biphenyls, Total	**13**		0.57	0.50	ug/Kg	☼	08/03/21 13:31	08/06/21 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*20 - 139*	*08/03/21 13:31*	*08/06/21 15:53*	*1*
p-Terphenyl-d14	*80*		*37 - 165*	*08/03/21 13:31*	*08/06/21 15:53*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.36	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-28	ND		0.36	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-37	ND		0.36	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-44	ND		0.36	0.27	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-49	ND		0.36	0.089	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-52	ND		0.36	0.34	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-66	**2.9**		0.36	0.22	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-70	ND		0.36	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-74	ND		0.36	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-77	ND		0.36	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-81	ND		0.36	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-87	ND		0.36	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-99	**5.2**		0.36	0.085	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-101	**8.0**		0.36	0.079	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-105	ND		0.36	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-110	**5.6**		0.36	0.060	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-114	ND		0.36	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-118	**5.4**		0.36	0.062	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-119	ND		0.36	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-123	ND		0.36	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-126	ND		0.36	0.098	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-128	ND		0.36	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-132/153	**14**		0.71	0.29	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-138/158	**14**		0.71	0.63	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-149	**11**		0.36	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-151	**3.8**		0.36	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-156	ND		0.36	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-157	ND		0.36	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-167	ND		0.36	0.24	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-168	ND		0.36	0.25	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-169	ND		0.36	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-170	**4.0**		0.36	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-177	**2.2**		0.36	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-180	**8.3**		0.36	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-183	**2.3**		0.36	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-187	**5.5**		0.36	0.18	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-189	ND		0.36	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-194	ND		0.36	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-201	ND		0.36	0.061	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
PCB-206	ND		0.36	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1
Polychlorinated biphenyls, Total	**98**		0.71	0.63	ug/Kg	☼	08/03/21 13:31	08/06/21 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*59*		*20 - 139*	*08/03/21 13:31*	*08/06/21 16:20*	*1*
p-Terphenyl-d14	*84*		*37 - 165*	*08/03/21 13:31*	*08/06/21 16:20*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.22	0.072	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-28	ND		0.22	0.077	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-37	ND		0.22	0.068	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-44	ND		0.22	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-49	ND		0.22	0.055	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-52	ND		0.22	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-66	ND		0.22	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-70	ND		0.22	0.080	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-74	ND		0.22	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-77	ND		0.22	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-81	ND		0.22	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-87	ND		0.22	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-99	ND		0.22	0.053	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-101	ND		0.22	0.049	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-105	ND		0.22	0.060	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-110	ND		0.22	0.038	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-114	ND		0.22	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-118	ND		0.22	0.039	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-119	ND		0.22	0.070	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-123	ND		0.22	0.081	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-126	ND		0.22	0.061	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-128	ND		0.22	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-132/153	ND		0.45	0.18	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-138/158	ND		0.45	0.39	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-149	ND		0.22	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-151	ND		0.22	0.098	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-156	ND		0.22	0.086	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-157	ND		0.22	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-167	ND		0.22	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-168	ND		0.22	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-169	ND		0.22	0.073	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-170	ND		0.22	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-177	ND		0.22	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-180	ND		0.22	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-183	ND		0.22	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-187	ND		0.22	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-189	ND		0.22	0.072	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-194	ND		0.22	0.082	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-201	ND		0.22	0.038	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
PCB-206	ND		0.22	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1
Polychlorinated biphenyls, Total	ND		0.45	0.39	ug/Kg	☼	08/03/21 13:31	08/06/21 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*20 - 139*	*08/03/21 13:31*	*08/06/21 16:45*	*1*
p-Terphenyl-d14	*70*		*37 - 165*	*08/03/21 13:31*	*08/06/21 16:45*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.26	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-28	ND		0.26	0.089	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-37	ND		0.26	0.078	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-44	ND		0.26	0.19	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-49	ND		0.26	0.063	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-52	ND		0.26	0.24	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-66	ND		0.26	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-70	ND		0.26	0.092	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-74	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-77	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-81	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-87	ND		0.26	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-99	ND		0.26	0.061	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-101	ND		0.26	0.057	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-105	ND		0.26	0.068	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-110	ND		0.26	0.043	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-114	ND		0.26	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-118	ND		0.26	0.044	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-119	ND		0.26	0.080	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-123	ND		0.26	0.093	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-126	ND		0.26	0.070	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-128	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-132/153	ND		0.51	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-138/158	ND		0.51	0.45	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-149	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-151	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-156	ND		0.26	0.099	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-157	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-167	ND		0.26	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-168	ND		0.26	0.18	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-169	ND		0.26	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-170	ND		0.26	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-177	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-180	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-183	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-187	ND		0.26	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-189	ND		0.26	0.082	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-194	ND		0.26	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-201	ND		0.26	0.044	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
PCB-206	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1
Polychlorinated biphenyls, Total	ND		0.51	0.45	ug/Kg	☼	08/03/21 13:31	08/06/21 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*58*		*20 - 139*	*08/03/21 13:31*	*08/06/21 17:10*	*1*
p-Terphenyl-d14	*74*		*37 - 165*	*08/03/21 13:31*	*08/06/21 17:10*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		14	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
1-Methylnaphthalene	ND		14	1.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
1-Methylphenanthrene	ND		14	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,3,4,6-Tetrachlorophenol	ND		14	5.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,4,5-Trichlorophenol	ND		14	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,4,6-Trichlorophenol	ND		14	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,4-Dichlorophenol	ND		14	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,4-Dimethylphenol	ND		700	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,4-Dinitrophenol	ND	*-	700	84	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,6-Dichlorophenol	ND		14	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2,6-Dimethylnaphthalene	ND		14	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2-Chlorophenol	ND		14	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2-Methylnaphthalene	ND		14	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2-Methylphenol	ND		14	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
2-Nitrophenol	ND		700	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
3/4-Methylphenol	ND		28	5.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
4,6-Dinitro-2-methylphenol	ND	*- *1	700	93	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
4-Chloro-3-methylphenol	ND		14	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
4-Nitrophenol	ND	*- *1	700	110	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Acenaphthene	ND		14	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Acenaphthylene	**5.8**	**J**	14	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Anthracene	**7.2**	**J**	14	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[a]anthracene	**8.5**	**J**	14	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[a]pyrene	**36**		14	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[b]fluoranthene	**40**		14	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[e]pyrene	**19**		14	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[g,h,i]perylene	**26**		14	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Benzo[k]fluoranthene	**35**		14	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Biphenyl	ND		14	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Bis(2-ethylhexyl) phthalate	**51**	**J B**	70	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Butyl benzyl phthalate	**26**	**J B**	70	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Chrysene	**11**	**J**	14	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Dibenz(a,h)anthracene	**8.5**	**J**	14	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Diethyl phthalate	**3.9**	**J**	70	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Dimethyl phthalate	ND		70	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Di-n-butyl phthalate	**22**	**J B**	70	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Di-n-octyl phthalate	ND		70	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Fluoranthene	**7.8**	**J**	14	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Fluorene	ND		14	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Indeno[1,2,3-cd]pyrene	**24**		14	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Naphthalene	ND		14	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Pentachlorophenol	ND	*-	700	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Phenanthrene	ND		14	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1
Pyrene	**13**	**J**	14	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*54*		*32 - 143*	*08/03/21 14:49*	*08/10/21 01:16*	*1*
2-Fluorophenol	*43*		*15 - 138*	*08/03/21 14:49*	*08/10/21 01:16*	*1*
Nitrobenzene-d5	*50*		*18 - 162*	*08/03/21 14:49*	*08/10/21 01:16*	*1*
Phenol-d6	*48*		*17 - 141*	*08/03/21 14:49*	*08/10/21 01:16*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
p-Terphenyl-d14	*63*		*34 - 148*	*08/03/21 14:49*	*08/10/21 01:16*	*1*
2-Fluorobiphenyl (Surr)	*51*		*14 - 146*	*08/03/21 14:49*	*08/10/21 01:16*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		18	3.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
1-Methylnaphthalene	ND		18	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
1-Methylphenanthrene	ND		18	3.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,3,4,6-Tetrachlorophenol	ND		18	7.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,4,5-Trichlorophenol	ND		18	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,4,6-Trichlorophenol	ND		18	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,4-Dichlorophenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,4-Dimethylphenol	ND		890	4.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,4-Dinitrophenol	ND	*-	890	110	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,6-Dichlorophenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2,6-Dimethylnaphthalene	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2-Chlorophenol	ND		18	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2-Methylnaphthalene	ND		18	2.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2-Methylphenol	ND		18	3.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
2-Nitrophenol	ND		890	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
3/4-Methylphenol	ND		36	6.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
4,6-Dinitro-2-methylphenol	ND	*- *1	890	120	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
4-Chloro-3-methylphenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
4-Nitrophenol	ND	*- *1	890	150	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Acenaphthene	**3.9**	**J**	18	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Acenaphthylene	**82**		18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Anthracene	**88**		18	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[a]anthracene	**71**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[a]pyrene	**430**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[b]fluoranthene	**480**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[e]pyrene	**240**		18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[g,h,i]perylene	**200**		18	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Benzo[k]fluoranthene	**400**		18	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Biphenyl	ND		18	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Bis(2-ethylhexyl) phthalate	**200**	**B**	89	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Butyl benzyl phthalate	**89**	**B**	89	3.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Chrysene	**110**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Dibenz(a,h)anthracene	**92**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Diethyl phthalate	**11**	**J**	89	2.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Dimethyl phthalate	**5.5**	**J**	89	3.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Di-n-butyl phthalate	**41**	**J B**	89	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Di-n-octyl phthalate	ND		89	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Fluoranthene	**69**		18	3.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Fluorene	**7.6**	**J**	18	2.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Indeno[1,2,3-cd]pyrene	**210**		18	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Naphthalene	**3.7**	**J**	18	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Pentachlorophenol	ND	*-	890	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Comp (Composite B) — **Lab Sample ID: 570-65784-2**
Date Collected: 07/22/21 14:50 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	**17**	**J**	18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1
Pyrene	**95**		18	2.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*59*		*32 - 143*	*08/03/21 14:49*	*08/10/21 01:34*	*1*
2-Fluorophenol	*41*		*15 - 138*	*08/03/21 14:49*	*08/10/21 01:34*	*1*
Nitrobenzene-d5	*44*		*18 - 162*	*08/03/21 14:49*	*08/10/21 01:34*	*1*
Phenol-d6	*51*		*17 - 141*	*08/03/21 14:49*	*08/10/21 01:34*	*1*
p-Terphenyl-d14	*64*		*34 - 148*	*08/03/21 14:49*	*08/10/21 01:34*	*1*
2-Fluorobiphenyl (Surr)	*57*		*14 - 146*	*08/03/21 14:49*	*08/10/21 01:34*	*1*

Client Sample ID: FDD-C-Comp (Composite C) — **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		11	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
1-Methylnaphthalene	ND		11	1.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
1-Methylphenanthrene	ND		11	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,3,4,6-Tetrachlorophenol	ND		11	4.4	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,4,5-Trichlorophenol	ND		11	1.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,4,6-Trichlorophenol	ND		11	1.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,4-Dichlorophenol	ND		11	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,4-Dimethylphenol	ND		560	2.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,4-Dinitrophenol	ND	*-	560	67	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,6-Dichlorophenol	ND		11	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2,6-Dimethylnaphthalene	ND		11	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2-Chlorophenol	ND		11	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2-Methylnaphthalene	ND		11	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2-Methylphenol	ND		11	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
2-Nitrophenol	ND		560	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
3/4-Methylphenol	ND		22	4.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
4,6-Dinitro-2-methylphenol	ND	*- *1	560	74	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
4-Chloro-3-methylphenol	ND		11	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
4-Nitrophenol	ND	*- *1	560	91	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Acenaphthene	ND		11	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Acenaphthylene	ND		11	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Anthracene	ND		11	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[a]anthracene	ND		11	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[a]pyrene	**3.2**	**J**	11	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[b]fluoranthene	**3.3**	**J**	11	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[e]pyrene	**1.9**	**J**	11	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[g,h,i]perylene	ND		11	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Benzo[k]fluoranthene	**2.9**	**J**	11	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Biphenyl	ND		11	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Bis(2-ethylhexyl) phthalate	**25**	**J B**	56	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Butyl benzyl phthalate	**18**	**J B**	56	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Chrysene	ND		11	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Dibenz(a,h)anthracene	ND		11	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Diethyl phthalate	**2.9**	**J**	56	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Dimethyl phthalate	ND		56	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	**18**	**J B**	56	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Di-n-octyl phthalate	ND		56	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Fluoranthene	ND		11	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Fluorene	ND		11	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Indeno[1,2,3-cd]pyrene	ND		11	1.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Naphthalene	ND		11	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Pentachlorophenol	ND	*-	560	1.5	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Phenanthrene	ND		11	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1
Pyrene	ND		11	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*32*		*32 - 143*	*08/03/21 14:49*	*08/10/21 01:53*	*1*
2-Fluorophenol	*39*		*15 - 138*	*08/03/21 14:49*	*08/10/21 01:53*	*1*
Nitrobenzene-d5	*50*		*18 - 162*	*08/03/21 14:49*	*08/10/21 01:53*	*1*
Phenol-d6	*52*		*17 - 141*	*08/03/21 14:49*	*08/10/21 01:53*	*1*
p-Terphenyl-d14	*63*		*34 - 148*	*08/03/21 14:49*	*08/10/21 01:53*	*1*
2-Fluorobiphenyl (Surr)	*45*		*14 - 146*	*08/03/21 14:49*	*08/10/21 01:53*	*1*

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		13	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
1-Methylnaphthalene	ND		13	1.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
1-Methylphenanthrene	ND		13	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,3,4,6-Tetrachlorophenol	ND		13	5.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,4,5-Trichlorophenol	ND		13	1.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,4,6-Trichlorophenol	ND		13	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,4-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,4-Dimethylphenol	ND	F1	640	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,4-Dinitrophenol	ND	*- F1	640	77	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,6-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2,6-Dimethylnaphthalene	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2-Chlorophenol	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2-Methylnaphthalene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2-Methylphenol	ND		13	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
2-Nitrophenol	ND		640	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
3/4-Methylphenol	ND		26	4.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
4,6-Dinitro-2-methylphenol	ND	*- *1	640	85	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
4-Chloro-3-methylphenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
4-Nitrophenol	ND	*- F1 *1	640	100	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Acenaphthene	ND		13	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Acenaphthylene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Anthracene	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[a]anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[a]pyrene	**7.7**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[b]fluoranthene	**8.5**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[e]pyrene	**4.3**	**J**	13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[g,h,i]perylene	**4.5**	**J**	13	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Benzo[k]fluoranthene	**6.9**	**J**	13	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Bis(2-ethylhexyl) phthalate	**27**	**J B**	64	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Butyl benzyl phthalate	**22**	**J B**	64	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Chrysene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Dibenz(a,h)anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Diethyl phthalate	**3.0**	**J**	64	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Dimethyl phthalate	ND		64	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Di-n-butyl phthalate	**21**	**J B**	64	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Di-n-octyl phthalate	ND		64	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Fluoranthene	ND		13	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Fluorene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Indeno[1,2,3-cd]pyrene	**3.9**	**J**	13	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Naphthalene	ND		13	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Pentachlorophenol	ND	*- F1	640	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Phenanthrene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1
Pyrene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*39*		*32 - 143*	*08/03/21 14:49*	*08/10/21 02:12*	*1*
2-Fluorophenol	*42*		*15 - 138*	*08/03/21 14:49*	*08/10/21 02:12*	*1*
Nitrobenzene-d5	*50*		*18 - 162*	*08/03/21 14:49*	*08/10/21 02:12*	*1*
Phenol-d6	*55*		*17 - 141*	*08/03/21 14:49*	*08/10/21 02:12*	*1*
p-Terphenyl-d14	*65*		*34 - 148*	*08/03/21 14:49*	*08/10/21 02:12*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*08/03/21 14:49*	*08/10/21 02:12*	*1*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.71	0.66	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Bifenthrin	ND		0.71	0.27	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Cyfluthrin	ND		0.71	0.32	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Cypermethrin	ND		0.71	0.23	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Deltamethrin/Tralomethrin	ND		0.71	0.37	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Fenpropathrin	ND		0.71	0.25	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Fenvalerate/Esfenvalerate	ND		0.71	0.26	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Fluvalinate	ND		0.71	0.23	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Lambda cyhalothrin	ND		0.71	0.46	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Permethrins (cis/trans)	ND		1.4	0.23	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Phenothrin	ND		0.71	0.28	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Resmethrin/Bioresmethrin	ND		0.71	0.32	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1
Tetramethrin	ND		0.71	0.14	ug/Kg	☼	08/03/21 14:43	08/06/21 23:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*96*		*14 - 116*	*08/03/21 14:43*	*08/06/21 23:35*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.90	0.83	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Bifenthrin	ND		0.90	0.33	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Cyfluthrin	ND		0.90	0.40	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Cypermethrin	ND		0.90	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Deltamethrin/Tralomethrin	ND		0.90	0.47	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Fenpropathrin	ND		0.90	0.31	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Fenvalerate/Esfenvalerate	ND		0.90	0.33	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Fluvalinate	ND		0.90	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Lambda cyhalothrin	ND		0.90	0.59	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Permethrins (cis/trans)	ND		1.8	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Phenothrin	ND		0.90	0.35	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Resmethrin/Bioresmethrin	ND		0.90	0.40	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1
Tetramethrin	ND		0.90	0.18	ug/Kg	☼	08/03/21 14:43	08/07/21 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*91*		*14 - 116*	*08/03/21 14:43*	*08/07/21 00:12*	*1*

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.56	0.52	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Bifenthrin	ND		0.56	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Cyfluthrin	ND		0.56	0.25	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Cypermethrin	ND		0.56	0.18	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Deltamethrin/Tralomethrin	ND		0.56	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Fenpropathrin	ND		0.56	0.19	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Fenvalerate/Esfenvalerate	ND		0.56	0.20	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Fluvalinate	ND		0.56	0.18	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND		0.56	0.37	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Permethrins (cis/trans)	ND		1.1	0.18	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Phenothrin	ND		0.56	0.22	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Resmethrin/Bioresmethrin	ND		0.56	0.25	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1
Tetramethrin	ND		0.56	0.11	ug/Kg	☼	08/03/21 14:43	08/07/21 00:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*90*		*14 - 116*	*08/03/21 14:43*	*08/07/21 00:49*	*1*

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.64	0.59	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Bifenthrin	ND		0.64	0.24	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Cyfluthrin	ND		0.64	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Cypermethrin	ND		0.64	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Deltamethrin/Tralomethrin	ND		0.64	0.33	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Fenpropathrin	ND		0.64	0.22	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Fenvalerate/Esfenvalerate	ND		0.64	0.23	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Fluvalinate	ND		0.64	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Lambda cyhalothrin	ND		0.64	0.42	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Permethrins (cis/trans)	ND	F1	1.3	0.20	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Phenothrin	ND		0.64	0.25	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Resmethrin/Bioresmethrin	ND		0.64	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1
Tetramethrin	ND		0.64	0.13	ug/Kg	☼	08/03/21 14:43	08/07/21 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*120*	*S1+*	*14 - 116*	*08/03/21 14:43*	*08/07/21 01:25*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		4.2	1.1	ug/Kg	☼	08/03/21 09:25	08/05/21 17:22	1
Tributyltin	ND		4.2	2.1	ug/Kg	☼	08/03/21 09:25	08/05/21 17:22	1
Dibutyltin	**8.1**		4.2	1.0	ug/Kg	☼	08/03/21 09:25	08/05/21 17:22	1
Monobutyltin	ND	*-	4.2	2.0	ug/Kg	☼	08/03/21 09:25	08/05/21 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*70*		*10 - 120*	*08/03/21 09:25*	*08/05/21 17:22*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.3	1.3	ug/Kg	☼	08/03/21 09:25	08/05/21 17:40	1
Tributyltin	ND		5.3	2.6	ug/Kg	☼	08/03/21 09:25	08/05/21 17:40	1
Dibutyltin	**48**		5.3	1.3	ug/Kg	☼	08/03/21 09:25	08/05/21 17:40	1
Monobutyltin	ND	*-	5.3	2.4	ug/Kg	☼	08/03/21 09:25	08/05/21 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*74*		*10 - 120*	*08/03/21 09:25*	*08/05/21 17:40*	*1*

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.3	0.83	ug/Kg	☼	08/03/21 09:25	08/05/21 17:58	1
Tributyltin	ND		3.3	1.7	ug/Kg	☼	08/03/21 09:25	08/05/21 17:58	1
Dibutyltin	ND		3.3	0.81	ug/Kg	☼	08/03/21 09:25	08/05/21 17:58	1
Monobutyltin	ND	*-	3.3	1.5	ug/Kg	☼	08/03/21 09:25	08/05/21 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*81*		*10 - 120*	*08/03/21 09:25*	*08/05/21 17:58*	*1*

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.8	0.95	ug/Kg	☼	08/03/21 09:25	08/05/21 17:05	1
Tributyltin	ND		3.8	1.9	ug/Kg	☼	08/03/21 09:25	08/05/21 17:05	1
Dibutyltin	ND		3.8	0.93	ug/Kg	☼	08/03/21 09:25	08/05/21 17:05	1
Monobutyltin	ND	F2 *- F1	3.8	1.8	ug/Kg	☼	08/03/21 09:25	08/05/21 17:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*86*		*10 - 120*	*08/03/21 09:25*	*08/05/21 17:05*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C7 as C7	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C8 as C8	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C9-C10	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C11-C12	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C13-C14	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C15-C16	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C17-C18	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C19-C20	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C21-C22	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C23-C24	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C25-C28	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C29-C32	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C33-C36	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C37-C40	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C41-C44	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1
C6-C44	ND		6.9	5.3	mg/Kg	☼	08/04/21 15:40	08/04/21 23:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*106*		*60 - 138*	*08/04/21 15:40*	*08/04/21 23:56*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C7 as C7	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C8 as C8	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C9-C10	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C11-C12	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C13-C14	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C15-C16	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C17-C18	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C19-C20	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C21-C22	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C23-C24	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C25-C28	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C29-C32	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C33-C36	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C37-C40	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C41-C44	ND		8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1
C6-C44	**7.4**	**J**	8.7	6.7	mg/Kg	☼	08/04/21 15:40	08/05/21 00:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*86*		*60 - 138*	*08/04/21 15:40*	*08/05/21 00:17*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C7 as C7	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C8 as C8	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C9-C10	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C11-C12	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C13-C14	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C15-C16	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C17-C18	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C19-C20	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C21-C22	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C23-C24	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C25-C28	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C29-C32	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C33-C36	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C37-C40	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C41-C44	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1
C6-C44	ND		5.4	4.2	mg/Kg	☼	08/04/21 15:40	08/05/21 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*103*		*60 - 138*	*08/04/21 15:40*	*08/05/21 00:38*	*1*

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C7 as C7	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C8 as C8	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C9-C10	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C11-C12	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C13-C14	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C15-C16	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C17-C18	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C19-C20	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C21-C22	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C23-C24	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C25-C28	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C29-C32	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C33-C36	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C37-C40	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C41-C44	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1
C6-C44	ND		6.6	5.1	mg/Kg	☼	08/04/21 15:40	08/04/21 23:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*08/04/21 15:40*	*08/04/21 23:33*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.4	0.091	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
4,4'-DDD	ND		1.4	0.71	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
2,4'-DDE	ND		2.8	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
4,4'-DDE	**0.17**	**J p**	1.4	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
2,4'-DDT	ND		1.4	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
4,4'-DDT	ND		1.4	0.25	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Aldrin	ND		1.4	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
alpha-BHC	ND		1.4	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
beta-BHC	ND		1.4	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Chlordane	ND		7.1	0.46	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
delta-BHC	ND		1.4	0.092	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Dieldrin	ND		0.28	0.094	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
alpha-Chlordane	ND		1.4	0.066	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endosulfan I	ND		1.4	0.069	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endosulfan II	ND		1.4	0.32	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endosulfan sulfate	ND		1.4	0.15	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endrin	ND		1.4	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
cis-Nonachlor	ND		1.4	0.067	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endrin aldehyde	ND		1.4	0.69	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Endrin ketone	ND		1.4	0.27	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
gamma-BHC	ND		1.4	0.15	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Heptachlor	ND		1.4	0.085	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Heptachlor epoxide	ND		1.4	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Methoxychlor	ND		1.4	0.23	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Toxaphene	ND		7.1	1.4	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
gamma-Chlordane	ND		1.4	0.50	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
Oxychlordane	ND		1.4	0.21	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1
trans-Nonachlor	ND		1.4	0.053	ug/Kg	☼	08/03/21 14:57	08/10/21 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*53*		*20 - 131*	*08/03/21 14:57*	*08/10/21 13:33*	*1*
DCB Decachlorobiphenyl (Surr)	*78*		*20 - 180*	*08/03/21 14:57*	*08/10/21 13:33*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.8	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
4,4'-DDD	ND		1.8	0.90	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
2,4'-DDE	ND		3.6	0.17	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
4,4'-DDE	**0.73**	**J p**	1.8	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
2,4'-DDT	ND		1.8	0.17	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
4,4'-DDT	ND		1.8	0.32	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Aldrin	ND		1.8	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
alpha-BHC	ND		1.8	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
beta-BHC	ND		1.8	0.16	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Chlordane	ND		9.0	0.59	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
delta-BHC	ND		1.8	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Dieldrin	ND		0.36	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
alpha-Chlordane	ND		1.8	0.083	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-B-Comp (Composite B) — **Lab Sample ID: 570-65784-2**
Date Collected: 07/22/21 14:50 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		1.8	0.087	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Endosulfan II	ND		1.8	0.41	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Endosulfan sulfate	ND		1.8	0.20	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Endrin	ND		1.8	0.16	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
cis-Nonachlor	ND		1.8	0.085	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Endrin aldehyde	ND		1.8	0.88	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Endrin ketone	ND		1.8	0.34	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
gamma-BHC	ND		1.8	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Heptachlor	ND		1.8	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Heptachlor epoxide	ND		1.8	0.15	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Methoxychlor	ND		1.8	0.30	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Toxaphene	ND		9.0	1.8	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
gamma-Chlordane	ND		1.8	0.63	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
Oxychlordane	ND		1.8	0.27	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1
trans-Nonachlor	ND		1.8	0.067	ug/Kg	☼	08/03/21 14:57	08/10/21 13:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*20 - 131*	*08/03/21 14:57*	*08/10/21 13:47*	*1*
DCB Decachlorobiphenyl (Surr)	*146*		*20 - 180*	*08/03/21 14:57*	*08/10/21 13:47*	*1*

Client Sample ID: FDD-C-Comp (Composite C) — **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.1	0.071	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
4,4'-DDD	ND		1.1	0.56	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
2,4'-DDE	**0.23**	**J**	2.2	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
4,4'-DDE	ND		1.1	0.079	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
2,4'-DDT	ND		1.1	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
4,4'-DDT	ND		1.1	0.20	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Aldrin	ND		1.1	0.080	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
alpha-BHC	ND		1.1	0.089	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
beta-BHC	ND		1.1	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Chlordane	ND		5.6	0.36	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
delta-BHC	ND		1.1	0.072	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Dieldrin	ND		0.22	0.074	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
alpha-Chlordane	ND		1.1	0.051	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endosulfan I	ND		1.1	0.054	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endosulfan II	ND		1.1	0.25	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endosulfan sulfate	ND		1.1	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endrin	ND		1.1	0.097	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
cis-Nonachlor	ND		1.1	0.053	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endrin aldehyde	ND		1.1	0.54	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Endrin ketone	ND		1.1	0.21	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
gamma-BHC	ND		1.1	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Heptachlor	ND		1.1	0.066	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Heptachlor epoxide	ND		1.1	0.095	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Methoxychlor	ND		1.1	0.18	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
Toxaphene	ND		5.6	1.1	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
gamma-Chlordane	ND		1.1	0.39	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-C-Comp (Composite C) — **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		1.1	0.17	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1
trans-Nonachlor	**0.070**	**J p**	1.1	0.042	ug/Kg	☼	08/03/21 14:57	08/10/21 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*20 - 131*	*08/03/21 14:57*	*08/10/21 14:01*	*1*
DCB Decachlorobiphenyl (Surr)	*84*		*20 - 180*	*08/03/21 14:57*	*08/10/21 14:01*	*1*

Client Sample ID: FDD-D-Comp (Composite D) — **Lab Sample ID: 570-65784-4**
Date Collected: 07/22/21 15:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.3	0.082	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
4,4'-DDD	ND	F1	1.3	0.64	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
2,4'-DDE	ND		2.6	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
4,4'-DDE	ND	F1	1.3	0.091	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
2,4'-DDT	ND		1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
4,4'-DDT	ND	F1	1.3	0.23	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Aldrin	ND	F1	1.3	0.092	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
alpha-BHC	ND	F1	1.3	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
beta-BHC	ND	F1	1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Chlordane	ND		6.4	0.42	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
delta-BHC	ND	F1	1.3	0.083	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Dieldrin	ND	F1	0.26	0.085	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
alpha-Chlordane	ND	F1	1.3	0.059	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endosulfan I	ND	F1	1.3	0.062	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endosulfan II	ND	F1	1.3	0.29	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endosulfan sulfate	ND	F1	1.3	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endrin	ND	F1	1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
cis-Nonachlor	ND		1.3	0.061	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endrin aldehyde	ND	F1	1.3	0.63	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Endrin ketone	ND	F1	1.3	0.24	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
gamma-BHC	ND	F1	1.3	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Heptachlor	ND	F1	1.3	0.076	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Heptachlor epoxide	ND	F1	1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Methoxychlor	ND	F1	1.3	0.21	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Toxaphene	ND		6.4	1.3	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
gamma-Chlordane	ND	F1	1.3	0.45	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
Oxychlordane	ND		1.3	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1
trans-Nonachlor	**0.15**	**J p**	1.3	0.048	ug/Kg	☼	08/03/21 14:57	08/10/21 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*54*		*20 - 131*	*08/03/21 14:57*	*08/10/21 14:15*	*1*
DCB Decachlorobiphenyl (Surr)	*87*		*20 - 180*	*08/03/21 14:57*	*08/10/21 14:15*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		14	7.9	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1221	ND		14	7.9	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1232	ND		14	7.9	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1242	ND		14	7.9	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1248	ND		14	7.9	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1254	**15**		14	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1260	**13**	**J**	14	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1262	ND		14	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1
Aroclor-1268	ND		14	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*61*		*20 - 155*	*08/03/21 14:57*	*08/06/21 19:45*	*1*
Tetrachloro-m-xylene (Surr)	*51*		*25 - 126*	*08/03/21 14:57*	*08/06/21 19:45*	*1*

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		18	10	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1221	ND		18	10	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1232	ND		18	10	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1242	ND		18	10	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1248	**20**		18	10	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1254	**65**		18	9.0	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1260	**71**		18	9.0	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1262	ND		18	9.0	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1
Aroclor-1268	ND		18	9.0	ug/Kg	☼	08/03/21 14:57	08/06/21 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*102*		*20 - 155*	*08/03/21 14:57*	*08/06/21 20:04*	*1*
Tetrachloro-m-xylene (Surr)	*51*		*25 - 126*	*08/03/21 14:57*	*08/06/21 20:04*	*1*

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		11	6.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1221	ND		11	6.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1232	ND		11	6.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1242	ND		11	6.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1248	ND		11	6.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1254	ND		11	5.5	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1260	ND		11	5.5	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1262	ND		11	5.5	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1
Aroclor-1268	ND		11	5.5	ug/Kg	☼	08/03/21 14:57	08/06/21 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*75*		*20 - 155*	*08/03/21 14:57*	*08/06/21 20:22*	*1*
Tetrachloro-m-xylene (Surr)	*63*		*25 - 126*	*08/03/21 14:57*	*08/06/21 20:22*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		13	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1221	ND		13	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1232	ND		13	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1242	ND		13	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1248	ND		13	7.1	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1254	ND		13	6.4	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1260	ND		13	6.4	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1262	ND		13	6.4	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1
Aroclor-1268	ND		13	6.4	ug/Kg	☼	08/03/21 14:57	08/06/21 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*77*		*20 - 155*	*08/03/21 14:57*	*08/06/21 20:40*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*25 - 126*	*08/03/21 14:57*	*08/06/21 20:40*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**390**	**J**	560	290	ug/Kg	☼	08/02/21 18:46	08/03/21 18:37	10

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		710	370	ug/Kg	☼	08/02/21 18:46	08/03/21 18:48	10

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		450	230	ug/Kg	☼	08/02/21 18:46	08/03/21 18:58	10

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		510	260	ug/Kg	☼	08/02/21 18:46	08/03/21 19:31	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.97	0.414	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Arsenic	**3.57**		1.48	0.496	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Barium	**105**		1.48	0.309	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Beryllium	**0.365**	**J**	1.48	0.307	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Cadmium	ND		1.48	0.668	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Chromium	**15.0**		2.97	0.445	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Cobalt	**6.04**		1.48	0.281	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Copper	**21.9**		1.48	0.399	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Lead	**11.4**		1.48	0.319	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Molybdenum	**1.18**	**J**	1.48	0.457	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Nickel	**28.3**		1.48	0.401	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Selenium	ND		1.48	0.863	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Silver	ND		1.48	0.492	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Thallium	ND		1.48	0.325	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Vanadium	**19.6**		2.97	0.359	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20
Zinc	**74.3**		7.42	6.86	mg/Kg	☼	08/10/21 10:00	08/10/21 18:25	20

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.80	0.530	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Arsenic	**4.61**		1.90	0.634	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Barium	**132**		1.90	0.395	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Beryllium	**0.397**	**J**	1.90	0.393	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Cadmium	ND		1.90	0.855	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Chromium	**17.7**		3.80	0.570	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Cobalt	**6.76**		1.90	0.359	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Copper	**27.3**		1.90	0.511	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Lead	**13.2**		1.90	0.408	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Molybdenum	**1.90**		1.90	0.585	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Nickel	**33.6**		1.90	0.513	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Selenium	ND		1.90	1.10	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Silver	ND		1.90	0.629	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Thallium	ND		1.90	0.416	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Vanadium	**23.2**		3.80	0.460	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20
Zinc	**108**		9.50	8.77	mg/Kg	☼	08/10/21 10:00	08/10/21 18:28	20

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.27	0.316	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Arsenic	**0.681**	**J**	1.13	0.379	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Barium	**47.5**		1.13	0.236	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Beryllium	ND		1.13	0.235	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Cadmium	ND		1.13	0.510	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Chromium	**5.55**		2.27	0.340	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Cobalt	**3.25**		1.13	0.214	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Copper	**9.11**		1.13	0.305	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-C-Comp (Composite C) — **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**2.61**		1.13	0.244	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Molybdenum	ND		1.13	0.349	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Nickel	**3.15**		1.13	0.306	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Selenium	ND		1.13	0.659	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Silver	ND		1.13	0.375	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Thallium	ND		1.13	0.248	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Vanadium	**17.4**		2.27	0.274	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20
Zinc	**18.4**		5.67	5.23	mg/Kg	☼	08/10/21 10:00	08/10/21 18:31	20

Client Sample ID: FDD-D-Comp (Composite D) — **Lab Sample ID: 570-65784-4**
Date Collected: 07/22/21 15:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.51	0.351	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Arsenic	**0.796**	**J**	1.26	0.420	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Barium	**58.1**		1.26	0.261	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Beryllium	ND		1.26	0.260	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Cadmium	ND		1.26	0.565	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Chromium	**7.76**		2.51	0.377	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Cobalt	**4.61**		1.26	0.237	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Copper	**11.7**		1.26	0.338	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Lead	**2.75**		1.26	0.270	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Molybdenum	ND		1.26	0.387	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Nickel	**4.35**		1.26	0.339	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Selenium	ND		1.26	0.730	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Silver	ND	F1	1.26	0.416	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Thallium	ND		1.26	0.275	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Vanadium	**24.2**		2.51	0.304	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20
Zinc	**22.5**		6.28	5.80	mg/Kg	☼	08/10/21 10:00	08/10/21 18:34	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0252	J	0.121	0.0196	mg/Kg	☼	08/10/21 12:44	08/11/21 16:36	1

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0329	J	0.158	0.0256	mg/Kg	☼	08/10/21 12:44	08/11/21 16:38	1

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0203	J	0.0895	0.0145	mg/Kg	☼	08/10/21 12:44	08/11/21 16:39	1

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0322	J	0.109	0.0177	mg/Kg	☼	08/10/21 12:44	08/11/21 16:30	1

General Chemistry

Client Sample ID: FDD-A-Comp (Composite A) — **Lab Sample ID: 570-65784-1**
Date Collected: 07/22/21 14:40 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	165		70.8	42.7	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	123		70.8	19.6	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	0.771	H	0.142	0.119	mg/Kg	☼	08/03/21 15:00	08/03/21 21:50	1
Trivalent Chromium	15.0		2.85	0.428	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.361		0.0713	0.0248	%	☼		07/30/21 17:32	1
Percent Solids	70.2		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	2.57		0.356	0.196	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

Client Sample ID: FDD-B-Comp (Composite B) — **Lab Sample ID: 570-65784-2**
Date Collected: 07/22/21 14:50 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	143		89.6	54.1	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	95.6		89.6	24.9	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	23.6	H	17.7	14.8	mg/Kg	☼	08/03/21 15:00	08/03/21 21:51	100
Trivalent Chromium	17.7		3.61	0.541	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.983		0.0902	0.0313	%	☼		07/30/21 17:32	1
Percent Solids	55.4		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	6.39		0.451	0.248	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

Client Sample ID: FDD-C-Comp (Composite C) — **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	85.2		55.5	33.5	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	66.7		55.5	15.4	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	0.489	H	0.113	0.0947	mg/Kg	☼	08/03/21 15:00	08/03/21 21:52	1
Trivalent Chromium	5.55		2.26	0.338	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	ND		0.0564	0.0196	%	☼		08/06/21 15:34	1
Percent Solids	88.7		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	0.932		0.282	0.155	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

Client Sample ID: FDD-D-Comp (Composite D) — **Lab Sample ID: 570-65784-4**
Date Collected: 07/22/21 15:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	111		64.0	38.7	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	85.4		64.0	17.8	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	0.889	H	0.118	0.0995	mg/Kg	☼	08/03/21 15:00	08/03/21 21:48	1
Trivalent Chromium	7.76		2.58	0.386	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.0515	J F1	0.0644	0.0224	%	☼		08/06/21 15:34	1
Percent Solids	77.7		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	1.68		0.322	0.177	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

General Chemistry - Soluble

Client Sample ID: FDD-A-Comp (Composite A) **Lab Sample ID: 570-65784-1**
Date Collected: 07/22/21 14:40 **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND	H	0.0996	0.0837	mg/Kg			08/03/21 22:05	1

Client Sample ID: FDD-B-Comp (Composite B) **Lab Sample ID: 570-65784-2**
Date Collected: 07/22/21 14:50 **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND	H	0.0998	0.0838	mg/Kg			08/03/21 22:06	1

Client Sample ID: FDD-C-Comp (Composite C) **Lab Sample ID: 570-65784-3**
Date Collected: 07/22/21 14:16 **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND	H	0.100	0.0841	mg/Kg			08/03/21 22:07	1

Client Sample ID: FDD-D-Comp (Composite D) **Lab Sample ID: 570-65784-4**
Date Collected: 07/22/21 15:00 **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND	H	0.100	0.0844	mg/Kg			08/03/21 22:03	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-A-Comp (Composite A)
Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	4.98		0.01	0.01	%			08/07/21 11:52	1
Coarse Sand (0.5mm to 1mm)	4.72		0.01	0.01	%			08/07/21 11:52	1
Fine Sand (0.125 to 0.25mm)	28.73		0.01	0.01	%			08/07/21 11:52	1
Gravel (greater than 2 mm)	13.44		0.01	0.01	%			08/07/21 11:52	1
Medium Sand (0.25 to 0.5 mm)	16.27		0.01	0.01	%			08/07/21 11:52	1
Silt (0.00391 to 0.0625mm)	19.43		0.01	0.01	%			08/07/21 11:52	1
Total Silt and Clay (0 to 0.0626mm)	24.41		0.01	0.01	%			08/07/21 11:52	1
Very Coarse Sand (1 to 2mm)	0.04		0.01	0.01	%			08/07/21 11:52	1
Very Fine Sand (0.0625 to 0.125 mm)	12.40		0.01	0.01	%			08/07/21 11:52	1

Client Sample ID: FDD-B-Comp (Composite B)
Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	18.30		0.01	0.01	%			08/07/21 12:00	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			08/07/21 12:00	1
Fine Sand (0.125 to 0.25mm)	15.84		0.01	0.01	%			08/07/21 12:00	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			08/07/21 12:00	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			08/07/21 12:00	1
Silt (0.00391 to 0.0625mm)	49.73		0.01	0.01	%			08/07/21 12:00	1
Total Silt and Clay (0 to 0.0626mm)	68.03		0.01	0.01	%			08/07/21 12:00	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			08/07/21 12:00	1
Very Fine Sand (0.0625 to 0.125 mm)	16.12		0.01	0.01	%			08/07/21 12:00	1

Client Sample ID: FDD-C-Comp (Composite C)
Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	11.95		0.01	0.01	%			08/07/21 12:08	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			08/07/21 12:08	1
Fine Sand (0.125 to 0.25mm)	5.80		0.01	0.01	%			08/07/21 12:08	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			08/07/21 12:08	1
Medium Sand (0.25 to 0.5 mm)	ND		0.01	0.01	%			08/07/21 12:08	1
Silt (0.00391 to 0.0625mm)	42.28		0.01	0.01	%			08/07/21 12:08	1
Total Silt and Clay (0 to 0.0626mm)	54.23		0.01	0.01	%			08/07/21 12:08	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			08/07/21 12:08	1
Very Fine Sand (0.0625 to 0.125 mm)	39.97		0.01	0.01	%			08/07/21 12:08	1

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	1.28		0.01	0.01	%			08/07/21 12:14	1
Coarse Sand (0.5mm to 1mm)	17.98		0.01	0.01	%			08/07/21 12:14	1
Fine Sand (0.125 to 0.25mm)	18.21		0.01	0.01	%			08/07/21 12:14	1
Gravel (greater than 2 mm)	10.40		0.01	0.01	%			08/07/21 12:14	1
Medium Sand (0.25 to 0.5 mm)	24.87		0.01	0.01	%			08/07/21 12:14	1
Silt (0.00391 to 0.0625mm)	9.36		0.01	0.01	%			08/07/21 12:14	1

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering) (Continued)

Client Sample ID: FDD-D-Comp (Composite D)
Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Silt and Clay (0 to 0.0626mm)	10.64		0.01	0.01	%			08/07/21 12:14	1
Very Coarse Sand (1 to 2mm)	7.28		0.01	0.01	%			08/07/21 12:14	1
Very Fine Sand (0.0625 to 0.125 mm)	10.63		0.01	0.01	%			08/07/21 12:14	1

PARTICLE SIZE SUMMARY

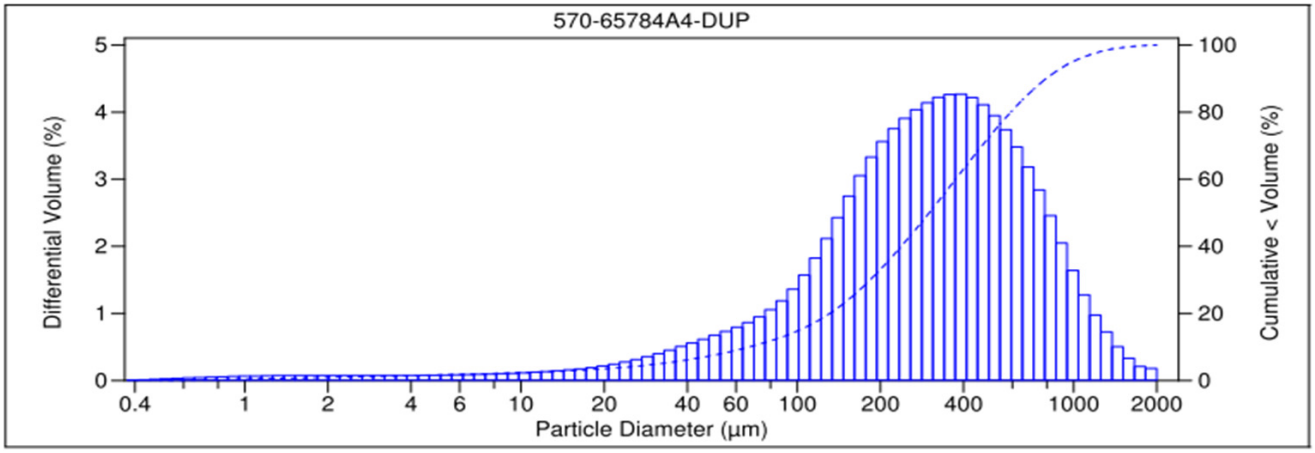
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/22/21
	Date Received:	07/29/21
	Work Order No:	570-65784
	Date Analyzed:	08/07/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-Comp (Composite D)		Coarse Sand	0.679

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
9.96	4.44	19.89	27.87	20.84	8.56	7.14	1.30	8.44



V 3.0

PARTICLE SIZE SUMMARY

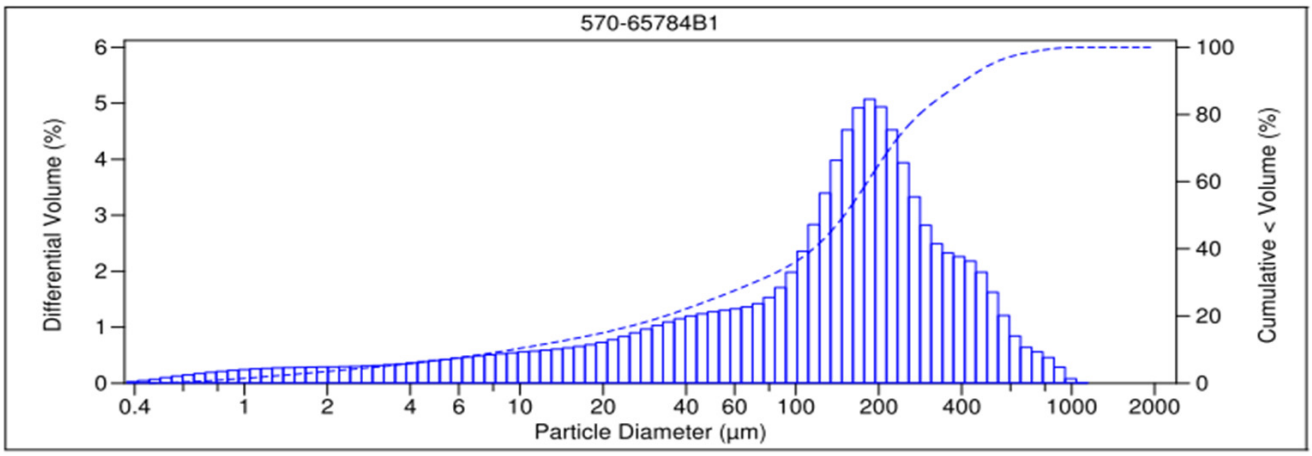
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/22/21
	Date Received:	07/29/21
	Work Order No:	570-65784
	Date Analyzed:	08/07/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-A-Comp (Composite A)		Coarse Sand	0.584

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
13.44	0.04	4.72	16.27	28.73	12.40	19.43	4.98	24.41



V 3.0

PARTICLE SIZE SUMMARY

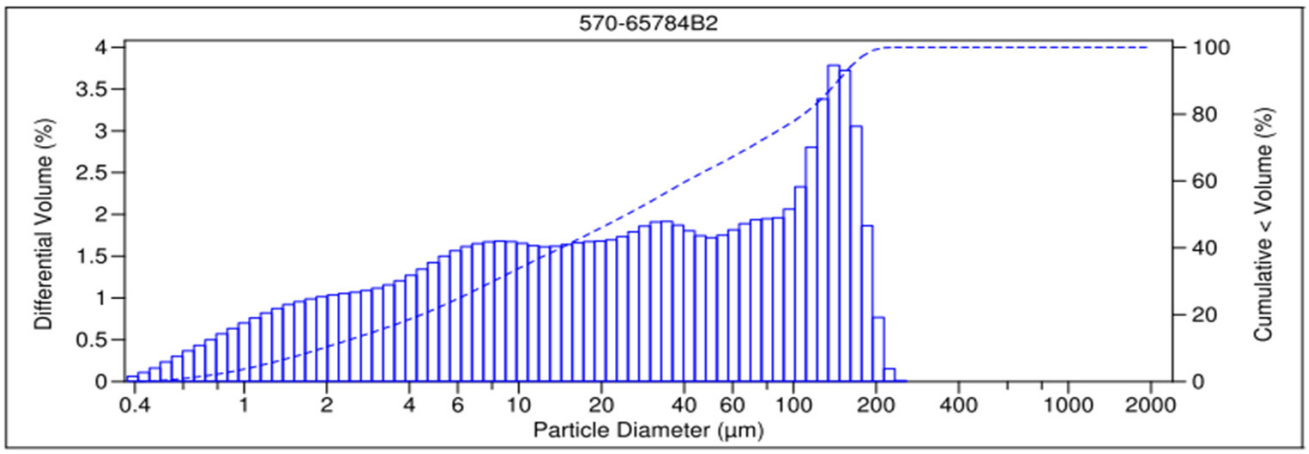
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.		Date Sampled:	07/22/21
		Date Received:	07/29/21
		Work Order No:	570-65784
		Date Analyzed:	08/07/21
		Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-B-Comp (Composite B)		Silt	0.051

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
0.00	0.00	0.00	0.00	15.84	16.12	49.73	18.30	68.03



V 3.0

PARTICLE SIZE SUMMARY

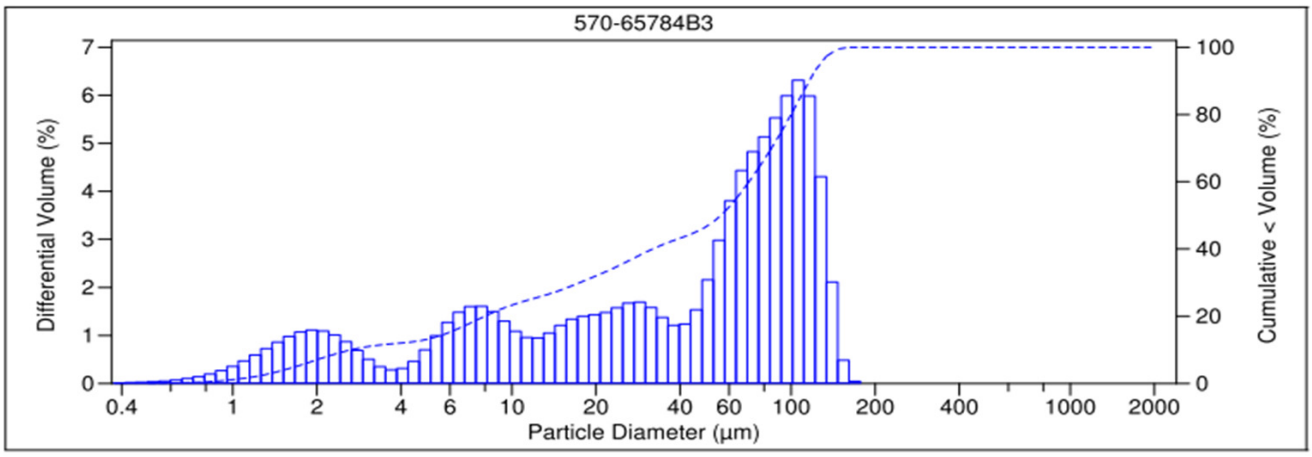
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/22/21
	Date Received:	07/29/21
	Work Order No:	570-65784
	Date Analyzed:	08/07/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-C-Comp (Composite C)		Silt	0.056

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	0.00	5.80	39.97	42.28	11.95	54.23



V 3.0

PARTICLE SIZE SUMMARY

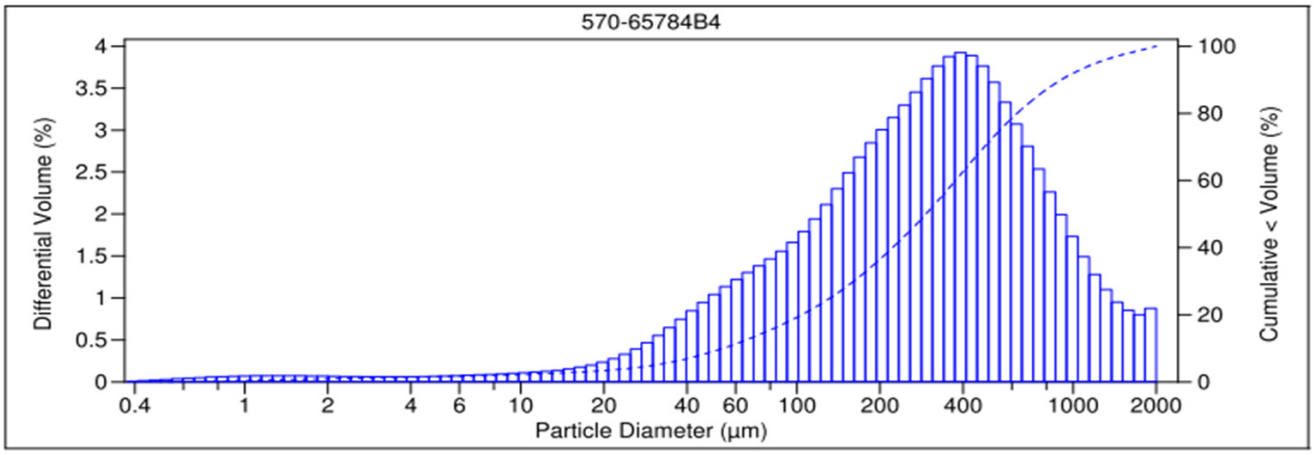
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/22/21
	Date Received:	07/29/21
	Work Order No:	570-65784
	Date Analyzed:	08/07/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-D-Comp (Composite D)		Coarse Sand	0.715

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
10.40	7.28	17.98	24.87	18.21	10.63	9.36	1.28	10.64



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-65784-1	FDD-A-Comp (Composite A)	54	43	50	48	63	51
570-65784-2	FDD-B-Comp (Composite B)	59	41	44	51	64	57
570-65784-3	FDD-C-Comp (Composite C)	32	39	50	52	63	45
570-65784-4	FDD-D-Comp (Composite D)	39	42	50	55	65	53
570-65784-4 MS	FDD-D-Comp (Composite D)	54	55	45	61	73	48
570-65784-4 MSD	FDD-D-Comp (Composite D)	56	60	49	66	74	56

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
LCS 570-168540/2-A	Lab Control Sample	101	131	94	135	136	125
LCSD 570-168540/3-A	Lab Control Sample Dup	94	120	97	125	130	119
MB 570-168540/1-A	Method Blank	38	50	47	51	54	47

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-65784-1	FDD-A-Comp (Composite A)	60	80
570-65784-2	FDD-B-Comp (Composite B)	59	84
570-65784-3	FDD-C-Comp (Composite C)	51	70
570-65784-4	FDD-D-Comp (Composite D)	58	74
570-65784-4 MS	FDD-D-Comp (Composite D)	62	83
570-65784-4 MSD	FDD-D-Comp (Composite D)	60	81

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
LCS 570-167954/2-A	Lab Control Sample	63	72
LCSD 570-167954/3-A	Lab Control Sample Dup	59	66
MB 570-167954/1-A	Method Blank	61	73

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-65784-1	FDD-A-Comp (Composite A)	96
570-65784-2	FDD-B-Comp (Composite B)	91
570-65784-3	FDD-C-Comp (Composite C)	90
570-65784-4	FDD-D-Comp (Composite D)	120 S1+
570-65784-4 MS	FDD-D-Comp (Composite D)	102
570-65784-4 MSD	FDD-D-Comp (Composite D)	116

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
LCS 570-167955/2-A - RA	Lab Control Sample	115
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	107
MB 570-167955/1-A	Method Blank	94

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-65784-1	FDD-A-Comp (Composite A)	70
570-65784-2	FDD-B-Comp (Composite B)	74
570-65784-3	FDD-C-Comp (Composite C)	81
570-65784-4	FDD-D-Comp (Composite D)	86
570-65784-4 MS	FDD-D-Comp (Composite D)	82
570-65784-4 MSD	FDD-D-Comp (Composite D)	82

Surrogate Legend

TPTT = Tripentyltin

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TPTT (10-120)							
LCS 570-168407/2-A	Lab Control Sample	74							
LCSD 570-168407/3-A	Lab Control Sample Dup	71							
MB 570-168407/1-A	Method Blank	85							

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)							
570-65784-1	FDD-A-Comp (Composite A)	106							
570-65784-2	FDD-B-Comp (Composite B)	86							
570-65784-3	FDD-C-Comp (Composite C)	103							
570-65784-4	FDD-D-Comp (Composite D)	105							
570-65784-4 MS	FDD-D-Comp (Composite D)	105							
570-65784-4 MSD	FDD-D-Comp (Composite D)	107							

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)							
LCS 570-168906/2-A	Lab Control Sample	108							
LCSD 570-168906/3-A	Lab Control Sample Dup	109							
MB 570-168906/1-A	Method Blank	107							

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)						
570-65784-1	FDD-A-Comp (Composite A)	53	78						
570-65784-2	FDD-B-Comp (Composite B)	60	146						
570-65784-3	FDD-C-Comp (Composite C)	60	84						
570-65784-4	FDD-D-Comp (Composite D)	54	87						
570-65784-4 MS	FDD-D-Comp (Composite D)	55	99						
570-65784-4 MSD	FDD-D-Comp (Composite D)	66	85						

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCB1
Lab Sample ID	Client Sample ID	(20-131)	(20-180)
LCS 570-168544/2-A	Lab Control Sample	86	89
LCSD 570-168544/3-A	Lab Control Sample Dup	63	73
MB 570-168544/1-A	Method Blank	74	81

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
570-65784-1	FDD-A-Comp (Composite A)	61	51
570-65784-2	FDD-B-Comp (Composite B)	102	51
570-65784-3	FDD-C-Comp (Composite C)	75	63
570-65784-4	FDD-D-Comp (Composite D)	77	59
570-65784-4 MS	FDD-D-Comp (Composite D)	80	64
570-65784-4 MSD	FDD-D-Comp (Composite D)	73	61 p

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(20-155)	(25-126)
LCS 570-168544/4-A	Lab Control Sample	73	68
LCSD 570-168544/5-A	Lab Control Sample Dup	89	68
MB 570-168544/1-A	Method Blank	83	76

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-168540/1-A
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168540

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,3,4,6-Tetrachlorophenol	6.342	J	10	3.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dinitrophenol	117.6	J	500	60	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,6-Dichlorophenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Chlorophenol	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Methylphenol	ND		10	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Nitrophenol	ND		500	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4-Nitrophenol	ND		500	81	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Acenaphthene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Acenaphthylene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Anthracene	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Biphenyl	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Bis(2-ethylhexyl) phthalate	20.04	J	50	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Butyl benzyl phthalate	3.411	J	50	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Chrysene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Diethyl phthalate	ND		50	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Di-n-butyl phthalate	9.990	J	50	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Di-n-octyl phthalate	26.07	J	50	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Fluoranthene	ND		10	1.8	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Fluorene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Naphthalene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Pentachlorophenol	18.54	J	500	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Phenanthrene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Pyrene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*38*		*32 - 143*	*08/03/21 14:49*	*08/09/21 17:11*	*1*
2-Fluorophenol	*50*		*15 - 138*	*08/03/21 14:49*	*08/09/21 17:11*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-168540/1-A
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168540

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	47		18 - 162	08/03/21 14:49	08/09/21 17:11	1
Phenol-d6	51		17 - 141	08/03/21 14:49	08/09/21 17:11	1
p-Terphenyl-d14	54		34 - 148	08/03/21 14:49	08/09/21 17:11	1
2-Fluorobiphenyl (Surr)	47		14 - 146	08/03/21 14:49	08/09/21 17:11	1

Lab Sample ID: LCS 570-168540/2-A
Matrix: Solid
Analysis Batch: 170767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	585.7		ug/Kg		59	40 - 160
2,4,6-Trichlorophenol	1000	585.3		ug/Kg		59	40 - 160
2,4-Dichlorophenol	1000	523.5		ug/Kg		52	40 - 160
2,4-Dimethylphenol	1000	574.9		ug/Kg		57	40 - 160
2,4-Dinitrophenol	1000	185.3	J *-	ug/Kg		19	40 - 160
2-Chlorophenol	1000	639.4		ug/Kg		64	40 - 160
2-Methylphenol	1000	712.3		ug/Kg		71	40 - 160
2-Nitrophenol	1000	499.7	J	ug/Kg		50	40 - 160
3/4-Methylphenol	2000	1215		ug/Kg		61	40 - 160
4,6-Dinitro-2-methylphenol	1000	359.0	J *- me	ug/Kg		36	40 - 160
4-Chloro-3-methylphenol	1000	597.5		ug/Kg		60	40 - 160
Acenaphthene	1000	647.2		ug/Kg		65	48 - 108
Benzo[a]pyrene	1000	872.5		ug/Kg		87	17 - 163
Bis(2-ethylhexyl) phthalate	1000	836.9		ug/Kg		84	40 - 160
Butyl benzyl phthalate	1000	774.7		ug/Kg		77	40 - 160
Chrysene	1000	699.1		ug/Kg		70	17 - 168
Diethyl phthalate	1000	704.6		ug/Kg		70	40 - 160
Dimethyl phthalate	1000	655.6		ug/Kg		66	40 - 160
Di-n-butyl phthalate	1000	706.6		ug/Kg		71	40 - 160
Di-n-octyl phthalate	1000	797.0		ug/Kg		80	40 - 160
Fluoranthene	1000	689.4		ug/Kg		69	26 - 137
Fluorene	1000	692.7		ug/Kg		69	59 - 121
Naphthalene	1000	538.5		ug/Kg		54	21 - 133
Pentachlorophenol	1000	101.9	J *-	ug/Kg		10	40 - 160
Phenanthrene	1000	721.8		ug/Kg		72	54 - 120
Pyrene	1000	723.0		ug/Kg		72	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	101		32 - 143
2-Fluorophenol	131		15 - 138
Nitrobenzene-d5	94		18 - 162
Phenol-d6	135		17 - 141
p-Terphenyl-d14	136		34 - 148
2-Fluorobiphenyl (Surr)	125		14 - 146

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid
Analysis Batch: 170767

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 168540

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol			1000	542.4		ug/Kg		54	40 - 160	8	20
2,4,6-Trichlorophenol			1000	548.9		ug/Kg		55	40 - 160	6	20
2,4-Dichlorophenol			1000	486.2		ug/Kg		49	40 - 160	7	20
2,4-Dimethylphenol			1000	572.2		ug/Kg		57	40 - 160	0	20
2,4-Dinitrophenol			1000	158.2	J *-	ug/Kg		16	40 - 160	16	20
2-Chlorophenol			1000	596.9		ug/Kg		60	40 - 160	7	20
2-Methylphenol			1000	710.1		ug/Kg		71	40 - 160	0	20
2-Nitrophenol			1000	508.9		ug/Kg		51	40 - 160	2	20
3/4-Methylphenol			2000	1191		ug/Kg		60	40 - 160	2	20
4,6-Dinitro-2-methylphenol			1000	292.2	J *- *1 me	ug/Kg		29	40 - 160	21	20
4-Chloro-3-methylphenol			1000	553.9		ug/Kg		55	40 - 160	8	20
Acenaphthene			1000	620.3		ug/Kg		62	48 - 108	4	20
Benzo[a]pyrene			1000	813.5		ug/Kg		81	17 - 163	7	20
Bis(2-ethylhexyl) phthalate			1000	775.2		ug/Kg		78	40 - 160	8	20
Butyl benzyl phthalate			1000	701.9		ug/Kg		70	40 - 160	10	20
Chrysene			1000	660.6		ug/Kg		66	17 - 168	6	20
Diethyl phthalate			1000	655.9		ug/Kg		66	40 - 160	7	20
Dimethyl phthalate			1000	603.5		ug/Kg		60	40 - 160	8	20
Di-n-butyl phthalate			1000	672.5		ug/Kg		67	40 - 160	5	20
Di-n-octyl phthalate			1000	727.5		ug/Kg		73	40 - 160	9	20
Fluoranthene			1000	611.8		ug/Kg		61	26 - 137	12	20
Fluorene			1000	659.7		ug/Kg		66	59 - 121	5	20
Naphthalene			1000	537.4		ug/Kg		54	21 - 133	0	20
Pentachlorophenol			1000	102.1	J *-	ug/Kg		10	40 - 160	0	20
Phenanthrene			1000	684.8		ug/Kg		68	54 - 120	5	20
Pyrene			1000	677.5		ug/Kg		68	28 - 106	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*94*		*32 - 143*
2-Fluorophenol	*120*		*15 - 138*
Nitrobenzene-d5	*97*		*18 - 162*
Phenol-d6	*125*		*17 - 141*
p-Terphenyl-d14	*130*		*34 - 148*
2-Fluorobiphenyl (Surr)	*119*		*14 - 146*

Lab Sample ID: 570-65784-4 MS
Matrix: Sediment
Analysis Batch: 169973

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND		1290	737.6		ug/Kg	☼	57	40 - 160		
2,4,6-Trichlorophenol	ND		1290	826.0		ug/Kg	☼	64	40 - 160		
2,4-Dichlorophenol	ND		1290	729.0		ug/Kg	☼	57	40 - 160		
2,4-Dimethylphenol	ND	F1	1290	583.5	J	ug/Kg	☼	45	40 - 160		
2,4-Dinitrophenol	ND	*- F1	1290	414.0	J F1 *-	ug/Kg	☼	32	40 - 160		
2-Chlorophenol	ND		1290	870.8		ug/Kg	☼	68	40 - 160		
2-Methylphenol	ND		1290	878.1		ug/Kg	☼	68	40 - 160		
2-Nitrophenol	ND		1290	763.2		ug/Kg	☼	59	40 - 160		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169973 — **Prep Batch: 168540**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
3/4-Methylphenol	ND		2570	1496		ug/Kg	☼	58	40 - 160
4,6-Dinitro-2-methylphenol	ND	*- *1	1290	678.5	*- *1	ug/Kg	☼	53	40 - 160
4-Chloro-3-methylphenol	ND		1290	748.1		ug/Kg	☼	58	8 - 160
Acenaphthene	ND		1290	766.4		ug/Kg	☼	60	40 - 160
Benzo[a]pyrene	7.7	J	1290	1036		ug/Kg	☼	80	17 - 163
Bis(2-ethylhexyl) phthalate	27	J B	1290	1107		ug/Kg	☼	84	40 - 160
Butyl benzyl phthalate	22	J B	1290	1038		ug/Kg	☼	79	40 - 160
Chrysene	ND		1290	860.2		ug/Kg	☼	67	17 - 168
Diethyl phthalate	3.0	J	1290	823.2		ug/Kg	☼	64	40 - 160
Dimethyl phthalate	ND		1290	794.2		ug/Kg	☼	62	40 - 160
Di-n-butyl phthalate	21	J B	1290	868.0		ug/Kg	☼	66	40 - 160
Di-n-octyl phthalate	ND		1290	1019		ug/Kg	☼	79	40 - 160
Fluoranthene	ND		1290	743.1		ug/Kg	☼	58	26 - 137
Fluorene	ND		1290	782.8		ug/Kg	☼	61	59 - 121
Naphthalene	ND		1290	669.2		ug/Kg	☼	52	21 - 133
Pentachlorophenol	ND	*- F1	1290	339.6	J F1 *-	ug/Kg	☼	26	40 - 160
Phenanthrene	ND		1290	829.6		ug/Kg	☼	64	54 - 120
Pyrene	ND		1290	963.8		ug/Kg	☼	75	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*54*		*32 - 143*
2-Fluorophenol	*55*		*15 - 138*
Nitrobenzene-d5	*45*		*18 - 162*
Phenol-d6	*61*		*17 - 141*
p-Terphenyl-d14	*73*		*34 - 148*
2-Fluorobiphenyl (Surr)	*48*		*14 - 146*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169973 — **Prep Batch: 168540**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND		1270	851.1		ug/Kg	☼	67	40 - 160	14	20
2,4,6-Trichlorophenol	ND		1270	833.9		ug/Kg	☼	66	40 - 160	1	20
2,4-Dichlorophenol	ND		1270	747.0		ug/Kg	☼	59	40 - 160	2	20
2,4-Dimethylphenol	ND	F1	1270	495.8	J F1	ug/Kg	☼	39	40 - 160	16	20
2,4-Dinitrophenol	ND	*- F1	1270	357.4	J *- F1	ug/Kg	☼	28	40 - 160	15	20
2-Chlorophenol	ND		1270	936.4		ug/Kg	☼	74	40 - 160	7	20
2-Methylphenol	ND		1270	953.8		ug/Kg	☼	75	40 - 160	8	20
2-Nitrophenol	ND		1270	800.3		ug/Kg	☼	63	40 - 160	5	20
3/4-Methylphenol	ND		2550	1590		ug/Kg	☼	62	40 - 160	6	20
4,6-Dinitro-2-methylphenol	ND	*- *1	1270	662.4	*- *1	ug/Kg	☼	52	40 - 160	2	20
4-Chloro-3-methylphenol	ND		1270	703.5		ug/Kg	☼	55	8 - 160	6	20
Acenaphthene	ND		1270	802.6		ug/Kg	☼	63	40 - 160	5	20
Benzo[a]pyrene	7.7	J	1270	1033		ug/Kg	☼	81	17 - 163	0	20
Bis(2-ethylhexyl) phthalate	27	J B	1270	1154		ug/Kg	☼	89	40 - 160	4	20
Butyl benzyl phthalate	22	J B	1270	1043		ug/Kg	☼	80	40 - 160	0	20
Chrysene	ND		1270	862.3		ug/Kg	☼	68	17 - 168	0	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169973 — **Prep Batch: 168540**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diethyl phthalate	3.0	J	1270	913.3		ug/Kg	☼	72	40 - 160	10	20
Dimethyl phthalate	ND		1270	812.9		ug/Kg	☼	64	40 - 160	2	20
Di-n-butyl phthalate	21	J B	1270	876.6		ug/Kg	☼	67	40 - 160	1	20
Di-n-octyl phthalate	ND		1270	1033		ug/Kg	☼	81	40 - 160	1	20
Fluoranthene	ND		1270	765.7		ug/Kg	☼	60	26 - 137	3	20
Fluorene	ND		1270	874.7		ug/Kg	☼	69	59 - 121	11	20
Naphthalene	ND		1270	707.5		ug/Kg	☼	56	21 - 133	6	20
Pentachlorophenol	ND	*- F1	1270	319.8	J *- F1	ug/Kg	☼	25	40 - 160	6	20
Phenanthrene	ND		1270	847.2		ug/Kg	☼	67	54 - 120	2	20
Pyrene	ND		1270	953.7		ug/Kg	☼	75	6 - 156	1	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*56*		*32 - 143*
2-Fluorophenol	*60*		*15 - 138*
Nitrobenzene-d5	*49*		*18 - 162*
Phenol-d6	*66*		*17 - 141*
p-Terphenyl-d14	*74*		*34 - 148*
2-Fluorobiphenyl (Surr)	*56*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-167954/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169444 — **Prep Batch: 167954**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-28	ND		0.20	0.069	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-37	ND		0.20	0.061	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-44	ND		0.20	0.15	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-49	ND		0.20	0.050	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-52	ND		0.20	0.19	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-66	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-70	ND		0.20	0.072	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-74	ND		0.20	0.090	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-77	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-81	ND		0.20	0.090	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-87	ND		0.20	0.11	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-99	ND		0.20	0.047	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-101	ND		0.20	0.044	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-105	ND		0.20	0.053	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-110	ND		0.20	0.034	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-114	ND		0.20	0.074	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-118	ND		0.20	0.035	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-119	ND		0.20	0.063	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-123	ND		0.20	0.073	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-126	ND		0.20	0.055	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-128	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-132/153	ND		0.40	0.16	ug/Kg		08/03/21 10:29	08/06/21 11:42	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-167954/1-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167954

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-138/158	ND		0.40	0.35	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-149	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-151	ND		0.20	0.088	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-156	ND		0.20	0.077	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-157	ND		0.20	0.085	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-167	ND		0.20	0.13	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-168	ND		0.20	0.14	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-169	ND		0.20	0.065	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-170	ND		0.20	0.11	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-177	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-180	ND		0.20	0.092	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-183	ND		0.20	0.093	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-187	ND		0.20	0.10	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-189	ND		0.20	0.064	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-194	ND		0.20	0.074	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-201	ND		0.20	0.034	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-206	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		08/03/21 10:29	08/06/21 11:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*	*08/03/21 10:29*	*08/06/21 11:42*	*1*
p-Terphenyl-d14	*73*		*37 - 165*	*08/03/21 10:29*	*08/06/21 11:42*	*1*

Lab Sample ID: LCS 570-167954/2-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167954

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	37.54		ug/Kg		75	33 - 114
PCB-28	50.0	40.51		ug/Kg		81	40 - 132
PCB-44	50.0	40.81		ug/Kg		82	38 - 131
PCB-52	50.0	40.11		ug/Kg		80	38 - 131
PCB-66	50.0	45.48		ug/Kg		91	42 - 141
PCB-77	50.0	41.35		ug/Kg		83	47 - 135
PCB-101	50.0	42.32		ug/Kg		85	40 - 132
PCB-105	50.0	44.38		ug/Kg		89	39 - 135
PCB-118	50.0	40.77		ug/Kg		82	38 - 131
PCB-126	50.0	45.82		ug/Kg		92	40 - 139
PCB-128	50.0	51.93		ug/Kg		104	43 - 149
PCB-132/153	50.0	45.65		ug/Kg		91	37 - 164
PCB-138/158	50.0	40.57		ug/Kg		81	36 - 124
PCB-170	50.0	47.57		ug/Kg		95	35 - 134
PCB-180	50.0	49.02		ug/Kg		98	38 - 159
PCB-187	50.0	48.44		ug/Kg		97	41 - 147
PCB-201	50.0	48.84		ug/Kg		98	40 - 156
PCB-206	50.0	54.05		ug/Kg		108	37 - 153

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-167954/2-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167954

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*
p-Terphenyl-d14	*72*		*37 - 165*

Lab Sample ID: LCSD 570-167954/3-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 167954

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18			50.0	35.71		ug/Kg		71	33 - 114	5	29
PCB-28			50.0	39.03		ug/Kg		78	40 - 132	4	29
PCB-44			50.0	38.32		ug/Kg		77	38 - 131	6	32
PCB-52			50.0	37.71		ug/Kg		75	38 - 131	6	32
PCB-66			50.0	44.08		ug/Kg		88	42 - 141	3	34
PCB-77			50.0	40.21		ug/Kg		80	47 - 135	3	35
PCB-101			50.0	40.12		ug/Kg		80	40 - 132	5	34
PCB-105			50.0	42.77		ug/Kg		86	39 - 135	4	37
PCB-118			50.0	38.61		ug/Kg		77	38 - 131	5	35
PCB-126			50.0	43.55		ug/Kg		87	40 - 139	5	39
PCB-128			50.0	48.40		ug/Kg		97	43 - 149	7	37
PCB-132/153			50.0	43.66		ug/Kg		87	37 - 164	4	38
PCB-138/158			50.0	38.77		ug/Kg		78	36 - 124	5	40
PCB-170			50.0	42.76		ug/Kg		86	35 - 134	11	31
PCB-180			50.0	46.51		ug/Kg		93	38 - 159	5	40
PCB-187			50.0	45.78		ug/Kg		92	41 - 147	6	40
PCB-201			50.0	47.03		ug/Kg		94	40 - 156	4	40
PCB-206			50.0	50.87		ug/Kg		102	37 - 153	6	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*59*		*20 - 139*
p-Terphenyl-d14	*66*		*37 - 165*

Lab Sample ID: 570-65784-4 MS
Matrix: Sediment
Analysis Batch: 169444

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA
Prep Batch: 167954

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18	ND		64.1	55.09		ug/Kg	☼	86	29 - 127		
PCB-28	ND		64.1	65.94		ug/Kg	☼	103	29 - 170		
PCB-44	ND		64.1	65.45		ug/Kg	☼	102	33 - 150		
PCB-52	ND		64.1	64.28		ug/Kg	☼	100	23 - 159		
PCB-66	ND		64.1	75.34		ug/Kg	☼	118	29 - 166		
PCB-77	ND		64.1	67.73		ug/Kg	☼	106	30 - 166		
PCB-101	ND		64.1	68.00		ug/Kg	☼	106	30 - 159		
PCB-105	ND		64.1	71.18		ug/Kg	☼	111	22 - 173		
PCB-118	ND		64.1	66.17		ug/Kg	☼	103	24 - 162		
PCB-126	ND		64.1	72.91		ug/Kg	☼	114	18 - 180		
PCB-128	ND		64.1	79.97		ug/Kg	☼	125	18 - 180		
PCB-132/153	ND		64.1	73.00		ug/Kg	☼	114	27 - 180		

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169444 — **Prep Batch: 167954**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-138/158	ND		64.1	65.03		ug/Kg	☼	101	18 - 160
PCB-170	ND		64.1	77.49		ug/Kg	☼	121	25 - 165
PCB-180	ND		64.1	76.77		ug/Kg	☼	120	20 - 180
PCB-187	ND		64.1	76.86		ug/Kg	☼	120	14 - 180
PCB-201	ND		64.1	77.87		ug/Kg	☼	121	17 - 180
PCB-206	ND		64.1	85.02		ug/Kg	☼	133	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*
p-Terphenyl-d14	*83*		*37 - 165*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169444 — **Prep Batch: 167954**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		63.7	54.06		ug/Kg	☼	85	29 - 127	2	40
PCB-28	ND		63.7	64.70		ug/Kg	☼	101	29 - 170	2	32
PCB-44	ND		63.7	63.75		ug/Kg	☼	100	33 - 150	3	40
PCB-52	ND		63.7	62.31		ug/Kg	☼	98	23 - 159	3	40
PCB-66	ND		63.7	73.61		ug/Kg	☼	115	29 - 166	2	40
PCB-77	ND		63.7	65.87		ug/Kg	☼	103	30 - 166	3	40
PCB-101	ND		63.7	65.80		ug/Kg	☼	103	30 - 159	3	40
PCB-105	ND		63.7	68.58		ug/Kg	☼	108	22 - 173	4	40
PCB-118	ND		63.7	63.76		ug/Kg	☼	100	24 - 162	4	40
PCB-126	ND		63.7	69.28		ug/Kg	☼	109	18 - 180	5	40
PCB-128	ND		63.7	76.22		ug/Kg	☼	120	18 - 180	5	40
PCB-132/153	ND		63.7	68.99		ug/Kg	☼	108	27 - 180	6	40
PCB-138/158	ND		63.7	63.41		ug/Kg	☼	99	18 - 160	3	40
PCB-170	ND		63.7	71.97		ug/Kg	☼	113	25 - 165	7	22
PCB-180	ND		63.7	74.55		ug/Kg	☼	117	20 - 180	3	40
PCB-187	ND		63.7	75.57		ug/Kg	☼	119	14 - 180	2	40
PCB-201	ND		63.7	74.15		ug/Kg	☼	116	17 - 180	5	40
PCB-206	ND		63.7	79.00		ug/Kg	☼	124	16 - 180	7	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*60*		*20 - 139*
p-Terphenyl-d14	*81*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-167955/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Bifenthrin	ND		0.50	0.19	ug/Kg		07/31/21 10:32	08/06/21 19:54	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-167955/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyfluthrin	ND		0.50	0.23	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Cypermethrin	ND		0.50	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fluvalinate	ND		0.50	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Phenothrin	ND		0.50	0.20	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Tetramethrin	ND		0.50	0.10	ug/Kg		07/31/21 10:32	08/06/21 19:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*94*		*14 - 116*	*07/31/21 10:32*	*08/06/21 19:54*	*1*

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	ND		6.42	5.194		ug/Kg	☼	81	10 - 148
Bifenthrin	ND		6.42	8.020		ug/Kg	☼	125	26 - 128
Cyfluthrin	ND		6.42	8.025		ug/Kg	☼	125	10 - 131
Cypermethrin	ND		6.42	8.724		ug/Kg	☼	136	10 - 136
Deltamethrin/Tralomethrin	ND		6.42	8.546		ug/Kg	☼	133	13 - 190
Fenpropathrin	ND		6.42	8.960		ug/Kg	☼	140	10 - 148
Fenvalerate/Esfenvalerate	ND		6.42	8.477		ug/Kg	☼	132	10 - 149
Fluvalinate	ND		6.42	5.396		ug/Kg	☼	84	10 - 121
Lambda cyhalothrin	ND		6.42	7.359		ug/Kg	☼	115	10 - 123
Permethrins (cis/trans)	ND	F1	6.42	9.129	F1	ug/Kg	☼	142	45 - 123
Phenothrin	ND		6.42	8.829		ug/Kg	☼	138	45 - 165
Resmethrin/Bioresmethrin	ND		6.42	5.453		ug/Kg	☼	85	38 - 164
Tetramethrin	ND		6.42	7.460		ug/Kg	☼	116	15 - 153

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*102*		*14 - 116*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		6.37	4.795		ug/Kg	☼	75	10 - 148	8	30
Bifenthrin	ND		6.37	7.695		ug/Kg	☼	121	26 - 128	4	30
Cyfluthrin	ND		6.37	7.035		ug/Kg	☼	111	10 - 131	13	30
Cypermethrin	ND		6.37	7.727		ug/Kg	☼	121	10 - 136	12	30
Deltamethrin/Tralomethrin	ND		6.37	7.480		ug/Kg	☼	118	13 - 190	13	30
Fenpropathrin	ND		6.37	8.009		ug/Kg	☼	126	10 - 148	11	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fenvalerate/Esfenvalerate	ND		6.37	7.449		ug/Kg	☼	117	10 - 149	13	30
Fluvalinate	ND		6.37	4.989		ug/Kg	☼	78	10 - 121	8	30
Lambda cyhalothrin	ND		6.37	7.055		ug/Kg	☼	111	10 - 123	4	30
Permethrins (cis/trans)	ND	F1	6.37	8.140	F1	ug/Kg	☼	128	45 - 123	11	30
Phenothrin	ND		6.37	8.052		ug/Kg	☼	126	45 - 165	9	30
Resmethrin/Bioresmethrin	ND		6.37	4.159		ug/Kg	☼	65	38 - 164	27	30
Tetramethrin	ND		6.37	5.983		ug/Kg	☼	94	15 - 153	22	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*116*		*14 - 116*

Method: 8270D TQ - Pyrethroids - GC/MS/MS - RA

Lab Sample ID: LCS 570-167955/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin - RA	5.00	3.577		ug/Kg		72	10 - 148
Bifenthrin - RA	5.00	5.113		ug/Kg		102	26 - 128
Cyfluthrin - RA	5.00	4.943		ug/Kg		99	10 - 131
Cypermethrin - RA	5.00	5.419		ug/Kg		108	10 - 136
Deltamethrin/Tralomethrin - RA	5.00	4.817		ug/Kg		96	13 - 190
Fenpropathrin - RA	5.00	5.484		ug/Kg		110	10 - 148
Fenvalerate/Esfenvalerate - RA	5.00	5.278		ug/Kg		106	10 - 149
Fluvalinate - RA	5.00	3.474		ug/Kg		69	10 - 121
Lambda cyhalothrin - RA	5.00	4.543		ug/Kg		91	10 - 123
Permethrins (cis/trans) - RA	5.00	5.633		ug/Kg		113	45 - 123
Phenothrin - RA	5.00	6.437		ug/Kg		129	45 - 165
Resmethrin/Bioresmethrin - RA	5.00	4.044		ug/Kg		81	38 - 164
Tetramethrin - RA	5.00	4.103		ug/Kg		82	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate - RA	*115*		*14 - 116*

Lab Sample ID: LCSD 570-167955/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin - RA	5.00	3.797		ug/Kg		76	10 - 148	6	25
Bifenthrin - RA	5.00	5.060		ug/Kg		101	26 - 128	1	25
Cyfluthrin - RA	5.00	4.722		ug/Kg		94	10 - 131	5	25
Cypermethrin - RA	5.00	5.003		ug/Kg		100	10 - 136	8	25
Deltamethrin/Tralomethrin - RA	5.00	4.193		ug/Kg		84	13 - 190	14	25
Fenpropathrin - RA	5.00	5.174		ug/Kg		103	10 - 148	6	25
Fenvalerate/Esfenvalerate - RA	5.00	4.690		ug/Kg		94	10 - 149	12	25
Fluvalinate - RA	5.00	3.024		ug/Kg		60	10 - 121	14	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 570-167955/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lambda cyhalothrin - RA			5.00	4.626		ug/Kg		93	10 - 123	2	25
Permethrins (cis/trans) - RA			5.00	5.474		ug/Kg		109	45 - 123	3	25
Phenothrin - RA			5.00	6.036		ug/Kg		121	45 - 165	6	25
Resmethrin/Bioresmethrin - RA			5.00	3.954		ug/Kg		79	38 - 164	2	25
Tetramethrin - RA			5.00	4.039		ug/Kg		81	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate - RA	*107*		*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-168407/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Tributyltin	ND		3.0	1.5	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Dibutyltin	ND		3.0	0.73	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Monobutyltin	ND		3.0	1.4	ug/Kg		08/03/21 09:25	08/04/21 21:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*85*		*10 - 120*	*08/03/21 09:25*	*08/04/21 21:56*	*1*

Lab Sample ID: LCS 570-168407/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrabutyltin			100	103.8		ug/Kg		104	10 - 153		
Tributyltin			100	81.07		ug/Kg		81	10 - 126		
Monobutyltin			100	ND	*-	ug/Kg		0	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*74*		*10 - 120*

Lab Sample ID: LCSD 570-168407/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin			100	94.51		ug/Kg		95	10 - 153	9	30
Tributyltin			100	75.78		ug/Kg		76	10 - 126	7	30
Monobutyltin			100	ND	*-	ug/Kg		0	10 - 120	NC	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*71*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169128 — **Prep Batch: 168407**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		127	158.7		ug/Kg	☼	125	10 - 140
Tributyltin	ND		127	110.2		ug/Kg	☼	87	10 - 135
Monobutyltin	ND	F2 *- F1	127	5.224	F1	ug/Kg	☼	4	10 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*82*		*10 - 120*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169128 — **Prep Batch: 168407**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		128	141.6		ug/Kg	☼	111	10 - 140	11	40
Tributyltin	ND		128	103.0		ug/Kg	☼	81	10 - 135	7	40
Monobutyltin	ND	F2 *- F1	128	3.171	J F2 F1	ug/Kg	☼	2	10 - 125	49	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*82*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-168906/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168980 — **Prep Batch: 168906**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C7 as C7	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C8 as C8	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C9-C10	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C11-C12	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C13-C14	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C15-C16	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C17-C18	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C19-C20	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C21-C22	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C23-C24	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C25-C28	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C29-C32	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C33-C36	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C37-C40	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C41-C44	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1
C6-C44	ND		5.0	3.8	mg/Kg		08/04/21 15:39	08/04/21 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*08/04/21 15:39*	*08/04/21 21:25*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 570-168906/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168980 — **Prep Batch: 168906**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	461.6		mg/Kg		115	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*108*		*60 - 138*

Lab Sample ID: LCSD 570-168906/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168980 — **Prep Batch: 168906**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	467.5		mg/Kg		117	80 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*109*		*60 - 138*

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168980 — **Prep Batch: 168906**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	ND		521	572.3		mg/Kg	☼	110	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*105*		*60 - 138*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168980 — **Prep Batch: 168906**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		488	550.4		mg/Kg	☼	113	43 - 165	4	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*107*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-168544/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		08/03/21 14:57	08/09/21 22:20	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-168544/1-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168544

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	ND		1.0	0.071	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Aldrin	ND		1.0	0.072	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
alpha-BHC	ND		1.0	0.080	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
beta-BHC	ND		1.0	0.091	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Chlordane	ND		5.0	0.33	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
delta-BHC	ND		1.0	0.064	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Dieldrin	ND		0.20	0.066	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan I	ND		1.0	0.049	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan II	ND		1.0	0.23	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin	ND		1.0	0.088	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin ketone	ND		1.0	0.19	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
gamma-BHC	ND		1.0	0.11	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Heptachlor	ND		1.0	0.060	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Methoxychlor	ND		1.0	0.16	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Toxaphene	ND		5.0	1.0	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Oxychlordane	ND		1.0	0.15	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		08/03/21 14:57	08/09/21 22:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*74*		*20 - 131*	*08/03/21 14:57*	*08/09/21 22:20*	*1*
DCB Decachlorobiphenyl (Surr)	*81*		*20 - 180*	*08/03/21 14:57*	*08/09/21 22:20*	*1*

Lab Sample ID: LCS 570-168544/2-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	4.115		ug/Kg		82	54 - 150
4,4'-DDE	5.00	3.774		ug/Kg		75	49 - 146
4,4'-DDT	5.00	4.122		ug/Kg		82	52 - 147
Aldrin	5.00	3.484		ug/Kg		70	28 - 116
alpha-BHC	5.00	3.622		ug/Kg		72	44 - 123
beta-BHC	5.00	4.002		ug/Kg		80	48 - 127
delta-BHC	5.00	3.834		ug/Kg		77	10 - 149
Dieldrin	5.00	3.696		ug/Kg		74	48 - 132
alpha-Chlordane	5.00	3.635		ug/Kg		73	48 - 125
Endosulfan I	5.00	3.528		ug/Kg		71	44 - 125
Endosulfan II	5.00	3.663		ug/Kg		73	47 - 136
Endosulfan sulfate	5.00	4.047		ug/Kg		81	46 - 133
Endrin	5.00	3.845		ug/Kg		77	43 - 142

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-168544/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin aldehyde	5.00	4.264		ug/Kg		85	29 - 141
gamma-BHC	5.00	3.686		ug/Kg		74	44 - 126
Heptachlor	5.00	3.583		ug/Kg		72	50 - 123
Heptachlor epoxide	5.00	3.600		ug/Kg		72	49 - 125
Methoxychlor	5.00	4.240		ug/Kg		85	49 - 145
gamma-Chlordane	5.00	3.623		ug/Kg		72	29 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*86*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 180*

Lab Sample ID: LCSD 570-168544/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	3.455		ug/Kg		69	54 - 150	17	29
4,4'-DDE	5.00	3.154		ug/Kg		63	49 - 146	18	28
4,4'-DDT	5.00	3.561		ug/Kg		71	52 - 147	15	32
Aldrin	5.00	2.674		ug/Kg		53	28 - 116	26	30
alpha-BHC	5.00	2.833		ug/Kg		57	44 - 123	24	27
beta-BHC	5.00	3.097		ug/Kg		62	48 - 127	25	28
delta-BHC	5.00	3.115		ug/Kg		62	10 - 149	21	27
Dieldrin	5.00	3.034		ug/Kg		61	48 - 132	20	28
alpha-Chlordane	5.00	3.014		ug/Kg		60	48 - 125	19	27
Endosulfan I	5.00	2.873		ug/Kg		57	44 - 125	20	29
Endosulfan II	5.00	3.123		ug/Kg		62	47 - 136	16	29
Endosulfan sulfate	5.00	3.536		ug/Kg		71	46 - 133	13	28
Endrin	5.00	3.148		ug/Kg		63	43 - 142	20	27
Endrin aldehyde	5.00	3.877		ug/Kg		78	29 - 141	10	40
gamma-BHC	5.00	2.897		ug/Kg		58	44 - 126	24	28
Heptachlor	5.00	2.794		ug/Kg		56	50 - 123	25	28
Heptachlor epoxide	5.00	2.881		ug/Kg		58	49 - 125	22	28
Methoxychlor	5.00	3.693		ug/Kg		74	49 - 145	14	39
gamma-Chlordane	5.00	2.970		ug/Kg		59	29 - 153	20	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*63*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 180*

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND	F1	6.37	4.601		ug/Kg	☼	72	17 - 180
4,4'-DDE	ND	F1	6.37	4.242		ug/Kg	☼	67	20 - 180
4,4'-DDT	ND	F1	6.37	4.797		ug/Kg	☼	75	10 - 180

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-65784-4 MS
Matrix: Sediment
Analysis Batch: 169920

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND	F1	6.37	3.844		ug/Kg	☼	60	27 - 146
alpha-BHC	ND	F1	6.37	4.876		ug/Kg	☼	77	33 - 160
beta-BHC	ND	F1	6.37	4.754		ug/Kg	☼	75	14 - 178
delta-BHC	ND	F1	6.37	4.367		ug/Kg	☼	69	10 - 159
Dieldrin	ND	F1	6.37	4.541		ug/Kg	☼	71	25 - 180
alpha-Chlordane	ND	F1	6.37	4.006		ug/Kg	☼	63	24 - 164
Endosulfan I	ND	F1	6.37	4.087		ug/Kg	☼	64	31 - 146
Endosulfan II	ND	F1	6.37	4.323		ug/Kg	☼	68	14 - 176
Endosulfan sulfate	ND	F1	6.37	4.763		ug/Kg	☼	75	22 - 167
Endrin	ND	F1	6.37	4.443		ug/Kg	☼	70	23 - 174
Endrin aldehyde	ND	F1	6.37	4.388	p	ug/Kg	☼	69	10 - 180
gamma-BHC	ND	F1	6.37	4.098		ug/Kg	☼	64	27 - 160
Heptachlor	ND	F1	6.37	3.867		ug/Kg	☼	61	23 - 144
Heptachlor epoxide	ND	F1	6.37	4.064		ug/Kg	☼	64	25 - 173
Methoxychlor	ND	F1	6.37	5.411		ug/Kg	☼	85	10 - 180
gamma-Chlordane	ND	F1	6.37	4.114		ug/Kg	☼	65	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*55*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*99*		*20 - 180*

Lab Sample ID: 570-65784-4 MSD
Matrix: Sediment
Analysis Batch: 169920

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND	F1	64.2	4.915	F1	ug/Kg	☼	8	17 - 180	7	40
4,4'-DDE	ND	F1	64.2	4.288	F1	ug/Kg	☼	7	20 - 180	1	40
4,4'-DDT	ND	F1	64.2	5.006	F1	ug/Kg	☼	8	10 - 180	4	40
Aldrin	ND	F1	64.2	3.954	F1	ug/Kg	☼	6	27 - 146	3	40
alpha-BHC	ND	F1	64.2	4.353	F1	ug/Kg	☼	7	33 - 160	11	36
beta-BHC	ND	F1	64.2	5.679	F1	ug/Kg	☼	9	14 - 178	18	40
delta-BHC	ND	F1	64.2	4.760	F1	ug/Kg	☼	7	10 - 159	9	40
Dieldrin	ND	F1	64.2	4.397	F1	ug/Kg	☼	7	25 - 180	3	40
alpha-Chlordane	ND	F1	64.2	4.625	F1	ug/Kg	☼	7	24 - 164	14	40
Endosulfan I	ND	F1	64.2	4.248	F1	ug/Kg	☼	7	31 - 146	4	34
Endosulfan II	ND	F1	64.2	4.301	F1	ug/Kg	☼	7	14 - 176	1	40
Endosulfan sulfate	ND	F1	64.2	4.570	F1	ug/Kg	☼	7	22 - 167	4	40
Endrin	ND	F1	64.2	4.469	F1	ug/Kg	☼	7	23 - 174	1	40
Endrin aldehyde	ND	F1	64.2	4.139	p F1	ug/Kg	☼	6	10 - 180	6	40
gamma-BHC	ND	F1	64.2	5.197	F1	ug/Kg	☼	8	27 - 160	24	40
Heptachlor	ND	F1	64.2	4.088	F1	ug/Kg	☼	6	23 - 144	6	40
Heptachlor epoxide	ND	F1	64.2	4.204	F1	ug/Kg	☼	7	25 - 173	3	40
Methoxychlor	ND	F1	64.2	4.858	F1	ug/Kg	☼	8	10 - 180	11	40
gamma-Chlordane	ND	F1	64.2	5.338	F1	ug/Kg	☼	8	26 - 180	26	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*66*		*20 - 131*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-65784-4 MSD
Matrix: Sediment
Analysis Batch: 169920

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA
Prep Batch: 168544

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	85		20 - 180

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-168544/1-A
Matrix: Solid
Analysis Batch: 169549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168544

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1221	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1232	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1242	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1248	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1254	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1260	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1262	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1268	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	83		20 - 155	08/03/21 14:57	08/06/21 17:55	1
Tetrachloro-m-xylene (Surr)	76		25 - 126	08/03/21 14:57	08/06/21 17:55	1

Lab Sample ID: LCS 570-168544/4-A
Matrix: Solid
Analysis Batch: 169549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	20.0	22.17		ug/Kg		111	50 - 142
Aroclor-1260	20.0	20.95		ug/Kg		105	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	73		20 - 155
Tetrachloro-m-xylene (Surr)	68		25 - 126

Lab Sample ID: LCSD 570-168544/5-A
Matrix: Solid
Analysis Batch: 169549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	20.0	21.32		ug/Kg		107	50 - 142	4	30
Aroclor-1260	20.0	21.25		ug/Kg		106	50 - 150	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	89		20 - 155
Tetrachloro-m-xylene (Surr)	68		25 - 126

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	ND		25.6	24.35		ug/Kg	☼	95	20 - 175
Aroclor-1260	ND		25.6	25.48		ug/Kg	☼	99	20 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*80*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*64*		*25 - 126*

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		25.6	23.44		ug/Kg	☼	91	20 - 175	4	40
Aroclor-1260	ND		25.6	24.31		ug/Kg	☼	95	20 - 180	5	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*61*	*p*	*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-168249/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		390	200	ug/Kg		08/02/21 16:42	08/03/21 15:09	10

Lab Sample ID: LCS 570-168249/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19600	20070		ug/Kg		102	80 - 120

Lab Sample ID: LCSD 570-168249/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	19900	20240		ug/Kg		102	80 - 120	1	20

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		25700	26010		ug/Kg	☼	101	75 - 125

Method: 7199 - Chromium, Hexavalent (IC) (Continued)

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		25500	24510		ug/Kg	☼	96	75 - 125	6	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-169952/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.01	0.280	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Arsenic	ND		1.01	0.336	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Barium	ND		1.01	0.209	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Beryllium	ND		1.01	0.208	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Cadmium	ND		1.01	0.452	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Chromium	ND		2.01	0.302	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Cobalt	ND		1.01	0.190	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Copper	ND		1.01	0.270	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Lead	ND		1.01	0.216	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Molybdenum	ND		1.01	0.310	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Nickel	ND		1.01	0.271	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Selenium	ND		1.01	0.584	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Silver	ND		1.01	0.333	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Thallium	ND		1.01	0.220	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Vanadium	ND		2.01	0.243	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Zinc	ND		5.03	4.64	mg/Kg		08/09/21 14:58	08/10/21 08:41	20

Lab Sample ID: LCS 570-169952/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.4	22.86		mg/Kg		94	80 - 120
Arsenic	24.4	23.65		mg/Kg		97	80 - 120
Barium	24.4	23.06		mg/Kg		95	80 - 120
Beryllium	24.4	25.25		mg/Kg		104	80 - 120
Cadmium	24.4	24.25		mg/Kg		99	80 - 120
Chromium	24.4	23.09		mg/Kg		95	80 - 120
Cobalt	24.4	22.82		mg/Kg		94	80 - 120
Copper	24.4	24.64		mg/Kg		101	80 - 120
Lead	24.4	23.55		mg/Kg		97	80 - 120
Molybdenum	24.4	23.95		mg/Kg		98	80 - 120
Nickel	24.4	24.31		mg/Kg		100	80 - 120
Selenium	24.4	24.37		mg/Kg		100	80 - 120
Silver	12.2	12.13		mg/Kg		99	80 - 120
Thallium	24.4	23.09		mg/Kg		95	80 - 120
Vanadium	24.4	22.57		mg/Kg		93	80 - 120
Zinc	24.4	25.32		mg/Kg		104	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-169952/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	24.9	23.91		mg/Kg		96	80 - 120	4	20
Arsenic	24.9	24.21		mg/Kg		97	80 - 120	2	20
Barium	24.9	23.84		mg/Kg		96	80 - 120	3	20
Beryllium	24.9	26.06		mg/Kg		105	80 - 120	3	20
Cadmium	24.9	25.14		mg/Kg		101	80 - 120	4	20
Chromium	24.9	23.99		mg/Kg		96	80 - 120	4	20
Cobalt	24.9	23.45		mg/Kg		94	80 - 120	3	20
Copper	24.9	25.80		mg/Kg		104	80 - 120	5	20
Lead	24.9	23.92		mg/Kg		96	80 - 120	2	20
Molybdenum	24.9	24.76		mg/Kg		99	80 - 120	3	20
Nickel	24.9	24.47		mg/Kg		98	80 - 120	1	20
Selenium	24.9	23.85		mg/Kg		96	80 - 120	2	20
Silver	12.4	12.47		mg/Kg		100	80 - 120	3	20
Thallium	24.9	23.18		mg/Kg		93	80 - 120	0	20
Vanadium	24.9	22.94		mg/Kg		92	80 - 120	2	20
Zinc	24.9	26.20		mg/Kg		105	80 - 120	3	20

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		32.0	9.012		mg/Kg	☼	28	1 - 97
Arsenic	0.796	J	32.0	31.00		mg/Kg	☼	94	72 - 132
Barium	58.1		32.0	91.59		mg/Kg	☼	105	50 - 152
Beryllium	ND		32.0	32.77		mg/Kg	☼	102	61 - 121
Cadmium	ND		32.0	32.18		mg/Kg	☼	100	85 - 121
Chromium	7.76		32.0	38.38		mg/Kg	☼	96	20 - 182
Cobalt	4.61		32.0	34.44		mg/Kg	☼	93	40 - 166
Copper	11.7		32.0	42.61		mg/Kg	☼	97	25 - 157
Lead	2.75		32.0	33.02		mg/Kg	☼	94	62 - 134
Molybdenum	ND		32.1	25.04		mg/Kg	☼	78	69 - 123
Nickel	4.35		32.0	35.32		mg/Kg	☼	97	46 - 154
Selenium	ND		32.0	28.94		mg/Kg	☼	90	54 - 132
Silver	ND	F1	16.0	4.834	F1	mg/Kg	☼	30	78 - 126
Thallium	ND		32.0	29.01		mg/Kg	☼	91	79 - 115
Vanadium	24.2		32.0	50.85		mg/Kg	☼	83	28 - 178
Zinc	22.5		32.0	57.22		mg/Kg	☼	108	23 - 173

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		32.2	9.234		mg/Kg	☼	29	1 - 97	2	39
Arsenic	0.796	J	32.2	31.76		mg/Kg	☼	96	72 - 132	2	13
Barium	58.1		32.2	94.09		mg/Kg	☼	112	50 - 152	3	41
Beryllium	ND		32.2	34.31		mg/Kg	☼	107	61 - 121	5	13
Cadmium	ND		32.2	32.73		mg/Kg	☼	102	85 - 121	2	12

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	7.76		32.2	39.11		mg/Kg	☼	97	20 - 182	2	15
Cobalt	4.61		32.2	35.18		mg/Kg	☼	95	40 - 166	2	14
Copper	11.7		32.2	43.91		mg/Kg	☼	100	25 - 157	3	22
Lead	2.75		32.2	33.54		mg/Kg	☼	96	62 - 134	2	23
Molybdenum	ND		32.2	25.95		mg/Kg	☼	80	69 - 123	4	13
Nickel	4.35		32.2	35.39		mg/Kg	☼	96	46 - 154	0	15
Selenium	ND		32.2	29.46		mg/Kg	☼	92	54 - 132	2	14
Silver	ND	F1	16.1	4.935	F1	mg/Kg	☼	31	78 - 126	2	15
Thallium	ND		32.2	29.83		mg/Kg	☼	93	79 - 115	3	11
Vanadium	24.2		32.2	51.95		mg/Kg	☼	86	28 - 178	2	28
Zinc	22.5		32.2	58.81		mg/Kg	☼	113	23 - 173	3	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-170175/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0820	0.0133	mg/Kg		08/10/21 12:44	08/11/21 16:25	1

Lab Sample ID: LCS 570-170175/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.8367		mg/Kg		100	85 - 121

Lab Sample ID: LCSD 570-170175/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.794	0.7756		mg/Kg		98	85 - 121	8	10

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0322	J	1.06	0.9711		mg/Kg	☼	89	71 - 137

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0322	J	1.07	0.9873		mg/Kg	☼	89	71 - 137	2	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-168153/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		50.0	30.2	mg/Kg		08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	ND		50.0	13.9	mg/Kg		08/02/21 10:58	08/03/21 17:51	1

Lab Sample ID: LCS 570-168153/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	36.67	J	mg/Kg		92	78 - 114
SGT-HEM (TRPH)	20.0	20.00	J	mg/Kg		100	64 - 132

Lab Sample ID: LCSD 570-168153/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33	J	mg/Kg		83	78 - 114	10	18
SGT-HEM (TRPH)	20.0	16.67	J	mg/Kg		83	64 - 132	18	34

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	111		51.5	154.4		mg/Kg	☼	84	78 - 114
SGT-HEM (TRPH)	85.4		25.7	107.2		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	111		51.4	158.4		mg/Kg	☼	92	78 - 114	3	18
SGT-HEM (TRPH)	85.4		25.7	107.0		mg/Kg	☼	84	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-168326/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.200	0.168	mg/Kg		08/03/21 15:00	08/03/21 21:45	1

Lab Sample ID: LCS 570-168326/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.503	0.5298		mg/Kg		105	72 - 123

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCSD 570-168326/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide			0.502	0.5207		mg/Kg		104	72 - 123	2	11

Lab Sample ID: 570-65784-4 DU — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Sulfide	0.889	H		0.9493	H	mg/Kg	☼			7	20

Lab Sample ID: MB 570-168327/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			08/03/21 22:00	1

Lab Sample ID: LCS 570-168327/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5085		mg/Kg		101	72 - 123		

Lab Sample ID: LCSD 570-168327/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5063		mg/Kg		101	72 - 123	0	11

Lab Sample ID: 570-65784-4 DU — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND	H		ND	H	mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-166884/91 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			07/29/21 14:45	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 570-166884/92 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	3.00	3.080		%		103	80 - 120

Lab Sample ID: LCSD 570-166884/93 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	3.00	2.911		%		97	80 - 120	6	20

Lab Sample ID: 570-65390-A-1-A MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	1.53		6.09	7.223		%	☼	93	75 - 125

Lab Sample ID: 570-65390-A-1-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	1.53		6.14	7.396		%	☼	96	75 - 125	2	25

Lab Sample ID: MB 570-169471/4 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169471

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			08/06/21 15:34	1

Lab Sample ID: LCS 570-169471/5 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169471

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	2.99	2.784		%		93	80 - 120

Lab Sample ID: LCSD 570-169471/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169471

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	3.00	2.614		%		87	80 - 120	6	20

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169471

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon, Total Organic	0.0515	J F1	3.69	2.798	F1	%	☼	74	75 - 125

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169471

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	0.0515	J F1	3.68	2.923		%	☼	78	75 - 125	4	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-65784-4 DU — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 167804

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	77.7			76.5		%				2	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-169671/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.250	0.138	mg/Kg		08/07/21 16:00	08/07/21 17:40	1

Lab Sample ID: LCS 570-169671/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			12.5	10.50		mg/Kg		84	80 - 120		

Lab Sample ID: LCSD 570-169671/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			12.5	12.60		mg/Kg		101	80 - 120	18	20

Lab Sample ID: 570-65784-4 MS — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	1.68		16.1	13.68		mg/Kg	☼	75	75 - 125		

Lab Sample ID: 570-65784-4 MSD — **Client Sample ID: FDD-D-Comp (Composite D)**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	1.68		16.1	16.12		mg/Kg	☼	90	75 - 125	16	25

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Lab Sample ID: 570-65784-4 DU
Matrix: Sediment
Analysis Batch: 169687

Client Sample ID: FDD-D-Comp (Composite D)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Clay (less than 0.00391 mm)	1.28			1.30		%				2	20
Coarse Sand (0.5mm to 1mm)	17.98			19.89		%				10	20
Fine Sand (0.125 to 0.25mm)	18.21			20.84		%				13	20
Gravel (greater than 2 mm)	10.40			9.96		%				4	20
Medium Sand (0.25 to 0.5 mm)	24.87			27.87		%				11	20
Silt (0.00391 to 0.0625mm)	9.36			7.14	F3	%				27	20
Total Silt and Clay (0 to 0.0626mm)	10.64			8.44	F3	%				23	20
Very Coarse Sand (1 to 2mm)	7.28			4.44	F3	%				48	20
Very Fine Sand (0.0625 to 0.125 mm)	10.63			8.56	F3	%				22	20

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCS 570-168540/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
2,4,5-Trichlorophenol	1000	585.7		ug/Kg	59	40 - 160	20 - 180	
2,4,6-Trichlorophenol	1000	585.3		ug/Kg	59	40 - 160	20 - 180	
2,4-Dichlorophenol	1000	523.5		ug/Kg	52	40 - 160	20 - 180	
2,4-Dimethylphenol	1000	574.9		ug/Kg	57	40 - 160	20 - 180	
2,4-Dinitrophenol	1000	185.3	J *-	ug/Kg	19	40 - 160	20 - 180	X
2-Chlorophenol	1000	639.4		ug/Kg	64	40 - 160	20 - 180	
2-Methylphenol	1000	712.3		ug/Kg	71	40 - 160	20 - 180	
2-Nitrophenol	1000	499.7	J	ug/Kg	50	40 - 160	20 - 180	
3/4-Methylphenol	2000	1215		ug/Kg	61	40 - 160	20 - 180	
4,6-Dinitro-2-methylphenol	1000	359.0	J *- me	ug/Kg	36	40 - 160	20 - 180	ME
4-Chloro-3-methylphenol	1000	597.5		ug/Kg	60	40 - 160	20 - 180	
Acenaphthene	1000	647.2		ug/Kg	65	48 - 108	38 - 118	
Benzo[a]pyrene	1000	872.5		ug/Kg	87	17 - 163	1 - 187	
Bis(2-ethylhexyl) phthalate	1000	836.9		ug/Kg	84	40 - 160	20 - 180	
Butyl benzyl phthalate	1000	774.7		ug/Kg	77	40 - 160	20 - 180	
Chrysene	1000	699.1		ug/Kg	70	17 - 168	1 - 193	
Diethyl phthalate	1000	704.6		ug/Kg	70	40 - 160	20 - 180	
Dimethyl phthalate	1000	655.6		ug/Kg	66	40 - 160	20 - 180	
Di-n-butyl phthalate	1000	706.6		ug/Kg	71	40 - 160	20 - 180	
Di-n-octyl phthalate	1000	797.0		ug/Kg	80	40 - 160	20 - 180	
Fluoranthene	1000	689.4		ug/Kg	69	26 - 137	8 - 156	
Fluorene	1000	692.7		ug/Kg	69	59 - 121	49 - 131	
Naphthalene	1000	538.5		ug/Kg	54	21 - 133	2 - 152	
Pentachlorophenol	1000	101.9	J *-	ug/Kg	10	40 - 160	20 - 180	X
Phenanthrene	1000	721.8		ug/Kg	72	54 - 120	43 - 131	
Pyrene	1000	723.0		ug/Kg	72	28 - 106	15 - 119	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
26	1	1

ME = Marginal Exceedance
X = % Recovery is greater than widest possible limit

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
2,4,5-Trichlorophenol	1000	542.4		ug/Kg	54	40 - 160	20 - 180	
2,4,6-Trichlorophenol	1000	548.9		ug/Kg	55	40 - 160	20 - 180	
2,4-Dichlorophenol	1000	486.2		ug/Kg	49	40 - 160	20 - 180	
2,4-Dimethylphenol	1000	572.2		ug/Kg	57	40 - 160	20 - 180	
2,4-Dinitrophenol	1000	158.2	J *-	ug/Kg	16	40 - 160	20 - 180	X
2-Chlorophenol	1000	596.9		ug/Kg	60	40 - 160	20 - 180	
2-Methylphenol	1000	710.1		ug/Kg	71	40 - 160	20 - 180	
2-Nitrophenol	1000	508.9		ug/Kg	51	40 - 160	20 - 180	
3/4-Methylphenol	2000	1191		ug/Kg	60	40 - 160	20 - 180	
4,6-Dinitro-2-methylphenol	1000	292.2	J *- *1 me	ug/Kg	29	40 - 160	20 - 180	ME
4-Chloro-3-methylphenol	1000	553.9		ug/Kg	55	40 - 160	20 - 180	
Acenaphthene	1000	620.3		ug/Kg	62	48 - 108	38 - 118	

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Benzo[a]pyrene	1000	813.5		ug/Kg	81	17 - 163	1 - 187	
Bis(2-ethylhexyl) phthalate	1000	775.2		ug/Kg	78	40 - 160	20 - 180	
Butyl benzyl phthalate	1000	701.9		ug/Kg	70	40 - 160	20 - 180	
Chrysene	1000	660.6		ug/Kg	66	17 - 168	1 - 193	
Diethyl phthalate	1000	655.9		ug/Kg	66	40 - 160	20 - 180	
Dimethyl phthalate	1000	603.5		ug/Kg	60	40 - 160	20 - 180	
Di-n-butyl phthalate	1000	672.5		ug/Kg	67	40 - 160	20 - 180	
Di-n-octyl phthalate	1000	727.5		ug/Kg	73	40 - 160	20 - 180	
Fluoranthene	1000	611.8		ug/Kg	61	26 - 137	8 - 156	
Fluorene	1000	659.7		ug/Kg	66	59 - 121	49 - 131	
Naphthalene	1000	537.4		ug/Kg	54	21 - 133	2 - 152	
Pentachlorophenol	1000	102.1	J *-	ug/Kg	10	40 - 160	20 - 180	X
Phenanthrene	1000	684.8		ug/Kg	68	54 - 120	43 - 131	
Pyrene	1000	677.5		ug/Kg	68	28 - 106	15 - 119	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
26	1	1

ME = Marginal Exceedance
X = % Recovery is greater than widest possible limit

GC/MS Semi VOA

Prep Batch: 167954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3541	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3541	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3541	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
MB 570-167954/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-167954/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-167954/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103

Prep Batch: 167955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3541	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3541	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3541	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
MB 570-167955/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-167955/2-A - RA	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Homogenize Prep	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 168407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Organotin Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Organotin Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Organotin Prep	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotin Prep	
MB 570-168407/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-168407/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-168407/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotin Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotin Prep	

Prep Batch: 168540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3541	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3541	168103

GC/MS Semi VOA (Continued)

Prep Batch: 168540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3541	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
MB 570-168540/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-168540/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-168540/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103

Analysis Batch: 168750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-168407/1-A	Method Blank	Total/NA	Solid	Organotins SIM	168407
LCS 570-168407/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	168407
LCSD 570-168407/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	168407

Analysis Batch: 169128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Organotins SIM	168407
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Organotins SIM	168407
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Organotins SIM	168407
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotins SIM	168407
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotins SIM	168407
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Organotins SIM	168407

Analysis Batch: 169444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8270C SIM CON	167954
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8270C SIM CON	167954
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8270C SIM CON	167954
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM CON	167954
MB 570-167954/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	167954
LCS 570-167954/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	167954
LCSD 570-167954/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	167954
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM CON	167954
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM CON	167954

Analysis Batch: 169532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8270D TQ	167955
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8270D TQ	167955
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8270D TQ	167955
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270D TQ	167955
MB 570-167955/1-A	Method Blank	Total/NA	Solid	8270D TQ	167955
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270D TQ	167955
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270D TQ	167955

Analysis Batch: 169973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8270C SIM	168540
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8270C SIM	168540
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8270C SIM	168540
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM	168540

GC/MS Semi VOA (Continued)

Analysis Batch: 169973 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-168540/1-A	Method Blank	Total/NA	Solid	8270C SIM	168540
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM	168540
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8270C SIM	168540

Analysis Batch: 170003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-167955/2-A - RA	Lab Control Sample	Total/NA	Solid	8270D TQ	167955
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	167955

Analysis Batch: 170767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-168540/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	168540
LCSD 570-168540/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	168540

GC Semi VOA

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Homogenize Prep	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 168544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3541	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3541	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3541	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
MB 570-168544/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-168544/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-168544/4-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-168544/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-168544/5-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3541	168103

Prep Batch: 168906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3550C	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3550C	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3550C	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3550C	168103

GC Semi VOA (Continued)

Prep Batch: 168906 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-168906/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-168906/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-168906/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3550C	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3550C	168103

Analysis Batch: 168980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8015B	168906
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8015B	168906
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8015B	168906
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8015B	168906
MB 570-168906/1-A	Method Blank	Total/NA	Solid	8015B	168906
LCS 570-168906/2-A	Lab Control Sample	Total/NA	Solid	8015B	168906
LCSD 570-168906/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	168906
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8015B	168906
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8015B	168906

Analysis Batch: 169549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8082	168544
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8082	168544
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8082	168544
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8082	168544
MB 570-168544/1-A	Method Blank	Total/NA	Solid	8082	168544
LCS 570-168544/4-A	Lab Control Sample	Total/NA	Solid	8082	168544
LCSD 570-168544/5-A	Lab Control Sample Dup	Total/NA	Solid	8082	168544
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8082	168544
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8082	168544

Analysis Batch: 169920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	8081A	168544
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	8081A	168544
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	8081A	168544
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	8081A	168544
MB 570-168544/1-A	Method Blank	Total/NA	Solid	8081A	168544
LCS 570-168544/2-A	Lab Control Sample	Total/NA	Solid	8081A	168544
LCSD 570-168544/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	168544
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	8081A	168544
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	8081A	168544

HPLC/IC

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Homogenize Prep	

HPLC/IC (Continued)

Cleanup Batch: 168103 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 168249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3060A	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3060A	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3060A	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3060A	168103
MB 570-168249/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-168249/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-168249/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3060A	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3060A	168103

Analysis Batch: 168343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	7199	168249
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	7199	168249
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	7199	168249
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	7199	168249
MB 570-168249/1-A	Method Blank	Total/NA	Solid	7199	168249
LCS 570-168249/2-A	Lab Control Sample	Total/NA	Solid	7199	168249
LCSD 570-168249/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	168249
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	7199	168249
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	7199	168249

Metals

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Homogenize Prep	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 169952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	3050B	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	3050B	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	3050B	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	3050B	168103

Metals (Continued)

Prep Batch: 169952 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-169952/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 570-169952/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-169952/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	3050B	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	3050B	168103

Analysis Batch: 170125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	6020	169952
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	6020	169952
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	6020	169952
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	6020	169952
MB 570-169952/1-A	Method Blank	Total/NA	Solid	6020	169952
LCS 570-169952/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	169952
LCSD 570-169952/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	169952
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	6020	169952
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	6020	169952

Prep Batch: 170175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	7471A	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	7471A	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	7471A	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	168103
MB 570-170175/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-170175/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-170175/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	168103

Analysis Batch: 170562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	7471A	170175
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	7471A	170175
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	7471A	170175
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	170175
MB 570-170175/1-A	Method Blank	Total/NA	Solid	7471A	170175
LCS 570-170175/2-A	Lab Control Sample	Total/NA	Solid	7471A	170175
LCSD 570-170175/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	170175
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	170175
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	7471A	170175

General Chemistry

Cleanup Batch: 166820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65390-A-1-A MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65390-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

General Chemistry

Analysis Batch: 166884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	9060A	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	9060A	168103
MB 570-166884/91	Method Blank	Total/NA	Solid	9060A	
LCS 570-166884/92	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-166884/93	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-65390-A-1-A MS	Matrix Spike	Total/NA	Solid	9060A	166820
570-65390-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	166820

Analysis Batch: 167804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Moisture	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Moisture	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Moisture	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Moisture	
570-65784-4 DU	FDD-D-Comp (Composite D)	Total/NA	Sediment	Moisture	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Soluble	Sediment	Homogenize Prep	
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Soluble	Sediment	Homogenize Prep	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Soluble	Sediment	Homogenize Prep	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	Homogenize Prep	
570-65784-4	FDD-D-Comp (Composite D)	Soluble	Sediment	Homogenize Prep	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Prep Batch: 168153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	1664A	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	1664A	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	1664A	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168103
MB 570-168153/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-168153/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-168153/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168103

Prep Batch: 168326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	9030B	168103

General Chemistry (Continued)

Prep Batch: 168326 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	9030B	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	9030B	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	9030B	168103
MB 570-168326/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-168326/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-168326/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-65784-4 DU	FDD-D-Comp (Composite D)	Total/NA	Sediment	9030B	168495

Leach Batch: 168327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Soluble	Sediment	DI Leach	168103
570-65784-2	FDD-B-Comp (Composite B)	Soluble	Sediment	DI Leach	168103
570-65784-3	FDD-C-Comp (Composite C)	Soluble	Sediment	DI Leach	168103
570-65784-4	FDD-D-Comp (Composite D)	Soluble	Sediment	DI Leach	168103
MB 570-168327/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-168327/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-168327/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-65784-4 DU	FDD-D-Comp (Composite D)	Soluble	Sediment	DI Leach	168495

Cleanup Batch: 168495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-4 DU	FDD-D-Comp (Composite D)	Soluble	Sediment	Homogenize Prep	
570-65784-4 DU	FDD-D-Comp (Composite D)	Total/NA	Sediment	Homogenize Prep	

Analysis Batch: 168599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	1664A	168153
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	1664A	168153
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	1664A	168153
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168153
MB 570-168153/1-A	Method Blank	Total/NA	Solid	1664A	168153
LCS 570-168153/2-A	Lab Control Sample	Total/NA	Solid	1664A	168153
LCSD 570-168153/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	168153
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168153
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	1664A	168153

Analysis Batch: 168855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Soluble	Sediment	376.2 LL	168327
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	376.2 LL	168326
570-65784-2	FDD-B-Comp (Composite B)	Soluble	Sediment	376.2 LL	168327
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	376.2 LL	168326
570-65784-3	FDD-C-Comp (Composite C)	Soluble	Sediment	376.2 LL	168327
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	376.2 LL	168326
570-65784-4	FDD-D-Comp (Composite D)	Soluble	Sediment	376.2 LL	168327
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	376.2 LL	168326
MB 570-168326/1-A	Method Blank	Total/NA	Solid	376.2 LL	168326
MB 570-168327/1-A	Method Blank	Soluble	Solid	376.2 LL	168327
LCS 570-168326/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	168326
LCS 570-168327/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	168327

General Chemistry (Continued)

Analysis Batch: 168855 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-168326/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	168326
LCSD 570-168327/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	168327
570-65784-4 DU	FDD-D-Comp (Composite D)	Soluble	Sediment	376.2 LL	168327
570-65784-4 DU	FDD-D-Comp (Composite D)	Total/NA	Sediment	376.2 LL	168326

Analysis Batch: 169471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	9060A	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	9060A	168103
MB 570-169471/4	Method Blank	Total/NA	Solid	9060A	
LCS 570-169471/5	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-169471/6	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	9060A	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	9060A	168103

Prep Batch: 169671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	SM4500 NH3 B LL	168103
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	SM4500 NH3 B LL	168103
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	SM4500 NH3 B LL	168103
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 B LL	168103
MB 570-169671/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-169671/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-169671/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 B LL	168103
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 B LL	168103

Analysis Batch: 169680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	SM4500 NH3 C LL	169671
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	SM4500 NH3 C LL	169671
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	SM4500 NH3 C LL	169671
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 C LL	169671
MB 570-169671/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	169671
LCS 570-169671/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	169671
LCSD 570-169671/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	169671
570-65784-4 MS	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 C LL	169671
570-65784-4 MSD	FDD-D-Comp (Composite D)	Total/NA	Sediment	SM4500 NH3 C LL	169671

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

General Chemistry

Analysis Batch: 170573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	7199 CR3	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	7199 CR3	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	7199 CR3	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	7199 CR3	

Geotechnical

Analysis Batch: 169687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-1	FDD-A-Comp (Composite A)	Total/NA	Sediment	D4464	
570-65784-2	FDD-B-Comp (Composite B)	Total/NA	Sediment	D4464	
570-65784-3	FDD-C-Comp (Composite C)	Total/NA	Sediment	D4464	
570-65784-4	FDD-D-Comp (Composite D)	Total/NA	Sediment	D4464	
570-65784-4 DU	FDD-D-Comp (Composite D)	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-A-Comp (Composite A)

Date Collected: 07/22/21 14:40
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.26 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 01:16	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 15:53	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.01 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/06/21 23:35	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.07 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 17:22	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3550C			10.39 g	10 mL	168906	08/04/21 15:40	PQS1	ECL 1
Total/NA	Analysis	8015B		1			168980	08/04/21 23:56	N1A	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.05 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			169920	08/10/21 13:33	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.05 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 19:45	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3060A			2.54 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 18:37	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3050B			1.92 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:25	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:36	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	1664A			30.22 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-A-Comp (Composite A)

Lab Sample ID: 570-65784-1
Date Collected: 07/22/21 14:40
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Soluble	Leach	DI Leach			20.08 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:05	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	9030B			20.06 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 21:50	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Analysis	9060A		1	210.0 mg	210.0 mg	166884	07/30/21 17:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			169687	08/07/21 11:52	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-B-Comp (Composite B)

Lab Sample ID: 570-65784-2
Date Collected: 07/22/21 14:50
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 01:34	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.21 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 16:20	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.06 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 00:12	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.26 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 17:40	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3550C			10.35 g	10 mL	168906	08/04/21 15:40	PQS1	ECL 1
Total/NA	Analysis	8015B		1			168980	08/05/21 00:17	N1A	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-B-Comp (Composite B)

Date Collected: 07/22/21 14:50
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.02 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			169920	08/10/21 13:47	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.02 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 20:04	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3060A			2.54 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 18:48	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3050B			1.90 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:28	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	7471A			.57 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:38	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	1664A			30.20 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Soluble	Leach	DI Leach			20.04 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:06	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	9030B			20.42 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		100	7.5 mL	7.5 mL	168855	08/03/21 21:51	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Analysis	9060A		1	204.7 mg	204.7 mg	166884	07/30/21 17:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			169687	08/07/21 12:00	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-C-Comp (Composite C)

Date Collected: 07/22/21 14:16
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.19 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 01:53	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.23 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 16:45	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 00:49	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.12 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 17:58	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3550C			10.43 g	10 mL	168906	08/04/21 15:40	PQS1	ECL 1
Total/NA	Analysis	8015B		1			168980	08/05/21 00:38	N1A	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.27 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			169920	08/10/21 14:01	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.27 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 20:22	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 18:58	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:31	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	7471A			.63 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:39	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	1664A			30.46 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-C-Comp (Composite C)

Lab Sample ID: 570-65784-3
Date Collected: 07/22/21 14:16
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Soluble	Leach	DI Leach			19.97 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:07	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	9030B			20.01 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 21:52	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Analysis	9060A		1	210.0 mg	210.0 mg	169471	08/06/21 15:34	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			169687	08/07/21 12:08	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-D-Comp (Composite D)

Lab Sample ID: 570-65784-4
Date Collected: 07/22/21 15:00
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.12 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 02:12	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.11 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 17:10	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.14 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 01:25	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.09 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 17:05	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3550C			9.72 g	10 mL	168906	08/04/21 15:40	PQS1	ECL 1
Total/NA	Analysis	8015B		1			168980	08/04/21 23:33	N1A	ECL 1
	Instrument ID:	GC48								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Client Sample ID: FDD-D-Comp (Composite D)

Date Collected: 07/22/21 15:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65784-4

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			169920	08/10/21 14:15	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3541			20.08 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 20:40	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 19:31	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	3050B			2.05 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:34	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:30	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	1664A			30.17 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Soluble	Leach	DI Leach			19.91 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:03	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	9030B			21.75 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 21:48	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Analysis	9060A		1	207.5 mg	207.5 mg	169471	08/06/21 15:34	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168103	08/02/21 09:29	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			169687	08/07/21 12:14	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Laboratory References:

ECL = Eurofins Calscience LLC, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay (less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL = Eurofins Calscience LLC, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65784-1
SDG: 3151187382

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-65784-1	FDD-A-Comp (Composite A)	Sediment	07/22/21 14:40	07/29/21 19:25
570-65784-2	FDD-B-Comp (Composite B)	Sediment	07/22/21 14:50	07/29/21 19:25
570-65784-3	FDD-C-Comp (Composite C)	Sediment	07/22/21 14:16	07/29/21 19:25
570-65784-4	FDD-D-Comp (Composite D)	Sediment	07/22/21 15:00	07/29/21 19:25

65784

CHAIN OF CUSTODY RECORD

eurofins | Calscience

570-65784 Chain of Custody

DATE: 07/29/21

PAGE: 1 OF 2

7440 Lincoln Way Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P O NO: 3151187382 (Project not PO)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965646 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing

FDD-D-Comp includes 2 extra 16oz jars for MS/MSD

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO OF CONT	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160 3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376 2M)	Oil & Grease (376 2M)	CAC Title 22 Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44); (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)	MS/MSD	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)
1	FDD-A-Comp (Composite A)	7/22/2021	1440	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X
2	FDD-B-Comp (Composite B)	7/22/2021	1450	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X
3	FDD-C-Comp (Composite C)	7/22/2021	1416	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X
4	FDD-D-Comp (Composite D)	7/22/2021	1500	sediment	4	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	X

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time
	ECI	07/29/21	1408
		07/29/21	1925

Analyte[i]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0 10%	0 10%
Total Organic Carbon (TOC)	USEPA 9060A	0 10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0 2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Barium	USEPA 6020 [d]	0 1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Chromium	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Chromium, Hexavalent	EPA 7199		
Chromium, Trivalent	7199 CR3		
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg	0 1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0 1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg	0 1 mg/kg
Thallium	USEPA 6020 [d]	0 1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0 1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1.0–20 µg/kg [k]	0 5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0.4 µg/kg	0 5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1 0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1 methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC) β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18, 28, 37, 44, 49, 52, 66, 70 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C A , D W Brown, D.G. Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18.

i) National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes. allethrin (bioallethrin) bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol), fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]) phenothrin (sumithrin), resmethrin/bioresmethrin tetramethrin and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent; µg/kg = micrograms per kilogram (parts per billion), ASTM = ASTM International, GC = gas chromatography; (M) = modified, RL = reporting limit, mg/kg = milligrams per kilogram MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration, SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration; TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration, USEPA = United States Environmental Protection Agency

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-65784-1
SDG Number: 3151187382

Login Number: 65784
List Number: 1
Creator: Vitente, Precy

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-65782-1
Laboratory Sample Delivery Group: 3151187382
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging
Revision: 1

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
8/25/2021 3:02:23 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Client Sample Results 7
Surrogate Summary 33
QC Sample Results 37
QC Association Summary 66
Lab Chronicle 76
Certification Summary 81
Method Summary 83
Sample Summary 84
Chain of Custody 85
Receipt Checklists 87

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-65782-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-65782-1

Comments
No additional comments.

Receipt
The samples were received on 7/29/2021 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1º C.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168103 and 570-168540 and analytical batch 570-169973 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8270C SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with preparation batch 570-168540 and analytical batch 570-170767: 2,4-Dinitrophenol, Pentachlorophenol and 4,6-Dinitro-2-methylphenol. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method 8270C SIM: The method blank for preparation batch 570-168540 and analytical batch 570-169973 contained 2,4-Dinitrophenol, Di-n-octyl phthalate, Bis(2-ethylhexyl) phthalate, Pentachlorophenol, 2,3,4,6-Tetrachlorophenol, Butyl benzyl phthalate and Perylene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Organotins SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with preparation batch 570-168407 and analytical batch 570-168750: Monobutyltin. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method Organotins SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-168407 and analytical batch 570-169128 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method 8081A: The continuing calibration verification (CCV) associated with batch 570-170251 recovered above the upper control limit for 2,4'-DDT. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 570-170251/29).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method D4464: The sample duplicate precision for the following sample associated with analytical batch 570-170575 was flagged as being outside control limits due to a L.I.MS limitation: (570-65887-A-11) and (570-65887-A-11 DU). The mean grain size for the sample and sample duplicate were within RPD acceptance criteria.

Job ID: 570-65782-1 (Continued)

Laboratory: Eurofins Calscience LLC (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-Bay Deposits
Date Collected: 07/28/21 11:30
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.35	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-28	ND		0.35	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-37	ND		0.35	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-44	ND		0.35	0.27	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-49	ND		0.35	0.088	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-52	ND		0.35	0.34	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-66	ND		0.35	0.22	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-70	ND		0.35	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-74	ND		0.35	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-77	ND		0.35	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-81	ND		0.35	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-87	ND		0.35	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-99	**1.8**		0.35	0.084	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-101	**1.7**		0.35	0.079	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-105	ND		0.35	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-110	**1.2**		0.35	0.060	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-114	ND		0.35	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-118	**1.7**		0.35	0.061	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-119	ND		0.35	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-123	ND		0.35	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-126	ND		0.35	0.097	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-128	ND		0.35	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-132/153	**4.6**		0.71	0.29	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-138/158	**3.9**		0.71	0.62	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-149	**3.0**		0.35	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-151	ND		0.35	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-156	ND		0.35	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-157	ND		0.35	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-167	ND		0.35	0.24	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-168	ND		0.35	0.25	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-169	ND		0.35	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-170	ND		0.35	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-177	ND		0.35	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-180	**2.4**		0.35	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-183	ND		0.35	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-187	**2.3**		0.35	0.18	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-189	ND		0.35	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-194	ND		0.35	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-201	ND		0.35	0.060	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
PCB-206	ND		0.35	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1
Polychlorinated biphenyls, Total	**23**		0.71	0.62	ug/Kg	☼	08/03/21 13:31	08/06/21 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*71*		*20 - 139*	*08/03/21 13:31*	*08/06/21 17:36*	*1*
p-Terphenyl-d14	*90*		*37 - 165*	*08/03/21 13:31*	*08/06/21 17:36*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-Younger Paralic Deposits
Date Collected: 07/28/21 11:45
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.26	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-28	ND		0.26	0.089	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-37	ND		0.26	0.077	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-44	ND		0.26	0.19	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-49	ND		0.26	0.063	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-52	ND		0.26	0.24	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-66	ND		0.26	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-70	ND		0.26	0.091	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-74	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-77	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-81	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-87	ND		0.26	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-99	ND		0.26	0.061	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-101	ND		0.26	0.057	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-105	ND		0.26	0.068	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-110	ND		0.26	0.043	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-114	ND		0.26	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-118	ND		0.26	0.044	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-119	ND		0.26	0.080	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-123	ND		0.26	0.093	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-126	ND		0.26	0.070	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-128	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-132/153	ND		0.51	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-138/158	ND		0.51	0.45	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-149	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-151	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-156	ND		0.26	0.099	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-157	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-167	ND		0.26	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-168	ND		0.26	0.18	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-169	ND		0.26	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-170	ND		0.26	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-177	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-180	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-183	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-187	ND		0.26	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-189	ND		0.26	0.082	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-194	ND		0.26	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-201	ND		0.26	0.043	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
PCB-206	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1
Polychlorinated biphenyls, Total	ND		0.51	0.45	ug/Kg	☼	08/03/21 13:31	08/06/21 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*53*		*20 - 139*	*08/03/21 13:31*	*08/06/21 18:01*	*1*
p-Terphenyl-d14	*77*		*37 - 165*	*08/03/21 13:31*	*08/06/21 18:01*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.26	0.084	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-28	ND		0.26	0.090	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-37	ND		0.26	0.079	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-44	ND		0.26	0.20	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-49	ND		0.26	0.064	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-52	ND		0.26	0.25	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-66	ND		0.26	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-70	ND		0.26	0.093	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-74	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-77	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-81	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-87	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-99	ND		0.26	0.062	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-101	ND		0.26	0.058	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-105	ND		0.26	0.070	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-110	ND		0.26	0.044	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-114	ND		0.26	0.096	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-118	ND		0.26	0.045	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-119	ND		0.26	0.081	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-123	ND		0.26	0.095	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-126	ND		0.26	0.071	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-128	ND		0.26	0.16	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-132/153	ND		0.52	0.21	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-138/158	ND		0.52	0.46	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-149	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-151	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-156	ND		0.26	0.10	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-157	ND		0.26	0.11	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-167	ND		0.26	0.17	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-168	ND		0.26	0.19	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-169	ND		0.26	0.085	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-170	ND		0.26	0.14	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-177	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-180	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-183	ND		0.26	0.12	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-187	ND		0.26	0.13	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-189	ND		0.26	0.083	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-194	ND		0.26	0.096	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-201	ND		0.26	0.044	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
PCB-206	ND		0.26	0.15	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1
Polychlorinated biphenyls, Total	ND		0.52	0.46	ug/Kg	☼	08/03/21 13:31	08/06/21 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*49*		*20 - 139*	*08/03/21 13:31*	*08/06/21 18:25*	*1*
p-Terphenyl-d14	*71*		*37 - 165*	*08/03/21 13:31*	*08/06/21 18:25*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-Bay Deposits
Date Collected: 07/28/21 11:30
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		18	3.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
1-Methylnaphthalene	ND		18	1.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
1-Methylphenanthrene	ND		18	3.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,3,4,6-Tetrachlorophenol	ND		18	6.9	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,4,5-Trichlorophenol	ND		18	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,4,6-Trichlorophenol	ND		18	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,4-Dichlorophenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,4-Dimethylphenol	ND		880	4.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,4-Dinitrophenol	ND	*-	880	110	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,6-Dichlorophenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2,6-Dimethylnaphthalene	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2-Chlorophenol	ND		18	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2-Methylnaphthalene	ND		18	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2-Methylphenol	ND		18	3.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
2-Nitrophenol	ND		880	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
3/4-Methylphenol	ND		35	6.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
4,6-Dinitro-2-methylphenol	ND	*- *1	880	120	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
4-Chloro-3-methylphenol	ND		18	3.7	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
4-Nitrophenol	ND	*- *1	880	140	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Acenaphthene	ND		18	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Acenaphthylene	**28**		18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Anthracene	**31**		18	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[a]anthracene	**28**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[a]pyrene	**130**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[b]fluoranthene	**150**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[e]pyrene	**87**		18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[g,h,i]perylene	**50**		18	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Benzo[k]fluoranthene	**120**		18	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Biphenyl	ND		18	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Bis(2-ethylhexyl) phthalate	**110**	**B**	88	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Butyl benzyl phthalate	**51**	**J B**	88	3.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Chrysene	**52**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Dibenz(a,h)anthracene	**28**		18	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Diethyl phthalate	**8.6**	**J**	88	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Dimethyl phthalate	ND		88	3.5	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Di-n-butyl phthalate	**59**	**J B**	88	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Di-n-octyl phthalate	ND		88	3.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Fluoranthene	**37**		18	3.2	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Fluorene	ND		18	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Indeno[1,2,3-cd]pyrene	**66**		18	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Naphthalene	ND		18	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Pentachlorophenol	ND	*-	880	2.3	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Phenanthrene	**4.1**	**J**	18	3.0	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1
Pyrene	**44**		18	2.8	ug/Kg	☼	08/03/21 14:49	08/10/21 02:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*59*		*32 - 143*	*08/03/21 14:49*	*08/10/21 02:30*	*1*
2-Fluorophenol	*42*		*15 - 138*	*08/03/21 14:49*	*08/10/21 02:30*	*1*
Nitrobenzene-d5	*46*		*18 - 162*	*08/03/21 14:49*	*08/10/21 02:30*	*1*
Phenol-d6	*49*		*17 - 141*	*08/03/21 14:49*	*08/10/21 02:30*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-Bay Deposits
Date Collected: 07/28/21 11:30
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-1
Matrix: Sediment

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
p-Terphenyl-d14	*62*		*34 - 148*	*08/03/21 14:49*	*08/10/21 02:30*	*1*
2-Fluorobiphenyl (Surr)	*50*		*14 - 146*	*08/03/21 14:49*	*08/10/21 02:30*	*1*

Client Sample ID: FDD-Younger Paralic Deposits
Date Collected: 07/28/21 11:45
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		13	2.3	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
1-Methylnaphthalene	ND		13	1.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
1-Methylphenanthrene	ND		13	2.5	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,3,4,6-Tetrachlorophenol	ND		13	5.0	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,4,5-Trichlorophenol	ND		13	1.5	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,4,6-Trichlorophenol	ND		13	1.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,4-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,4-Dimethylphenol	ND		640	3.3	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,4-Dinitrophenol	ND	*-	640	76	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,6-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2,6-Dimethylnaphthalene	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2-Chlorophenol	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2-Methylnaphthalene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2-Methylphenol	ND		13	2.5	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
2-Nitrophenol	ND		640	2.2	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
3/4-Methylphenol	ND		25	4.6	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
4,6-Dinitro-2-methylphenol	ND	*- *1	640	84	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
4-Chloro-3-methylphenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
4-Nitrophenol	ND	*-	640	100	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Acenaphthene	ND		13	1.9	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Acenaphthylene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Anthracene	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[a]anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[a]pyrene	**4.7**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[b]fluoranthene	**6.0**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[e]pyrene	**3.2**	**J**	13	2.2	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[g,h,i]perylene	ND		13	1.9	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Benzo[k]fluoranthene	**4.8**	**J**	13	1.9	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Biphenyl	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Bis(2-ethylhexyl) phthalate	**34**	**J B**	64	1.9	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Butyl benzyl phthalate	**28**	**J B**	64	2.5	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Chrysene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Dibenz(a,h)anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Diethyl phthalate	**5.1**	**J**	64	2.0	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Dimethyl phthalate	ND		64	2.5	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Di-n-butyl phthalate	**20**	**J B**	64	2.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Di-n-octyl phthalate	ND		64	2.4	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Fluoranthene	ND		13	2.3	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Fluorene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Indeno[1,2,3-cd]pyrene	**2.6**	**J**	13	1.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Naphthalene	ND		13	1.9	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Pentachlorophenol	ND	*-	640	1.7	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1
Pyrene	**2.9**	**J**	13	2.0	ug/Kg	☼	08/03/21 14:49	08/11/21 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*38*		*32 - 143*	*08/03/21 14:49*	*08/11/21 17:10*	*1*
2-Fluorophenol	*41*		*15 - 138*	*08/03/21 14:49*	*08/11/21 17:10*	*1*
Nitrobenzene-d5	*44*		*18 - 162*	*08/03/21 14:49*	*08/11/21 17:10*	*1*
Phenol-d6	*51*		*17 - 141*	*08/03/21 14:49*	*08/11/21 17:10*	*1*
p-Terphenyl-d14	*59*		*34 - 148*	*08/03/21 14:49*	*08/11/21 17:10*	*1*
2-Fluorobiphenyl (Surr)	*52*		*14 - 146*	*08/03/21 14:49*	*08/11/21 17:10*	*1*

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
1-Methylnaphthalene	ND		13	1.4	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
1-Methylphenanthrene	ND		13	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,3,4,6-Tetrachlorophenol	ND		13	5.1	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,4,5-Trichlorophenol	ND		13	1.6	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,4,6-Trichlorophenol	ND		13	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,4-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,4-Dimethylphenol	ND		650	3.4	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,4-Dinitrophenol	ND	*-	650	78	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,6-Dichlorophenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2,6-Dimethylnaphthalene	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2-Chlorophenol	ND		13	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2-Methylnaphthalene	ND		13	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2-Methylphenol	ND		13	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
2-Nitrophenol	ND		650	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
3/4-Methylphenol	ND		26	4.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
4,6-Dinitro-2-methylphenol	ND	*- *1	650	87	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
4-Chloro-3-methylphenol	ND		13	2.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
4-Nitrophenol	ND	*- *1	650	110	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Acenaphthene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Acenaphthylene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Anthracene	ND		13	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[a]anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[a]pyrene	**6.4**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[b]fluoranthene	**7.8**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[e]pyrene	**4.6**	**J**	13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[g,h,i]perylene	**4.1**	**J**	13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Benzo[k]fluoranthene	**6.1**	**J**	13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Biphenyl	ND		13	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Bis(2-ethylhexyl) phthalate	**39**	**J B**	65	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Butyl benzyl phthalate	**24**	**J B**	65	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Chrysene	**3.4**	**J**	13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Dibenz(a,h)anthracene	ND		13	1.8	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Diethyl phthalate	**3.7**	**J**	65	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Dimethyl phthalate	ND		65	2.6	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	**19**	**J B**	65	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Di-n-octyl phthalate	ND		65	2.5	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Fluoranthene	ND		13	2.4	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Fluorene	ND		13	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Indeno[1,2,3-cd]pyrene	**3.5**	**J**	13	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Naphthalene	ND		13	2.0	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Pentachlorophenol	ND	*-	650	1.7	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Phenanthrene	ND		13	2.2	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1
Pyrene	**3.4**	**J**	13	2.1	ug/Kg	☼	08/03/21 14:49	08/10/21 03:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*52*		*32 - 143*	*08/03/21 14:49*	*08/10/21 03:08*	*1*
2-Fluorophenol	*49*		*15 - 138*	*08/03/21 14:49*	*08/10/21 03:08*	*1*
Nitrobenzene-d5	*52*		*18 - 162*	*08/03/21 14:49*	*08/10/21 03:08*	*1*
Phenol-d6	*55*		*17 - 141*	*08/03/21 14:49*	*08/10/21 03:08*	*1*
p-Terphenyl-d14	*61*		*34 - 148*	*08/03/21 14:49*	*08/10/21 03:08*	*1*
2-Fluorobiphenyl (Surr)	*53*		*14 - 146*	*08/03/21 14:49*	*08/10/21 03:08*	*1*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.88	0.82	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Bifenthrin	ND		0.88	0.33	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Cyfluthrin	ND		0.88	0.40	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Cypermethrin	ND		0.88	0.28	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Deltamethrin/Tralomethrin	ND		0.88	0.46	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Fenpropathrin	ND		0.88	0.31	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Fenvalerate/Esfenvalerate	ND		0.88	0.32	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Fluvalinate	ND		0.88	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Lambda cyhalothrin	ND		0.88	0.58	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Permethrins (cis/trans)	ND		1.8	0.28	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Phenothrin	ND		0.88	0.35	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Resmethrin/Bioresmethrin	ND		0.88	0.40	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1
Tetramethrin	ND		0.88	0.18	ug/Kg	☼	08/03/21 14:43	08/07/21 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*100*		*14 - 116*	*08/03/21 14:43*	*08/07/21 02:02*	*1*

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.64	0.59	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Bifenthrin	ND		0.64	0.24	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Cyfluthrin	ND		0.64	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Cypermethrin	ND		0.64	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Deltamethrin/Tralomethrin	ND		0.64	0.33	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Fenpropathrin	ND		0.64	0.22	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Fenvalerate/Esfenvalerate	ND		0.64	0.23	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Fluvalinate	ND		0.64	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Lambda cyhalothrin	ND		0.64	0.42	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Permethrins (cis/trans)	ND		1.3	0.20	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Phenothrin	ND		0.64	0.25	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Resmethrin/Bioresmethrin	ND		0.64	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1
Tetramethrin	ND		0.64	0.13	ug/Kg	☼	08/03/21 14:43	08/07/21 02:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*114*		*14 - 116*	*08/03/21 14:43*	*08/07/21 02:39*	*1*

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.65	0.60	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Bifenthrin	ND		0.65	0.24	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Cyfluthrin	ND		0.65	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Cypermethrin	ND		0.65	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Deltamethrin/Tralomethrin	ND		0.65	0.34	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Fenpropathrin	ND		0.65	0.23	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Fenvalerate/Esfenvalerate	ND		0.65	0.24	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Fluvalinate	ND		0.65	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lambda cyhalothrin	ND		0.65	0.42	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Permethrins (cis/trans)	ND		1.3	0.21	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Phenothrin	ND		0.65	0.26	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Resmethrin/Bioresmethrin	ND		0.65	0.29	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1
Tetramethrin	ND		0.65	0.13	ug/Kg	☼	08/03/21 14:43	08/07/21 03:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*73*		*14 - 116*	*08/03/21 14:43*	*08/07/21 03:16*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		5.3	1.3	ug/Kg	☼	08/03/21 09:25	08/05/21 18:15	1
Tributyltin	ND		5.3	2.6	ug/Kg	☼	08/03/21 09:25	08/05/21 18:15	1
Dibutyltin	**29**		5.3	1.3	ug/Kg	☼	08/03/21 09:25	08/05/21 18:15	1
Monobutyltin	ND	*-	5.3	2.4	ug/Kg	☼	08/03/21 09:25	08/05/21 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*87*		*10 - 120*	*08/03/21 09:25*	*08/05/21 18:15*	*1*

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.8	0.95	ug/Kg	☼	08/03/21 09:25	08/05/21 18:33	1
Tributyltin	ND		3.8	1.9	ug/Kg	☼	08/03/21 09:25	08/05/21 18:33	1
Dibutyltin	ND		3.8	0.93	ug/Kg	☼	08/03/21 09:25	08/05/21 18:33	1
Monobutyltin	ND	*-	3.8	1.8	ug/Kg	☼	08/03/21 09:25	08/05/21 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*76*		*10 - 120*	*08/03/21 09:25*	*08/05/21 18:33*	*1*

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.9	0.96	ug/Kg	☼	08/03/21 09:25	08/05/21 18:51	1
Tributyltin	ND		3.9	1.9	ug/Kg	☼	08/03/21 09:25	08/05/21 18:51	1
Dibutyltin	ND		3.9	0.94	ug/Kg	☼	08/03/21 09:25	08/05/21 18:51	1
Monobutyltin	ND	*-	3.9	1.8	ug/Kg	☼	08/03/21 09:25	08/05/21 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*75*		*10 - 120*	*08/03/21 09:25*	*08/05/21 18:51*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-Bay Deposits
Date Collected: 07/28/21 11:30
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-1
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C7 as C7	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C8 as C8	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C9-C10	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C11-C12	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C13-C14	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C15-C16	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C17-C18	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C19-C20	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C21-C22	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C23-C24	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C25-C28	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C29-C32	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C33-C36	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C37-C40	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C41-C44	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1
C6-C44	ND		23	17	mg/Kg	☼	08/10/21 13:10	08/10/21 21:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*86*		*60 - 138*	*08/10/21 13:10*	*08/10/21 21:22*	*1*

Client Sample ID: FDD-Younger Paralic Deposits
Date Collected: 07/28/21 11:45
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-2
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C7 as C7	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C8 as C8	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C9-C10	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C11-C12	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C13-C14	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C15-C16	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C17-C18	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C19-C20	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C21-C22	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C23-C24	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C25-C28	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C29-C32	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C33-C36	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C37-C40	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C41-C44	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1
C6-C44	ND		6.7	5.2	mg/Kg	☼	08/10/21 13:10	08/10/21 21:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*83*		*60 - 138*	*08/10/21 13:10*	*08/10/21 21:42*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C7 as C7	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C8 as C8	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C9-C10	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C11-C12	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C13-C14	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C15-C16	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C17-C18	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C19-C20	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C21-C22	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C23-C24	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C25-C28	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C29-C32	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C33-C36	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C37-C40	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C41-C44	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1
C6-C44	ND		6.1	4.7	mg/Kg	☼	08/10/21 16:14	08/11/21 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*103*		*60 - 138*	*08/10/21 16:14*	*08/11/21 14:35*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.8	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
4,4'-DDD	ND		1.8	0.88	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
2,4'-DDE	ND		3.5	0.17	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
4,4'-DDE	**0.87**	**J**	1.8	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
2,4'-DDT	ND		1.8	0.16	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
4,4'-DDT	ND		1.8	0.31	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Aldrin	ND		1.8	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
alpha-BHC	ND		1.8	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
beta-BHC	ND		1.8	0.16	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Chlordane	ND		8.8	0.57	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
delta-BHC	ND		1.8	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Dieldrin	ND		0.35	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
alpha-Chlordane	ND		1.8	0.081	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endosulfan I	ND		1.8	0.085	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endosulfan II	ND		1.8	0.40	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endosulfan sulfate	ND		1.8	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endrin	ND		1.8	0.15	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
cis-Nonachlor	ND		1.8	0.083	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endrin aldehyde	ND		1.8	0.86	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Endrin ketone	ND		1.8	0.33	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
gamma-BHC	ND		1.8	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Heptachlor	ND		1.8	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Heptachlor epoxide	ND		1.8	0.15	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Methoxychlor	ND		1.8	0.29	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Toxaphene	ND		8.8	1.7	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
gamma-Chlordane	ND		1.8	0.61	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
Oxychlordane	ND		1.8	0.26	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1
trans-Nonachlor	ND		1.8	0.066	ug/Kg	☼	08/03/21 14:57	08/10/21 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*20 - 131*	*08/03/21 14:57*	*08/10/21 14:30*	*1*
DCB Decachlorobiphenyl (Surr)	*110*		*20 - 180*	*08/03/21 14:57*	*08/10/21 14:30*	*1*

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.3	0.081	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
4,4'-DDD	ND		1.3	0.63	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
2,4'-DDE	ND		2.5	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
4,4'-DDE	ND		1.3	0.090	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
2,4'-DDT	ND		1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
4,4'-DDT	ND		1.3	0.23	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Aldrin	ND		1.3	0.091	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
alpha-BHC	ND		1.3	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
beta-BHC	ND		1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Chlordane	ND		6.4	0.41	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
delta-BHC	ND		1.3	0.082	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Dieldrin	ND		0.25	0.084	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
alpha-Chlordane	ND		1.3	0.059	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	ND		1.3	0.062	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Endosulfan II	ND		1.3	0.29	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Endosulfan sulfate	ND		1.3	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Endrin	ND		1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
cis-Nonachlor	ND		1.3	0.060	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Endrin aldehyde	ND		1.3	0.62	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Endrin ketone	ND		1.3	0.24	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
gamma-BHC	ND		1.3	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Heptachlor	ND		1.3	0.076	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Heptachlor epoxide	ND		1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Methoxychlor	ND		1.3	0.21	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Toxaphene	ND		6.4	1.3	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
gamma-Chlordane	ND		1.3	0.44	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
Oxychlordane	ND		1.3	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1
trans-Nonachlor	ND		1.3	0.047	ug/Kg	☼	08/03/21 14:57	08/10/21 20:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*20 - 131*	*08/03/21 14:57*	*08/10/21 20:44*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 180*	*08/03/21 14:57*	*08/10/21 20:44*	*1*

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.3	0.083	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
4,4'-DDD	ND		1.3	0.65	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
2,4'-DDE	ND		2.6	0.13	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
4,4'-DDE	ND		1.3	0.092	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
2,4'-DDT	ND		1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
4,4'-DDT	ND		1.3	0.23	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Aldrin	ND		1.3	0.093	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
alpha-BHC	ND		1.3	0.10	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
beta-BHC	ND		1.3	0.12	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Chlordane	ND		6.5	0.42	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
delta-BHC	ND		1.3	0.083	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Dieldrin	ND		0.26	0.086	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
alpha-Chlordane	ND		1.3	0.060	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endosulfan I	ND		1.3	0.063	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endosulfan II	ND		1.3	0.29	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endosulfan sulfate	ND		1.3	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endrin	ND		1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
cis-Nonachlor	ND		1.3	0.061	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endrin aldehyde	ND		1.3	0.63	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Endrin ketone	ND		1.3	0.25	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
gamma-BHC	ND		1.3	0.14	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Heptachlor	ND		1.3	0.077	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Heptachlor epoxide	ND		1.3	0.11	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Methoxychlor	ND		1.3	0.21	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
Toxaphene	ND		6.5	1.3	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
gamma-Chlordane	ND		1.3	0.45	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxychlordane	ND		1.3	0.19	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1
trans-Nonachlor	ND		1.3	0.048	ug/Kg	☼	08/03/21 14:57	08/10/21 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*20 - 131*	*08/03/21 14:57*	*08/10/21 20:58*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*20 - 180*	*08/03/21 14:57*	*08/10/21 20:58*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		18	9.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1221	ND		18	9.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1232	ND		18	9.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1242	ND		18	9.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1248	ND		18	9.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1254	**27**		18	8.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1260	**30**		18	8.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1262	ND		18	8.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1
Aroclor-1268	ND		18	8.7	ug/Kg	☼	08/03/21 14:57	08/06/21 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*92*		*20 - 155*	*08/03/21 14:57*	*08/06/21 19:09*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*25 - 126*	*08/03/21 14:57*	*08/06/21 19:09*	*1*

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		13	7.0	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1221	ND		13	7.0	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1232	ND		13	7.0	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1242	ND		13	7.0	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1248	ND		13	7.0	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1254	ND		13	6.3	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1260	ND		13	6.3	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1262	ND		13	6.3	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1
Aroclor-1268	ND		13	6.3	ug/Kg	☼	08/03/21 14:57	08/06/21 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*20 - 155*	*08/03/21 14:57*	*08/06/21 19:27*	*1*
Tetrachloro-m-xylene (Surr)	*65*		*25 - 126*	*08/03/21 14:57*	*08/06/21 19:27*	*1*

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		13	7.2	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1221	ND		13	7.2	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1232	ND		13	7.2	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1242	ND		13	7.2	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1248	ND		13	7.2	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1254	ND		13	6.5	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1260	ND		13	6.5	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1262	ND		13	6.5	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1
Aroclor-1268	ND		13	6.5	ug/Kg	☼	08/03/21 14:57	08/06/21 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*20 - 155*	*08/03/21 14:57*	*08/06/21 18:50*	*1*
Tetrachloro-m-xylene (Surr)	*65*		*25 - 126*	*08/03/21 14:57*	*08/06/21 18:50*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 7199 - Chromium, Hexavalent (IC)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		710	370	ug/Kg	☼	08/02/21 18:46	08/03/21 20:04	10

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		510	260	ug/Kg	☼	08/02/21 18:46	08/03/21 20:15	10

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		520	270	ug/Kg	☼	08/02/21 18:46	08/03/21 20:26	10

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		3.66	0.510	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Arsenic	**3.71**		1.83	0.611	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Barium	**109**		1.83	0.380	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Beryllium	ND		1.83	0.379	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Cadmium	ND		1.83	0.823	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Chromium	**15.3**		3.66	0.549	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Cobalt	**6.16**		1.83	0.346	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Copper	**22.2**		1.83	0.492	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Lead	**12.3**		1.83	0.393	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Molybdenum	**1.30**	**J**	1.83	0.563	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Nickel	**29.0**		1.83	0.494	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Selenium	ND		1.83	1.06	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Silver	ND		1.83	0.605	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Thallium	ND		1.83	0.401	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Vanadium	**20.2**		3.66	0.443	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20
Zinc	**73.9**		9.15	8.44	mg/Kg	☼	08/10/21 10:00	08/10/21 18:06	20

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.57	0.359	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Arsenic	**3.91**		1.29	0.430	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Barium	**121**		1.29	0.268	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Beryllium	**0.403**	**J**	1.29	0.266	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Cadmium	ND		1.29	0.579	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Chromium	**16.9**		2.57	0.386	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Cobalt	**6.76**		1.29	0.243	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Copper	**23.9**		1.29	0.346	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Lead	**12.4**		1.29	0.277	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Molybdenum	**1.46**		1.29	0.396	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Nickel	**31.5**		1.29	0.347	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Selenium	**0.785**	**J**	1.29	0.748	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Silver	ND		1.29	0.426	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Thallium	ND		1.29	0.282	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Vanadium	**22.1**		2.57	0.311	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20
Zinc	**80.8**		6.43	5.94	mg/Kg	☼	08/10/21 10:00	08/10/21 18:09	20

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.66	0.371	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Arsenic	**0.752**	**J**	1.33	0.444	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Barium	**53.2**		1.33	0.276	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Beryllium	ND		1.33	0.275	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Cadmium	ND		1.33	0.598	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Chromium	**6.47**		2.66	0.399	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Cobalt	**3.63**		1.33	0.251	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Copper	**11.1**		1.33	0.357	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-Older Paralic Deposits
Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3
Matrix: Sediment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**2.78**		1.33	0.286	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Molybdenum	ND		1.33	0.409	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Nickel	**3.74**		1.33	0.359	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Selenium	ND		1.33	0.772	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Silver	ND		1.33	0.440	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Thallium	ND		1.33	0.291	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Vanadium	**19.3**		2.66	0.322	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20
Zinc	**20.8**		6.64	6.14	mg/Kg	☼	08/10/21 10:00	08/10/21 18:13	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0319**	**J**	0.150	0.0244	mg/Kg	☼	08/10/21 12:44	08/11/21 16:54	1

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.105	0.0170	mg/Kg	☼	08/10/21 12:44	08/11/21 16:56	1

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0228**	**J**	0.109	0.0177	mg/Kg	☼	08/10/21 12:44	08/11/21 16:58	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

General Chemistry

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	191		87.0	52.5	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	139		87.0	24.1	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	3.63		1.74	1.46	mg/Kg	☼	08/03/21 15:00	08/03/21 21:53	10
Trivalent Chromium	15.3		3.55	0.532	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.758		0.0887	0.0308	%	☼		07/30/21 17:32	1
Percent Solids	56.4		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	14.6		3.34	1.83	mg/Kg	☼	08/10/21 18:45	08/10/21 20:10	1

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	153		63.6	38.4	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	93.3		63.6	17.7	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	1.83		0.253	0.213	mg/Kg	☼	08/03/21 15:00	08/03/21 21:54	2
Trivalent Chromium	16.9		2.56	0.384	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.116		0.0640	0.0222	%	☼		07/30/21 17:32	1
Percent Solids	78.1		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	3.92		0.320	0.176	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	118		65.4	39.5	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	69.8		65.4	18.2	mg/Kg	☼	08/02/21 10:58	08/03/21 17:51	1
Total Sulfide	1.99		0.259	0.217	mg/Kg	☼	08/03/21 15:00	08/03/21 21:55	2
Trivalent Chromium	6.47		2.62	0.393	mg/Kg	☼		08/11/21 15:36	1
Carbon, Total Organic	0.174		0.0655	0.0227	%	☼		07/30/21 17:32	1
Percent Solids	76.4		0.1	0.1	%			07/30/21 15:03	1
Ammonia (as N)	2.02		0.327	0.180	mg/Kg	☼	08/07/21 16:00	08/07/21 17:40	1

General Chemistry - Soluble

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.0996	0.0836	mg/Kg			08/03/21 22:08	1

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0843	mg/Kg			08/03/21 22:09	1

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			08/03/21 22:10	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: D4464 - Particle Size Distribution of Catalytic Material (Laser light scattering)

Client Sample ID: FDD-Bay Deposits — **Lab Sample ID: 570-65782-1**
Date Collected: 07/28/21 11:30 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	14.10		0.01	0.01	%			08/11/21 14:41	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			08/11/21 14:41	1
Fine Sand (0.125 to 0.25mm)	20.28		0.01	0.01	%			08/11/21 14:41	1
Gravel (greater than 2 mm)	11.38		0.01	0.01	%			08/11/21 14:41	1
Medium Sand (0.25 to 0.5 mm)	6.71		0.01	0.01	%			08/11/21 14:41	1
Silt (0.00391 to 0.0625mm)	36.80		0.01	0.01	%			08/11/21 14:41	1
Total Silt and Clay (0 to 0.0626mm)	50.90		0.01	0.01	%			08/11/21 14:41	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			08/11/21 14:41	1
Very Fine Sand (0.0625 to 0.125 mm)	10.73		0.01	0.01	%			08/11/21 14:41	1

Client Sample ID: FDD-Younger Paralic Deposits — **Lab Sample ID: 570-65782-2**
Date Collected: 07/28/21 11:45 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	16.01		0.01	0.01	%			08/11/21 14:48	1
Coarse Sand (0.5mm to 1mm)	ND		0.01	0.01	%			08/11/21 14:48	1
Fine Sand (0.125 to 0.25mm)	16.02		0.01	0.01	%			08/11/21 14:48	1
Gravel (greater than 2 mm)	ND		0.01	0.01	%			08/11/21 14:48	1
Medium Sand (0.25 to 0.5 mm)	4.20		0.01	0.01	%			08/11/21 14:48	1
Silt (0.00391 to 0.0625mm)	52.13		0.01	0.01	%			08/11/21 14:48	1
Total Silt and Clay (0 to 0.0626mm)	68.15		0.01	0.01	%			08/11/21 14:48	1
Very Coarse Sand (1 to 2mm)	ND		0.01	0.01	%			08/11/21 14:48	1
Very Fine Sand (0.0625 to 0.125 mm)	11.63		0.01	0.01	%			08/11/21 14:48	1

Client Sample ID: FDD-Older Paralic Deposits — **Lab Sample ID: 570-65782-3**
Date Collected: 07/28/21 12:00 — **Matrix: Sediment**
Date Received: 07/29/21 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay (less than 0.00391 mm)	1.07		0.01	0.01	%			08/11/21 14:55	1
Coarse Sand (0.5mm to 1mm)	17.16		0.01	0.01	%			08/11/21 14:55	1
Fine Sand (0.125 to 0.25mm)	28.47		0.01	0.01	%			08/11/21 14:55	1
Gravel (greater than 2 mm)	4.49		0.01	0.01	%			08/11/21 14:55	1
Medium Sand (0.25 to 0.5 mm)	25.17		0.01	0.01	%			08/11/21 14:55	1
Silt (0.00391 to 0.0625mm)	2.83		0.01	0.01	%			08/11/21 14:55	1
Total Silt and Clay (0 to 0.0626mm)	3.90		0.01	0.01	%			08/11/21 14:55	1
Very Coarse Sand (1 to 2mm)	13.03		0.01	0.01	%			08/11/21 14:55	1
Very Fine Sand (0.0625 to 0.125 mm)	7.79		0.01	0.01	%			08/11/21 14:55	1

PARTICLE SIZE SUMMARY

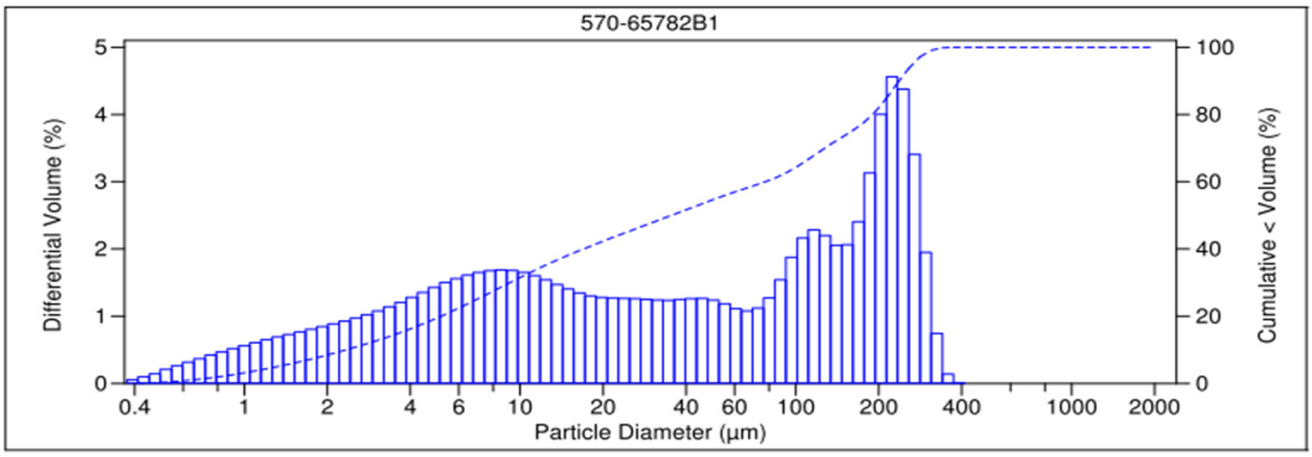
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/28/21
	Date Received:	07/29/21
	Work Order No:	570-65782
	Date Analyzed:	08/11/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-Bay Deposits		Medium Sand	0.426

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
11.38	0.00	0.00	6.71	20.28	10.73	36.80	14.10	50.90



V 3.0

PARTICLE SIZE SUMMARY

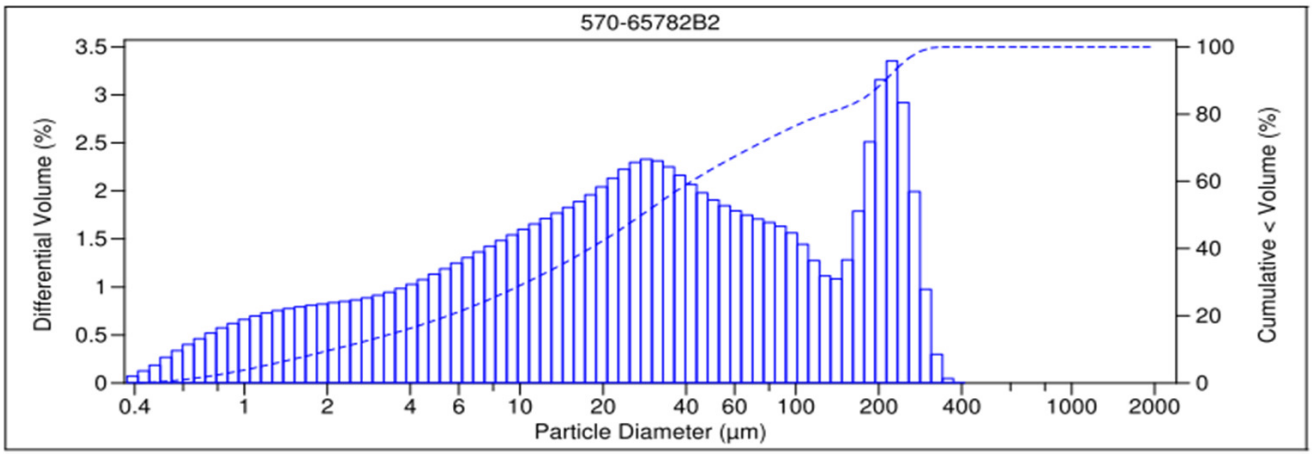
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/28/21
	Date Received:	07/29/21
	Work Order No:	570-65782
	Date Analyzed:	08/11/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-Younger Paralic Deposits		Very Fine Sand	0.065

Particle Size Distribution, wt by percent								Total Silt & Clay
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	
0.00	0.00	0.00	4.20	16.02	11.63	52.13	16.01	68.15



V 3.0

PARTICLE SIZE SUMMARY

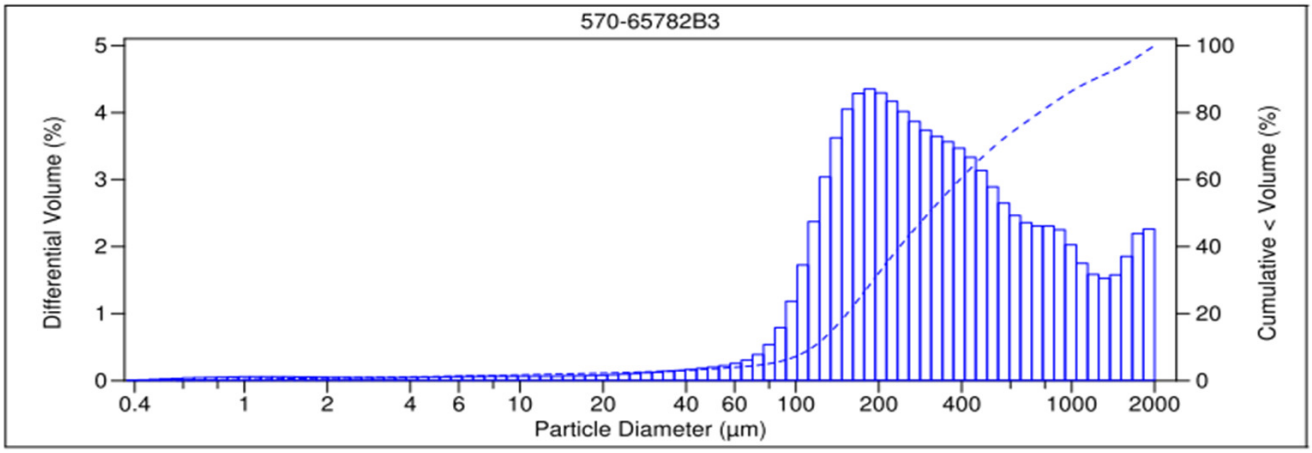
(ASTM D422 / D4464M)

Wood Environmental & Infrastructure Solutions, Inc.	Date Sampled:	07/28/21
	Date Received:	07/29/21
	Work Order No:	570-65782
	Date Analyzed:	08/11/21
	Method:	ASTM D4464M

Project: NBSD Mole Pier FDD Maintenance Dredging

Sample ID	Depth ft	Description	Mean Grain Size mm
FDD-Older Paralic Deposits		Coarse Sand	0.620

Particle Size Distribution, wt by percent								
Total Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Clay	Total Silt & Clay
4.49	13.03	17.16	25.17	28.47	7.79	2.83	1.07	3.90



V 3.0

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-65782-1	FDD-Bay Deposits	59	42	46	49	62	50
570-65782-2	FDD-Younger Paralic Deposits	38	41	44	51	59	52
570-65782-3	FDD-Older Paralic Deposits	52	49	52	55	61	53

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(32-143)	(15-138)	(18-162)	(17-141)	(34-148)	(14-146)
570-65784-A-4-X MS	Matrix Spike	54	55	45	61	73	48
570-65784-A-4-Y MSD	Matrix Spike Duplicate	56	60	49	66	74	56
LCS 570-168540/2-A	Lab Control Sample	101	131	94	135	136	125
LCSD 570-168540/3-A	Lab Control Sample Dup	94	120	97	125	130	119
MB 570-168540/1-A	Method Blank	38	50	47	51	54	47

Surrogate Legend

TBP = 2,4,6-Tribromophenol
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6
TPHd14 = p-Terphenyl-d14
FBP = 2-Fluorobiphenyl (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-65782-1	FDD-Bay Deposits	71	90
570-65782-2	FDD-Younger Paralic Deposits	53	77
570-65782-3	FDD-Older Paralic Deposits	49	71

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		FBP	TPHd14
Lab Sample ID	Client Sample ID	(20-139)	(37-165)
570-65784-A-4-R MS	Matrix Spike	62	83
570-65784-A-4-S MSD	Matrix Spike Duplicate	60	81
LCS 570-167954/2-A	Lab Control Sample	63	72
LCSD 570-167954/3-A	Lab Control Sample Dup	59	66
MB 570-167954/1-A	Method Blank	61	73

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-65782-1	FDD-Bay Deposits	100
570-65782-2	FDD-Younger Paralic Deposits	114
570-65782-3	FDD-Older Paralic Deposits	73

Surrogate Legend

DBC = Dibutylchlorendate

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DBC
Lab Sample ID	Client Sample ID	(14-116)
570-65784-A-4-U MS	Matrix Spike	102
570-65784-A-4-V MSD	Matrix Spike Duplicate	116
LCS 570-167955/2-A - RA	Lab Control Sample	115
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	107
MB 570-167955/1-A	Method Blank	94

Surrogate Legend

DBC = Dibutylchlorendate

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TPTT
Lab Sample ID	Client Sample ID	(10-120)
570-65782-1	FDD-Bay Deposits	87
570-65782-2	FDD-Younger Paralic Deposits	76
570-65782-3	FDD-Older Paralic Deposits	75

Surrogate Legend

TPTT = Tripentyltin

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TPTT (10-120)						
570-65784-A-4-AH MS	Matrix Spike	82						
570-65784-A-4-AI MSD	Matrix Spike Duplicate	82						
LCS 570-168407/2-A	Lab Control Sample	74						
LCSD 570-168407/3-A	Lab Control Sample Dup	71						
MB 570-168407/1-A	Method Blank	85						

Surrogate Legend

TPTT = Tripentyltin

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)						
570-65782-1	FDD-Bay Deposits	86						
570-65782-2	FDD-Younger Paralic Deposits	83						
570-65782-3	FDD-Older Paralic Deposits	103						

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)						
440-287113-A-1-A MS	Matrix Spike	75						
440-287113-A-1-B MSD	Matrix Spike Duplicate	84						
570-65743-A-2-A MS	Matrix Spike	91						
570-65743-A-2-B MSD	Matrix Spike Duplicate	88						
LCS 570-170173/2-A	Lab Control Sample	107						
LCS 570-170189/2-A	Lab Control Sample	82						
LCSD 570-170173/3-A	Lab Control Sample Dup	100						
LCSD 570-170189/3-A	Lab Control Sample Dup	81						
MB 570-170173/1-A	Method Blank	125						
MB 570-170189/1-A	Method Blank	92						

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)					
570-65782-1	FDD-Bay Deposits	62	110					
570-65782-2	FDD-Younger Paralic Deposits	70	92					
570-65782-3	FDD-Older Paralic Deposits	69	97					

Surrogate Legend

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	TCX1 (20-131)	DCB1 (20-180)
570-65784-A-4-AA MS	Matrix Spike	55	99
570-65784-A-4-AB MSD	Matrix Spike Duplicate	66	85
LCS 570-168544/2-A	Lab Control Sample	86	89
LCSD 570-168544/3-A	Lab Control Sample Dup	63	73
MB 570-168544/1-A	Method Blank	74	81

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Sediment **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCB1 (20-155)	TCX1 (25-126)
570-65782-1	FDD-Bay Deposits	92	59
570-65782-2	FDD-Younger Paralic Deposits	78	65
570-65782-3	FDD-Older Paralic Deposits	78	65

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCB1 (20-155)	TCX1 (25-126)
570-65784-A-4-AC MS	Matrix Spike	80	64
570-65784-A-4-AD MSD	Matrix Spike Duplicate	73	61 p
LCS 570-168544/4-A	Lab Control Sample	73	68
LCSD 570-168544/5-A	Lab Control Sample Dup	89	68
MB 570-168544/1-A	Method Blank	83	76

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-168540/1-A
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168540

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,3,4,6-Tetrachlorophenol	6.342	J	10	3.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4,6-Trichlorophenol	ND		10	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dichlorophenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dimethylphenol	ND		500	2.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,4-Dinitrophenol	117.6	J	500	60	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,6-Dichlorophenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Chlorophenol	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Methylphenol	ND		10	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
2-Nitrophenol	ND		500	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
3/4-Methylphenol	ND		20	3.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4,6-Dinitro-2-methylphenol	ND		500	66	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4-Chloro-3-methylphenol	ND		10	2.1	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
4-Nitrophenol	ND		500	81	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Acenaphthene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Acenaphthylene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Anthracene	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Biphenyl	ND		10	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Bis(2-ethylhexyl) phthalate	20.04	J	50	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Butyl benzyl phthalate	3.411	J	50	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Chrysene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Diethyl phthalate	ND		50	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Dimethyl phthalate	ND		50	2.0	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Di-n-butyl phthalate	9.990	J	50	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Di-n-octyl phthalate	26.07	J	50	1.9	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Fluoranthene	ND		10	1.8	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Fluorene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Naphthalene	ND		10	1.5	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Pentachlorophenol	18.54	J	500	1.3	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Phenanthrene	ND		10	1.7	ug/Kg		08/03/21 14:49	08/09/21 17:11	1
Pyrene	ND		10	1.6	ug/Kg		08/03/21 14:49	08/09/21 17:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*38*		*32 - 143*	*08/03/21 14:49*	*08/09/21 17:11*	*1*
2-Fluorophenol	*50*		*15 - 138*	*08/03/21 14:49*	*08/09/21 17:11*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-168540/1-A
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168540

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	47		18 - 162	08/03/21 14:49	08/09/21 17:11	1
Phenol-d6	51		17 - 141	08/03/21 14:49	08/09/21 17:11	1
p-Terphenyl-d14	54		34 - 148	08/03/21 14:49	08/09/21 17:11	1
2-Fluorobiphenyl (Surr)	47		14 - 146	08/03/21 14:49	08/09/21 17:11	1

Lab Sample ID: LCS 570-168540/2-A
Matrix: Solid
Analysis Batch: 170767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	1000	585.7		ug/Kg		59	40 - 160
2,4,6-Trichlorophenol	1000	585.3		ug/Kg		59	40 - 160
2,4-Dichlorophenol	1000	523.5		ug/Kg		52	40 - 160
2,4-Dimethylphenol	1000	574.9		ug/Kg		57	40 - 160
2,4-Dinitrophenol	1000	185.3	J *-	ug/Kg		19	40 - 160
2-Chlorophenol	1000	639.4		ug/Kg		64	40 - 160
2-Methylphenol	1000	712.3		ug/Kg		71	40 - 160
2-Nitrophenol	1000	499.7	J	ug/Kg		50	40 - 160
3/4-Methylphenol	2000	1215		ug/Kg		61	40 - 160
4,6-Dinitro-2-methylphenol	1000	359.0	J *- me	ug/Kg		36	40 - 160
4-Chloro-3-methylphenol	1000	597.5		ug/Kg		60	40 - 160
Acenaphthene	1000	647.2		ug/Kg		65	48 - 108
Benzo[a]pyrene	1000	872.5		ug/Kg		87	17 - 163
Bis(2-ethylhexyl) phthalate	1000	836.9		ug/Kg		84	40 - 160
Butyl benzyl phthalate	1000	774.7		ug/Kg		77	40 - 160
Chrysene	1000	699.1		ug/Kg		70	17 - 168
Diethyl phthalate	1000	704.6		ug/Kg		70	40 - 160
Dimethyl phthalate	1000	655.6		ug/Kg		66	40 - 160
Di-n-butyl phthalate	1000	706.6		ug/Kg		71	40 - 160
Di-n-octyl phthalate	1000	797.0		ug/Kg		80	40 - 160
Fluoranthene	1000	689.4		ug/Kg		69	26 - 137
Fluorene	1000	692.7		ug/Kg		69	59 - 121
Naphthalene	1000	538.5		ug/Kg		54	21 - 133
Pentachlorophenol	1000	101.9	J *-	ug/Kg		10	40 - 160
Phenanthrene	1000	721.8		ug/Kg		72	54 - 120
Pyrene	1000	723.0		ug/Kg		72	28 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	101		32 - 143
2-Fluorophenol	131		15 - 138
Nitrobenzene-d5	94		18 - 162
Phenol-d6	135		17 - 141
p-Terphenyl-d14	136		34 - 148
2-Fluorobiphenyl (Surr)	125		14 - 146

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid
Analysis Batch: 170767

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	1000	542.4		ug/Kg		54	40 - 160	8	20
2,4,6-Trichlorophenol	1000	548.9		ug/Kg		55	40 - 160	6	20
2,4-Dichlorophenol	1000	486.2		ug/Kg		49	40 - 160	7	20
2,4-Dimethylphenol	1000	572.2		ug/Kg		57	40 - 160	0	20
2,4-Dinitrophenol	1000	158.2	J *-	ug/Kg		16	40 - 160	16	20
2-Chlorophenol	1000	596.9		ug/Kg		60	40 - 160	7	20
2-Methylphenol	1000	710.1		ug/Kg		71	40 - 160	0	20
2-Nitrophenol	1000	508.9		ug/Kg		51	40 - 160	2	20
3/4-Methylphenol	2000	1191		ug/Kg		60	40 - 160	2	20
4,6-Dinitro-2-methylphenol	1000	292.2	J *- me *1	ug/Kg		29	40 - 160	21	20
4-Chloro-3-methylphenol	1000	553.9		ug/Kg		55	40 - 160	8	20
Acenaphthene	1000	620.3		ug/Kg		62	48 - 108	4	20
Benzo[a]pyrene	1000	813.5		ug/Kg		81	17 - 163	7	20
Bis(2-ethylhexyl) phthalate	1000	775.2		ug/Kg		78	40 - 160	8	20
Butyl benzyl phthalate	1000	701.9		ug/Kg		70	40 - 160	10	20
Chrysene	1000	660.6		ug/Kg		66	17 - 168	6	20
Diethyl phthalate	1000	655.9		ug/Kg		66	40 - 160	7	20
Dimethyl phthalate	1000	603.5		ug/Kg		60	40 - 160	8	20
Di-n-butyl phthalate	1000	672.5		ug/Kg		67	40 - 160	5	20
Di-n-octyl phthalate	1000	727.5		ug/Kg		73	40 - 160	9	20
Fluoranthene	1000	611.8		ug/Kg		61	26 - 137	12	20
Fluorene	1000	659.7		ug/Kg		66	59 - 121	5	20
Naphthalene	1000	537.4		ug/Kg		54	21 - 133	0	20
Pentachlorophenol	1000	102.1	J *-	ug/Kg		10	40 - 160	0	20
Phenanthrene	1000	684.8		ug/Kg		68	54 - 120	5	20
Pyrene	1000	677.5		ug/Kg		68	28 - 106	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*94*		*32 - 143*
2-Fluorophenol	*120*		*15 - 138*
Nitrobenzene-d5	*97*		*18 - 162*
Phenol-d6	*125*		*17 - 141*
p-Terphenyl-d14	*130*		*34 - 148*
2-Fluorobiphenyl (Surr)	*119*		*14 - 146*

Lab Sample ID: 570-65784-A-4-X MS
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	ND		1290	737.6		ug/Kg	☼	57	40 - 160
2,4,6-Trichlorophenol	ND		1290	826.0		ug/Kg	☼	64	40 - 160
2,4-Dichlorophenol	ND		1290	729.0		ug/Kg	☼	57	40 - 160
2,4-Dimethylphenol	ND	F1	1290	583.5	J	ug/Kg	☼	45	40 - 160
2,4-Dinitrophenol	ND	*- F1	1290	414.0	J F1 *-	ug/Kg	☼	32	40 - 160
2-Chlorophenol	ND		1290	870.8		ug/Kg	☼	68	40 - 160
2-Methylphenol	ND		1290	878.1		ug/Kg	☼	68	40 - 160
2-Nitrophenol	ND		1290	763.2		ug/Kg	☼	59	40 - 160

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-A-4-X MS
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
3/4-Methylphenol	ND		2570	1496		ug/Kg	☼	58	40 - 160
4,6-Dinitro-2-methylphenol	ND	*- *1	1290	678.5	*- *1	ug/Kg	☼	53	40 - 160
4-Chloro-3-methylphenol	ND		1290	748.1		ug/Kg	☼	58	8 - 160
Acenaphthene	ND		1290	766.4		ug/Kg	☼	60	40 - 160
Benzo[a]pyrene	7.7	J	1290	1036		ug/Kg	☼	80	17 - 163
Bis(2-ethylhexyl) phthalate	27	J B	1290	1107		ug/Kg	☼	84	40 - 160
Butyl benzyl phthalate	22	J B	1290	1038		ug/Kg	☼	79	40 - 160
Chrysene	ND		1290	860.2		ug/Kg	☼	67	17 - 168
Diethyl phthalate	3.0	J	1290	823.2		ug/Kg	☼	64	40 - 160
Dimethyl phthalate	ND		1290	794.2		ug/Kg	☼	62	40 - 160
Di-n-butyl phthalate	21	J B	1290	868.0		ug/Kg	☼	66	40 - 160
Di-n-octyl phthalate	ND		1290	1019		ug/Kg	☼	79	40 - 160
Fluoranthene	ND		1290	743.1		ug/Kg	☼	58	26 - 137
Fluorene	ND		1290	782.8		ug/Kg	☼	61	59 - 121
Naphthalene	ND		1290	669.2		ug/Kg	☼	52	21 - 133
Pentachlorophenol	ND	*- F1	1290	339.6	J F1 *-	ug/Kg	☼	26	40 - 160
Phenanthrene	ND		1290	829.6		ug/Kg	☼	64	54 - 120
Pyrene	ND		1290	963.8		ug/Kg	☼	75	6 - 156

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*54*		*32 - 143*
2-Fluorophenol	*55*		*15 - 138*
Nitrobenzene-d5	*45*		*18 - 162*
Phenol-d6	*61*		*17 - 141*
p-Terphenyl-d14	*73*		*34 - 148*
2-Fluorobiphenyl (Surr)	*48*		*14 - 146*

Lab Sample ID: 570-65784-A-4-Y MSD
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND		1270	851.1		ug/Kg	☼	67	40 - 160	14	20
2,4,6-Trichlorophenol	ND		1270	833.9		ug/Kg	☼	66	40 - 160	1	20
2,4-Dichlorophenol	ND		1270	747.0		ug/Kg	☼	59	40 - 160	2	20
2,4-Dimethylphenol	ND	F1	1270	495.8	J F1	ug/Kg	☼	39	40 - 160	16	20
2,4-Dinitrophenol	ND	*- F1	1270	357.4	J *- F1	ug/Kg	☼	28	40 - 160	15	20
2-Chlorophenol	ND		1270	936.4		ug/Kg	☼	74	40 - 160	7	20
2-Methylphenol	ND		1270	953.8		ug/Kg	☼	75	40 - 160	8	20
2-Nitrophenol	ND		1270	800.3		ug/Kg	☼	63	40 - 160	5	20
3/4-Methylphenol	ND		2550	1590		ug/Kg	☼	62	40 - 160	6	20
4,6-Dinitro-2-methylphenol	ND	*- *1	1270	662.4	*- *1	ug/Kg	☼	52	40 - 160	2	20
4-Chloro-3-methylphenol	ND		1270	703.5		ug/Kg	☼	55	8 - 160	6	20
Acenaphthene	ND		1270	802.6		ug/Kg	☼	63	40 - 160	5	20
Benzo[a]pyrene	7.7	J	1270	1033		ug/Kg	☼	81	17 - 163	0	20
Bis(2-ethylhexyl) phthalate	27	J B	1270	1154		ug/Kg	☼	89	40 - 160	4	20
Butyl benzyl phthalate	22	J B	1270	1043		ug/Kg	☼	80	40 - 160	0	20
Chrysene	ND		1270	862.3		ug/Kg	☼	68	17 - 168	0	20

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-A-4-Y MSD
Matrix: Solid
Analysis Batch: 169973

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 168540

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diethyl phthalate	3.0	J	1270	913.3		ug/Kg	☼	72	40 - 160	10	20
Dimethyl phthalate	ND		1270	812.9		ug/Kg	☼	64	40 - 160	2	20
Di-n-butyl phthalate	21	J B	1270	876.6		ug/Kg	☼	67	40 - 160	1	20
Di-n-octyl phthalate	ND		1270	1033		ug/Kg	☼	81	40 - 160	1	20
Fluoranthene	ND		1270	765.7		ug/Kg	☼	60	26 - 137	3	20
Fluorene	ND		1270	874.7		ug/Kg	☼	69	59 - 121	11	20
Naphthalene	ND		1270	707.5		ug/Kg	☼	56	21 - 133	6	20
Pentachlorophenol	ND	*- F1	1270	319.8	J *- F1	ug/Kg	☼	25	40 - 160	6	20
Phenanthrene	ND		1270	847.2		ug/Kg	☼	67	54 - 120	2	20
Pyrene	ND		1270	953.7		ug/Kg	☼	75	6 - 156	1	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*56*		*32 - 143*
2-Fluorophenol	*60*		*15 - 138*
Nitrobenzene-d5	*49*		*18 - 162*
Phenol-d6	*66*		*17 - 141*
p-Terphenyl-d14	*74*		*34 - 148*
2-Fluorobiphenyl (Surr)	*56*		*14 - 146*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-167954/1-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167954

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.065	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-28	ND		0.20	0.069	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-37	ND		0.20	0.061	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-44	ND		0.20	0.15	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-49	ND		0.20	0.050	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-52	ND		0.20	0.19	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-66	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-70	ND		0.20	0.072	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-74	ND		0.20	0.090	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-77	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-81	ND		0.20	0.090	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-87	ND		0.20	0.11	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-99	ND		0.20	0.047	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-101	ND		0.20	0.044	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-105	ND		0.20	0.053	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-110	ND		0.20	0.034	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-114	ND		0.20	0.074	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-118	ND		0.20	0.035	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-119	ND		0.20	0.063	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-123	ND		0.20	0.073	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-126	ND		0.20	0.055	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-128	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-132/153	ND		0.40	0.16	ug/Kg		08/03/21 10:29	08/06/21 11:42	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-167954/1-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167954

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-138/158	ND		0.40	0.35	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-149	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-151	ND		0.20	0.088	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-156	ND		0.20	0.077	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-157	ND		0.20	0.085	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-167	ND		0.20	0.13	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-168	ND		0.20	0.14	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-169	ND		0.20	0.065	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-170	ND		0.20	0.11	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-177	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-180	ND		0.20	0.092	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-183	ND		0.20	0.093	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-187	ND		0.20	0.10	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-189	ND		0.20	0.064	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-194	ND		0.20	0.074	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-201	ND		0.20	0.034	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
PCB-206	ND		0.20	0.12	ug/Kg		08/03/21 10:29	08/06/21 11:42	1
Polychlorinated biphenyls, Total	ND		0.40	0.35	ug/Kg		08/03/21 10:29	08/06/21 11:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*20 - 139*	*08/03/21 10:29*	*08/06/21 11:42*	*1*
p-Terphenyl-d14	*73*		*37 - 165*	*08/03/21 10:29*	*08/06/21 11:42*	*1*

Lab Sample ID: LCS 570-167954/2-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167954

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	37.54		ug/Kg		75	33 - 114
PCB-28	50.0	40.51		ug/Kg		81	40 - 132
PCB-44	50.0	40.81		ug/Kg		82	38 - 131
PCB-52	50.0	40.11		ug/Kg		80	38 - 131
PCB-66	50.0	45.48		ug/Kg		91	42 - 141
PCB-77	50.0	41.35		ug/Kg		83	47 - 135
PCB-101	50.0	42.32		ug/Kg		85	40 - 132
PCB-105	50.0	44.38		ug/Kg		89	39 - 135
PCB-118	50.0	40.77		ug/Kg		82	38 - 131
PCB-126	50.0	45.82		ug/Kg		92	40 - 139
PCB-128	50.0	51.93		ug/Kg		104	43 - 149
PCB-132/153	50.0	45.65		ug/Kg		91	37 - 164
PCB-138/158	50.0	40.57		ug/Kg		81	36 - 124
PCB-170	50.0	47.57		ug/Kg		95	35 - 134
PCB-180	50.0	49.02		ug/Kg		98	38 - 159
PCB-187	50.0	48.44		ug/Kg		97	41 - 147
PCB-201	50.0	48.84		ug/Kg		98	40 - 156
PCB-206	50.0	54.05		ug/Kg		108	37 - 153

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-167954/2-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167954

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*63*		*20 - 139*
p-Terphenyl-d14	*72*		*37 - 165*

Lab Sample ID: LCSD 570-167954/3-A
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 167954

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	35.71		ug/Kg		71	33 - 114	5	29
PCB-28	50.0	39.03		ug/Kg		78	40 - 132	4	29
PCB-44	50.0	38.32		ug/Kg		77	38 - 131	6	32
PCB-52	50.0	37.71		ug/Kg		75	38 - 131	6	32
PCB-66	50.0	44.08		ug/Kg		88	42 - 141	3	34
PCB-77	50.0	40.21		ug/Kg		80	47 - 135	3	35
PCB-101	50.0	40.12		ug/Kg		80	40 - 132	5	34
PCB-105	50.0	42.77		ug/Kg		86	39 - 135	4	37
PCB-118	50.0	38.61		ug/Kg		77	38 - 131	5	35
PCB-126	50.0	43.55		ug/Kg		87	40 - 139	5	39
PCB-128	50.0	48.40		ug/Kg		97	43 - 149	7	37
PCB-132/153	50.0	43.66		ug/Kg		87	37 - 164	4	38
PCB-138/158	50.0	38.77		ug/Kg		78	36 - 124	5	40
PCB-170	50.0	42.76		ug/Kg		86	35 - 134	11	31
PCB-180	50.0	46.51		ug/Kg		93	38 - 159	5	40
PCB-187	50.0	45.78		ug/Kg		92	41 - 147	6	40
PCB-201	50.0	47.03		ug/Kg		94	40 - 156	4	40
PCB-206	50.0	50.87		ug/Kg		102	37 - 153	6	36

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*59*		*20 - 139*
p-Terphenyl-d14	*66*		*37 - 165*

Lab Sample ID: 570-65784-A-4-R MS
Matrix: Solid
Analysis Batch: 169444

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 167954

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		64.1	55.09		ug/Kg	☼	86	29 - 127
PCB-28	ND		64.1	65.94		ug/Kg	☼	103	29 - 170
PCB-44	ND		64.1	65.45		ug/Kg	☼	102	33 - 150
PCB-52	ND		64.1	64.28		ug/Kg	☼	100	23 - 159
PCB-66	ND		64.1	75.34		ug/Kg	☼	118	29 - 166
PCB-77	ND		64.1	67.73		ug/Kg	☼	106	30 - 166
PCB-101	ND		64.1	68.00		ug/Kg	☼	106	30 - 159
PCB-105	ND		64.1	71.18		ug/Kg	☼	111	22 - 173
PCB-118	ND		64.1	66.17		ug/Kg	☼	103	24 - 162
PCB-126	ND		64.1	72.91		ug/Kg	☼	114	18 - 180
PCB-128	ND		64.1	79.97		ug/Kg	☼	125	18 - 180
PCB-132/153	ND		64.1	73.00		ug/Kg	☼	114	27 - 180

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-65784-A-4-R MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169444 — **Prep Batch: 167954**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-138/158	ND		64.1	65.03		ug/Kg	☼	101	18 - 160
PCB-170	ND		64.1	77.49		ug/Kg	☼	121	25 - 165
PCB-180	ND		64.1	76.77		ug/Kg	☼	120	20 - 180
PCB-187	ND		64.1	76.86		ug/Kg	☼	120	14 - 180
PCB-201	ND		64.1	77.87		ug/Kg	☼	121	17 - 180
PCB-206	ND		64.1	85.02		ug/Kg	☼	133	16 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*20 - 139*
p-Terphenyl-d14	*83*		*37 - 165*

Lab Sample ID: 570-65784-A-4-S MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169444 — **Prep Batch: 167954**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		63.7	54.06		ug/Kg	☼	85	29 - 127	2	40
PCB-28	ND		63.7	64.70		ug/Kg	☼	101	29 - 170	2	32
PCB-44	ND		63.7	63.75		ug/Kg	☼	100	33 - 150	3	40
PCB-52	ND		63.7	62.31		ug/Kg	☼	98	23 - 159	3	40
PCB-66	ND		63.7	73.61		ug/Kg	☼	115	29 - 166	2	40
PCB-77	ND		63.7	65.87		ug/Kg	☼	103	30 - 166	3	40
PCB-101	ND		63.7	65.80		ug/Kg	☼	103	30 - 159	3	40
PCB-105	ND		63.7	68.58		ug/Kg	☼	108	22 - 173	4	40
PCB-118	ND		63.7	63.76		ug/Kg	☼	100	24 - 162	4	40
PCB-126	ND		63.7	69.28		ug/Kg	☼	109	18 - 180	5	40
PCB-128	ND		63.7	76.22		ug/Kg	☼	120	18 - 180	5	40
PCB-132/153	ND		63.7	68.99		ug/Kg	☼	108	27 - 180	6	40
PCB-138/158	ND		63.7	63.41		ug/Kg	☼	99	18 - 160	3	40
PCB-170	ND		63.7	71.97		ug/Kg	☼	113	25 - 165	7	22
PCB-180	ND		63.7	74.55		ug/Kg	☼	117	20 - 180	3	40
PCB-187	ND		63.7	75.57		ug/Kg	☼	119	14 - 180	2	40
PCB-201	ND		63.7	74.15		ug/Kg	☼	116	17 - 180	5	40
PCB-206	ND		63.7	79.00		ug/Kg	☼	124	16 - 180	7	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*60*		*20 - 139*
p-Terphenyl-d14	*81*		*37 - 165*

Method: 8270D TQ - Pyrethroids - GC/MS/MS

Lab Sample ID: MB 570-167955/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allethrin	ND		0.50	0.46	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Bifenthrin	ND		0.50	0.19	ug/Kg		07/31/21 10:32	08/06/21 19:54	1

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: MB 570-167955/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyfluthrin	ND		0.50	0.23	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Cypermethrin	ND		0.50	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Deltamethrin/Tralomethrin	ND		0.50	0.26	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fenpropathrin	ND		0.50	0.17	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fenvalerate/Esfenvalerate	ND		0.50	0.18	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Fluvalinate	ND		0.50	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Lambda cyhalothrin	ND		0.50	0.33	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Permethrins (cis/trans)	ND		1.0	0.16	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Phenothrin	ND		0.50	0.20	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Resmethrin/Bioresmethrin	ND		0.50	0.23	ug/Kg		07/31/21 10:32	08/06/21 19:54	1
Tetramethrin	ND		0.50	0.10	ug/Kg		07/31/21 10:32	08/06/21 19:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibutylchlorendate	*94*		*14 - 116*	*07/31/21 10:32*	*08/06/21 19:54*	*1*

Lab Sample ID: 570-65784-A-4-U MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin	ND		6.42	5.194		ug/Kg	☼	81	10 - 148
Bifenthrin	ND		6.42	8.020		ug/Kg	☼	125	26 - 128
Cyfluthrin	ND		6.42	8.025		ug/Kg	☼	125	10 - 131
Cypermethrin	ND		6.42	8.724		ug/Kg	☼	136	10 - 136
Deltamethrin/Tralomethrin	ND		6.42	8.546		ug/Kg	☼	133	13 - 190
Fenpropathrin	ND		6.42	8.960		ug/Kg	☼	140	10 - 148
Fenvalerate/Esfenvalerate	ND		6.42	8.477		ug/Kg	☼	132	10 - 149
Fluvalinate	ND		6.42	5.396		ug/Kg	☼	84	10 - 121
Lambda cyhalothrin	ND		6.42	7.359		ug/Kg	☼	115	10 - 123
Permethrins (cis/trans)	ND	F1	6.42	9.129	F1	ug/Kg	☼	142	45 - 123
Phenothrin	ND		6.42	8.829		ug/Kg	☼	138	45 - 165
Resmethrin/Bioresmethrin	ND		6.42	5.453		ug/Kg	☼	85	38 - 164
Tetramethrin	ND		6.42	7.460		ug/Kg	☼	116	15 - 153

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibutylchlorendate	*102*		*14 - 116*

Lab Sample ID: 570-65784-A-4-V MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin	ND		6.37	4.795		ug/Kg	☼	75	10 - 148	8	30
Bifenthrin	ND		6.37	7.695		ug/Kg	☼	121	26 - 128	4	30
Cyfluthrin	ND		6.37	7.035		ug/Kg	☼	111	10 - 131	13	30
Cypermethrin	ND		6.37	7.727		ug/Kg	☼	121	10 - 136	12	30
Deltamethrin/Tralomethrin	ND		6.37	7.480		ug/Kg	☼	118	13 - 190	13	30
Fenpropathrin	ND		6.37	8.009		ug/Kg	☼	126	10 - 148	11	30

Method: 8270D TQ - Pyrethroids - GC/MS/MS (Continued)

Lab Sample ID: 570-65784-A-4-V MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169532 — **Prep Batch: 167955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fenvalerate/Esfenvalerate	ND		6.37	7.449		ug/Kg	☼	117	10 - 149	13	30
Fluvalinate	ND		6.37	4.989		ug/Kg	☼	78	10 - 121	8	30
Lambda cyhalothrin	ND		6.37	7.055		ug/Kg	☼	111	10 - 123	4	30
Permethrins (cis/trans)	ND	F1	6.37	8.140	F1	ug/Kg	☼	128	45 - 123	11	30
Phenothrin	ND		6.37	8.052		ug/Kg	☼	126	45 - 165	9	30
Resmethrin/Bioresmethrin	ND		6.37	4.159		ug/Kg	☼	65	38 - 164	27	30
Tetramethrin	ND		6.37	5.983		ug/Kg	☼	94	15 - 153	22	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibutylchlorendate	*116*		*14 - 116*

Method: 8270D TQ - Pyrethroids - GC/MS/MS - RA

Lab Sample ID: LCS 570-167955/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Allethrin - RA	5.00	3.577		ug/Kg		72	10 - 148
Bifenthrin - RA	5.00	5.113		ug/Kg		102	26 - 128
Cyfluthrin - RA	5.00	4.943		ug/Kg		99	10 - 131
Cypermethrin - RA	5.00	5.419		ug/Kg		108	10 - 136
Deltamethrin/Tralomethrin - RA	5.00	4.817		ug/Kg		96	13 - 190
Fenpropathrin - RA	5.00	5.484		ug/Kg		110	10 - 148
Fenvalerate/Esfenvalerate - RA	5.00	5.278		ug/Kg		106	10 - 149
Fluvalinate - RA	5.00	3.474		ug/Kg		69	10 - 121
Lambda cyhalothrin - RA	5.00	4.543		ug/Kg		91	10 - 123
Permethrins (cis/trans) - RA	5.00	5.633		ug/Kg		113	45 - 123
Phenothrin - RA	5.00	6.437		ug/Kg		129	45 - 165
Resmethrin/Bioresmethrin - RA	5.00	4.044		ug/Kg		81	38 - 164
Tetramethrin - RA	5.00	4.103		ug/Kg		82	15 - 153

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibutylchlorendate - RA	*115*		*14 - 116*

Lab Sample ID: LCSD 570-167955/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Allethrin - RA	5.00	3.797		ug/Kg		76	10 - 148	6	25
Bifenthrin - RA	5.00	5.060		ug/Kg		101	26 - 128	1	25
Cyfluthrin - RA	5.00	4.722		ug/Kg		94	10 - 131	5	25
Cypermethrin - RA	5.00	5.003		ug/Kg		100	10 - 136	8	25
Deltamethrin/Tralomethrin - RA	5.00	4.193		ug/Kg		84	13 - 190	14	25
Fenpropathrin - RA	5.00	5.174		ug/Kg		103	10 - 148	6	25
Fenvalerate/Esfenvalerate - RA	5.00	4.690		ug/Kg		94	10 - 149	12	25
Fluvalinate - RA	5.00	3.024		ug/Kg		60	10 - 121	14	25

Method: 8270D TQ - Pyrethroids - GC/MS/MS - RA (Continued)

Lab Sample ID: LCSD 570-167955/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170003 — **Prep Batch: 167955**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lambda cyhalothrin - RA			5.00	4.626		ug/Kg		93	10 - 123	2	25
Permethrins (cis/trans) - RA			5.00	5.474		ug/Kg		109	45 - 123	3	25
Phenothrin - RA			5.00	6.036		ug/Kg		121	45 - 165	6	25
Resmethrin/Bioresmethrin - RA			5.00	3.954		ug/Kg		79	38 - 164	2	25
Tetramethrin - RA			5.00	4.039		ug/Kg		81	15 - 153	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibutylchlorendate - RA	*107*		*14 - 116*

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-168407/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrabutyltin	ND		3.0	0.74	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Tributyltin	ND		3.0	1.5	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Dibutyltin	ND		3.0	0.73	ug/Kg		08/03/21 09:25	08/04/21 21:56	1
Monobutyltin	ND		3.0	1.4	ug/Kg		08/03/21 09:25	08/04/21 21:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*85*		*10 - 120*	*08/03/21 09:25*	*08/04/21 21:56*	*1*

Lab Sample ID: LCS 570-168407/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrabutyltin			100	103.8		ug/Kg		104	10 - 153		
Tributyltin			100	81.07		ug/Kg		81	10 - 126		
Monobutyltin			100	ND	*-	ug/Kg		0	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*74*		*10 - 120*

Lab Sample ID: LCSD 570-168407/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168750 — **Prep Batch: 168407**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin			100	94.51		ug/Kg		95	10 - 153	9	30
Tributyltin			100	75.78		ug/Kg		76	10 - 126	7	30
Monobutyltin			100	ND	*-	ug/Kg		0	10 - 120	NC	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tripentyltin	*71*		*10 - 120*

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-65784-A-4-AH MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169128 — **Prep Batch: 168407**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrabutyltin	ND		127	158.7		ug/Kg	☼	125	10 - 140
Tributyltin	ND		127	110.2		ug/Kg	☼	87	10 - 135
Monobutyltin	ND	F2 *- F1	127	5.224	F1	ug/Kg	☼	4	10 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tripentyltin	*82*		*10 - 120*

Lab Sample ID: 570-65784-A-4-AI MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169128 — **Prep Batch: 168407**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrabutyltin	ND		128	141.6		ug/Kg	☼	111	10 - 140	11	40
Tributyltin	ND		128	103.0		ug/Kg	☼	81	10 - 135	7	40
Monobutyltin	ND	F2 *- F1	128	3.171	J F2 F1	ug/Kg	☼	2	10 - 125	49	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tripentyltin	*82*		*10 - 120*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-170173/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170310 — **Prep Batch: 170173**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C7 as C7	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C8 as C8	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C9-C10	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C11-C12	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C13-C14	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C15-C16	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C17-C18	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C19-C20	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C21-C22	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C23-C24	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C25-C28	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C29-C32	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C33-C36	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C37-C40	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C41-C44	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1
C6-C44	ND		5.0	3.8	mg/Kg		08/10/21 12:28	08/11/21 00:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*125*		*60 - 138*	*08/10/21 12:28*	*08/11/21 00:14*	*1*

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 570-170173/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170310 — **Prep Batch: 170173**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	485.6		mg/Kg		121	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*107*		*60 - 138*

Lab Sample ID: LCSD 570-170173/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170310 — **Prep Batch: 170173**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	420.0		mg/Kg		105	80 - 130	14	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*100*		*60 - 138*

Lab Sample ID: 440-287113-A-1-A MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170310 — **Prep Batch: 170173**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	ND		403	364.8		mg/Kg		91	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*75*		*60 - 138*

Lab Sample ID: 440-287113-A-1-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170310 — **Prep Batch: 170173**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		392	427.0		mg/Kg		109	43 - 165	16	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*84*		*60 - 138*

Lab Sample ID: MB 570-170189/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170219 — **Prep Batch: 170189**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6 as C6	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C7 as C7	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C8 as C8	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C9-C10	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 570-170189/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170219 — **Prep Batch: 170189**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C11-C12	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C13-C14	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C15-C16	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C17-C18	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C19-C20	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C21-C22	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C23-C24	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C25-C28	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C29-C32	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C33-C36	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C37-C40	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C41-C44	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1
C6-C44	ND		5.0	3.8	mg/Kg		08/10/21 13:10	08/10/21 17:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*92*		*60 - 138*	*08/10/21 13:10*	*08/10/21 17:09*	*1*

Lab Sample ID: LCS 570-170189/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170219 — **Prep Batch: 170189**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	400	411.1		mg/Kg		103	80 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*82*		*60 - 138*

Lab Sample ID: LCSD 570-170189/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170219 — **Prep Batch: 170189**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	400	411.3		mg/Kg		103	80 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*81*		*60 - 138*

Lab Sample ID: 570-65743-A-2-A MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170219 — **Prep Batch: 170189**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	ND		428	459.1		mg/Kg	☼	107	43 - 165

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-65743-A-2-A MS
Matrix: Solid
Analysis Batch: 170219

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 170189

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*91*		*60 - 138*

Lab Sample ID: 570-65743-A-2-B MSD
Matrix: Solid
Analysis Batch: 170219

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 170189

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		433	476.5		mg/Kg	☼	110	43 - 165	4	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*88*		*60 - 138*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-168544/1-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168544

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		1.0	0.064	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
4,4'-DDD	ND		1.0	0.50	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
2,4'-DDE	ND		2.0	0.097	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
4,4'-DDE	ND		1.0	0.071	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
2,4'-DDT	ND		1.0	0.092	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
4,4'-DDT	ND		1.0	0.18	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Aldrin	ND		1.0	0.072	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
alpha-BHC	ND		1.0	0.080	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
beta-BHC	ND		1.0	0.091	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Chlordane	ND		5.0	0.33	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
delta-BHC	ND		1.0	0.064	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Dieldrin	ND		0.20	0.066	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
alpha-Chlordane	ND		1.0	0.046	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan I	ND		1.0	0.049	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan II	ND		1.0	0.23	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endosulfan sulfate	ND		1.0	0.11	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin	ND		1.0	0.088	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
cis-Nonachlor	ND		1.0	0.047	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin aldehyde	ND		1.0	0.49	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Endrin ketone	ND		1.0	0.19	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
gamma-BHC	ND		1.0	0.11	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Heptachlor	ND		1.0	0.060	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Heptachlor epoxide	ND		1.0	0.085	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Methoxychlor	ND		1.0	0.16	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Toxaphene	ND		5.0	1.0	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
gamma-Chlordane	ND		1.0	0.35	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
Oxychlordane	ND		1.0	0.15	ug/Kg		08/03/21 14:57	08/09/21 22:20	1
trans-Nonachlor	ND		1.0	0.037	ug/Kg		08/03/21 14:57	08/09/21 22:20	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 570-168544/1-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 168544

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	74		20 - 131	08/03/21 14:57	08/09/21 22:20	1
DCB Decachlorobiphenyl (Surr)	81		20 - 180	08/03/21 14:57	08/09/21 22:20	1

Lab Sample ID: LCS 570-168544/2-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	5.00	4.115		ug/Kg		82	54 - 150
4,4'-DDE	5.00	3.774		ug/Kg		75	49 - 146
4,4'-DDT	5.00	4.122		ug/Kg		82	52 - 147
Aldrin	5.00	3.484		ug/Kg		70	28 - 116
alpha-BHC	5.00	3.622		ug/Kg		72	44 - 123
beta-BHC	5.00	4.002		ug/Kg		80	48 - 127
delta-BHC	5.00	3.834		ug/Kg		77	10 - 149
Dieldrin	5.00	3.696		ug/Kg		74	48 - 132
alpha-Chlordane	5.00	3.635		ug/Kg		73	48 - 125
Endosulfan I	5.00	3.528		ug/Kg		71	44 - 125
Endosulfan II	5.00	3.663		ug/Kg		73	47 - 136
Endosulfan sulfate	5.00	4.047		ug/Kg		81	46 - 133
Endrin	5.00	3.845		ug/Kg		77	43 - 142
Endrin aldehyde	5.00	4.264		ug/Kg		85	29 - 141
gamma-BHC	5.00	3.686		ug/Kg		74	44 - 126
Heptachlor	5.00	3.583		ug/Kg		72	50 - 123
Heptachlor epoxide	5.00	3.600		ug/Kg		72	49 - 125
Methoxychlor	5.00	4.240		ug/Kg		85	49 - 145
gamma-Chlordane	5.00	3.623		ug/Kg		72	29 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	86		20 - 131
DCB Decachlorobiphenyl (Surr)	89		20 - 180

Lab Sample ID: LCSD 570-168544/3-A
Matrix: Solid
Analysis Batch: 169920

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 168544

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	5.00	3.455		ug/Kg		69	54 - 150	17	29
4,4'-DDE	5.00	3.154		ug/Kg		63	49 - 146	18	28
4,4'-DDT	5.00	3.561		ug/Kg		71	52 - 147	15	32
Aldrin	5.00	2.674		ug/Kg		53	28 - 116	26	30
alpha-BHC	5.00	2.833		ug/Kg		57	44 - 123	24	27
beta-BHC	5.00	3.097		ug/Kg		62	48 - 127	25	28
delta-BHC	5.00	3.115		ug/Kg		62	10 - 149	21	27
Dieldrin	5.00	3.034		ug/Kg		61	48 - 132	20	28
alpha-Chlordane	5.00	3.014		ug/Kg		60	48 - 125	19	27
Endosulfan I	5.00	2.873		ug/Kg		57	44 - 125	20	29
Endosulfan II	5.00	3.123		ug/Kg		62	47 - 136	16	29

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 570-168544/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endosulfan sulfate	5.00	3.536		ug/Kg		71	46 - 133	13	28
Endrin	5.00	3.148		ug/Kg		63	43 - 142	20	27
Endrin aldehyde	5.00	3.877		ug/Kg		78	29 - 141	10	40
gamma-BHC	5.00	2.897		ug/Kg		58	44 - 126	24	28
Heptachlor	5.00	2.794		ug/Kg		56	50 - 123	25	28
Heptachlor epoxide	5.00	2.881		ug/Kg		58	49 - 125	22	28
Methoxychlor	5.00	3.693		ug/Kg		74	49 - 145	14	39
gamma-Chlordane	5.00	2.970		ug/Kg		59	29 - 153	20	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*63*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 180*

Lab Sample ID: 570-65784-A-4-AA MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND	F1	6.37	4.601		ug/Kg	☼	72	17 - 180
4,4'-DDE	ND	F1	6.37	4.242		ug/Kg	☼	67	20 - 180
4,4'-DDT	ND	F1	6.37	4.797		ug/Kg	☼	75	10 - 180
Aldrin	ND	F1	6.37	3.844		ug/Kg	☼	60	27 - 146
alpha-BHC	ND	F1	6.37	4.876		ug/Kg	☼	77	33 - 160
beta-BHC	ND	F1	6.37	4.754		ug/Kg	☼	75	14 - 178
delta-BHC	ND	F1	6.37	4.367		ug/Kg	☼	69	10 - 159
Dieldrin	ND	F1	6.37	4.541		ug/Kg	☼	71	25 - 180
alpha-Chlordane	ND	F1	6.37	4.006		ug/Kg	☼	63	24 - 164
Endosulfan I	ND	F1	6.37	4.087		ug/Kg	☼	64	31 - 146
Endosulfan II	ND	F1	6.37	4.323		ug/Kg	☼	68	14 - 176
Endosulfan sulfate	ND	F1	6.37	4.763		ug/Kg	☼	75	22 - 167
Endrin	ND	F1	6.37	4.443		ug/Kg	☼	70	23 - 174
Endrin aldehyde	ND	F1	6.37	4.388	p	ug/Kg	☼	69	10 - 180
gamma-BHC	ND	F1	6.37	4.098		ug/Kg	☼	64	27 - 160
Heptachlor	ND	F1	6.37	3.867		ug/Kg	☼	61	23 - 144
Heptachlor epoxide	ND	F1	6.37	4.064		ug/Kg	☼	64	25 - 173
Methoxychlor	ND	F1	6.37	5.411		ug/Kg	☼	85	10 - 180
gamma-Chlordane	ND	F1	6.37	4.114		ug/Kg	☼	65	26 - 180

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*55*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*99*		*20 - 180*

Lab Sample ID: 570-65784-A-4-AB MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND	F1	64.2	4.915	F1	ug/Kg	☼	8	17 - 180	7	40

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 570-65784-A-4-AB MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169920 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDE	ND	F1	64.2	4.288	F1	ug/Kg	☼	7	20 - 180	1	40
4,4'-DDT	ND	F1	64.2	5.006	F1	ug/Kg	☼	8	10 - 180	4	40
Aldrin	ND	F1	64.2	3.954	F1	ug/Kg	☼	6	27 - 146	3	40
alpha-BHC	ND	F1	64.2	4.353	F1	ug/Kg	☼	7	33 - 160	11	36
beta-BHC	ND	F1	64.2	5.679	F1	ug/Kg	☼	9	14 - 178	18	40
delta-BHC	ND	F1	64.2	4.760	F1	ug/Kg	☼	7	10 - 159	9	40
Dieldrin	ND	F1	64.2	4.397	F1	ug/Kg	☼	7	25 - 180	3	40
alpha-Chlordane	ND	F1	64.2	4.625	F1	ug/Kg	☼	7	24 - 164	14	40
Endosulfan I	ND	F1	64.2	4.248	F1	ug/Kg	☼	7	31 - 146	4	34
Endosulfan II	ND	F1	64.2	4.301	F1	ug/Kg	☼	7	14 - 176	1	40
Endosulfan sulfate	ND	F1	64.2	4.570	F1	ug/Kg	☼	7	22 - 167	4	40
Endrin	ND	F1	64.2	4.469	F1	ug/Kg	☼	7	23 - 174	1	40
Endrin aldehyde	ND	F1	64.2	4.139	p F1	ug/Kg	☼	6	10 - 180	6	40
gamma-BHC	ND	F1	64.2	5.197	F1	ug/Kg	☼	8	27 - 160	24	40
Heptachlor	ND	F1	64.2	4.088	F1	ug/Kg	☼	6	23 - 144	6	40
Heptachlor epoxide	ND	F1	64.2	4.204	F1	ug/Kg	☼	7	25 - 173	3	40
Methoxychlor	ND	F1	64.2	4.858	F1	ug/Kg	☼	8	10 - 180	11	40
gamma-Chlordane	ND	F1	64.2	5.338	F1	ug/Kg	☼	8	26 - 180	26	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*66*		*20 - 131*
DCB Decachlorobiphenyl (Surr)	*85*		*20 - 180*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-168544/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1221	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1232	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1242	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1248	ND		10	5.5	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1254	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1260	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1262	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1
Aroclor-1268	ND		10	5.0	ug/Kg		08/03/21 14:57	08/06/21 17:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*83*		*20 - 155*	*08/03/21 14:57*	*08/06/21 17:55*	*1*
Tetrachloro-m-xylene (Surr)	*76*		*25 - 126*	*08/03/21 14:57*	*08/06/21 17:55*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 570-168544/4-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			20.0	22.17		ug/Kg		111	50 - 142		
Aroclor-1260			20.0	20.95		ug/Kg		105	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*68*		*25 - 126*

Lab Sample ID: LCSD 570-168544/5-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			20.0	21.32		ug/Kg		107	50 - 142	4	30
Aroclor-1260			20.0	21.25		ug/Kg		106	50 - 150	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*68*		*25 - 126*

Lab Sample ID: 570-65784-A-4-AC MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016	ND		25.6	24.35		ug/Kg	☼	95	20 - 175		
Aroclor-1260	ND		25.6	25.48		ug/Kg	☼	99	20 - 180		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*80*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*64*		*25 - 126*

Lab Sample ID: 570-65784-A-4-AD MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169549 — **Prep Batch: 168544**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016	ND		25.6	23.44		ug/Kg	☼	91	20 - 175	4	40
Aroclor-1260	ND		25.6	24.31		ug/Kg	☼	95	20 - 180	5	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*		*20 - 155*
Tetrachloro-m-xylene (Surr)	*61*	*p*	*25 - 126*

Method: 7199 - Chromium, Hexavalent (IC)

Lab Sample ID: MB 570-168249/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		390	200	ug/Kg		08/02/21 16:42	08/03/21 15:09	10

Lab Sample ID: LCS 570-168249/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	19600	20070		ug/Kg		102	80 - 120

Lab Sample ID: LCSD 570-168249/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	19900	20240		ug/Kg		102	80 - 120	1	20

Lab Sample ID: 570-65784-A-4-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		25700	26010		ug/Kg	☼	101	75 - 125

Lab Sample ID: 570-65784-A-4-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168343 — **Prep Batch: 168249**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		25500	24510		ug/Kg	☼	96	75 - 125	6	25

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-169952/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.01	0.280	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Arsenic	ND		1.01	0.336	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Barium	ND		1.01	0.209	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Beryllium	ND		1.01	0.208	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Cadmium	ND		1.01	0.452	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Chromium	ND		2.01	0.302	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Cobalt	ND		1.01	0.190	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Copper	ND		1.01	0.270	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Lead	ND		1.01	0.216	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Molybdenum	ND		1.01	0.310	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Nickel	ND		1.01	0.271	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Selenium	ND		1.01	0.584	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Silver	ND		1.01	0.333	mg/Kg		08/09/21 14:58	08/10/21 08:41	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-169952/1-A
Matrix: Solid
Analysis Batch: 170125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 169952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.01	0.220	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Vanadium	ND		2.01	0.243	mg/Kg		08/09/21 14:58	08/10/21 08:41	20
Zinc	ND		5.03	4.64	mg/Kg		08/09/21 14:58	08/10/21 08:41	20

Lab Sample ID: LCS 570-169952/2-A ^20
Matrix: Solid
Analysis Batch: 170125

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 169952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.4	22.86		mg/Kg		94	80 - 120
Arsenic	24.4	23.65		mg/Kg		97	80 - 120
Barium	24.4	23.06		mg/Kg		95	80 - 120
Beryllium	24.4	25.25		mg/Kg		104	80 - 120
Cadmium	24.4	24.25		mg/Kg		99	80 - 120
Chromium	24.4	23.09		mg/Kg		95	80 - 120
Cobalt	24.4	22.82		mg/Kg		94	80 - 120
Copper	24.4	24.64		mg/Kg		101	80 - 120
Lead	24.4	23.55		mg/Kg		97	80 - 120
Molybdenum	24.4	23.95		mg/Kg		98	80 - 120
Nickel	24.4	24.31		mg/Kg		100	80 - 120
Selenium	24.4	24.37		mg/Kg		100	80 - 120
Silver	12.2	12.13		mg/Kg		99	80 - 120
Thallium	24.4	23.09		mg/Kg		95	80 - 120
Vanadium	24.4	22.57		mg/Kg		93	80 - 120
Zinc	24.4	25.32		mg/Kg		104	80 - 120

Lab Sample ID: LCSD 570-169952/3-A ^20
Matrix: Solid
Analysis Batch: 170125

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 169952

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	24.9	23.91		mg/Kg		96	80 - 120	4	20
Arsenic	24.9	24.21		mg/Kg		97	80 - 120	2	20
Barium	24.9	23.84		mg/Kg		96	80 - 120	3	20
Beryllium	24.9	26.06		mg/Kg		105	80 - 120	3	20
Cadmium	24.9	25.14		mg/Kg		101	80 - 120	4	20
Chromium	24.9	23.99		mg/Kg		96	80 - 120	4	20
Cobalt	24.9	23.45		mg/Kg		94	80 - 120	3	20
Copper	24.9	25.80		mg/Kg		104	80 - 120	5	20
Lead	24.9	23.92		mg/Kg		96	80 - 120	2	20
Molybdenum	24.9	24.76		mg/Kg		99	80 - 120	3	20
Nickel	24.9	24.47		mg/Kg		98	80 - 120	1	20
Selenium	24.9	23.85		mg/Kg		96	80 - 120	2	20
Silver	12.4	12.47		mg/Kg		100	80 - 120	3	20
Thallium	24.9	23.18		mg/Kg		93	80 - 120	0	20
Vanadium	24.9	22.94		mg/Kg		92	80 - 120	2	20
Zinc	24.9	26.20		mg/Kg		105	80 - 120	3	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-66251-A-1-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND	F1	316	321.9	F1	mg/Kg	☼	102	1 - 97
Arsenic	ND		316	354.7		mg/Kg	☼	112	72 - 132
Barium	202		316	465.6		mg/Kg	☼	83	50 - 152
Beryllium	ND		316	357.1		mg/Kg	☼	113	61 - 121
Cadmium	ND		316	352.3		mg/Kg	☼	111	85 - 121
Chromium	ND		316	338.2		mg/Kg	☼	107	20 - 182
Cobalt	ND		316	331.5		mg/Kg	☼	105	40 - 166
Copper	394		316	594.1		mg/Kg	☼	63	25 - 157
Lead	ND		316	341.9		mg/Kg	☼	108	62 - 134
Molybdenum	ND		317	343.2		mg/Kg	☼	108	69 - 123
Nickel	5.87	J	316	348.1		mg/Kg	☼	108	46 - 154
Selenium	ND		316	354.1		mg/Kg	☼	112	54 - 132
Silver	ND		158	173.4		mg/Kg	☼	110	78 - 126
Thallium	ND		316	321.2		mg/Kg	☼	102	79 - 115
Vanadium	ND		316	324.6		mg/Kg	☼	103	28 - 178
Zinc	319		316	581.0		mg/Kg	☼	83	23 - 173

Lab Sample ID: 570-66251-A-1-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170125 — **Prep Batch: 169952**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND	F1	305	310.2	F1	mg/Kg	☼	102	1 - 97	4	39
Arsenic	ND		305	339.6		mg/Kg	☼	111	72 - 132	4	13
Barium	202		305	447.1		mg/Kg	☼	80	50 - 152	4	41
Beryllium	ND		305	337.5		mg/Kg	☼	111	61 - 121	6	13
Cadmium	ND		305	331.5		mg/Kg	☼	109	85 - 121	6	12
Chromium	ND		305	318.2		mg/Kg	☼	104	20 - 182	6	15
Cobalt	ND		305	321.2		mg/Kg	☼	105	40 - 166	3	14
Copper	394		305	546.6		mg/Kg	☼	50	25 - 157	8	22
Lead	ND		305	318.2		mg/Kg	☼	104	62 - 134	7	23
Molybdenum	ND		306	314.3		mg/Kg	☼	103	69 - 123	9	13
Nickel	5.87	J	305	336.6		mg/Kg	☼	108	46 - 154	3	15
Selenium	ND		305	342.4		mg/Kg	☼	112	54 - 132	3	14
Silver	ND		153	166.8		mg/Kg	☼	109	78 - 126	4	15
Thallium	ND		305	303.2		mg/Kg	☼	99	79 - 115	6	11
Vanadium	ND		305	310.2		mg/Kg	☼	102	28 - 178	5	28
Zinc	319		305	533.4		mg/Kg	☼	70	23 - 173	9	18

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-170175/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0820	0.0133	mg/Kg		08/10/21 12:44	08/11/21 16:25	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-170175/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.8367		mg/Kg		100	85 - 121

Lab Sample ID: LCSD 570-170175/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.794	0.7756		mg/Kg		98	85 - 121	8	10

Lab Sample ID: 570-65784-A-4-AY MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0322	J	1.06	0.9711		mg/Kg	☼	89	71 - 137

Lab Sample ID: 570-65784-A-4-AZ MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170562 — **Prep Batch: 170175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0322	J	1.07	0.9873		mg/Kg	☼	89	71 - 137	2	14

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-168153/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		50.0	30.2	mg/Kg		08/02/21 10:58	08/03/21 17:51	1
SGT-HEM (TRPH)	ND		50.0	13.9	mg/Kg		08/02/21 10:58	08/03/21 17:51	1

Lab Sample ID: LCS 570-168153/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	40.0	36.67	J	mg/Kg		92	78 - 114
SGT-HEM (TRPH)	20.0	20.00	J	mg/Kg		100	64 - 132

Lab Sample ID: LCSD 570-168153/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.33	J	mg/Kg		83	78 - 114	10	18
SGT-HEM (TRPH)	20.0	16.67	J	mg/Kg		83	64 - 132	18	34

Method: 1664A - HEM and SGT-HEM (Continued)

Lab Sample ID: 570-65784-A-4-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM: Oil and Grease	111		51.5	154.4		mg/Kg	☼	84	78 - 114
SGT-HEM (TRPH)	85.4		25.7	107.2		mg/Kg	☼	85	64 - 132

Lab Sample ID: 570-65784-A-4-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168599 — **Prep Batch: 168153**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM: Oil and Grease	111		51.4	158.4		mg/Kg	☼	92	78 - 114	3	18
SGT-HEM (TRPH)	85.4		25.7	107.0		mg/Kg	☼	84	64 - 132	0	34

Method: 376.2 LL - Sulfide

Lab Sample ID: MB 570-168326/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Sulfide	ND		0.200	0.168	mg/Kg		08/03/21 15:00	08/03/21 21:45	1

Lab Sample ID: LCS 570-168326/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Sulfide	0.503	0.5298		mg/Kg		105	72 - 123

Lab Sample ID: LCSD 570-168326/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Sulfide	0.502	0.5207		mg/Kg		104	72 - 123	2	11

Lab Sample ID: 570-65784-A-4-AK DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 168855 — **Prep Batch: 168326**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Sulfide	0.889		0.9493		mg/Kg	☼	7	20

Lab Sample ID: MB 570-168327/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Dissolved	ND		0.100	0.0840	mg/Kg			08/03/21 22:00	1

Method: 376.2 LL - Sulfide (Continued)

Lab Sample ID: LCS 570-168327/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Dissolved			0.501	0.5085		mg/Kg		101	72 - 123		

Lab Sample ID: LCSD 570-168327/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Dissolved			0.501	0.5063		mg/Kg		101	72 - 123	0	11

Lab Sample ID: 570-65784-A-4-AL DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 168855

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Dissolved	ND			ND		mg/Kg				NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 570-166884/91 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon, Total Organic	ND		0.0500	0.0174	%			07/29/21 14:45	1

Lab Sample ID: LCS 570-166884/92 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic			3.00	3.080		%		103	80 - 120		

Lab Sample ID: LCSD 570-166884/93 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic			3.00	2.911		%		97	80 - 120	6	20

Lab Sample ID: 570-65390-A-1-A MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon, Total Organic	1.53		6.09	7.223		%	☼	93	75 - 125		

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 570-65390-A-1-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166884

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon, Total Organic	1.53		6.14	7.396		%	☼	96	75 - 125	2	25

Method: Moisture - Percent Moisture

Lab Sample ID: 580-104759-A-45 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 167804

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	94.2			94.3		%				0	10

Method: SM4500 NH3 C LL - Ammonia

Lab Sample ID: MB 570-169671/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.250	0.138	mg/Kg		08/07/21 16:00	08/07/21 17:40	1

Lab Sample ID: LCS 570-169671/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			12.5	10.50		mg/Kg		84	80 - 120		

Lab Sample ID: LCSD 570-169671/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			12.5	12.60		mg/Kg		101	80 - 120	18	20

Lab Sample ID: 570-65784-A-4-BB MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	1.68		16.1	13.68		mg/Kg	☼	75	75 - 125		

Lab Sample ID: 570-65784-A-4-BC MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 169680 — **Prep Batch: 169671**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	1.68		16.1	16.12		mg/Kg	☼	90	75 - 125	16	25

Method: SM4500 NH3 C LL - Ammonia (Continued)

Lab Sample ID: MB 570-170186/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170199 — **Prep Batch: 170186**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.250	0.138	mg/Kg		08/10/21 18:45	08/10/21 20:10	1

Lab Sample ID: LCS 570-170186/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170199 — **Prep Batch: 170186**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)			12.5	11.45		mg/Kg		92	80 - 120		

Lab Sample ID: LCSD 570-170186/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170199 — **Prep Batch: 170186**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)			12.5	12.52		mg/Kg		100	80 - 120	9	20

Lab Sample ID: 570-65842-A-17-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170199 — **Prep Batch: 170186**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia (as N)	13.0	F1 H	24.7	19.25	F1 H	mg/Kg	☼	25	75 - 125		

Lab Sample ID: 570-65842-A-12-G DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170199 — **Prep Batch: 170186**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia (as N)	18.9	H		17.89	H	mg/Kg	☼			6	25

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCS 570-168540/2-A
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
2,4,5-Trichlorophenol	1000	585.7		ug/Kg	59	40 - 160	20 - 180	
2,4,6-Trichlorophenol	1000	585.3		ug/Kg	59	40 - 160	20 - 180	
2,4-Dichlorophenol	1000	523.5		ug/Kg	52	40 - 160	20 - 180	
2,4-Dimethylphenol	1000	574.9		ug/Kg	57	40 - 160	20 - 180	
2,4-Dinitrophenol	1000	185.3	J *-	ug/Kg	19	40 - 160	20 - 180	X
2-Chlorophenol	1000	639.4		ug/Kg	64	40 - 160	20 - 180	
2-Methylphenol	1000	712.3		ug/Kg	71	40 - 160	20 - 180	
2-Nitrophenol	1000	499.7	J	ug/Kg	50	40 - 160	20 - 180	
3/4-Methylphenol	2000	1215		ug/Kg	61	40 - 160	20 - 180	
4,6-Dinitro-2-methylphenol	1000	359.0	J *- me	ug/Kg	36	40 - 160	20 - 180	ME
4-Chloro-3-methylphenol	1000	597.5		ug/Kg	60	40 - 160	20 - 180	
Acenaphthene	1000	647.2		ug/Kg	65	48 - 108	38 - 118	
Benzo[a]pyrene	1000	872.5		ug/Kg	87	17 - 163	1 - 187	
Bis(2-ethylhexyl) phthalate	1000	836.9		ug/Kg	84	40 - 160	20 - 180	
Butyl benzyl phthalate	1000	774.7		ug/Kg	77	40 - 160	20 - 180	
Chrysene	1000	699.1		ug/Kg	70	17 - 168	1 - 193	
Diethyl phthalate	1000	704.6		ug/Kg	70	40 - 160	20 - 180	
Dimethyl phthalate	1000	655.6		ug/Kg	66	40 - 160	20 - 180	
Di-n-butyl phthalate	1000	706.6		ug/Kg	71	40 - 160	20 - 180	
Di-n-octyl phthalate	1000	797.0		ug/Kg	80	40 - 160	20 - 180	
Fluoranthene	1000	689.4		ug/Kg	69	26 - 137	8 - 156	
Fluorene	1000	692.7		ug/Kg	69	59 - 121	49 - 131	
Naphthalene	1000	538.5		ug/Kg	54	21 - 133	2 - 152	
Pentachlorophenol	1000	101.9	J *-	ug/Kg	10	40 - 160	20 - 180	X
Phenanthrene	1000	721.8		ug/Kg	72	54 - 120	43 - 131	
Pyrene	1000	723.0		ug/Kg	72	28 - 106	15 - 119	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
26	1	1

ME = Marginal Exceedance
X = % Recovery is greater than widest possible limit

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
2,4,5-Trichlorophenol	1000	542.4		ug/Kg	54	40 - 160	20 - 180	
2,4,6-Trichlorophenol	1000	548.9		ug/Kg	55	40 - 160	20 - 180	
2,4-Dichlorophenol	1000	486.2		ug/Kg	49	40 - 160	20 - 180	
2,4-Dimethylphenol	1000	572.2		ug/Kg	57	40 - 160	20 - 180	
2,4-Dinitrophenol	1000	158.2	J *-	ug/Kg	16	40 - 160	20 - 180	X
2-Chlorophenol	1000	596.9		ug/Kg	60	40 - 160	20 - 180	
2-Methylphenol	1000	710.1		ug/Kg	71	40 - 160	20 - 180	
2-Nitrophenol	1000	508.9		ug/Kg	51	40 - 160	20 - 180	
3/4-Methylphenol	2000	1191		ug/Kg	60	40 - 160	20 - 180	
4,6-Dinitro-2-methylphenol	1000	292.2	J *- me *1	ug/Kg	29	40 - 160	20 - 180	ME
4-Chloro-3-methylphenol	1000	553.9		ug/Kg	55	40 - 160	20 - 180	
Acenaphthene	1000	620.3		ug/Kg	62	48 - 108	38 - 118	

Marginal Exceedance (ME) Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 570-168540/3-A
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Benzo[a]pyrene	1000	813.5		ug/Kg	81	17 - 163	1 - 187	
Bis(2-ethylhexyl) phthalate	1000	775.2		ug/Kg	78	40 - 160	20 - 180	
Butyl benzyl phthalate	1000	701.9		ug/Kg	70	40 - 160	20 - 180	
Chrysene	1000	660.6		ug/Kg	66	17 - 168	1 - 193	
Diethyl phthalate	1000	655.9		ug/Kg	66	40 - 160	20 - 180	
Dimethyl phthalate	1000	603.5		ug/Kg	60	40 - 160	20 - 180	
Di-n-butyl phthalate	1000	672.5		ug/Kg	67	40 - 160	20 - 180	
Di-n-octyl phthalate	1000	727.5		ug/Kg	73	40 - 160	20 - 180	
Fluoranthene	1000	611.8		ug/Kg	61	26 - 137	8 - 156	
Fluorene	1000	659.7		ug/Kg	66	59 - 121	49 - 131	
Naphthalene	1000	537.4		ug/Kg	54	21 - 133	2 - 152	
Pentachlorophenol	1000	102.1	J *-	ug/Kg	10	40 - 160	20 - 180	X
Phenanthrene	1000	684.8		ug/Kg	68	54 - 120	43 - 131	
Pyrene	1000	677.5		ug/Kg	68	28 - 106	15 - 119	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
26	1	1

ME = Marginal Exceedance
X = % Recovery is greater than widest possible limit

GC/MS Semi VOA

Prep Batch: 167954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3541	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3541	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3541	168096
MB 570-167954/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-167954/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-167954/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-A-4-R MS	Matrix Spike	Total/NA	Solid	3541	168103
570-65784-A-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	168103

Prep Batch: 167955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3541	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3541	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3541	168096
MB 570-167955/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-167955/2-A - RA	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-A-4-U MS	Matrix Spike	Total/NA	Solid	3541	168103
570-65784-A-4-V MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	168103

Cleanup Batch: 168096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-R MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-U MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-V MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-X MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-Y MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 168407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Organotin Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Organotin Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Organotin Prep	
MB 570-168407/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-168407/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-168407/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-65784-A-4-AH MS	Matrix Spike	Total/NA	Solid	Organotin Prep	

GC/MS Semi VOA (Continued)

Prep Batch: 168407 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-AI MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotin Prep	

Prep Batch: 168540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3541	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3541	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3541	168096
MB 570-168540/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-168540/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-168540/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-A-4-X MS	Matrix Spike	Total/NA	Solid	3541	168103
570-65784-A-4-Y MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	168103

Analysis Batch: 168750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-168407/1-A	Method Blank	Total/NA	Solid	Organotins SIM	168407
LCS 570-168407/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	168407
LCSD 570-168407/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	168407

Analysis Batch: 169128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Organotins SIM	168407
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Organotins SIM	168407
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Organotins SIM	168407
570-65784-A-4-AH MS	Matrix Spike	Total/NA	Solid	Organotins SIM	168407
570-65784-A-4-AI MSD	Matrix Spike Duplicate	Total/NA	Solid	Organotins SIM	168407

Analysis Batch: 169444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8270C SIM CON	167954
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8270C SIM CON	167954
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8270C SIM CON	167954
MB 570-167954/1-A	Method Blank	Total/NA	Solid	8270C SIM CON	167954
LCS 570-167954/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM CON	167954
LCSD 570-167954/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM CON	167954
570-65784-A-4-R MS	Matrix Spike	Total/NA	Solid	8270C SIM CON	167954
570-65784-A-4-S MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM CON	167954

Analysis Batch: 169532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8270D TQ	167955
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8270D TQ	167955
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8270D TQ	167955
MB 570-167955/1-A	Method Blank	Total/NA	Solid	8270D TQ	167955
570-65784-A-4-U MS	Matrix Spike	Total/NA	Solid	8270D TQ	167955
570-65784-A-4-V MSD	Matrix Spike Duplicate	Total/NA	Solid	8270D TQ	167955

Analysis Batch: 169973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8270C SIM	168540
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8270C SIM	168540

GC/MS Semi VOA (Continued)

Analysis Batch: 169973 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-168540/1-A	Method Blank	Total/NA	Solid	8270C SIM	168540
570-65784-A-4-X MS	Matrix Spike	Total/NA	Solid	8270C SIM	168540
570-65784-A-4-Y MSD	Matrix Spike Duplicate	Total/NA	Solid	8270C SIM	168540

Analysis Batch: 170003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-167955/2-A - RA	Lab Control Sample	Total/NA	Solid	8270D TQ	167955
LCSD 570-167955/3-A - RA	Lab Control Sample Dup	Total/NA	Solid	8270D TQ	167955

Analysis Batch: 170495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8270C SIM	168540

Analysis Batch: 170767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-168540/2-A	Lab Control Sample	Total/NA	Solid	8270C SIM	168540
LCSD 570-168540/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C SIM	168540

GC Semi VOA

Cleanup Batch: 168096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-AA MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AB MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AC MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AD MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 168544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3541	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3541	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3541	168096
MB 570-168544/1-A	Method Blank	Total/NA	Solid	3541	
LCS 570-168544/2-A	Lab Control Sample	Total/NA	Solid	3541	
LCS 570-168544/4-A	Lab Control Sample	Total/NA	Solid	3541	
LCSD 570-168544/3-A	Lab Control Sample Dup	Total/NA	Solid	3541	
LCSD 570-168544/5-A	Lab Control Sample Dup	Total/NA	Solid	3541	
570-65784-A-4-AA MS	Matrix Spike	Total/NA	Solid	3541	168103
570-65784-A-4-AB MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	168103
570-65784-A-4-AC MS	Matrix Spike	Total/NA	Solid	3541	168103

GC Semi VOA (Continued)

Prep Batch: 168544 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-AD MSD	Matrix Spike Duplicate	Total/NA	Solid	3541	168103

Analysis Batch: 169549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8082	168544
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8082	168544
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8082	168544
MB 570-168544/1-A	Method Blank	Total/NA	Solid	8082	168544
LCS 570-168544/4-A	Lab Control Sample	Total/NA	Solid	8082	168544
LCSD 570-168544/5-A	Lab Control Sample Dup	Total/NA	Solid	8082	168544
570-65784-A-4-AC MS	Matrix Spike	Total/NA	Solid	8082	168544
570-65784-A-4-AD MSD	Matrix Spike Duplicate	Total/NA	Solid	8082	168544

Analysis Batch: 169920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8081A	168544
MB 570-168544/1-A	Method Blank	Total/NA	Solid	8081A	168544
LCS 570-168544/2-A	Lab Control Sample	Total/NA	Solid	8081A	168544
LCSD 570-168544/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	168544
570-65784-A-4-AA MS	Matrix Spike	Total/NA	Solid	8081A	168544
570-65784-A-4-AB MSD	Matrix Spike Duplicate	Total/NA	Solid	8081A	168544

Prep Batch: 170173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3550C	168096
MB 570-170173/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-170173/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-170173/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
440-287113-A-1-A MS	Matrix Spike	Total/NA	Solid	3550C	
440-287113-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Prep Batch: 170189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3550C	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3550C	168096
MB 570-170189/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-170189/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-170189/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-65743-A-2-A MS	Matrix Spike	Total/NA	Solid	3550C	
570-65743-A-2-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	

Analysis Batch: 170219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	8015B	170189
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8015B	170189
MB 570-170189/1-A	Method Blank	Total/NA	Solid	8015B	170189
LCS 570-170189/2-A	Lab Control Sample	Total/NA	Solid	8015B	170189
LCSD 570-170189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	170189
570-65743-A-2-A MS	Matrix Spike	Total/NA	Solid	8015B	170189
570-65743-A-2-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	170189

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

GC Semi VOA

Analysis Batch: 170251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	8081A	168544
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8081A	168544

Analysis Batch: 170310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	8015B	170173
MB 570-170173/1-A	Method Blank	Total/NA	Solid	8015B	170173
LCS 570-170173/2-A	Lab Control Sample	Total/NA	Solid	8015B	170173
LCSD 570-170173/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	170173
440-287113-A-1-A MS	Matrix Spike	Total/NA	Solid	8015B	170173
440-287113-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	170173

HPLC/IC

Cleanup Batch: 168096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-H MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 168249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3060A	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3060A	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3060A	168096
MB 570-168249/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 570-168249/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSD 570-168249/3-A	Lab Control Sample Dup	Total/NA	Solid	3060A	
570-65784-A-4-H MS	Matrix Spike	Total/NA	Solid	3060A	168103
570-65784-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3060A	168103

Analysis Batch: 168343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	7199	168249
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	7199	168249
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	7199	168249
MB 570-168249/1-A	Method Blank	Total/NA	Solid	7199	168249
LCS 570-168249/2-A	Lab Control Sample	Total/NA	Solid	7199	168249
LCSD 570-168249/3-A	Lab Control Sample Dup	Total/NA	Solid	7199	168249
570-65784-A-4-H MS	Matrix Spike	Total/NA	Solid	7199	168249
570-65784-A-4-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7199	168249

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Metals

Cleanup Batch: 168096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-AY MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AZ MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 169952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	3050B	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	3050B	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	3050B	168096
MB 570-169952/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 570-169952/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-169952/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-66251-A-1-H MS	Matrix Spike	Total/NA	Solid	3050B	
570-66251-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Analysis Batch: 170125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	6020	169952
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	6020	169952
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	6020	169952
MB 570-169952/1-A	Method Blank	Total/NA	Solid	6020	169952
LCS 570-169952/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	169952
LCSD 570-169952/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	169952
570-66251-A-1-H MS	Matrix Spike	Total/NA	Solid	6020	169952
570-66251-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	6020	169952

Prep Batch: 170175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	7471A	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	7471A	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	7471A	168096
MB 570-170175/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-170175/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-170175/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-65784-A-4-AY MS	Matrix Spike	Total/NA	Solid	7471A	168103
570-65784-A-4-AZ MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	168103

Analysis Batch: 170562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	7471A	170175
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	7471A	170175
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	7471A	170175

Metals (Continued)

Analysis Batch: 170562 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-170175/1-A	Method Blank	Total/NA	Solid	7471A	170175
LCS 570-170175/2-A	Lab Control Sample	Total/NA	Solid	7471A	170175
LCSD 570-170175/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	170175
570-65784-A-4-AY MS	Matrix Spike	Total/NA	Solid	7471A	170175
570-65784-A-4-AZ MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	170175

General Chemistry

Cleanup Batch: 166820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65390-A-1-A MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65390-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 166884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	9060A	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	9060A	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	9060A	168096
MB 570-166884/91	Method Blank	Total/NA	Solid	9060A	
LCS 570-166884/92	Lab Control Sample	Total/NA	Solid	9060A	
LCSD 570-166884/93	Lab Control Sample Dup	Total/NA	Solid	9060A	
570-65390-A-1-A MS	Matrix Spike	Total/NA	Solid	9060A	166820
570-65390-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	9060A	166820

Analysis Batch: 167804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Moisture	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Moisture	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Moisture	
580-104759-A-45 DU	Duplicate	Total/NA	Solid	Moisture	

Cleanup Batch: 168096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Soluble	Sediment	Homogenize Prep	
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Soluble	Sediment	Homogenize Prep	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Soluble	Sediment	Homogenize Prep	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	Homogenize Prep	

Cleanup Batch: 168103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-BB MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-BC MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

General Chemistry (Continued)

Cleanup Batch: 168103 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65784-A-4-D MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	Homogenize Prep	

Prep Batch: 168153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	1664A	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	1664A	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	1664A	168096
MB 570-168153/1-A	Method Blank	Total/NA	Solid	1664A	
LCS 570-168153/2-A	Lab Control Sample	Total/NA	Solid	1664A	
LCSD 570-168153/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	
570-65784-A-4-D MS	Matrix Spike	Total/NA	Solid	1664A	168103
570-65784-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	168103

Prep Batch: 168326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	9030B	168096
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	9030B	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	9030B	168096
MB 570-168326/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 570-168326/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 570-168326/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
570-65784-A-4-AK DU	Duplicate	Total/NA	Solid	9030B	168495

Leach Batch: 168327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Soluble	Sediment	DI Leach	168096
570-65782-2	FDD-Younger Paralic Deposits	Soluble	Sediment	DI Leach	168096
570-65782-3	FDD-Older Paralic Deposits	Soluble	Sediment	DI Leach	168096
MB 570-168327/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 570-168327/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 570-168327/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
570-65784-A-4-AL DU	Duplicate	Soluble	Solid	DI Leach	168495

Cleanup Batch: 168495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65842-A-17-G MS	Matrix Spike	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AK DU	Duplicate	Total/NA	Solid	Homogenize Prep	
570-65784-A-4-AL DU	Duplicate	Soluble	Solid	Homogenize Prep	
570-65842-A-12-G DU	Duplicate	Total/NA	Solid	Homogenize Prep	

Analysis Batch: 168599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	1664A	168153
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	1664A	168153
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	1664A	168153
MB 570-168153/1-A	Method Blank	Total/NA	Solid	1664A	168153

General Chemistry (Continued)

Analysis Batch: 168599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-168153/2-A	Lab Control Sample	Total/NA	Solid	1664A	168153
LCSD 570-168153/3-A	Lab Control Sample Dup	Total/NA	Solid	1664A	168153
570-65784-A-4-D MS	Matrix Spike	Total/NA	Solid	1664A	168153
570-65784-A-4-E MSD	Matrix Spike Duplicate	Total/NA	Solid	1664A	168153

Analysis Batch: 168855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Soluble	Sediment	376.2 LL	168327
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	376.2 LL	168326
570-65782-2	FDD-Younger Paralic Deposits	Soluble	Sediment	376.2 LL	168327
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	376.2 LL	168326
570-65782-3	FDD-Older Paralic Deposits	Soluble	Sediment	376.2 LL	168327
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	376.2 LL	168326
MB 570-168326/1-A	Method Blank	Total/NA	Solid	376.2 LL	168326
MB 570-168327/1-A	Method Blank	Soluble	Solid	376.2 LL	168327
LCS 570-168326/2-A	Lab Control Sample	Total/NA	Solid	376.2 LL	168326
LCS 570-168327/2-A	Lab Control Sample	Soluble	Solid	376.2 LL	168327
LCSD 570-168326/3-A	Lab Control Sample Dup	Total/NA	Solid	376.2 LL	168326
LCSD 570-168327/3-A	Lab Control Sample Dup	Soluble	Solid	376.2 LL	168327
570-65784-A-4-AK DU	Duplicate	Total/NA	Solid	376.2 LL	168326
570-65784-A-4-AL DU	Duplicate	Soluble	Solid	376.2 LL	168327

Prep Batch: 169671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	SM4500 NH3 B LL	168096
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	SM4500 NH3 B LL	168096
MB 570-169671/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-169671/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-169671/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-65784-A-4-BB MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	168103
570-65784-A-4-BC MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 B LL	168103

Analysis Batch: 169680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	SM4500 NH3 C LL	169671
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	SM4500 NH3 C LL	169671
MB 570-169671/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	169671
LCS 570-169671/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	169671
LCSD 570-169671/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	169671
570-65784-A-4-BB MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	169671
570-65784-A-4-BC MSD	Matrix Spike Duplicate	Total/NA	Solid	SM4500 NH3 C LL	169671

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

General Chemistry

Prep Batch: 170186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	SM4500 NH3 B LL	168096
MB 570-170186/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 B LL	
LCS 570-170186/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 B LL	
LCSD 570-170186/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 B LL	
570-65842-A-17-G MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 B LL	168495
570-65842-A-12-G DU	Duplicate	Total/NA	Solid	SM4500 NH3 B LL	168495

Analysis Batch: 170199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	SM4500 NH3 C LL	170186
MB 570-170186/1-A	Method Blank	Total/NA	Solid	SM4500 NH3 C LL	170186
LCS 570-170186/2-A	Lab Control Sample	Total/NA	Solid	SM4500 NH3 C LL	170186
LCSD 570-170186/3-A	Lab Control Sample Dup	Total/NA	Solid	SM4500 NH3 C LL	170186
570-65842-A-17-G MS	Matrix Spike	Total/NA	Solid	SM4500 NH3 C LL	170186
570-65842-A-12-G DU	Duplicate	Total/NA	Solid	SM4500 NH3 C LL	170186

Analysis Batch: 170573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	7199 CR3	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	7199 CR3	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	7199 CR3	

Geotechnical

Analysis Batch: 170575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-65782-1	FDD-Bay Deposits	Total/NA	Sediment	D4464	
570-65782-2	FDD-Younger Paralic Deposits	Total/NA	Sediment	D4464	
570-65782-3	FDD-Older Paralic Deposits	Total/NA	Sediment	D4464	

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Client Sample ID: FDD-Bay Deposits

Date Collected: 07/28/21 11:30
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.18 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 02:30	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.01 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 17:36	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.06 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 02:02	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.10 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 18:15	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3550C			3.93 g	10 mL	170189	08/10/21 13:10	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			170219	08/10/21 21:22	A1W	ECL 1
	Instrument ID:	GC50								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.23 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			169920	08/10/21 14:30	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.23 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 19:09	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 20:04	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3050B			1.94 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:06	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	7471A			.59 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:54	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	1664A			30.60 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Client Sample ID: FDD-Bay Deposits

Lab Sample ID: 570-65782-1
Date Collected: 07/28/21 11:30
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Soluble	Leach	DI Leach			20.09 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:08	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	9030B			20.35 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		10	7.5 mL	7.5 mL	168855	08/03/21 21:53	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Analysis	9060A		1	203.6 mg	203.6 mg	166884	07/30/21 17:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			26.60 g	200 mL	170186	08/10/21 18:45	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	170199	08/10/21 20:10	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			170575	08/11/21 14:41	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Client Sample ID: FDD-Younger Paralic Deposits

Lab Sample ID: 570-65782-2
Date Collected: 07/28/21 11:45
Matrix: Sediment
Date Received: 07/29/21 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			170495	08/11/21 17:10	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.03 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 18:01	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.06 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 02:39	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.00 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 18:33	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3550C			9.55 g	10 mL	170189	08/10/21 13:10	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			170219	08/10/21 21:42	A1W	ECL 1
	Instrument ID:	GC50								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Client Sample ID: FDD-Younger Paralic Deposits

Date Collected: 07/28/21 11:45
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-2

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			170251	08/10/21 20:44	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.15 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 19:27	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3060A			2.53 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 20:15	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3050B			1.99 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:09	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	7471A			.61 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:56	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	1664A			30.18 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								
Soluble	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Soluble	Leach	DI Leach			19.94 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:09	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	9030B			20.20 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		2	7.5 mL	7.5 mL	168855	08/03/21 21:54	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Analysis	9060A		1	203.4 mg	203.4 mg	166884	07/30/21 17:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			170575	08/11/21 14:48	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Client Sample ID: FDD-Older Paralic Deposits

Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Lab Sample ID: 570-65782-3

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.01 g	2 mL	168540	08/03/21 14:49	UM1W	ECL 1
Total/NA	Analysis	8270C SIM		1			169973	08/10/21 03:08	ULLI	ECL 1
	Instrument ID:	GCMSEEE								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.13 g	2 mL	167954	08/03/21 13:31	UM1W	ECL 1
Total/NA	Analysis	8270C SIM CON		1			169444	08/06/21 18:25	AJ2Q	ECL 1
	Instrument ID:	GCMSHHH								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.09 g	2 mL	167955	08/03/21 14:43	UM1W	ECL 1
Total/NA	Analysis	8270D TQ		1			169532	08/07/21 03:16	URMH	ECL 1
	Instrument ID:	GCTQ1								
Total/NA	Prep	Organotin Prep			10.14 g	5 mL	168407	08/03/21 09:25	UWEZ	ECL 1
Total/NA	Analysis	Organotins SIM		1			169128	08/05/21 18:51	AJ2Q	ECL 1
	Instrument ID:	GCMSY								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3550C			10.75 g	10 mL	170173	08/10/21 16:14	N5Y3	ECL 1
Total/NA	Analysis	8015B		1			170310	08/11/21 14:35	A1W	ECL 1
	Instrument ID:	GC48								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.20 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8081A		1			170251	08/10/21 20:58	UHHN	ECL 1
	Instrument ID:	GC44								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3541			20.20 g	2 mL	168544	08/03/21 14:57	UM1W	ECL 1
Total/NA	Analysis	8082		1			169549	08/06/21 18:50	UHHN	ECL 1
	Instrument ID:	GC66								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3060A			2.50 g	100 mL	168249	08/02/21 18:46	IX3Z	ECL 1
Total/NA	Analysis	7199		10			168343	08/03/21 20:26	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	3050B			1.97 g	100 mL	169952	08/10/21 10:00	WL8G	ECL 1
Total/NA	Analysis	6020		20			170125	08/10/21 18:13	UFLE	ECL 1
	Instrument ID:	ICPMS05								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	7471A			.60 g	100 mL	170175	08/10/21 12:44	WL8G	ECL 1
Total/NA	Analysis	7471A		1			170562	08/11/21 16:58	VWJ7	ECL 1
	Instrument ID:	HG7								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	1664A			30.02 g	30 g	168153	08/02/21 10:58	F7UI	ECL 1
Total/NA	Analysis	1664A		1			168599	08/03/21 17:51	L6IE	ECL 1
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Client Sample ID: FDD-Older Paralic Deposits

Lab Sample ID: 570-65782-3

Date Collected: 07/28/21 12:00
Date Received: 07/29/21 19:25

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Soluble	Leach	DI Leach			19.99 g	20 mL	168327	08/03/21 15:00	CY2M	ECL 1
Soluble	Analysis	376.2 LL		1	7.5 mL	7.5 mL	168855	08/03/21 22:10	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	9030B			20.25 g	20 mL	168326	08/03/21 15:00	CY2M	ECL 1
Total/NA	Analysis	376.2 LL		2	7.5 mL	7.5 mL	168855	08/03/21 21:55	CY2M	ECL 1
	Instrument ID:	UV8								
Total/NA	Analysis	7199 CR3		1			170573	08/11/21 15:36	URMH	ECL 1
	Instrument ID:	IC17								
Total/NA	Analysis	9060A		1	204.6 mg	204.6 mg	166884	07/30/21 17:32	CY2M	ECL 1
	Instrument ID:	TOC9								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Analysis	Moisture		1			167804	07/30/21 15:03	ULIN	ECL 1
	Instrument ID:	BAL87								
Total/NA	Cleanup	Homogenize Prep					168096	08/02/21 09:20	C4LT	ECL 1
Total/NA	Prep	SM4500 NH3 B LL			200 mL	200 mL	169671	08/07/21 16:00	ZE7V	ECL 1
Total/NA	Analysis	SM4500 NH3 C LL		1	200 mL	200 mL	169680	08/07/21 17:40	ZE7V	ECL 1
	Instrument ID:	NOEQUIP								
Total/NA	Analysis	D4464		1			170575	08/11/21 14:55	C4LT	ECL 1
	Instrument ID:	NOEQUIP								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Laboratory: Eurofins Calscience LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2944	09-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1664A	1664A	Sediment	HEM: Oil and Grease
1664A	1664A	Sediment	SGT-HEM (TRPH)
376.2 LL		Sediment	Sulfide, Dissolved
376.2 LL	9030B	Sediment	Total Sulfide
7199 CR3		Sediment	Trivalent Chromium
8270C SIM CON	3541	Sediment	PCB-101
8270C SIM CON	3541	Sediment	PCB-105
8270C SIM CON	3541	Sediment	PCB-110
8270C SIM CON	3541	Sediment	PCB-114
8270C SIM CON	3541	Sediment	PCB-118
8270C SIM CON	3541	Sediment	PCB-119
8270C SIM CON	3541	Sediment	PCB-123
8270C SIM CON	3541	Sediment	PCB-126
8270C SIM CON	3541	Sediment	PCB-128
8270C SIM CON	3541	Sediment	PCB-132/153
8270C SIM CON	3541	Sediment	PCB-138/158
8270C SIM CON	3541	Sediment	PCB-149
8270C SIM CON	3541	Sediment	PCB-151
8270C SIM CON	3541	Sediment	PCB-156
8270C SIM CON	3541	Sediment	PCB-157
8270C SIM CON	3541	Sediment	PCB-167
8270C SIM CON	3541	Sediment	PCB-168
8270C SIM CON	3541	Sediment	PCB-169
8270C SIM CON	3541	Sediment	PCB-170
8270C SIM CON	3541	Sediment	PCB-177
8270C SIM CON	3541	Sediment	PCB-18
8270C SIM CON	3541	Sediment	PCB-180
8270C SIM CON	3541	Sediment	PCB-183
8270C SIM CON	3541	Sediment	PCB-187
8270C SIM CON	3541	Sediment	PCB-189
8270C SIM CON	3541	Sediment	PCB-194
8270C SIM CON	3541	Sediment	PCB-201
8270C SIM CON	3541	Sediment	PCB-206
8270C SIM CON	3541	Sediment	PCB-28
8270C SIM CON	3541	Sediment	PCB-37
8270C SIM CON	3541	Sediment	PCB-44
8270C SIM CON	3541	Sediment	PCB-49
8270C SIM CON	3541	Sediment	PCB-52
8270C SIM CON	3541	Sediment	PCB-66
8270C SIM CON	3541	Sediment	PCB-70
8270C SIM CON	3541	Sediment	PCB-74
8270C SIM CON	3541	Sediment	PCB-77
8270C SIM CON	3541	Sediment	PCB-81
8270C SIM CON	3541	Sediment	PCB-87
8270C SIM CON	3541	Sediment	PCB-99

Laboratory: Eurofins Calscience LLC (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270C SIM CON	3541	Sediment	Polychlorinated biphenyls, Total
8270D TQ	3541	Sediment	Allethrin
8270D TQ	3541	Sediment	Bifenthrin
8270D TQ	3541	Sediment	Cyfluthrin
8270D TQ	3541	Sediment	Cypermethrin
8270D TQ	3541	Sediment	Deltamethrin/Tralomethrin
8270D TQ	3541	Sediment	Fenpropathrin
8270D TQ	3541	Sediment	Fenvalerate/Esfenvalerate
8270D TQ	3541	Sediment	Fluvalinate
8270D TQ	3541	Sediment	Lambda cyhalothrin
8270D TQ	3541	Sediment	Permethrins (cis/trans)
8270D TQ	3541	Sediment	Phenothrin
8270D TQ	3541	Sediment	Resmethrin/Bioresmethrin
8270D TQ	3541	Sediment	Tetramethrin
9060A		Sediment	Carbon, Total Organic
D4464		Sediment	Clay (less than 0.00391 mm)
D4464		Sediment	Coarse Sand (0.5mm to 1mm)
D4464		Sediment	Fine Sand (0.125 to 0.25mm)
D4464		Sediment	Gravel (greater than 2 mm)
D4464		Sediment	Medium Sand (0.25 to 0.5 mm)
D4464		Sediment	Silt (0.00391 to 0.0625mm)
D4464		Sediment	Total Silt and Clay (0 to 0.0626mm)
D4464		Sediment	Very Coarse Sand (1 to 2mm)
D4464		Sediment	Very Fine Sand (0.0625 to 0.125 mm)
Moisture		Sediment	Percent Solids
Organotins SIM	Organotin Prep	Sediment	Dibutyltin
Organotins SIM	Organotin Prep	Sediment	Monobutyltin
Organotins SIM	Organotin Prep	Sediment	Tetrabutyltin
Organotins SIM	Organotin Prep	Sediment	Tributyltin
SM4500 NH3 C LL	SM4500 NH3 B LL	Sediment	Ammonia (as N)

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
8270D TQ	Pyrethroids - GC/MS/MS	SW846	ECL 1
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	ECL 1
8015B	Diesel Range Organics (DRO) (GC)	SW846	ECL 1
8081A	Organochlorine Pesticides (GC)	SW846	ECL 1
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	ECL 1
7199	Chromium, Hexavalent (IC)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
1664A	HEM and SGT-HEM	1664A	ECL 1
376.2 LL	Sulfide	MCAWW	ECL 1
7199 CR3	Chromium, Trivalent (Calculation)	SW846	ECL 1
9060A	Organic Carbon, Total (TOC)	SW846	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
SM4500 NH3 C LL	Ammonia	SM	ECL 1
D4464	Particle Size Distribution of Catalytic Material (Laser light scattering)	ASTM	ECL 1
1664A	HEM and SGT-HEM (Solid)	1664A	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
3550C	Ultrasonic Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	ECL 1
DI Leach	Deionized Water Leaching Procedure	ASTM	ECL 1
Homogenize Prep	Preparation, Homogenization	None	ECL 1
Organotin Prep	Extraction (Organotins)	None	ECL 1
SM4500 NH3 B LL	Distillation, Ammonia (Low Level)	SM	ECL 1

Protocol References:

1664A = EPA-821-98-002
ASTM = ASTM International
EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-65782-1
SDG: 3151187382

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-65782-1	FDD-Bay Deposits	Sediment	07/28/21 11:30	07/29/21 19:25
570-65782-2	FDD-Younger Paralic Deposits	Sediment	07/28/21 11:45	07/29/21 19:25
570-65782-3	FDD-Older Paralic Deposits	Sediment	07/28/21 12:00	07/29/21 19:25

65782

eurofins | Calscience

570-65782 Chain of Custody

CHAIN OF CUSTODY RECORD

DATE: 07/29/21

PAGE: 1 OF 2

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie gobbi@woodplc com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O NO: 3151187382 (project number)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S) (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF

GLOBAL ID: QUOTE NUMBER 965646

LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

2 containers per site to ECI = 1x 16 ounce jar, and 1 x grain size bag for testing **If volume is not sufficient for FDD-Bay Deposits, please perform analyses as follows based on recent site data: 1) Total Solids, 2) Title 22 Metals + Mercury, 3) PCB Congeners, 4) PAHs, 5) DDTs (then other pesticides), 6) Organotins, 7) Pyrethroids 8) PCB Aroclors 8) TPH, 10) TRPH, 11) Hex/Tri Cr, 12)TOC>ammonia>soluable/total sulfides>O&G**

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Grain Size (ASTM D4464)	Total Solids (160.3/SM 2540 B)	Total Organic Carbon (9060A)	Total Ammonia (SM 4500-NH3 B/C (M))	Total and Soluble Sulfides (376 2M)	Oil & Grease (376 2M)	CAC Title 22 Metals (6020)	Mercury (7471A)	TRPH (418 1 M)	TPH (C6-C44), (8015B (M))	PAHs, Phenols, & Phthalates (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)	PCB Aroclors (8082)	Pyrethroids (GC/MS/MS)	Organotins (Krone et al)	MS/MSD	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)
1	FDD-Bay Deposits	7/28/2021	1130	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X
2	FDD-Younger Paralic Deposits	7/28/2021	1145	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X
3	FDD-Older Paralic Deposits	7/28/2021	1200	sediment	2	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		X

Relinquished by (Signature)	Received by (Signature/Affiliation)	Date	Time
[signature]	[signature] EQI	07/29/21	1408
[signature]	[signature] EQI	07/29/21	1925

3-5 / 3-1 SCG

06/02/14 Revision

65782

Analyte[j]	Analysis Method	Sediment Target RL[a,b]	Tissue Target RL[a,b]
Grain Size	ASTM D4464	0.10%	N/A
Total Solids	USEPA160.3/SM 2540 B	0 10%	0.10%
Total Organic Carbon (TOC)	USEPA 9060A	0 10%	N/A
Total Ammonia	SM 4500-NH_3 B/C (M) [c]	0.2 mg/kg	N/A
Total and Soluble Sulfides	USEPA 376.2M [c]	0.5 mg/kg	N/A
Oil & Grease	USEPA 413.2M	10 mg/kg	N/A
Antimony	USEPA 6020 [d]	0.1 mg/kg	N/A
Arsenic	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Barium	USEPA 6020 [d]	0.1 mg/kg	N/A
Beryllium	USEPA 6020 [d]	0.1 mg/kg	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Chromium	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Chromium, Hexavalent	EPA 7199		
Chromium, Trivalent	7199 CR3		
Cobalt	USEPA 6020 [d]	0.1 mg/kg	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Lead	USEPA 6020[d]	0 1 mg/kg	0 1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	0.1 mg/kg	N/A
Nickel	USEPA 6020 [d]	0.1 mg/kg	0.1 mg/kg
Selenium	USEPA 6020 [d]	0 1 mg/kg	0 1 mg/kg
Silver	USEPA 6020 [d]	0 1 mg/kg	0.1 mg/kg
Thallium	USEPA 6020 [d]	0.1 mg/kg	N/A
Vanadium	USEPA 6020 [d]	0.1 mg/kg	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg	1.0 mg/kg
Total Lipids	NOAA, 1993 [i]	N/A	0.10%
Total Recoverable Petroleum Hydrocarbons (TRPH)	USEPA 418.1M [d]	10 mg/kg	N/A
Total Petroleum Hydrocarbons (TPH) (C6–C44)	USEPA 8015B (M) [d]	5.0 mg/kg	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg	10 µg/kg
Chlorinated Pesticides [f]	USEPA 8270C SIM/8081A [d]	1.0–20 µg/kg [k]	0.5–20 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0.2-0 4 µg/kg	0.5 µg/kg
PCB Aroclors	USEPA 8082	10 µg/kg	10 µg/kg
Phenols	USEPA 8270C SIM [d]	10–500 µg/kg	N/A
Pyrethroids [j]	GC/MS/MS	0.5–1.0 µg/kg	N/A
Phthalates	USEPA 8270C SIM [d]	50 µg/kg	N/A
Organotins	Krone, et al. [h]	3.0 µg/kg	3.0 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1 methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

f) Includes aldrin, α- benzene hexachloride (BHC), β-BHC (lindane), Δ=BHC, ¥-BHC, chlordane, dieldrin, trans-nonachlor, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin keytone, heptachlor, heptachlor epoxide, methoxychlor, toxaphene, alpha chlordane, gamma chlordane, cis-nonachlor, oxychlordane, 2,4- and 4,4-dichlorodiphenyldichloroethane (DDD), 2,4- and 4,4-dichlorodiphenyldichloroethylene (DDE), and 2,4- and 4,4-dichlorodiphenyltrichloroethane (DDT)

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners. 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

h) Krone, C.A., D W Brown, D G Burrows, R.G. Bogar, S.L. Chan, and U Varanasi, 1989 A Method for Analysis of Butyltin Species and Measurement of Butyltins in Sediment and English Sole Liver from Puget Sound Marine Environmental Research 27 1–18

i) National Oceanic and Atmospheric Administration 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

j) Includes. allethrin (bioallethrin), bifenthrin, cyfluthrin-beta (baythroid), cypermethrin, deltamethrin/tralomethrin, fenpropathrin (danitol) fenvalerate (sanmarton)/esfenvalerate, fluvalinate, permethrin (cis/trans [C13]), phenothrin (sumithrin), resmethrin/bioresmethrin, tetramethrin, and iambda cyhalothrin

k) Except toxaphene, which is 1,000 micrograms per kilogram (parts per billion)

% = percent, µg/kg = micrograms per kilogram (parts per billion), ASTM = ASTM International GC = gas chromatography; (M) = modified, RL = reporting limit, mg/kg = milligrams per kilogram; MS/MS = mass spectrometry; N/A = not applicable; NOAA = National Oceanic and Atmospheric Administration, SIM = selective ion monitoring, SM = Standard Method, STLC = soluble threshold limit concentration; TOC = total organic carbon, TCLP = toxicity characteristic leaching procedure; TTLC = total threshold limit concentration USEPA = United States Environmental Protection Agency;

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-65782-1
SDG Number: 3151187382

Login Number: 65782
List Number: 1
Creator: Vitente, Precy

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This page intentionally left blank.

APPENDIX C2

BIOASSAY LABORATORY REPORT – TOXICITY AND BIOACCUMULATION TESTING RESULTS

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

EcoAnalysts, Inc.

TOXICITY TESTING RESULTS

MOLE PIER FLOATING DRY DOCK: NAVAL BASE SAN DIEGO DREDGED MATERIAL EVALUATION SAN DIEGO, CALIFORNIA

Prepared for:
Multimedia Environmental Compliance Group (MMEC)
San Diego, CA

On behalf of:
U.S. Department of the Navy
Naval Facilities Engineering Command Southwest
Naval Base San Diego
2730 McKean Street
Building 291
San Diego, CA 92136

Prepared by:
EcoAnalysts, Inc.
4770 NE View Dr.
PO Box 216
Port Gamble, Washington 98364

EcoAnalysts Report ID: PG081821.01

Submittal Date: September 13, 2021

NELAP ACCREDITED LABORATORY TNI
Accredited in accordance with NELAP, ORELAP ID 4165

All testing reported herein was performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and EcoAnalysts is not responsible for use of less than the complete report. The test results summarized in this report apply only to the sample(s) evaluated. This document is uncontrolled when printed or accessed from electronic distribution.

PREPARED AND APPROVED BY:

_____

Michelle Knowlen

Project Manager / Senior Aquatic Toxicologist

QA:

Mary Ann Rempel-Hester

CONTENTS

1. INTRODUCTION 1

2. METHODS 1

2.1 Sample Collection 1
2.2 Composite Sample Grain Size and Amphipod Species Selection 2
2.3 Bioassay Testing 2
2.4 Bulk Sample Porewater Ammonia Measurements 3
2.5 Solid-Phase Bioassays 4
2.6 Suspended-Particulate Phase Testing 5
2.7 Bioaccumulation Potential Testing 6
2.8 Seawater for Bioassay Testing 6
2.9 Data Management and Analysis 7
2.10 Quality Assurance/Quality Control 7

3. RESULTS 8

3.1 Solid-Phase Test Results 8
3.1.1 Results of Solid-Phase Test with *Eohaustorius estuarius* 8
3.1.2 Results of Solid-Phase Test with *Ampelisca abdita* 11
3.1.3 Results of the Solid-Phase Test with *Neanthes arenaceodentata* 14
3.2 Suspended-Particulate Phase (Elutriate) Test Results 17
3.2.1 Results of the Suspended-Particulate Phase Test with *Americamysis bahia* 17
3.2.2 Results of the Suspended-Particulate Phase Test with *Menidia beryllina* 20
3.2.3 Results of the Suspended-Particulate Phase Test with *Mytilus galloprovincialis* 23
3.3 Bioaccumulation Potential Test Results 27

4. SUMMARY 31

5. REFERENCES 33

APPENDICES

Appendix A: Laboratory Documents (Bench Sheets), Test Organism Information, Statistical Comparisons, and Reference-Toxicant Test Results

Appendix B: Chain of Custody Logs

Appendix C: Amphipod Species Selection Memorandum Prepared 7/23/21

TABLES

Table 2-1: Test Sample Collection and Compositing Schedule 1
Table 2-2: Test Sample Particle Grain Size 2
Table 2-3. Biological Testing Performed for Dredged Material Evaluation 3
Table 2-4: Bulk Sediment Porewater Measurements 3
Table 2-5. Threshold Ammonia Concentrations for Amphipods 4
Table 3-1. Survival Summary for the 10-Day Solid-Phase Test with *Eohaustorius estuarius* 9
Table 3-2. Water Quality Summary for the Solid Phase Test with *Eohaustorius estuarius* 9
Table 3-3. Ammonia Summary for the Solid-Phase Test with *Eohaustorius estuarius* 9
Table 3-4. Test Condition Summary for the Solid-Phase Test with *Eohaustorius estuarius* 10
Table 3-5. Survival Summary for the 10-Day Solid-Phase Test with *Ampelisca abdita* 12
Table 3-6. Water Quality Summary for the Solid Phase Test with *Ampelisca abdita* 12
Table 3-7. Ammonia Summary for the Solid-Phase Test with *Ampelisca abdita* 12
Table 3-8. Test Condition Summary for the Solid-Phase Test with *Ampelisca abdita* 13
Table 3-9. Survival Summary for the 10-Day Solid-Phase Test with *Neanthes arenaceodentata* 14
Table 3-10. Water Quality Summary for the Solid-Phase Test with *Neanthes arenaceodentata* 15
Table 3-11. Ammonia Summary for the Solid-Phase Test with *Neanthes arenaceodentata* 15
Table 3-12. Test Condition Summary for the Solid-Phase Test with *Neanthes arenaceodentata* 16
Table 3-13. Survival Summary for the Suspended-Particulate Phase Test with *Americamysis bahia* 17
Table 3-14. Water Quality Summary for the Suspended-Particulate Phase Test with *Americamysis bahia* 18
Table 3-15. Ammonia Summary for the Suspended-Particulate Phase Test with *Americamysis bahia* 18
Table 3-16. Test Condition Summary for the Suspended-Particulate Phase Test with *Americamysis bahia* 19
Table 3-17. Survival Summary for the Suspended-Particulate Phase Test with *Menidia beryllina* 20
Table 3-18. Water Quality Summary for the Suspended-Particulate Phase Test with *Menidia beryllina* 21
Table 3-19. Ammonia Summary for the Suspended-Particulate Phase Test with *Menidia beryllina* 21
Table 3-20. Test Condition Summary for the Suspended-Particulate Phase Test with *Menidia beryllina* 22
Table 3-21. *Mytilus galloprovincialis* Control Acceptability Results 23
Table 3-22. Combined Proportion Normal Development Summary for *Mytilus galloprovincialis* 24
Table 3-23. Water Quality Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis* 24
Table 3-24. Ammonia Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis* 25
Table 3-25. Test Condition Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis* 26
Table 3-26. Survival Summary for *Macoma nasuta* and *Alitta virens* Bioaccumulation Tests 27
Table 3-27. Water Quality Summary for *Macoma nasuta* Bioaccumulation Test 27
Table 3-28. Water Quality Summary for *Alitta virens* Bioaccumulation Test 28
Table 3-29. Test Condition Summary for *Macoma nasuta* Bioaccumulation Test 29
Table 3-30. Test Condition Summary for *Alitta virens* Bioaccumulation Test 30
Table 4-1. Solid-Phase Test Results Summary 31
Table 4-2. Suspended-Particulate Phase Test Results Summary 31
Table 4-3. Bioaccumulation Potential Survival Results 32

ACRONYMS AND ABBREVIATIONS

BP:	Bioaccumulation Potential
cm:	Centimeter
°C:	Degrees Celsius
EC_{50}:	Effective Concentration that results in a 50% reduction in a sub-lethal endpoint
ITM:	Inland Testing Manual (USEPA/USACE 1998)
LC_{50}:	Lethal Concentration that results in a 50% reduction in survival
L:	Liter
LOEC:	Lowest Observed Effect Concentration
LPC:	Limiting Permissible Concentration
µm:	micrometer
mg/L:	milligrams per liter
mm:	millimeter
MMEC Group:	Multimedia Environmental Compliance Group
NAVFAC SW:	Naval Facilities Engineering Command Southwest
NBSD:	Naval Base Point Loma
NELAP:	National Environmental Laboratory Accreditation Program
NOEC:	No Observed Effect Concentration
ODMDS:	Ocean Dredged Material Disposal Sites
OTM:	Ocean Testing Manual (USEPA/USACE 1991); also referenced as the “Green Book”
OV:	Overlying
ppt:	Parts per thousand
PW:	Porewater
SD:	Standard deviation
SOP:	Standard operation procedure
UIA:	Un-ionized ammonia
USACE:	United States Army Corps of Engineers
USEPA/EPA:	United States Environmental Protection Agency
WA:	Washington State

1. INTRODUCTION

EcoAnalysts, Inc. conducted toxicity testing with sediment samples provided by the Multimedia Environmental Compliance Group (MMEC Group) as part of the Naval Facilities Engineering Command Southwest (NAVFAC SW) evaluation of material proposed for maintenance dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego in San Diego, California. The objective of this program was to characterize the potential dredged material from within the proposed project area to determine its suitability for unconfined aquatic disposal. Dredged material from this project is proposed for ocean disposal at the United States Environmental Protection Agency (USEPA) approved LA-5 Ocean Dredged Material Disposal Site (ODMDS) or a Navy-determined beneficial reuse location. The results of the toxicity testing are contained in this report.

2. METHODS

The material considered for ocean disposal was tested using criteria outlined in the project specific Sampling and Analysis Plan (NAVFAC 2021) and in accordance with the Ocean Testing Manual (OTM; USEPA/USACE 1991) and the Inland Testing Manual (ITM; USEPA/USACE 1998). Testing of a reference sediment was performed concurrently for all whole sediment toxicity tests and bioaccumulation exposures for comparison purposes. All testing was conducted at the EcoAnalysts (Port Gamble, WA) laboratory and followed the quality control objectives as prescribed by the guidance noted above and the National Environmental Laboratory Accreditation Program (NELAP; Oregon Laboratory Accreditation Program Certificate Number 4165-001).

2.1 Sample Collection

Individual core samples were collected between June 1 and 8, 2021 by MMEC Group personnel. Samples were received via FedEx at EcoAnalysts between June 3 and 10, 2021. The reference sediment (LA-5-REF) was collected via pipe dredge on May 31, 2021 and was received on June 2, 2021. The core samples were combined by EcoAnalysts personnel on July 7, 2021 to form three composite samples for bioassay testing: Composite A, Composite B, and Composite D (Table 2-1). A fourth composite (Composite C) was also made on July 16, 2021 but only chemistry, and not bioassay testing, was conducted on this sample. Samples were stored in a walk-in cold room at 4 ± 2 °C in the dark. All tests were conducted within the eight-week (56 days) holding time calculated from the time of sampling.

Table 2-1: Test Sample Collection and Compositing Schedule

Test Composite Sample	Sub-station Samples	Collection Date(s)	Compositing Date
Composite A	FDD-A-C1, FDD-A-C2, FDD-A-C3, and FDD-A-C4	6/4/21, 6/7/21, and 6/8/21	7/7/21
Composite B	FDD-B-C2, FDD-B-C3, FDD-B-C5, FDD-B-C6, FDD-B-C7, FDD-B-C8, FDD-B-C10, and FDD-B-C12	6/1/21, 6/2/21, 6/3/21, and 6/7/21	7/7/21
Composite C[1]	FDD-C-C3, FDD-C-C5, and FDD-C-C6	6/3/21 and 6/8/21	7/16/21
Composite D	FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, and FDD-D-C6	6/1/21, 6/2/21, and 6/7/21	7/7/21

[1] Only chemistry, and not bioassay testing, was conducted on Composite C

2.2 Composite Sample Grain Size and Amphipod Species Selection

Sediment grain size is one of the characteristics used in selecting the appropriate amphipod test species to use for the program (*Ampelisca abdita*, *Eohaustorius estuarius*, or *Rhepoxynius abronius*). Particle analysis was conducted on individual core samples by Eurofins Calscience and combined to approximate the grain size per composite. The samples displayed a range from 33.3 – 72.6% fines (Table 2-2). The species *Ampelisca abdita* is often recommended when sediments are composed of greater than 60% fines whereas the species *Eohaustorius estuarius* prefers medium to fine sand sediments and is often recommended when sediments are composed of less than 60% fines (PSEP 1995).

Two of the three bioassay composites were well below the 60% fines threshold between the two amphipod species while one composite was above. Due to this split, it was determined that the most conservative approach would be to utilize the amphipod *Eohaustorius estuarius* for the determination of potential solid-phase toxicity with Composite A and D while utilizing the amphipod *Ampelisca abdita* with Composite B. The reference (LA-5) would be tested with both *E. estuarius* (to compare survival response with Composite A and D) and *A. abdita* (to compare survival response with Composite B). Two negative controls containing the home sediment of each species would also be tested. An amphipod species selection memo (Appendix C) was presented prior to test initiations and the modified approach received both client and agency approval.

Table 2-2: Test Sample Particle Grain Size

Test Sample	Grain Size (% Fines)[1]
LA-5 Reference	56.1
Composite A	33.3
Composite B	72.6
Composite D	10.0

[1] Mean of individual core particle size analysis as provided by Wood plc and conducted by Eurofins Calscience

2.3 Bioassay Testing

Samples were evaluated in accordance with procedures outlined in the OTM (USEPA/USACE 1991) and the more recent procedures described in the ITM (USEPA/USACE 1998) to establish suitability for unconfined aquatic disposal. This included bioassay analysis of three composite samples and one reference sample. Appropriate laboratory control samples were run concurrently with each of the selected test species. Bioassay testing consisted of two solid phase bioassays, three suspended-particulate bioassays, and two whole sediment bioaccumulation potential tests. The bioassays conducted in support of this project are summarized in Table 2-3.

Table 2-3. Biological Testing Performed for Dredged Material Evaluation

Test Type	Type of Organism	Taxon	Project Sediments	Reference[2] Sediment	Control Sediment/ Seawater
Solid Phase	Amphipod	*Eohaustorius estuarius*	X	X	X
	Polychaete	*Neanthes arenaceodentata*	X	X	X
Suspended-Particulate Phase	Fish	*Menidia beryllina*	X[1]		X
	Mysid shrimp	*Americamysis bahia*	X[1]		X
	Bivalve larvae	*Mytilus galloprovincialis*	X[1]		X
Bioaccumulation Potential[3]	Polychaete	*Alitta (Neanthes, Nereis) virens*	X	X	X
	Bivalve	*Macoma nasuta*	X	X	X

[1]Sediment elutriates of project material
[2]Shaded areas indicate tests or treatments that are not applicable to the selected tests
[3]Bioaccumulation testing conducted with species in separate test chambers

2.4 Bulk Sample Porewater Ammonia Measurements

While elevated ammonia and low salinity in the porewater are transient qualities in dredged material, they can influence organism survival and development in laboratory tests. If concentrations of ammonia or conditions of low salinity were found in the test composites, these would be considered non-persistent effects under OTM (USEPA/USACE 1991) guidance for this material. Prior to testing, bulk sediment porewater ammonia concentrations and salinity are usually measured to determine whether any method modifications or supplemental testing would be required (Table 2-4). Bulk sediments are homogenized test composites that have not been further processed for bioassay testing.

Measurements of total ammonia were made with an Orion 5-Star Multimeter equipped with an ammonia ion selective electrode. Analytical procedures followed those described in Standard Method 4500-NH3 D (APHA 2017) and included a three-point calibration (1, 10, and 100 mg/L). Conversion of measured total ammonia values to unionized ammonia were made following calculations derived from published guidance (USEPA 1989 and Hampson 1977).

Table 2-4: Bulk Sediment Porewater Measurements

Sample	Matrix: Bulk Porewater			
	Total Ammonia (mg/L)	Unionized Ammonia (mg/L)	Salinity (ppt)	pH
LA-5 Reference	5.35	0.101	33	7.7
Composite A	6.42	0.097	33	7.6
Composite B	8.40	0.200	33	7.8
Composite D	7.88	0.187	34	7.8

The threshold values to address potential ammonia related effects for the amphipod test using *Eohaustorius estuarius* is 60 mg/L total ammonia (0.8 mg/L unionized ammonia) and using *Ampelisca abdita* is 30 mg/L total ammonia (0.4 mg/L unionized ammonia) (Table 2-5). Bulk ammonia concentration in the sediment composites and reference was between 5.35 and 8.40 mg/L total ammonia, below both amphipod ammonia trigger levels. These findings indicate that ammonia is unlikely to be a contributing factor to any observed toxicity of the test treatments to the amphipod species evaluated. Ammonia reduction procedures were not warranted based upon this assessment.

Table 2-5. Threshold Ammonia Concentrations for Amphipods

Parameter	*Eohaustorius estuarius*	*Ampelisca abdita*
Total Ammonia (USEPA 1994)	<60 mg/L (pH 7.7)	<30 mg/L (pH 7.7)
Unionized Ammonia (USEPA 1994)	<0.8 mg/L (pH 7.7)	<0.4 mg/L (pH 7.7)
Total Ammonia (Internal lab - NOEC)	92.57 mg/L (running mean: 4-day exposure)	32.66 mg/L (running mean: 4-day exposure)
Unionized Ammonia (Internal lab – NOEC)	1.256 mg/L (running mean: 4-day exposure)	0.706 mg/L (running mean: 4-day exposure)

2.5 Solid-Phase Bioassays

Solid phase tests were performed to estimate the potential impact of ocean disposal of dredged material on benthic organisms that attempt to re-colonize the area. Sediment was tested in 10-day tests using three species: the amphipod *Eohaustorius estuarius* (for Composite A and D), the amphipod *Ampelisca abdita* (for Composite B), and the polychaete *Neanthes arenaceodentata* (for all composites).

The amphipods *E. estuarius* were obtained from Northwest Amphipod in Newport, Oregon and were acclimated to and held at 15 ± 1°C prior to testing. Native sediment from the animal collection site (Yaquina Bay, OR) was provided by the supplier for use as the control sediment in this test. The amphipods *A. abdita* were obtained from Brezina and Associates in Dillon Beach, California and were acclimated to and held at 20 ± 2°C prior to testing. Native sediment from Paradise Cay, California (located near the animal collection site) was provided by the supplier for use as the control sediment in this test. This matrix has been used successfully in prior tests with this species and is known to support positive organism health and survival.

Polychaete worms (*N. arenaceodentata*) were supplied by Aquatic Toxicology Support, LLC in Bremerton, Washington. Juvenile polychaetes were held in seawater at 20 ± 1°C. Cultures of this organism are maintained in the absence of sediment and do not have an available “native” sediment for use as a control matrix. Control sediment used in the benthic polychaete test was the same as used for the *E. estuarius* test from Yaquina Bay, Oregon; a frequently used matrix known to support successful polychaete survival and growth.

Solid phase tests were conducted as 10-day static exposures with five replicates for the test treatments, the reference, and control sediment. Two centimeters of sediment (approximately 175 mL) were placed into each 1-L glass chamber with 775 mL of overlying water. Trickle-flow aeration was provided through glass pipettes, and care was taken to avoid disturbing the sediment surface. Test chambers were placed into randomly assigned positions and allowed to equilibrate to test conditions overnight.

Immediately prior to test initiation, water quality measurements were taken in all replicate chambers for each test treatment and included dissolved oxygen, temperature, salinity, and pH. To initiate the test, test organisms were randomly allocated to each of the test chambers. Initial stocking densities were 10 organisms per test chamber for the polychaete test and 20 organisms per test chamber for the amphipod tests.

During the test, water quality was monitored daily in a single water quality surrogate chamber per treatment. No food was provided during the 10-day exposures. Ammonia was measured in both porewater and overlying water at initiation and termination. These measurements were made from a surrogate chamber for each test treatment. Sediment porewater was extracted via centrifugation. All water quality instruments were calibrated daily or on their recommended schedule. Records of instrument calibration were retained in the laboratory logs.

At test termination, the sediments were carefully sieved to remove the test organisms and survival assessed using methods described in the OTM (USEPA/USACE 1991). To evaluate the relative sensitivity of the organisms, reference toxicity tests were performed using standard reference toxicants (Lee 1980).

2.6 Suspended-Particulate Phase Testing

Suspended-particulate phase tests were performed to estimate the potential impact of dredged material disposal to organisms that live in the water column. The tests were performed on elutriate samples prepared using a 4:1 dilution by volume of seawater to sediment. The seawater used for elutriate preparation was laboratory seawater (0.45 µm filtered north Hood Canal seawater). Sediment from the project composites was combined with laboratory seawater and vigorously agitated for 30 minutes. Following settling, the supernatant was gently decanted. This supernatant represents the 100% test concentration. Subsequent test dilutions were created by mixing laboratory seawater with the 100% supernatant for the water-column tests. Three species were tested: *Americamysis* (formerly *Mysidopsis*) *bahia* (mysid shrimp), *Menidia beryllina* (inland silverside fish), and *Mytilus galloprovincialis* (mussel) larvae.

Mysid shrimp (*A. bahia*) and inland silverside fish (*M. beryllina*) were supplied by Aquatic BioSystems, Inc. in Fort Collins, Colorado. Mysids and fish were received on the day of test initiation. They were held at 20 ± 2°C and fed *Artemia* nauplii ad libitum prior to testing. Adult mussels (*M. galloprovincialis*) were supplied by Taylor Shellfish in Shelton, Washington. Mussels were held in seawater at 16 ± 2°C prior to spawning for collection of gametes.

The elutriate tests with mysid shrimp and fish were performed with dilutions of 100%, 50%, and 10% elutriate mixtures as well as a clean seawater control. The fish and mysid tests were performed under static conditions (non-renewal). Ten animals were used per replicate with five replicates per elutriate concentration. These tests were run for 96 hours.

The bivalve larval development test was run using sample elutriates of 100%, 50%, 10%, and 1% concentrations and a clean seawater control. There were five replicates per elutriate concentration. The test was terminated between 48 – 96 hours, or when the bivalve larvae reached the D-hinge prodissoconch stage in the control. At the termination of the study, survival and normal development were compared between the control and test groups to determine if significant mortality or abnormal development occurred.

Daily water quality monitoring of test chambers (or surrogate chambers for the bivalve test) was carried out for pH, dissolved oxygen, salinity, and temperature. Ammonia was analyzed at the start and end of the tests in all concentrations. All water quality instruments were calibrated daily or on their

recommended schedule. Records of instrument calibration were retained in the laboratory logs. To evaluate the relative sensitivity of the organisms, reference toxicity tests were performed using standard reference toxicants (Lee 1980).

2.7 Bioaccumulation Potential Testing

Assessment of bioaccumulation potential was determined using the polychaete worm *Alitta* (formerly *Nereis* and *Neanthes*) *virens* and the bivalve *Macoma nasuta* within separate test chambers over a 28-day test period.

The polychaetes *A. virens* were obtained from Aquatic Research Organisms, Inc. in Hampton, New Hampshire. Organisms were acclimated to and held at 14 ± 2°C prior to testing. Native *A. virens* sediment from the Damariscotta River, Boothbay Harbor, Maine was provided by Aquatic Research Organisms for use as the polychaete control sediment. The bivalves *M. nasuta* were supplied by J & G Gunstone in Discovery Bay, Washington. They were received on the day of test initiation and held at 14 ± 2°C. Native *M. nasuta* sediment from Discovery Bay, Washington was provided by J & G Gunstone for use as the bivalve control sediment. Both control sediments have been routinely tested in conjunction with their respective organisms at this laboratory, as well as many other bioassay laboratories. Results of historical testing have demonstrated acceptable organism health and sediment quality.

The bioaccumulation assessment was performed in 10-gallon aquaria modified with overflow standpipe water ports. Chambers were loaded with 4 – 5 liters of sediment to a depth of 4 – 5 cm and supplied with a continuous seawater supply through an adjustable valve. Chambers were filled with approximately 18.5 L of overlying water to the level of the overflow standpipe, and the flow was maintained at a target range of 5 – 10 water exchanges per day (92.5 – 185 L/day). Aeration was supplied to each chamber. There were five replicates allocated per sample. Each chamber was stocked with 25 clams and 20 worms.

The test chambers were maintained under flow-through conditions and water quality measurements were taken in one replicate of each test treatment daily. Water quality parameters included pH, salinity, temperature, and dissolved oxygen. All water quality instruments were calibrated daily or on their recommended schedule. Records of instrument calibration were retained in the laboratory logs. On Day 28 the sediment was sieved to remove the worms and clams. The surviving animals were placed in clean flow-through aquaria to purge their gut contents over 24 hours. Following depuration, the organisms (soft tissue) were then placed into separate certified-clean glass sample jars and frozen. To establish background tissue concentrations, a sub-sample of test organisms was collected and frozen prior to test initiation. All tissue samples were shipped to Eurofins in Garden Grove, CA for chemical analysis.

2.8 Seawater for Bioassay Testing

Seawater used in this study, including the flow-through studies, came from the northern Hood Canal at Port Gamble, Washington. This seawater source has been used successfully on similar bioassay testing programs by the contracting team. Extensive testing on a variety of test species has shown that there is no significant potential for toxicity or bioaccumulation from this water supply. Acceptable survival of organisms in control sediment has been achieved consistently in previous dredged material testing conducted by the laboratory. Chemical analyses of this water source resulted in no significant contaminants of concern or bioaccumulation potential. Seawater was passed through a sand filter prior to use in the laboratory. For non-flow-through tests, the water was also filtered to 0.45 µm.

2.9 Data Management and Analysis

All water quality and endpoint data were entered either by hand on bench sheets or directly into Excel spreadsheets. Water quality parameters were summarized by calculating the mean, minimum, and maximum values for each test treatment. Endpoint data were calculated for each replicate and the mean value and standard deviation were determined for each test treatment.

All hand-entered data were reviewed for data entry errors, which were corrected prior to summary calculations. A minimum of 10% of all calculations and data sorting were reviewed for errors. Review counts were conducted on any apparent outliers.

Statistical comparisons, determinations of statistical significance, and/or elutriate dose response estimations were performed using the Comprehensive Environmental Toxicity Information System Software (CETIS™; version 1.9.4.3). Hypothesis testing and point estimation were performed following standard USEPA flow chart methods (USEPA 2002).

2.10 Quality Assurance/Quality Control

The quality assurance objectives for toxicity testing conducted by the testing laboratory are detailed in the OTM (USEPA/USACE 1991) and the laboratory's quality assurance plans (QAPs). These objectives for accuracy and precision involve all aspects of the testing process, including the following:

- Water and Sediment Sampling and Handling
- Source and Condition of Test Organisms
- Condition of Equipment
- Test Conditions
- Instrument Calibration
- Use of Reference Toxicants
- Record Keeping
- Data Evaluation

Each toxicity test species was evaluated in reference toxicant tests during the test period to establish the sensitivity of the test organisms. The reference toxicant LC_{50} or EC_{50} should fall within two standard deviations of the historical laboratory mean. Water quality measurements were monitored to ensure that they fell within prescribed limits.

The methods employed in every phase of the toxicity testing program are detailed in the EcoAnalysts Standard Operating Procedures (SOP). All EcoAnalysts staff members receive regular, documented training in all SOPs and test methods. Finally, all data collected and produced as a result of these analyses were recorded on approved data sheets. If an aspect of a test deviated from protocol, the test was evaluated to determine whether it was valid according to the regulatory agencies responsible for approval of the proposed permitting action.

3. RESULTS

The results of the sediment testing, including summaries of test results and water quality observations, are presented in this section. Supporting laboratory documents (bench sheets), test organism information, statistical comparisons, and reference-toxicant test results are provided in Appendix A. Chain of custody logs are provided in Appendix B.

3.1 Solid-Phase Test Results

The results of the solid-phase toxicity tests are presented in this section. The tests were performed with the amphipod species *Eohaustorius estuarius* and *Ampelisca abdita* as well as the polychaete worm *Neanthes arenaceodentata*.

3.1.1 Results of Solid-Phase Test with *Eohaustorius estuarius*

The solid-phase test with *E. estuarius* was initiated on July 13, 2021. The test was validated by 99% survival in the *Eohaustorius* control, meeting the acceptability criterion of ≥90% survival. Mean survival for all samples is summarized in Table 3-1. Summaries of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-2, Table 3-3, and Table 3-4.

Mean survival in the reference sample was 99% whereas in the composite samples it was 90% (Composite A) and 96% (Composite D). Mean survival in Composite A was found to be significantly lower than the reference treatment, however significant biological effects (>20% mortality compared to the reference) were not found in either composite. Thus, both samples met the lowest permissible concentration (LPC) requirements for benthic toxicity as defined in the OTM (USEPA/USACE 1991).

All water quality measurements of temperature, dissolved oxygen, salinity, and pH were within the recommended limits during the test (Table 3-2).

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the LC_{50} value was within control chart limits (±2 standard deviations from the laboratory historical mean). This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

Ammonia concentrations observed in the *E. estuarius* test are summarized in Table 3-3. All measured ammonia values were below the NOEC value derived from the concurrent ammonia reference-toxicant test. This indicates that ammonia concentrations within the sediment samples should not have been a contributor to any adverse biological effects observed in the test treatments.

Table 3-1. Survival Summary for the 10-Day Solid-Phase Test with *Eohaustorius estuarius*

Sample ID	Mean Survival (%)	Standard Deviation	Significant Biological Effect? R – T > 20%?	Significantly Less Than Reference?	Exceeds LPC?
Control	99	2.2			
LA-5 Reference	99	2.2			
Composite A	90	3.5	No	Yes	No
Composite D	96	2.2	No	No	No

R = Mean survival of reference LA-5-REF
T = Mean survival of project sediment treatments

Table 3-2. Water Quality Summary for the Solid Phase Test with *Eohaustorius estuarius*

Sample ID	Dissolved Oxygen (mg/L) >5.1			Temperature (°C) 15 ± 1			Salinity (ppt) 28 ± 2			pH (units) 7.8 ± 0.5		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	8.4	8.3	8.6	15.1	14.4	15.6	28	28	29	8.1	8.1	8.2
LA-5 Reference	8.3	8.1	8.5	15.1	14.5	15.5	29	28	29	8.1	8.1	8.2
Composite A	8.3	8.1	8.5	15.2	14.5	15.9	29	28	29	8.1	8.0	8.1
Composite D	8.4	8.2	8.5	15.1	14.6	15.5	28	28	29	8.1	8.1	8.1

Table 3-3. Ammonia Summary for the Solid-Phase Test with *Eohaustorius estuarius*

Sample ID	Total Ammonia (mg/L) NOEC = 80.3 mg/L				Unionized Ammonia (mg/L) NOEC = 1.40 mg/L			
	Day 0		Day 10		Day 0		Day 10	
	OV	PW	OV	PW	OV	PW	OV	PW
Control	0.0371	0.221	0.00	0.0758	0.001	0.003	0.000	0.001
LA-5 Reference	0.459	1.55	1.39	2.07	0.017	0.041	0.048	0.028
Composite A	0.132	1.65	0.808	1.25	0.004	0.044	0.027	0.017
Composite D	0.280	1.80	0.912	1.07	0.009	0.031	0.030	0.011

NOEC derived from concurrent reference-toxicant test
OV = Overlying water, PW = Porewater

Table 3-4. Test Condition Summary for the Solid-Phase Test with *Eohaustorius estuarius*

Test Conditions: *Eohaustorius estuarius*		
Date Sampled	May 31 – June 8, 2021	
Date Received	June 2 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 13 – 23, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	43 days	
Source of Control Sediment	Yaquina Bay, Oregon	
Test Species	*Eohaustorius estuarius*	
Supplier	Northwest Amphipod, Newport, OR	
Date Acquired	July 8, 2021	
Acclimation / Holding Time	5 days	
Age Class	Sub-adult, 3 – 5 mm	
Test Procedures	ITM	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	10-Day/ Static	
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Test Lighting	Continuous	
Test Chamber	1000-mL Glass Chamber	
Replicates / Treatment	5 + 2 surrogates	
Organisms / Replicate	20	
Exposure Volume	175 mL sediment (2 cm) / 775 mL of overlying seawater	
Feeding	None	
Water Renewal	None	
Test Dissolved Oxygen	Recommended: >5.1 mg/L	Actual: 8.1 – 8.6
Test Temperature	Recommended: 15 ± 1°C	Actual: 14.4 – 15.9
Test Salinity	Recommended: 28 ± 2 ppt	Actual: 28 – 29
Test pH	Recommended: 7.8 ± 0.5	Actual: 8.0 – 8.2
Control Performance Standard	≥ 90% survival	Actual: 99%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant LC_{50} (mg/L)	225.7	2.706
Mean; Acceptable Range (mg/L)	181.3; 115.9 – 283.4	1.889; 1.096 – 3.256
NOEC	80.3	1.396
Deviations from Test Protocol	None	

3.1.2 Results of Solid-Phase Test with *Ampelisca abdita*

The solid-phase test with *A. abdita* was initiated on July 13, 2021. The test was validated by 94% survival in the control, meeting the acceptability criterion of ≥90% survival. Mean survival for all samples is summarized in Table 3-5. Summaries of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-6, Table 3-7, and Table 3-8.

Mean survival in the reference sample was 97% whereas in Composite B it was 96%. Mean survival in Composite B was not found to be significantly lower than the reference treatment, nor were significant biological effects (>20% mortality compared to the reference) observed. Thus, Composite B met the LPC requirements for benthic toxicity as defined in the OTM (USEPA/USACE 1991).

All water quality measurements of temperature, dissolved oxygen, salinity, and pH were within the recommended limits during the test (Table 3-6).

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the LC_{50} value was within control chart limits (±2 standard deviations from the laboratory historical mean). This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

Ammonia concentrations observed in the *A. abdita* test are summarized in Table 3-7. All measured ammonia values were below the NOEC value derived from the concurrent ammonia reference-toxicant test. This indicates that ammonia concentrations within the sediment samples should not have been a contributor to any adverse biological effects observed in the test treatments.

Table 3-5. Survival Summary for the 10-Day Solid-Phase Test with *Ampelisca abdita*

Sample ID	Mean Survival (%)	Standard Deviation	Significant Biological Effect? R – T > 20%?	Significantly Less Than Reference?	Exceeds LPC?
Control	94	6.5			
LA-5 Reference	97	2.7			
Composite B	96	4.2	No	No	No

R = Mean survival of reference LA-5-REF
T = Mean survival of project sediment treatments

Table 3-6. Water Quality Summary for the Solid Phase Test with *Ampelisca abdita*

Sample ID	Dissolved Oxygen (mg/L) >4.6			Temperature (°C) 20 ± 1			Salinity (ppt) 28 ± 2			pH (units) 7.8 ± 0.5		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.6	7.5	7.8	19.8	19.4	20.4	29	29	30	8.1	8.0	8.2
LA-5 Reference	7.6	7.5	7.8	20.0	19.7	20.6	29	28	30	8.1	8.1	8.2
Composite B	7.5	7.3	7.7	20.0	19.8	20.6	29	28	30	8.1	8.0	8.1

Table 3-7. Ammonia Summary for the Solid-Phase Test with *Ampelisca abdita*

Sample ID	Total Ammonia (mg/L) NOEC = 31.7 mg/L				Unionized Ammonia (mg/L) NOEC = 0.891 mg/L			
	Day 0		Day 10		Day 0		Day 10	
	OV	PW	OV	PW	OV	PW	OV	PW
Control	0.216	0.864	0.00	0.203	0.008	0.020	0.000	0.003
LA-5 Reference	0.525	1.93	1.18	1.52	0.027	0.071	0.057	0.029
Composite B	0.760	2.97	0.00	1.48	0.035	0.088	0.000	0.022

NOEC derived from concurrent reference-toxicant test
OV = Overlying water, PW = Porewater

Table 3-8. Test Condition Summary for the Solid-Phase Test with *Ampelisca abdita*

Test Conditions: *Ampelisca abdita*		
Date Sampled	May 31 – June 7, 2021	
Date Received	June 2 – 9, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 13 – 23, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	43 days	
Source of Control Sediment	Paradise Cay, CA	
Test Species	*Ampelisca abdita*	
Supplier	Brezina and Associates, Dillon Beach CA	
Date Acquired	July 9, 2021	
Acclimation / Holding Time	4 days	
Age Class	Sub-adult, 3 – 5 mm	
Test Procedures	ITM	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	10-Day/ Static	
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Test Lighting	Continuous	
Test Chamber	1000-mL Glass Chamber	
Replicates / Treatment	5 + 2 surrogates	
Organisms / Replicate	20	
Exposure Volume	175 mL sediment (2 cm) / 775 mL of overlying seawater	
Feeding	None	
Water Renewal	None	
Test Dissolved Oxygen	Recommended: >4.6 mg/L	Actual: 7.3 – 7.8
Test Temperature	Recommended: 20 ± 1°C	Actual: 19.4 – 20.6
Test Salinity	Recommended: 28 ± 2 ppt	Actual: 28 – 30
Test pH	Recommended: 7.8 ± 0.5	Actual: 8.0 – 8.2
Control Performance Standard	≥ 90% survival	Actual: 94%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant LC_{50} (mg/L)	68.98	1.525
Mean; Acceptable Range (mg/L)	61.56; 32.81 – 115.4	1.16; 0.569 – 2.365
NOEC	31.7	0.891
Deviations from Test Protocol	None	

3.1.3 Results of the Solid-Phase Test with *Neanthes arenaceodentata*

The solid-phase test with *N. arenaceodentata* was initiated on July 13, 2021. The test was validated by 100% survival in the control sample, meeting the acceptability criterion of ≥90%. Mean survival for all samples is summarized in Table 3-9. Summaries of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-10, Table 3-11, and Table 3-12.

Mean survival in the reference sample was 100% and 98 – 100% in the composite samples. Mean survival in all composites was not found to be significantly lower than the reference treatment, nor were significant biological effects (>10% mortality compared to the reference) observed. Thus, Composite A, Composite B, and Composite C met the LPC requirements for benthic toxicity as defined in the OTM (USEPA/USACE 1991).

All water quality parameters were within the recommended ranges during the test (Table 3-10).

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the LC_{50} value was within control chart limits (±2 standard deviations from the laboratory historical mean). This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

Ammonia concentrations observed in the *N. arenaceodentata* test are summarized in Table 3-11. All values were below the NOEC values derived from the concurrent ammonia reference-toxicant tests. This indicates that ammonia concentrations within the overlying or interstitial water should not have been a contributor to any adverse biological effects observed in the test treatments. A summary of the test conditions is presented in Table 3-12.

Table 3-9. Survival Summary for the 10-Day Solid-Phase Test with *Neanthes arenaceodentata*

Sample ID	Mean Survival (%)	Standard Deviation	Significant Biological Effect? R – T > 10%?	Significantly Less Than Reference?	Exceeds LPC?
Control	100	0.0			
LA-5 Reference	100	0.0			
Composite A	100	0.0	No	No	No
Composite B	98	4.5	No	No	No
Composite D	98	4.5	No	No	No

R = Mean survival of reference LA-5-REF
T = Mean survival of project sediment treatments

Table 3-10. Water Quality Summary for the Solid-Phase Test with *Neanthes arenaceodentata*

Sample ID	Dissolved Oxygen (mg/L) >4.6			Temperature (°C) 20 ± 1			Salinity (ppt) 30 ± 2			pH (units) 7 - 9		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.7	7.4	7.8	19.5	19.2	20.1	30	30	31	8.1	8.1	8.1
LA-5 Reference	7.6	7.4	7.7	19.6	19.3	20.0	31	30	31	8.1	8.1	8.2
Composite A	7.6	7.4	7.7	19.6	19.3	20.0	30	30	31	8.1	8.0	8.1
Composite B	7.5	7.3	7.7	19.7	19.3	20.1	31	30	31	8.1	8.0	8.2
Composite D	7.6	7.5	7.8	19.4	19.0	19.8	30	30	31	8.1	8.1	8.1

Table 3-11. Ammonia Summary for the Solid-Phase Test with *Neanthes arenaceodentata*

Sample ID	Total Ammonia (mg/L) NOEC = 184 mg/L				Unionized Ammonia (mg/L) NOEC = 2.67 mg/L			
	Day 0		Day 10		Day 0		Day 10	
	OV	PW	OV	PW	OV	PW	OV	PW
Control	0.0265	0.0808	0.00	0.224	0.001	0.001	0.000	0.002
LA-5 Reference	0.657	1.66	1.59	1.45	0.032	0.059	0.075	0.027
Composite A	0.472	1.75	0.374	0.710	0.021	0.062	0.016	0.013
Composite B	0.954	3.63	0.319	0.990	0.042	0.129	0.014	0.015
Composite D	0.354	1.47	1.22	1.66	0.016	0.042	0.055	0.024

NOEC derived from concurrent reference-toxicant test
OV = Overlying water, PW = Porewater

Table 3-12. Test Condition Summary for the Solid-Phase Test with *Neanthes arenaceodentata*

Test Conditions: *Neanthes arenaceodentata*		
Date Sampled	May 31 – June 8, 2021	
Date Received	June 2 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 13 – 23, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	43 days	
Source of Control Sediment	Yaquina Bay, OR	
Test Species	*Neanthes arenaceodentata*	
Supplier	Aquatic Toxicology Support	
Date Acquired	July 13, 2021	
Acclimation / Holding Time	0 days	
Age Class	22 days old	
Test Procedures	ITM 1998	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	10-Day/ Static	
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Test Lighting	16 hour light / 8 hour dark	
Test Chamber	1000-mL Glass Chamber	
Replicates / Treatment	5 + 2 surrogates	
Organisms / Replicate	10	
Exposure Volume	175 mL sediment (2 cm depth) / 775 mL of overlying seawater	
Feeding	None	
Water Renewal	None	
Test Dissolved Oxygen	Recommended: > 4.6 mg/L	Actual: 7.3 – 7.8 mg/L
Test Temperature	Recommended: 20 ± 1°C	Actual: 19.0 – 20.1 °C
Test Salinity	Recommended: 30 ± 2 ppt	Actual: 30 – 31 ppt
Test pH	Recommended: 7 – 9	Actual: 8.0 – 8.2
Control Performance Standard	≥90% survival	Actual: 100%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant LC_{50} (mg/L)	206 mg/L	2.99
Mean; Acceptable Range (mg/L)	203.8; 153.4 – 270.6 mg/L	2.18; 1.27 – 3.74 mg/L
NOEC	184	2.67
Deviations from Test Protocol	None	

3.2 Suspended-Particulate Phase (Elutriate) Test Results

The results of the suspended-particulate phase toxicity tests are presented in this section. The tests were performed with mysid shrimp (*Americamysis bahia*), inland silverside fish (*Menidia beryllina*), and mussel larvae (*Mytilus galloprovincialis*).

3.2.1 Results of the Suspended-Particulate Phase Test with *Americamysis bahia*

The suspended-particulate phase test with *A. bahia* was initiated on July 20, 2021. The test was validated by 94% survival in the seawater control, meeting the acceptability criterion of ≥90%. Mean survival for all samples is summarized in Table 3-13. Summaries of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-14, Table 3-15, and Table 3-16.

Mean percentage survival in the 100% elutriate concentrations for Composite A was 100% while for Composite B and Composite D it was 98%. The estimated LC_{50} value was >100% for all three composites. Statistical comparison of the treatments to the control survival for the 100% concentration resulted in no significant differences.

Water quality parameters were within the target limits throughout the duration of the 96-hour test (Table 3-14).

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the LC_{50} value was within control chart limits of ±2 standard deviations from the laboratory historical mean. This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

All measured ammonia values observed in the *A. bahia* test were below the NOEC values derived from the concurrent ammonia reference-toxicant tests, indicating that ammonia concentrations within the overlying or interstitial water should not have been a contributor to any adverse biological effects observed in the test treatments (Table 3-15). A summary of test conditions is present in Table 3-16.

Table 3-13. Survival Summary for the Suspended-Particulate Phase Test with *Americamysis bahia*

Sample ID	Concentration (%)	Mean Survival (%)	Standard Deviation	Statistically Less Than Control?	LC_{50} Value
Control		94	13.4		
Composite A	10	100	0.0	--	>100
	50	94	5.5	--	
	100	100	0.0	No	
Composite B	10	96	5.5	--	>100
	50	98	4.5	--	
	100	98	4.5	No	
Composite D	10	100	0.0	--	>100
	50	98	4.5	--	
	100	98	4.5	No	

Table 3-14. Water Quality Summary for the Suspended-Particulate Phase Test with *Americamysis bahia*

Sample ID	Concentration (%)	Dissolved Oxygen (mg/L) ≥3.0 mg/L			Temperature (°C) 20 ± 1			Salinity (ppt) 30 ± 2			pH (units) 7.8 ± 0.5		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control		6.1	5.2	7.8	19.7	19.4	20.0	30	30	30	7.8	7.6	8.0
Composite A	10	6.0	4.9	7.8	19.8	19.3	21.0	30	30	30	7.8	7.5	8.1
	50	5.9	4.9	7.8	19.9	19.4	21.0	30	30	30	7.8	7.5	8.1
	100	6.0	5.1	7.9	19.6	19.4	19.9	30	30	30	7.8	7.6	8.1
Composite B	10	5.9	5.0	7.8	19.8	19.4	20.6	30	30	30	7.8	7.6	8.1
	50	6.0	4.5	7.9	19.6	19.4	19.9	30	30	30	7.8	7.5	8.1
	100	5.9	4.8	7.8	19.6	19.1	20.0	30	30	30	7.8	7.6	8.2
Composite D	10	5.9	4.9	7.8	19.6	19.3	20.0	30	30	30	7.8	7.5	8.1
	50	6.0	5.0	7.8	19.5	19.3	20.0	30	30	30	7.7	7.5	8.0
	100	6.0	4.5	8.0	19.5	19.1	20.0	30	30	30	7.8	7.6	8.0

Table 3-15. Ammonia Summary for the Suspended-Particulate Phase Test with *Americamysis bahia*

Sample ID	Concentration (%)	Total Ammonia (mg/L) NOEC =26.4 mg/L		Unionized Ammonia (mg/L) NOEC = 0.933 mg/L	
		Day 0	Day 4	Day 0	Day 4
Control		0.0096	0.918	0.000	0.017
Composite A	10	0.0021	1.03	0.000	0.015
	50	0.0628	0.914	0.003	0.017
	100	0.143	0.924	0.006	0.017
Composite B	10	0.0519	0.993	0.003	0.019
	50	0.210	1.14	0.010	0.021
	100	0.414	1.14	0.022	0.022
Composite D	10	0.0151	0.978	0.001	0.015
	50	0.0842	1.02	0.003	0.019
	100	0.144	0.918	0.005	0.014

NOEC derived from concurrent reference-toxicant test

Table 3-16. Test Condition Summary for the Suspended-Particulate Phase Test with *Americamysis bahia*

Test Conditions: *Americamysis bahia*		
Date Sampled	June 1 – 8, 2021	
Date Received	June 3 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 20 – 24, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	49 days	
Test Species	*Americamysis bahia*	
Supplier	Aquatic BioSystems	
Date Acquired	July 20, 2021	
Acclimation / Holding Time	0 days	
Age at Test Initiation	4 days old	
Test Procedures	ITM 1998	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	96-Hour/ static	
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Organisms / Replicate	10	
Exposure Volume	250 mL	
Feeding	0.1 mL of Artemia nauplii, twice daily	
Test Solution Renewal	None	
Test Dissolved Oxygen	Recommended: > 3.0 mg/L	Actual: 4.5 – 8.0 mg/L
Test Temperature	Recommended: 20 ± 1°C	Actual: 19.1 – 21.0°C
Test Salinity	Recommended: 30 ± 2 ppt	Actual: 30 ppt
Test pH	Recommended: 7.8 ± 0.5	Actual: 7.5 – 8.2
Control Performance Standard	≥90% survival	Actual: 94%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant LC50 (mg/L)	39.61	1.23
Mean; Acceptable Range (mg/L)	47.99; 30.13 – 76.4	1.06; 0.592– 1.88
NOEC (mg/L)	26.4	0.933
Deviations from Test Protocol	None	

3.2.2 Results of the Suspended-Particulate Phase Test with *Menidia beryllina*

The suspended-particulate phase test with *M. beryllina* was initiated on July 20, 2021. The test was validated by 96% survival in the seawater control, meeting the acceptability criterion of ≥90%. Mean survival for all samples is summarized in Table 3-17. Summaries of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-18, Table 3-19, and Table 3-20.

Mean percentage survival in the 100% elutriate concentrations was 96% - 100%. The estimated LC_{50} value was >100% for all three samples. Statistical comparison of the treatments to the control survival for the 100% concentration resulted in no significant differences.

Measurements of water quality parameters were within the recommended limits during the test (Table 3-18).

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the LC_{50} value was within control chart limits of ±2 standard deviations from the laboratory historical mean. This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

Ammonia concentrations observed in the *M. beryllina* elutriate test were below the NOEC values derived from the concurrent ammonia reference-toxicant tests (Table 3-19). This indicates that ammonia concentrations within the overlying or interstitial water should not have been a contributor to any adverse biological effects observed in the test treatments. A summary of test conditions is presented in Table 3-20.

Table 3-17. Survival Summary for the Suspended-Particulate Phase Test with *Menidia beryllina*

Sample ID	Concentration (%)	Mean Survival (%)	Standard Deviation	Statistically Less Than Control?	LC_{50} Value
Control		96	5.5		
Composite A	10	96	5.5	--	>100
	50	96	5.5	--	
	100	98	4.5	No	
Composite B	10	100	0.0	--	>100
	50	100	0.0	--	
	100	100	0.0	No	
Composite D	10	100	0.0	--	>100
	50	98	4.5	--	
	100	96	8.9	No	

Table 3-18. Water Quality Summary for the Suspended-Particulate Phase Test with *Menidia beryllina*

Sample ID	Concentration (%)	Dissolved Oxygen (mg/L) ≥3.0 mg/L			Temperature (°C) 20 ± 1			Salinity (ppt) 30 ± 2			pH (units) 7.8 ± 0.5		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control		6.9	6.4	7.8	19.7	19.5	19.9	30	30	30	7.9	7.9	8.0
Composite A	10	7.0	6.5	7.8	19.9	19.3	21.0	30	30	30	7.9	7.9	8.1
	50	6.9	6.4	7.8	19.8	19.1	21.0	30	30	30	7.9	7.9	8.1
	100	7.0	6.4	7.9	19.6	19.1	19.9	30	30	30	7.9	7.9	8.1
Composite B	10	7.0	6.6	7.8	19.8	19.5	20.6	30	30	30	7.9	7.9	8.1
	50	7.0	6.6	7.9	19.6	19.5	19.7	30	30	30	8.0	7.9	8.1
	100	6.9	6.3	7.8	19.5	19.1	19.9	30	30	30	8.0	7.9	8.2
Composite D	10	7.1	6.7	7.8	19.5	19.1	19.9	30	30	30	7.9	7.9	8.1
	50	7.0	6.6	7.8	19.5	19.3	20.0	30	30	30	7.9	7.9	8.0
	100	7.1	6.6	8.0	19.4	19.1	19.7	30	30	30	7.9	7.9	8.0

Table 3-19. Ammonia Summary for the Suspended-Particulate Phase Test with *Menidia beryllina*

Sample ID	Concentration (%)	Total Ammonia (mg/L) NOEC = 35.0 mg/L		Unionized Ammonia (mg/L) NOEC = 1.25 mg/L	
		Day 0	Day 4	Day 0	Day 4
Control		0.0096	0.320	0.000	0.009
Composite A	10	0.0021	0.258	0.000	0.008
	50	0.0628	0.228	0.003	0.007
	100	0.143	0.294	0.006	0.009
Composite B	10	0.0519	0.334	0.003	0.010
	50	0.210	0.571	0.010	0.021
	100	0.414	0.682	0.022	0.020
Composite D	10	0.0151	0.178	0.001	0.005
	50	0.0842	0.447	0.003	0.013
	100	0.144	0.281	0.005	0.008

NOEC derived from concurrent reference-toxicant test

Table 3-20. Test Condition Summary for the Suspended-Particulate Phase Test with *Menidia beryllina*

Test Conditions: *Menidia beryllina*		
Date Sampled	June 1 – 8, 2021	
Date Received	June 3 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 20 – 24, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	49 days	
Test Species	*Menidia beryllina*	
Supplier	Aquatic BioSystems	
Date Acquired	July 20, 2021	
Acclimation / Holding Time	0 days	
Age at Test Initiation	11 days old	
Test Procedures	ITM 1998	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	96-Hour/ static	
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Organisms / Replicate	10	
Exposure Volume	300 mL	
Feeding	0.1 mL of Artemia nauplii, once daily	
Test Solution Renewal	None	
Test Dissolved Oxygen	Recommended: > 3.0 mg/L	Actual: 6.3 – 8.0 mg/L
Test Temperature	Recommended: 20 ± 1°C	Actual: 19.1 – 21.0 °C
Test Salinity	Recommended: 30 ± 2 ppt	Actual: 30 ppt
Test pH	Recommended: 7.8 ± 0.5	Actual: 7.9 – 8.2
Control Performance Standard	≥90% survival	Actual: 96%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant LC50 (mg/L)	53.26	1.52
Mean; Acceptable Range (mg/L)	48.91; 31.19 – 76.72	1.09; 0.598 – 1.97
NOEC (mg/L)	35.0	1.25
Deviations from Test Protocol	None	

3.2.3 Results of the Suspended-Particulate Phase Test with *Mytilus galloprovincialis*

The suspended-particulate phase test with *M. galloprovincialis* was initiated on July 21, 2021. The test met the acceptability criteria for proportion normal and survival (summarized in Table 3-21). The combined proportion normal endpoint data for all samples are summarized in Table 3-22. A summary of water quality measurements, ammonia concentrations, and test conditions are presented in Table 3-23, Table 3-24, and Table 3-25.

Mean combined percent normal development in the 100% elutriate concentration for the composite samples were 91.5 – 94.2%. The estimated EC_{50} value for the composite samples was > 100%, indicating a larval effect was not present in any of the composites. Statistical comparison to the control combined normal development for the 100% elutriate concentrations resulted in no significant differences.

Water quality measurements were within the recommended limits for the duration of testing. The embryo stocking density achieved in this test was 34.5 embryos/mL of test solution, which was above the recommended density of 15 – 30 embryos/mL. However, none of the treatments displayed biological effects from the overstocking.

Ammonia concentrations observed in the *M. galloprovincialis* elutriate test are summarized in Table 3-24. Total and unionized ammonia measurements in all composite samples were below the NOEC values derived from the concurrent ammonia reference-toxicant test. This indicates that ammonia concentrations within the overlying water were not a contributor to any adverse biological effects observed in the test treatments.

A reference-toxicant test (positive control) was performed on the batch of test organisms utilized for this study. The reference-toxicant test control met the test acceptability criterion and the EC_{50} value was within control chart limits of ±2 standard deviations from the laboratory historical mean (Table 3-25). This indicates that the test organisms used in this study were of similar sensitivity to those previously tested.

Table 3-21. *Mytilus galloprovincialis* Control Acceptability Results

Test Date	Mean Proportion Normal (%) >70%	Mean Proportion Survival (%) >70%	Mean Combined Normal Development (%)[1]	Meets Acceptability Criteria?
July 21 – 23, 2021	95.5	91.8	87.7	Yes

[1] Calculated as the number of normally developed embryos ÷ number of embryos stocked (stocking density).

Table 3-22. Combined Proportion Normal Development Summary for *Mytilus galloprovincialis*

Sample ID	Concentration (%)	Mean Combined Normal Development (%)[1]	Standard Deviation	Statistically Less Than Control?	EC_{50}
Control		87.7	2.9		
Composite A	1	91.4	3.0	--	>100%
	10	94.3	3.3	--	
	50	95.4	5.6	--	
	100	94.0	5.3	No	
Composite B	1	89.3	2.0	--	>100%
	10	93.0	4.5	--	
	50	91.3	3.4	--	
	100	94.2	5.8	No	
Composite D	1	93.6	6.5	--	>100%
	10	95.3	5.6	--	
	50	91.7	6.7	--	
	100	91.5	2.2	No	

[1] Calculated as the number of normally developed embryos ÷ number of embryos stocked (stocking density).

Table 3-23. Water Quality Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis*

Sample ID	Concen-tration (%)	Dissolved Oxygen (mg/L) ≥3.3 mg/L			Temperature (°C) 16 ± 1			Salinity (ppt) 30 ± 1			pH (units) 7.8 ± 0.5		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control		7.7	7.3	8.0	16.4	16.0	17.0	30	30	30	7.9	7.8	8.0
Composite A	1	7.7	7.3	8.0	16.4	16.0	17.0	31	30	31	7.9	7.8	8.0
	10	7.8	7.3	8.1	16.4	16.0	17.0	30	30	30	7.9	7.9	8.0
	50	7.7	7.4	8.1	16.4	16.0	17.0	30	30	31	8.0	7.9	8.0
	100	7.8	7.5	8.1	16.4	16.0	17.0	31	31	31	8.1	8.0	8.1
Composite B	1	7.6	7.2	7.9	16.4	16.0	17.0	30	30	30	7.9	7.8	8.0
	10	7.4	7.3	7.5	16.4	16.0	17.0	30	30	31	7.9	7.9	7.9
	50	7.5	7.4	7.5	16.4	16.0	17.0	31	30	31	8.0	8.0	8.1
	100	7.5	7.4	7.8	16.4	16.0	17.0	31	30	31	8.1	8.1	8.1
Composite D	1	7.1	6.8	7.5	16.4	16.0	17.0	30	30	30	7.9	7.8	7.9
	10	7.6	7.2	7.9	16.4	16.0	17.0	30	30	31	8.0	7.9	8.0
	50	7.7	7.3	7.9	16.4	16.0	17.0	31	30	31	8.0	7.9	8.0
	100	7.7	7.5	7.9	16.4	16.0	17.0	31	31	31	8.0	7.9	8.0

Table 3-24. Ammonia Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis*

Sample ID	Concentration (%)	Total Ammonia (mg/L) NOEC = 6.49 mg/L		Unionized Ammonia (mg/L) NOEC = 0.124 mg/L	
		Day 0	Day 2	Day 0	Day 2
Control		0.00	0.00	0.000	0.000
Composite A	1	0.00	0.00	0.000	0.000
	10	0.116	0.00	0.003	0.000
	50	0.474	0.219	0.011	0.006
	100	0.949	0.687	0.035	0.024
Composite B	1	0.00	0.00	0.000	0.000
	10	0.173	0.00	0.004	0.000
	50	0.863	0.610	0.026	0.021
	100	1.78	1.14	0.067	0.040
Composite D	1	0.0172	0.00	0.000	0.000
	10	0.0739	0.00	0.002	0.000
	50	0.566	0.385	0.014	0.011
	100	1.15	0.855	0.028	0.024

Table 3-25. Test Condition Summary for the Suspended-Particulate Phase Test with *Mytilus galloprovincialis*

Test Conditions: *Mytilus galloprovincialis*		
Date Sampled	June 1 – 8, 2021	
Date Received	June 3 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 21 – 23, 2021	
Days of Holding Recommended: ≤8 weeks (56 days)	50 days	
Test Species	*Mytilus galloprovincialis*	
Supplier	Taylor Shellfish	
Date Acquired	July 20, 2021	
Acclimation / Holding Time	1 day	
Age Class	2h larvae	
Test Procedures	ITM 1998	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	48 – 96 ±2 Hour/ Static	Actual: 49 Hours
Control Water	0.45 µm-filtered, North Hood Canal seawater	
Test Lighting	16 hour light / 8 hour dark	
Test Chamber	30-mL Glass Vial	
Replicates / Treatment	5	
Concentration / Treatment	1, 10, 50, and 100% elutriate	
Organisms / Replicate Recommended: 15 –30 embryos per mL	34.5 embryos per mL	
Exposure Volume	10 mL	
Test Solution Renewal	None	
Test Dissolved Oxygen	Recommended: >3.3 mg/L	Actual: 6.8 – 8.1 mg/L
Test Temperature	Recommended: 16 ± 1°C	Actual: 16.0 – 17.0 °C
Test Salinity	Recommended: 30 ± 1 ppt	Actual: 30 – 31 ppt
Test pH	Recommended: 7.8 ± 0.5	Actual: 7.8 – 8.1
Control Performance Standard	≥ 70% normal development	95.5%
	≥ 70% survival	91.8%
Reference Toxicant	Total Ammonia	Unionized Ammonia
Reference Toxicant EC50 (mg/L)	10.3	0.207
Mean; Acceptable Range (mg/L)	6.48; 3.74 – 11.3	0.136; 0.066 – 0.281
NOEC (mg/L)	6.49	0.124
Deviations from Test Protocol	Initial stocking density	

3.3 Bioaccumulation Potential Test Results

The 28-day bioaccumulation tests were initiated on July 23, 2021 with the polychaete *A. virens* and the clam *M. nasuta*. Mean survival in the control samples were 100% for *A. virens* and 96.8% for *M. nasuta* (Table 3-26). Reference sample survival was 100% for *A. virens* and 97.6% for *M. nasuta*. Survival for *A. virens* in the composite samples were 99.0 – 100% while *M. nasuta* survival was 93.6 – 96.8%.

Water quality parameters were within recommended ranges for the duration of the M. nasuta bioaccumulation test (Table 3-27). Water quality parameters were also within recommended ranges for the duration of the A. virens bioaccumulation test (Table 3-28) with the exception of temperature, which was slightly above the upper threshold target of 16°C on Day 13 and 28. These measurements were still within the acceptable range for the species, however. A full summary of test conditions and recommended parameters is summarized in Table 3-29 and Table 3-30.

The average tissue wet weight for *A. virens* in the reference treatment was 92.8 grams per replicate and 99.2 grams per replicate for *M. nasuta*. In the composite samples, the average tissue wet weight for *A. virens* was 81.6 – 89.2 grams per replicate; it was 86.3 – 94.2 grams per replicate for *M. nasuta*.

Table 3-26. Survival Summary for *Macoma nasuta* and *Alitta virens* Bioaccumulation Tests

Sample ID	*A. virens*		*M. nasuta*	
	Mean Survival (%)	Standard Deviation	Mean Survival (%)	Standard Deviation
Control	100.0	0.0	96.8	3.3
LA-5 Reference	100.0	0.0	97.6	3.6
Composite A	100.0	0.0	93.6	6.1
Composite B	100.0	0.0	96.8	3.3
Composite D	99.0	2.2	96.0	4.9

Table 3-27. Water Quality Summary for *Macoma nasuta* Bioaccumulation Test

Sample ID	Dissolved Oxygen (mg/L) ≥5.1 mg/L			Temperature (°C) 14 ± 2°C			Salinity (ppt) 30 ± 2 ppt			pH (pH units) 7.8 ± 0.5		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.4	6.6	8.4	15.1	14.1	16.2	30	29	31	7.9	7.8	8.0
LA-5 Reference	7.3	6.3	8.3	15.0	14.0	16.3	30	29	31	7.9	7.8	8.0
Composite A	7.5	6.3	8.3	15.1	14.1	16.4	30	29	31	7.9	7.8	8.1
Composite B	7.5	7.0	8.4	15.1	14.0	16.3	30	29	31	7.9	7.8	8.1
Composite D	7.4	6.6	8.4	15.0	14.1	16.2	30	29	31	7.9	7.4	8.0

Table 3-28. Water Quality Summary for *Alitta virens* Bioaccumulation Test

Sample ID	Dissolved Oxygen (mg/L) ≥5.1 mg/L			Temperature (°C) 14 ± 2°C			Salinity (ppt) 30 ± 2 ppt			pH (pH units) 7.8 ± 0.5		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.2	6.6	7.9	15.7	14.8	**16.6**	30	29	31	7.9	7.7	8.1
LA-5 Reference	7.3	6.6	8.5	15.7	14.9	**16.6**	30	29	31	7.9	7.4	8.0
Composite A	7.2	6.2	8.1	15.7	14.9	**16.5**	30	29	31	7.9	7.8	8.0
Composite B	7.2	6.5	8.1	15.6	14.7	16.4	30	29	31	7.9	7.8	8.0
Composite D	7.6	7.2	8.5	15.6	14.9	16.3	30	29	31	7.9	7.7	8.1

Bold values = measurement outside of recommended range

Table 3-29. Test Condition Summary for *Macoma nasuta* Bioaccumulation Test

Test Conditions: *Macoma nasuta*		
Date Sampled	May 31 – June 8, 2021	
Date Received	June 2 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 23 – August 20, 2021	
Days of holding Recommended: ≤8 weeks (56 days)	53 Days	
Source of Control Sediment	Discovery Bay, WA	
Test Species	*Macoma nasuta*	
Supplier	J & G Gunstone, Discovery Bay, WA	
Date Acquired	July 23, 2021	
Acclimation / Holding Time	0 days	
Age Class	Adult	
Test Procedures	ITM	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	28-Day/ Flow-through	
Control Water	Sand-filtered, North Hood Canal seawater	
Test Lighting	16 hours light: 8 hours dark	
Test Chamber	10 Gallon Glass Aquaria (49.5 x 24.8 x 29.2 cm)	
Replicates / Treatment	5	
Organisms / Replicate	25	
Exposure Volume	4 – 5 L sediment (4-5 cm) / 18.5 L of overlying seawater	
Feeding	None	
Test Dissolved Oxygen	Recommended: > 5.1 mg/L (60% Sat. @ 14°C, 30ppt)	Actual: 6.3 – 8.4 mg/L
Test Temperature	Recommended: 14 ± 2 °C	Actual: 14.0 – 16.4 °C
Test Salinity	Recommended: 30 ± 2 ppt	Actual: 29 – 31 ppt
Test pH	Recommended: 7.8 ± 0.5	Actual: 7.4 – 8.1
Water Renewal (Flow-Through)	Recommended: 5 – 10 volumes/day (92.5 – 185 L/day)	Actual: 32 – 64 mL/30 sec 92.2 – 184.32 L/day
Control Performance Standard	Not Defined Targeted: ≥ 75% survival	Actual: 96.8%
Deviations from Test Protocol	None	

Table 3-30. Test Condition Summary for *Alitta virens* Bioaccumulation Test

Test Conditions: *Alitta virens*		
Date Sampled	May 31 – June 8, 2021	
Date Received	June 2 – 10, 2021	
Sample Storage Conditions	4°C, dark	
Test Dates	July 23 – August 20, 2021	
Days of holding Recommended: ≤8 weeks (56 days)	53 Days	
Source of Control Sediment	Damariscotta River, Boothbay Harbor, ME	
Test Species	*Alitta* (*Nereis, Neanthes*) *virens*	
Supplier	Aquatic Research Organisms, Hampton, NH	
Date Acquired	July 22, 2021	
Acclimation / Holding time	1 day	
Age Class	Adult	
Test Procedures	ITM	
Test Location	EcoAnalysts, Port Gamble, WA	
Test Type / Duration	28-Day/ Flow-through	
Control Water	Sand-filtered, North Hood Canal seawater	
Test Lighting	16 hours light: 8 hours dark	
Test Chamber	10 Gallon Glass Aquaria (49.5 x 24.8 x 29.2 cm)	
Replicates / Treatment	5	
Organisms / Replicate	20	
Exposure Volume	4 – 5 L sediment (4-5 cm) / 18.5 L of overlying seawater	
Feeding	None	
Test Dissolved Oxygen	Recommended: > 5.1 mg/L (60% Sat. @ 14°C, 30ppt)	Actual: 6.2 – 8.5 mg/L
Test Temperature	Recommended: 14 ± 2 °C	Actual: 14.7 – 16.6 °C
Test Salinity	Recommended: 30 ± 2 ppt	Actual: 29 – 31 ppt
Test pH	Recommended: 7 ± 0.5	Actual: 7.4 – 8.1
Water Renewal (Flow-Through)	Recommended: 5 – 10 volumes/day (92.5 – 185 L/day)	Actual: 32 – 64 mL/30 sec 92.2 – 184.32 L/day
Control Performance Standard	Not Defined Targeted: ≥ 75% survival	Actual: 100%
Deviations from Test Protocol	Temperature (Day 13 and 28)	

4. SUMMARY

The results of the solid-phase, suspended-particulate phase, and bioaccumulation potential tests for NBSD Mole Pier Floating Dry Dock are summarized below.

The survival of each species in the test sediments was evaluated statistically against survival in the reference sediment according to guidelines provided by the OTM (USEPA/USACE 1991). Potential dredged material does not meet the LPC for benthic toxicity when organism survival is statistically less than in the reference sediment and survival is less that the that of the reference sediment by at least 20 percent for amphipod tests, or by at least 10 percent for *N. arenaceodentata*.

The LPC for benthic toxicity was met for both amphipod species (*E. estuarius* and *A. abdita*) and *N. arenaceodentata* in all three composite samples (Table 4-1).

Table 4-1. Solid-Phase Test Results Summary

Sample ID	Survival (%)		
	Eohaustorius estuarius	***Ampelisca abdita***	***Neanthes arenaceodentata***
LA-5 Reference	99.0	97.0	100
Composite A	90.0		100
Composite B		96.0	98.0
Composite D	96.0		98.0

Suspended-particulate phase test results for Mole Pier are summarized in Table 4-2. Both *A. bahia* and *M. beryllina* survival in the 100% elutriate of the composite samples was not statistically significantly less than the control and the LC_{50}/EC_{50} values were greater than 100%. Larval *M. galloprovincialis* combined normal survivorship results in the 100% elutriate for all composite samples were not significantly less than the control treatment and the LC_{50}/EC_{50} values did not indicate a biological effect may be present (> 100%).

Table 4-2. Suspended-Particulate Phase Test Results Summary

Sample ID	Endpoint LC/EC_{50} Result (%)		
	Americamysis bahia	***Menidia beryllina***	***Mytilus galloprovincialis***
Composite A	>100	>100	>100
Composite B	>100	>100	>100
Composite D	>100	>100	>100

Bioaccumulation test survival in the reference treatment was 100% for *A. virens* and 99 – 100% in the Mole Pier composite treatments. Survival for *M. nasuta* was 97.6% in the reference treatment and 93.6 – 96.8% in the test composites (Table 4-3). Adequate tissue was recovered for both species.

Table 4-3. Bioaccumulation Potential Survival Results

Sample ID	Survival (%)	
	Macoma nasuta	***Alitta virens***
LA-5 Reference	97.6	100.0
Composite A	93.6	100.0
Composite B	96.8	100.0
Composite D	96.0	99.0

5. REFERENCES

APHA. 2017. American Public Health Association, American Water Works Association, and Water Environment Federation (APHA). Standard Methods for the Examination of Water and Wastewater, 23th Edition. Ammonia-Selective Electrode Method, Method 4500-NH_3 D.

CETIS. 2016. CETIS™ Comprehensive Environmental Toxicity Information System. User's Guide. Tidepool Scientific Software. McKinleyville, CA. 2000-2016.

Hampson 1977. B. L. Hampson, Relationship between total ammonia and free ammonia in terrestrial and ocean waters, ICES Journal of Marine Science, Volume 37, Issue 2, February 1977, Pages 117–122.

Lee, D.R. 1980. Reference toxicants in quality control of aquatic bioassays: Aquatic invertebrate bioassays. In Buikema AL Jr, Cairns J Jr, eds, Proceedings, 2nd Annual Symposium on Aquatic Toxicology. STP 715. American Society for Testing and Materials, Philadelphia, PA, pp 188–199.

NAVFAC 2021. Sampling and Analysis Plan for a Sediment Characterization Study for Sediment Characterization Study to Support Proposed Dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego. U.S. Department of the Navy, Naval Facilities Engineering Command Southwest, San Diego, California. Revised May 28 2021.

PSEP. 1995. Puget Sound Protocols and Guidelines. Puget Sound Estuary Program. Puget Sound Water Quality Action Team, Olympia, Washington.

USEPA. 1989. U.S. Environmental Protection Agency. "Ambient Water Quality Criteria for Ammonia (Saltwater)" EPA 440/5-88/004, Washington, D.C. Environmental Protection Agency Office of Water Regulations and Standards, Criteria and Standards Division.

USEPA. 1994. Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods. EPA/600/R-94/025. Environmental Protection Agency Office of Research and Development. June 1994.

USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. EPA-821-R-02-012.

USEPA/USACE. 1991. Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual (Green Book, Ocean Testing Manual, OTM). EPA-503/8-91-001. February 1991.

USEPA/USACE. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S: - Testing Manual (Inland Testing Manual, ITM) EPA 823-B-98-004. February 1998.

APPENDIX A. TEST DATA, STATISTICAL ANALYSES, AND REFERENCE TOXICANT TEST RESULTS

1. *EOHAUSTORIUS ESTUARIUS* 10-DAY SOLID-PHASE TEST

1.1 *EOHAUSTORIUS ESTUARIUS* TEST DATA
1.2 *EOHAUSTORIUS ESTUARIUS* STATISTICAL RESULTS
1.3 *EOHAUSTORIUS ESTUARIUS* REFERENCE TOXICANT TEST RESULTS

2. *AMPELISCA ABDITA* 10-DAY SOLID-PHASE TEST

2.1 *AMPELISCA ABDITA* TEST DATA
2.2 *AMPELISCA ABDITA* STATISTICAL RESULTS
2.3 *AMPELISCA ABDITA* REFERENCE TOXICANT TEST RESULTS

3. *NEANTHES ARENACEODENTATA* 10-DAY SOLID-PHASE TEST

3.1 *NEANTHES ARENACEODENTATA* TEST DATA
3.2 *NEANTHES ARENACEODENTATA* STATISTICAL RESULTS
3.3 *NEANTHES ARENACEODENTATA* REFERENCE TOXICANT TEST RESULTS

4. *AMERICAMYSIS BAHIA* SPP WATER-COLUMN TEST

4.1 *AMERICAMYSIS BAHIA* TEST DATA
4.2 *AMERICAMYSIS BAHIA* STATISTICAL RESULTS
4.3 *AMERICAMYSIS BAHIA* REFERENCE TOXICANT TEST RESULTS

5. *MENIDIA BERYLLINA* SPP WATER-COLUMN TEST

5.1 *MENIDIA BERYLLINA* TEST DATA
5.2 *MENIDIA BERYLLINA* STATISTICAL RESULTS
5.3 *MENIDIA BERYLLINA* REFERENCE TOXICANT TEST RESULTS

6. *MYTILUS GALLOPROVINCIALIS* SPP WATER-COLUMN TEST

6.1 *MYTILUS GALLOPROVINCIALIS* TEST DATA
6.2 *MYTILUS GALLOPROVINCIALIS* STATISTICAL RESULTS
6.3 *MYTILUS GALLOPROVINCIALIS* REFERENCE TOXICANT TEST RESULTS

7. *ALITTA VIRENS* AND *MACOMA NASUTA* BIOACCUMULATION TESTS

7.1 *ALITTA VIRENS* AND *MACOMA NASUTA* TEST DATA

APPENDIX B. CHAIN-OF-CUSTODY FORMS, LOGS, AND PRE-TEST DOCUMENTS

APPENDIX C. AMPHIPOD RESULTS DISCUSSION MEMORANDUM PREPARED 7/1/21 (UPDATED 7/23/21)

APPENDIX A. TEST DATA, STATISTICAL ANALYSES, AND REFERENCE TOXICANT TEST RESULTS

1. *Eohaustorius estuarius* 10-day Solid-Phase Test

1.1 *Eohaustorius estuarius* Test Data

Version T.2

GENERAL

Client	Wood / KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Oldest Sample Collected	5/31/2021
Sample Holding Time	43
Test Start Date	07/13/21
Test Species	*Eohaustorius estuarius*
Organism Supplier	NW Amphipod
Organism Acquired	7/8/2021
Organism Acclimation	5
Organism Age	Mature; 3-5 mm
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Bath 3
Sample Treatment	None
Control Sediment Source	Eoh Control
Water Batch	FSW071121.01 & FSW071121.02
Test Lighting	Continuous
Test Chamber	1 L mason jars
Replicates Per Treatment	5 + 2 Surr
Organisms per Replicate	20
Exposure Volume	2 cm sediment/ 775 mL water
Feeding Information	None
Test Dissolved Oxygen	> 5.1
Test Temperature	15 ± 1
Test Salinity	28 ± 2
Test pH	7.8 ± 0.5
Water Renewal Info	None

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO	5.1	
Temp	14	16
Sal	26	30
pH	7.3	8.3

TEST START TIME:	1005
TEST END TIME:	1200

	CLIENT SAMPLE ID	LAB ID
1	Eoh Control	P210708.01
2	LA-5 REF	P210707.01
3	Composite A	P210707.02
4	Composite D	P210707.04
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*	Port Gamble , Bath 3	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 14 - 16	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
Eoh Control	0	1	7	RE	07/13/21	8	8.4	15.6	28	8.1	
Eoh Control	0	2	21	RE	07/13/21	8	8.5	15.5	28	8.1	
Eoh Control	0	3	20	RE	07/13/21	8	8.5	15.1	28	8.1	
Eoh Control	0	4	12	RE	07/13/21	8	8.4	15.3	28	8.1	
Eoh Control	0	5	15	RE	07/13/21	8	8.5	15.1	28	8.1	
Eoh Control	1	Surr	17	SH	07/14/21	9	8.4	14.7	29	8.1	
Eoh Control	2	Surr	17	DM	07/15/21	8	8.5	15.1	28	8.1	
Eoh Control	3	Surr	17	NL	07/16/21	9	8.4	14.4	29	8.2	
Eoh Control	4	Surr	17	IP	07/17/21	9	8.4	14.8	29	8.1	
Eoh Control	5	Surr	17	IP	07/18/21	8	8.5	15.0	29	8.1	
Eoh Control	6	Surr	17	MS	07/19/21	8	8.5	14.8	28	8.1	
Eoh Control	7	Surr	17	IP	07/20/21	8	8.6	15.0	28	8.2	
Eoh Control	8	Surr	17	IP	07/21/21	8	8.6	14.7	28	8.2	
Eoh Control	9	Surr	17	NL	07/22/21	9	8.3	14.8	28	8.1	
Eoh Control	10	1	7	DM	07/23/21	9	8.3	15.3	28	8.2	
Eoh Control	10	2	21	DM	07/23/21	9	8.3	15.3	29	8.1	
Eoh Control	10	3	20	DM	07/23/21	9	8.4	15.2	29	8.2	
Eoh Control	10	4	12	DM	07/23/21	9	8.4	15.2	29	8.2	
Eoh Control	10	5	15	DM	07/23/21	9	8.4	15.1	29	8.2	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*	Port Gamble , Bath 3	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 14 - 16	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
LA-5 REF	0	1	23	RE	07/13/21	8	8.5	15.2	29	8.2	
LA-5 REF	0	2	8	RE	07/13/21	8	8.5	15.4	28	8.1	
LA-5 REF	0	3	22	RE	07/13/21	8	8.4	15.3	28	8.2	
LA-5 REF	0	4	4	RE	07/13/21	8	8.4	15.1	29	8.1	
LA-5 REF	0	5	1	RE	07/13/21	8	8.4	15.2	28	8.2	
LA-5 REF	1	Surr	14	SH	07/14/21	9	8.2	14.7	29	8.1	
LA-5 REF	2	Surr	14	DM	07/15/21	8	8.3	15.5	29	8.1	
LA-5 REF	3	Surr	14	NL	07/16/21	9	8.2	14.5	29	8.2	
LA-5 REF	4	Surr	14	IP	07/17/21	9	8.1	14.9	29	8.1	
LA-5 REF	5	Surr	14	IP	07/18/21	8	8.4	14.9	29	8.1	
LA-5 REF	6	Surr	14	MS	07/19/21	8	8.4	15.0	29	8.1	
LA-5 REF	7	Surr	14	IP	07/20/21	8	8.3	15.0	29	8.2	
LA-5 REF	8	Surr	14	IP	07/21/21	8	8.2	15.1	29	8.2	
LA-5 REF	9	Surr	14	NL	07/22/21	9	8.3	14.9	29	8.2	
LA-5 REF	10	1	23	DM	07/23/21	9	8.3	15.2	29	8.2	
LA-5 REF	10	2	8	DM	07/23/21	9	8.2	15.2	29	8.1	
LA-5 REF	10	3	22	DM	07/23/21	9	8.3	15.3	29	8.1	
LA-5 REF	10	4	4	DM	07/23/21	9	8.2	15.2	29	8.1	
LA-5 REF	10	5	1	DM	07/23/21	9	8.1	15.2	29	8.1	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*	Port Gamble , Bath 3	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 14 - 16	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
Composite A	0	1	10	RE	07/13/21	8	8.3	15.9	28	8.1	
Composite A	0	2	11	RE	07/13/21	8	8.4	15.4	28	8.1	
Composite A	0	3	18	RE	07/13/21	8	8.5	15.4	28	8.1	
Composite A	0	4	6	RE	07/13/21	8	8.3	15.7	28	8.1	
Composite A	0	5	19	RE	07/13/21	8	8.5	15.3	28	8.1	
Composite A	1	Surr	2	SH	07/14/21	9	8.2	14.7	29	8.1	
Composite A	2	Surr	2	DM	07/15/21	8	8.4	15.3	29	8.1	
Composite A	3	Surr	2	NL	07/16/21	9	8.2	14.5	29	8.1	
Composite A	4	Surr	2	IP	07/17/21	9	8.1	14.8	29	8.0	
Composite A	5	Surr	2	IP	07/18/21	8	8.4	15.0	29	8.1	
Composite A	6	Surr	2	MS	07/19/21	8	8.3	15.5	28	8.1	
Composite A	7	Surr	2	IP	07/20/21	8	8.3	15.0	29	8.1	
Composite A	8	Surr	2	IP	07/21/21	8	8.5	15.0	29	8.1	
Composite A	9	Surr	2	NL	07/22/21	9	8.2	15.1	29	8.1	
Composite A	10	1	10	DM	07/23/21	9	8.3	15.4	29	8.1	
Composite A	10	2	11	DM	07/23/21	9	8.3	15.2	29	8.1	
Composite A	10	3	18	DM	07/23/21	9	8.3	15.2	29	8.1	
Composite A	10	4	6	DM	07/23/21	9	8.1	15.4	29	8.1	
Composite A	10	5	19	DM	07/23/21	9	8.3	15.3	29	8.1	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*	Port Gamble , Bath 3	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 14 - 16	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
Composite D	0	1	16	RE	07/13/21	8	8.5	15.3	28	8.1	
Composite D	0	2	5	RE	07/13/21	8	8.2	15.5	28	8.1	
Composite D	0	3	24	RE	07/13/21	8	8.5	15.4	28	8.1	
Composite D	0	4	13	RE	07/13/21	8	8.5	15.3	28	8.1	
Composite D	0	5	9	RE	07/13/21	8	8.4	15.3	28	8.1	
Composite D	1	Surr	3	SH	07/14/21	9	8.3	14.7	29	8.1	
Composite D	2	Surr	3	DM	07/15/21	8	8.4	15.3	28	8.1	
Composite D	3	Surr	3	NL	07/16/21	9	8.3	14.6	29	8.1	
Composite D	4	Surr	3	IP	07/17/21	9	8.3	14.8	29	8.1	
Composite D	5	Surr	3	IP	07/18/21	8	8.4	15.0	29	8.1	
Composite D	6	Surr	3	MS	07/19/21	8	8.4	15.1	28	8.1	
Composite D	7	Surr	3	IP	07/20/21	8	8.3	15.1	28	8.1	
Composite D	8	Surr	3	IP	07/21/21	8	8.5	15.0	28	8.1	
Composite D	9	Surr	3	NL	07/22/21	9	8.4	14.9	28	8.1	
Composite D	10	1	16	DM	07/23/21	9	8.4	15.2	29	8.1	
Composite D	10	2	5	DM	07/23/21	9	8.3	15.2	29	8.1	
Composite D	10	3	24	DM	07/23/21	9	8.4	15.2	29	8.1	
Composite D	10	4	13	DM	07/23/21	9	8.3	15.2	29	8.1	
Composite D	10	5	9	DM	07/23/21	9	8.3	15.2	29	8.1	

10 Day SP Test Observation Data Sheet

CLIENT	PROJECT	PROJECT N0.	PROJECT MANAGER	LABORATORY LOCATION	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 3	OTM/ITM ,	*Eohaustorius estuarius*

Observation Key
#FOS = Num Floating on Water Surface
#E = Num Emerged from Sediment
#M = Number of Mortalities
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

				Tech	SH	DM	NL	IP	IP	MS	IP	IP	NL	DM	
				Date	07/14/21	07/15/21	07/16/21	07/17/21	07/18/21	07/19/21	07/20/21	07/21/21	07/22/21	07/23/21	
CLIENT ID	REP	Jar #	Initial #	Day	1	2	3	4	5	6	7	8	9	10	Comments
Eoh Control	1	7	20		N	N	N	N	N	N	N	N	N	N	
Eoh Control	2	21	20		N	N	N	N	N	N	N	N	N	N	
Eoh Control	3	20	20		N	N	N	N	N	N	N	N	N	N	
Eoh Control	4	12	20		N	N	N	N	N	N	N	N	N	N	
Eoh Control	5	15	20		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	1	23	20		N	N	N	N	N	N	N	TC	N	N	
LA-5 REF	2	8	20		N	1FOS	1FOS	N	N	N	N	N	N	N	
LA-5 REF	3	22	20		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	4	4	20		N	1E	N	N	N	N	N	N	N	N	
LA-5 REF	5	1	20		N	N	1E	1E	N	N	1E	N	N	N	
Composite A	1	10	20		N	N	N	N	N	N	N	N	N	N	
Composite A	2	11	20		TC	TC	TC	TC	TC	N	N	N	N	N	
Composite A	3	18	20		N	N	N	N	N	N	N	N	N	N	
Composite A	4	6	20		TC	N	TC	N	N	N	N	TC	N	N	
Composite A	5	19	20		TC	TC	TC	TC	TC	TC	TC	TC	N	N	

EcoAnalysts, Inc.

10 Day SP Test Observation Data Sheet

CLIENT	PROJECT	PROJECT N0.	PROJECT MANAGER	LABORATORY LOCATION	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 3	OTM/ITM ,	*Eohaustorius estuarius*

Observation Key
#FOS = Num Floating on Water Surface
#E = Num Emerged from Sediment
#M = Number of Mortalities
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

				Tech	SH	DM	NL	IP	IP	MS	IP	IP	NL	DM	
				Date	07/14/21	07/15/21	07/16/21	07/17/21	07/18/21	07/19/21	07/20/21	07/21/21	07/22/21	07/23/21	
CLIENT ID	**REP**	**Jar #**	**Initial #**	**Day**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Comments**
Composite D	1	16	20		TC	TC	TC	N	N	N	N	N	N	N	
Composite D	2	5	20		N	N	N	N	N	N	N	N	N	N	
Composite D	3	24	20		N	N	N	N	N	N	N	N	N	N	
Composite D	4	13	20		TC	TC	TC	TC	N	N	N	N	N	N	
Composite D	5	9	20		TC	TC	TC	1FOS	N	N	N	N	N	N	

10 Day SP Test Survival Summary

CLIENT	PROJECT		SPECIES
Wood / KMEA	Mole Pier		*Eohaustorius estuarius*
PROJECT MANAGER	**PROJECT NUMBER**	**Date Recovered:**	
M. Knowlen	PG1217	**7/23/21 MK JW**	

Sample ID	Rep	Jar #	# Initiated	# Alive	# Dead	Initials	# Missing or Dead	Comments
Eoh Control	1	7	20	20	0	JW	0	
Eoh Control	2	21	20	20	0	MK	0	
Eoh Control	3	20	20	20	0	JW	0	
Eoh Control	4	12	20	19	0	MK	1	
Eoh Control	5	15	20	20	0	JW	0	
LA-5 REF	1	23	20	20	0	MK	0	
LA-5 REF	2	8	20	20	0	JW	0	
LA-5 REF	3	22	20	20	0	JW	0	
LA-5 REF	4	4	20	20	0	MK	0	
LA-5 REF	5	1	20	19	0	JW	1	

10 Day SP Test Survival Summary

CLIENT	PROJECT		SPECIES
Wood / KMEA	Mole Pier		*Eohaustorius estuarius*
PROJECT MANAGER	**PROJECT NUMBER**	**Date Recovered:**	
M. Knowlen	PG1217	**7/23/21 MK JW**	

Sample ID	Rep	Jar #	# Initiated	# Alive	# Dead	Initials	# Missing or Dead	Comments
Composite A	1	10	20	18	1	MK	2	
Composite A	2	11	20	19	0	JW	1	
Composite A	3	18	20	18	1	MK	2	
Composite A	4	6	20	18	1	JW	2	
Composite A	5	19	20	17	2	MK	3	
Composite D	1	16	20	19	0	JW	1	
Composite D	2	5	20	19	0	MK	1	
Composite D	3	24	20	19	0	MK	1	
Composite D	4	13	20	19	1	MK	1	
Composite D	5	9	20	20	0	JW	0	

10 Day SP Test Survival Summary

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood / KMEA	Mole Pier	PG1217	*Eohaustorius estuarius*

Sample ID	Rep	# Initiated	# Alive	% Survival	Survival Statistics: Mean Survival (%)	Survival Statistics: SD	% Mortality	Mortality Statistics: Mean Mortality (%)	Mortality Statistics: SD
Eoh Control	1	20	20	100			0		
Eoh Control	2	20	20	100			0		
Eoh Control	3	20	20	100			0		
Eoh Control	4	20	19	95			5		
Eoh Control	5	20	20	100	99.0	2.2	0	1.0	2.2
LA-5 REF	1	20	20	100			0		
LA-5 REF	2	20	20	100			0		
LA-5 REF	3	20	20	100			0		
LA-5 REF	4	20	20	100			0		
LA-5 REF	5	20	19	95	99.0	2.2	5	1.0	2.2

10 Day SP Test Survival Summary

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood / KMEA	Mole Pier	PG1217	*Eohaustorius estuarius*

				Survival Statistics			Mortality Statistics		
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	% Mortality	Mean Mortality (%)	SD
Composite A	1	20	18	90			10		
Composite A	2	20	19	95			5		
Composite A	3	20	18	90			10		
Composite A	4	20	18	90			10		
Composite A	5	20	17	85	90.0	3.5	15	10.0	3.5
Composite D	1	20	19	95			5		
Composite D	2	20	19	95			5		
Composite D	3	20	19	95			5		
Composite D	4	20	19	95			5		
Composite D	5	20	20	100	96.0	2.2	0	4.0	2.2

10 Day SP Test Day 0 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*

Calibration Standards Temperature: 20.0 **Date:** 7/13/2021 **Tech:** DM

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	
Eoh Control	0	Overlying	0.0371	19.4	T17	28	8.1	15.3	288.47	9.2555	0.001	
LA-5 REF	0	Overlying	0.459	19.9	T17	28	8.2	15.2	288.39	9.2556	0.017	
Composite A	0	Overlying	0.132	20.0	T17	28	8.1	15.5	288.69	9.2555	0.004	
Composite D	0	Overlying	0.280	19.4	T17	28	8.1	15.4	288.51	9.2555	0.009	

EcoANALYSTS, INC.

10 Day SP Test Day 0 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*

Calibration Standards Temperature: 20.0 **Date:** 7/13/2021 **Tech:** DM

NH_3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Notes
Eoh Control	0	Porewater	0.221	21.0	T17/9	30	7.7	15.3	288.47	9.2559	0.003	
LA-5 REF	0	Porewater	1.55	21.0	T17/9	30	8.0	15.2	288.39	9.2559	0.041	
Composite A	0	Porewater	1.65	21.0	T17/9	30	8.0	15.5	288.69	9.2559	0.044	
Composite D	0	Porewater	1.80	21.0	T17/9	30	7.8	15.4	288.51	9.2559	0.031	

10 Day SP Test Day 10 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*

Calibration Standards Temperature:	20.1	Date:	7/23/2021	Tech:	SH

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	
Eoh Control	10	Overlying	0.00	19.4	T17	29	8.2	15.2	288.37	9.2557	0.000	
LA-5 REF	10	Overlying	1.39	19.4	T17	29	8.1	15.2	288.37	9.2557	0.048	
Composite A	10	Overlying	0.808	19.3	T17	29	8.1	15.3	288.45	9.2557	0.027	
Composite D	10	Overlying	0.912	19.1	T17	29	8.1	15.2	288.35	9.2557	0.030	

EcoANALYSTS, INC.

10 Day SP Test Day 10 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Eohaustorius estuarius*

Calibration Standards Temperature: 20.1 **Date:** 7/23/2021 **Tech:** SH

NH3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis **Column A on WQ Sheet MUST be sorted Smallest to Largest**

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	**Sourced**		**Record**	**Record**	**Record**	**Record**	**Record**	**Calculated**	**Calculated**	**Calculated**	**Calculated**	**Notes**
Eoh Control	10	Porewater	0.0758	21.0	M9/T17	29	7.4	15.2	288.37	9.2557	0.001	
LA-5 REF	10	Porewater	2.07	21.0	M9/T17	29	7.7	15.2	288.37	9.2557	0.028	
Composite A	10	Porewater	1.25	21.0	M9/T17	29	7.7	15.3	288.45	9.2557	0.017	
Composite D	10	Porewater	1.07	20.9	M9/T17	29	7.6	15.2	288.35	9.2557	0.011	

1.2 *Eohaustorius estuarius* Statistical Results

CETIS Summary Report

Report Date: 08 Sep-21 09:44 (p 1 of 1)
Test Code/ID: Mole Pier / 01-1310-9217

Eohaustorius 10-d Survival and Reburial Sediment Test

EcoAnalysts

Batch ID:	08-5745-9932	**Test Type:**	Survival-Reburial	**Analyst:**	
Start Date:	13 Jul-21 10:05	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	23 Jul-21 12:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Test Length:	10d 2h	**Taxon:**	Malacostraca	**Source:**	Northwestern Aquatic Scien **Age:**

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
Control	19-7369-1461	08 Jul-21	08 Jul-21	5d 10h	Wood	Mole Pier
LA-5 Ref	17-8537-9307	31 May-21 12:05	02 Jun-21 12:20	42d 22h (0.2 °C)		
Composite A	06-6245-4601	04 Jun-21 07:30	08 Jun-21 12:11	39d 3h (0.8 °C)		
Composite D	13-5785-5903	01 Jun-21 08:00	03 Jun-21 12:30	42d 2h (0.1 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
Control	Sediment Sample	Mole Pier	P210708.01	
LA-5 Ref	Sediment Sample	Mole Pier	P210707.01	
Composite A	Sediment Sample	Mole Pier	P210707.02	
Composite D	Sediment Sample	Mole Pier	P210707.04	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Control passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Composite D passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Composite A passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	LA-5 Ref passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Control failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Composite D failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Composite A failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	LA-5 Ref failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Control passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Composite D passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Composite A passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	LA-5 Ref passed proportion survived	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
13-5316-4702	Proportion Survived	Control Resp	0.99	0.9	>>	Yes	Passes Criteria

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
Control	CS	5	0.9900	0.9622	1.0000	0.9500	1.0000	0.0100	0.0224	2.26%	0.00%
LA-5 Ref	RS	5	0.9900	0.9622	1.0000	0.9500	1.0000	0.0100	0.0224	2.26%	0.00%
Composite A		5	0.9000	0.8561	0.9439	0.8500	0.9500	0.0158	0.0354	3.93%	9.09%
Composite D		5	0.9600	0.9322	0.9878	0.9500	1.0000	0.0100	0.0224	2.33%	3.03%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	1.0000	1.0000	1.0000	0.9500	1.0000
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	0.9500
Composite A		0.9000	0.9500	0.9000	0.9000	0.8500
Composite D		0.9500	0.9500	0.9500	0.9500	1.0000

Proportion Survived Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	20/20	20/20	20/20	19/20	20/20
LA-5 Ref	RS	20/20	20/20	20/20	20/20	19/20
Composite A		18/20	19/20	18/20	18/20	17/20
Composite D		19/20	19/20	19/20	19/20	20/20

CETIS Summary Report

Report Date: 08 Sep-21 09:48 (p 1 of 1)
Test Code/ID: Mole Pier / 01-1310-9217

Eohaustorius 10-d Survival and Reburial Sediment Test

EcoAnalysts

Batch ID:	08-5745-9932	**Test Type:**	Survival-Reburial	**Analyst:**	
Start Date:	13 Jul-21 10:05	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	23 Jul-21 12:00	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Test Length:	10d 2h	**Taxon:**	Malacostraca	**Source:**	Northwestern Aquatic Scien **Age:**

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
Control	19-7369-1461	08 Jul-21	08 Jul-21	5d 10h	Wood	Mole Pier
LA-5 Ref	17-8537-9307	31 May-21 12:05	02 Jun-21 12:20	42d 22h (0.2 °C)		
Composite A	06-6245-4601	04 Jun-21 07:30	08 Jun-21 12:11	39d 3h (0.8 °C)		
Composite D	13-5785-5903	01 Jun-21 08:00	03 Jun-21 12:30	42d 2h (0.1 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
Control	Sediment Sample	Mole Pier	P210708.01	
LA-5 Ref	Sediment Sample	Mole Pier	P210707.01	
Composite A	Sediment Sample	Mole Pier	P210707.02	
Composite D	Sediment Sample	Mole Pier	P210707.04	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Control passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Composite D passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	Composite A passed proportion survived	1
13-5316-4702	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	0.7778	LA-5 Ref passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Control failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Composite D failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	Composite A failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	1.8E-04	LA-5 Ref failed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Control passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Composite D passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	Composite A passed proportion survived	1
01-6097-0364	Proportion Survived	Dunnett Multiple Comparison Test	0.0624	LA-5 Ref passed proportion survived	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
13-5316-4702	Proportion Survived	Control Resp	0.99	0.9	>>	Yes	Passes Criteria

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
Control	CS	5	0.9900	0.9622	1.0000	0.9500	1.0000	0.0100	0.0224	2.26%	0.00%
LA-5 Ref	RS	5	0.9900	0.9622	1.0000	0.9500	1.0000	0.0100	0.0224	2.26%	0.00%
Composite A		5	0.9000	0.8561	0.9439	0.8500	0.9500	0.0158	0.0354	3.93%	9.09%
Composite D		5	0.9600	0.9322	0.9878	0.9500	1.0000	0.0100	0.0224	2.33%	3.03%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	1.0000	1.0000	1.0000	0.9500	1.0000
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	0.9500
Composite A		0.9000	0.9500	0.9000	0.9000	0.8500
Composite D		0.9500	0.9500	0.9500	0.9500	1.0000

Proportion Survived Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	20/20	20/20	20/20	19/20	20/20
LA-5 Ref	RS	20/20	20/20	20/20	20/20	19/20
Composite A		18/20	19/20	18/20	18/20	17/20
Composite D		19/20	19/20	19/20	19/20	20/20

Eohaustorius 10-d Survival and Reburial Sediment Test

EcoAnalysts

Analysis ID:	01-6097-0364	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 11:06	Analysis:	Parametric-Control vs Treatments	Status Level:	1
Batch ID:	08-5745-9932	Test Type:	Survival-Reburial	Analyst:	
Start Date:	13 Jul-21 10:05	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 12:00	Species:	Eohaustorius estuarius	Brine:	Not Applicable
Test Length:	10d 2h	Taxon:	Malacostraca	Source:	Northwestern Aquatic Scien Age:

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Composite A failed proportion survived	3.27%
		Composite D passed proportion survived	3.27%

Dunnett Multiple Comparison Test

Sample I vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed	Composite A*	5.315	2.108	0.073	8	CDF	1.8E-04	Significant Effect
	Composite D	1.978	2.108	0.073	8	CDF	0.0624	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0855104	0.0427552	2	14.43	6.4E-04	Significant Effect
Error	0.0355503	0.0029625	12			
Total	0.121061		14			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	0.1725	9.21	0.9174	Equal Variances
Variances	Levene Equality of Variance Test	0.0004023	6.927	0.9996	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.09599	8.022	0.9094	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.6701	3.878	0.0803	Normal Distribution
Distribution	D'Agostino Skewness Test	0.3176	2.576	0.7508	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1929	0.2542	0.1408	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9187	0.8328	0.1838	Normal Distribution

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
Composite A		5	0.9000	0.8561	0.9439	0.9000	0.8500	0.9500	0.0158	3.93%	9.09%
Composite D		5	0.9600	0.9322	0.9878	0.9500	0.9500	1.0000	0.0100	2.33%	3.03%

Angular (Corrected) Transformed Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
Composite A		5	1.253	1.177	1.329	1.249	1.173	1.345	0.02734	4.88%	12.74%
Composite D		5	1.368	1.305	1.431	1.345	1.345	1.459	0.02269	3.71%	4.74%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	0.9500
Composite A		0.9000	0.9500	0.9000	0.9000	0.8500
Composite D		0.9500	0.9500	0.9500	0.9500	1.0000

Angular (Corrected) Transformed Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	1.459	1.459	1.459	1.459	1.345
Composite A		1.249	1.345	1.249	1.249	1.173
Composite D		1.345	1.345	1.345	1.345	1.459

Eohaustorius 10-d Survival and Reburial Sediment Test

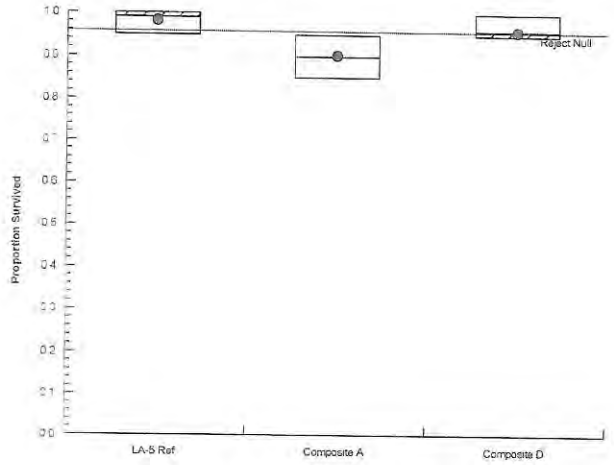
EcoAnalysts

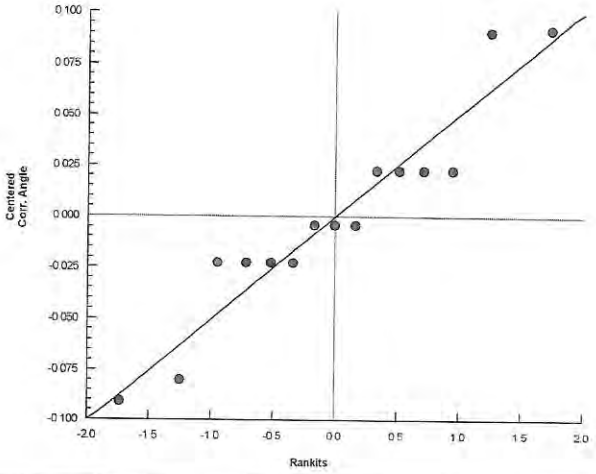
Analysis ID:	01-6097-0364	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 11:06	Analysis:	Parametric-Control vs Treatments	Status Level:	1

Proportion Survived Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	20/20	20/20	20/20	20/20	19/20
Composite A		18/20	19/20	18/20	18/20	17/20
Composite D		19/20	19/20	19/20	19/20	20/20

Graphics





CETIS Test Data Worksheet

Test Code/ID: Mole Pier / 01-1310-9217

Eohaustorius 10-d Survival and Reburial Sediment Test — EcoAnalysts

Start Date:	13 Jul-21 10:05	**Species:**	Eohaustorius estuarius	**Sample Code:**	Composite A
End Date:	23 Jul-21 12:00	**Protocol:**	EPA/600/R-94/025 (1994)	**Sample Source:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Sample	**Sample Station:**	P210707.02

Sample	Rep	Pos	# Exposed	# Survived	# Reburied	Notes
Control	1	9	20	20		
Control	2	18	20	20		
Control	3	10	20	20		
Control	4	6	20	19		
Control	5	13	20	20		
LA-5 Ref	1	8	20	20		
LA-5 Ref	2	11	20	20		
LA-5 Ref	3	7	20	20		
LA-5 Ref	4	15	20	20		
LA-5 Ref	5	5	20	19		
Composite A	1	14	20	18		
Composite A	2	2	20	19		
Composite A	3	3	20	18		
Composite A	4	16	20	18		
Composite A	5	20	20	17		
Composite D	1	12	20	19		
Composite D	2	4	20	19		
Composite D	3	1	20	19		
Composite D	4	19	20	19		
Composite D	5	17	20	20		

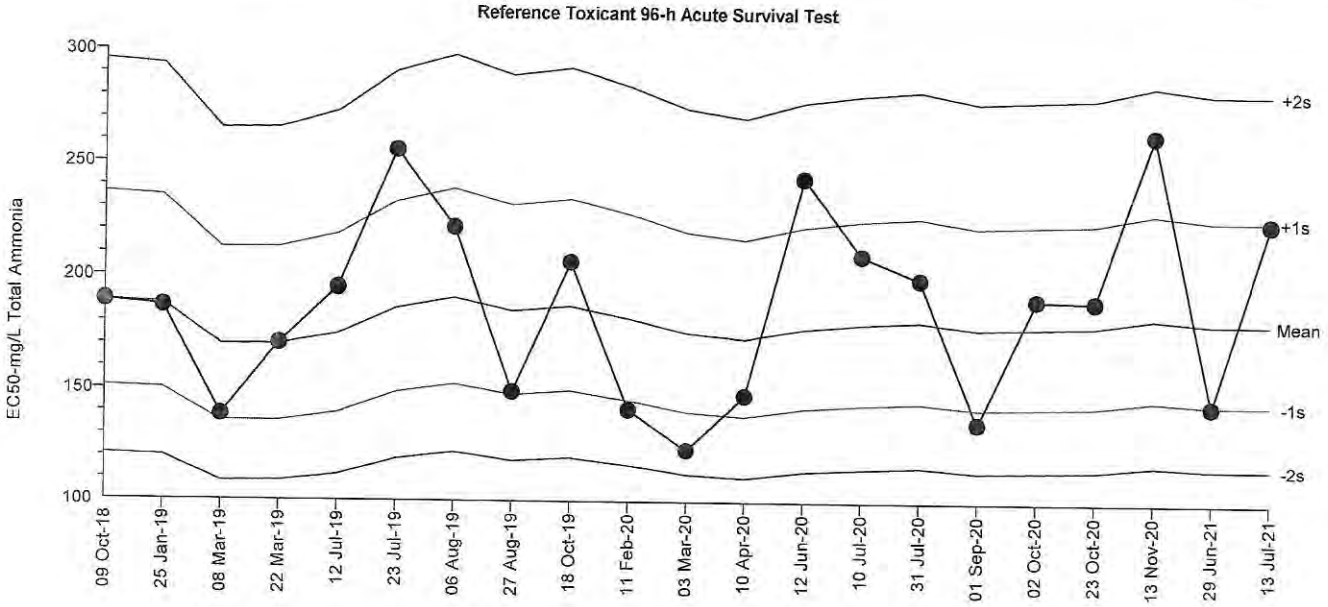
1.3 *Eohaustorius estuarius* Reference Toxicant Test Results

CETIS QC Plot

Report Date: 17 Aug-21 16:23 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — All Matching Labs

Test Type: Survival
Protocol: All Protocols
Organism: Eohaustorius estuarius (Amphipod)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean: 181.3	**Count:** 20	**-1s Warning Limit:** 144.9	**-2s Action Limit:** 115.9
Sigma: n/a	**CV:** 22.60%	**+1s Warning Limit:** 226.6	**+2s Action Limit:** 283.4

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2018	Oct	9	15:00	189.1	7.871	0.1902			20-4720-6933	11-3401-1593	EcoAnalysts
2	2019	Jan	25	13:35	186.7	5.476	0.1332			11-7689-4812	16-8013-2403	EcoAnalysts
3		Mar	8	15:05	138.7	-42.61	-1.199	(-)		13-2397-9481	18-8307-3890	EcoAnalysts
4			22	14:35	170.7	-10.56	-0.2685			01-8305-5138	03-7924-8286	EcoAnalysts
5		Jul	12	15:00	195.3	13.99	0.3327			11-8021-4502	08-1650-3490	EcoAnalysts
6			23	15:15	256.2	74.88	1.547	(+)		17-6815-2027	16-9000-1675	EcoAnalysts
7		Aug	6	15:55	221.9	40.62	0.9047			04-7165-8948	01-3458-4366	EcoAnalysts
8			27	14:25	149.5	-31.78	-0.8624			16-1141-7710	18-3800-2446	EcoAnalysts
9		Oct	18	14:40	206.9	25.68	0.5927			10-1139-9672	04-6029-5418	EcoAnalysts
10	2020	Feb	11	11:30	141.8	-39.49	-1.099	(-)		09-3507-3124	12-7490-3807	EcoAnalysts
11		Mar	3	10:50	123.7	-57.53	-1.708	(-)		01-7038-2185	20-8945-2710	EcoAnalysts
12		Apr	10	14:35	148.2	-33.04	-0.9002			15-3093-6458	02-4348-5257	EcoAnalysts
13		Jun	12	14:25	244.4	63.17	1.338	(+)		17-6535-4072	07-7299-7620	EcoAnalysts
14		Jul	10	14:19	210.4	29.11	0.6663			21-2712-7178	15-5267-1443	EcoAnalysts
15			31	13:31	200.1	18.84	0.4424			19-0166-9324	03-8578-2577	EcoAnalysts
16		Sep	1	11:50	136.2	-45.03	-1.278	(-)		02-9531-4833	11-6890-2134	EcoAnalysts
17		Oct	2	13:55	191.4	10.15	0.2437			10-8959-5787	01-2752-4170	EcoAnalysts
18			23	10:35	190.7	9.462	0.2276			09-8256-6636	12-6068-0049	EcoAnalysts
19		Nov	13	15:42	264.7	83.47	1.695	(+)		12-1804-8521	19-5275-8749	EcoAnalysts
20	2021	Jun	29	16:15	144.4	-36.87	-1.018	(-)		07-6082-1836	05-1033-0371	EcoAnalysts
21		Jul	13	13:45	225.7	44.39	0.9801			15-1767-0094	07-8834-3646	EcoAnalysts

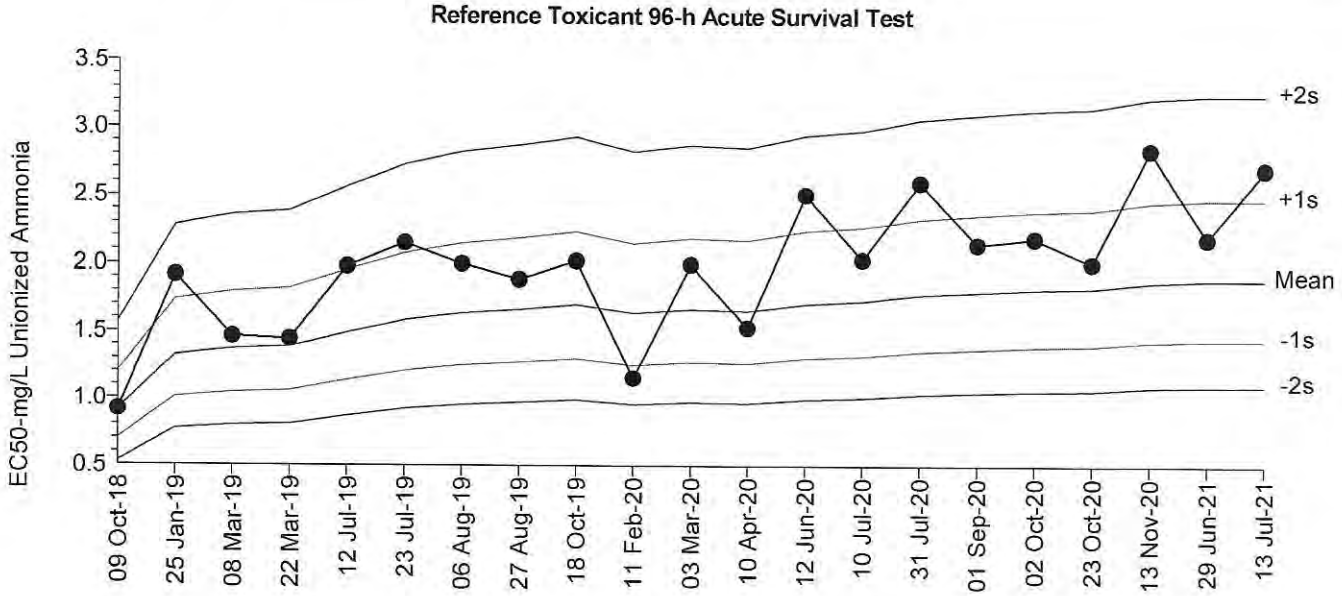
Analyst: MK QA: [illegible]

CETIS QC Plot

Report Date: 07 Sep-21 14:35 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival | **Organism:** Eohaustorius estuarius (Amphipod) | **Material:** Unionized Ammonia
Protocol: EPA/600/R-94/025 (1994) | **Endpoint:** Proportion Survived | **Source:** Reference Toxicant-REF



Mean:	1.889	**Count:**	20	**-1s Warning Limit:**	1.439	**-2s Action Limit:**	1.096
Sigma:	n/a	**CV:**	27.70%	**+1s Warning Limit:**	2.48	**+2s Action Limit:**	3.256

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2018	Oct	9	15:00	0.9139	-0.9755	-2.669	(-)	(-)	17-3069-9320	16-8151-1630	EcoAnalysts
2	2019	Jan	25	13:35	1.915	0.02536	0.04901			00-5848-5748	19-2133-1629	EcoAnalysts
3		Mar	8	15:05	1.463	-0.4268	-0.941			06-0570-4350	17-2978-1796	EcoAnalysts
4			22	14:35	1.444	-0.4451	-0.9873			08-8020-3971	15-7045-5745	EcoAnalysts
5		Jul	12	15:00	1.982	0.09225	0.1752			01-3966-5124	15-4747-7341	EcoAnalysts
6			23	15:15	2.151	0.2619	0.477			08-1022-0183	07-0772-7892	EcoAnalysts
7		Aug	6	15:55	2.002	0.1125	0.2126			10-1925-5694	08-4274-3725	EcoAnalysts
8			27	14:25	1.888	-0.001586	-0.003085			18-5396-1387	02-7188-5010	EcoAnalysts
9		Oct	18	14:40	2.025	0.1351	0.2538			01-8678-8913	10-6861-7593	EcoAnalysts
10	2020	Feb	11	11:30	1.153	-0.7362	-1.814	(-)		20-1044-3853	15-7919-2486	EcoAnalysts
11		Mar	3	10:50	2	0.1101	0.2082			02-4224-7585	10-8613-3376	EcoAnalysts
12		Apr	10	14:35	1.532	-0.3575	-0.7709			03-6100-0320	17-4770-7985	EcoAnalysts
13		Jun	12	14:25	2.515	0.6255	1.051	(+)		12-0347-2631	12-6656-5651	EcoAnalysts
14		Jul	10	14:19	2.036	0.1464	0.2743			19-2747-2298	11-5216-9625	EcoAnalysts
15			31	13:31	2.604	0.7147	1.179	(+)		00-3001-9040	12-3550-9219	EcoAnalysts
16		Sep	1	11:50	2.15	0.2601	0.474			20-8197-8748	01-8924-2597	EcoAnalysts
17		Oct	2	13:55	2.192	0.3029	0.5465			11-7285-1322	05-0028-0196	EcoAnalysts
18			23	10:35	2.014	0.1241	0.2338			06-9998-7880	19-7260-2994	EcoAnalysts
19		Nov	13	15:42	2.846	0.9564	1.505	(+)		18-9101-0953	11-1982-6601	EcoAnalysts
20	2021	Jun	29	16:15	2.193	0.3032	0.547			19-9925-7350	18-0084-5381	EcoAnalysts
21		Jul	13	13:45	2.706	0.8168	1.32	(+)		19-3066-6785	16-4976-7245	EcoAnalysts

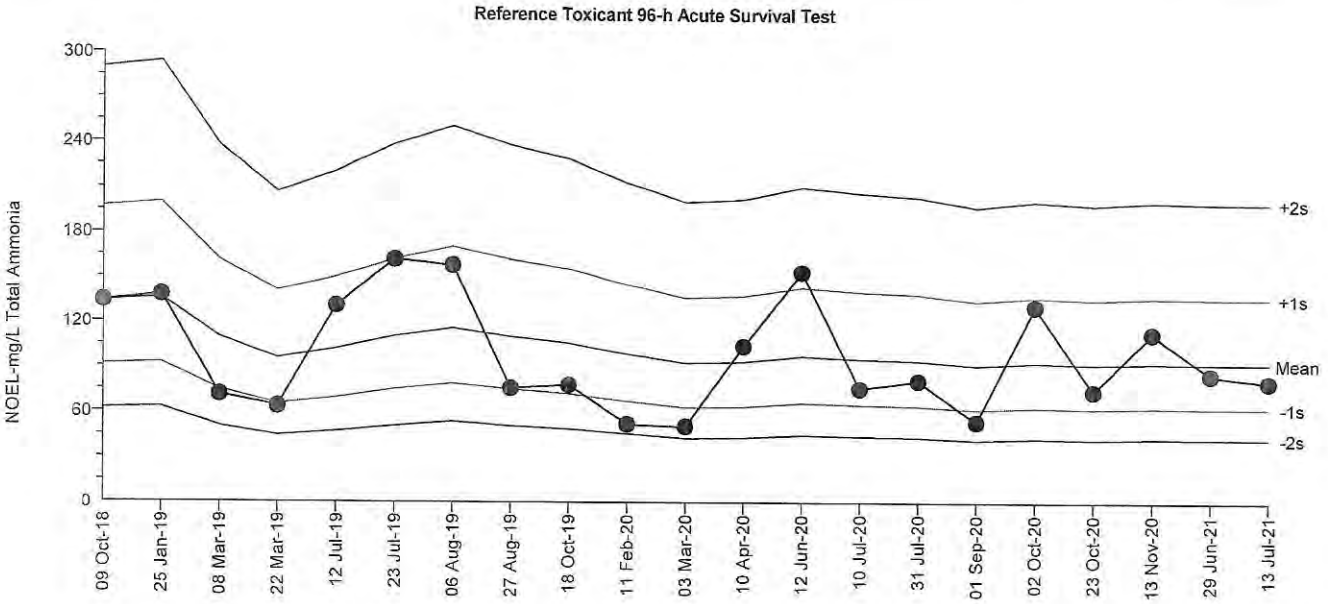
Analyst: MK QA: MAK

CETIS QC Plot

Report Date: 17 Aug-21 16:27 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: All Protocols
Organism: Eohaustorius estuarius (Amphipod)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean: 92.57	**Count:** 20	**-1s Warning Limit:** 62.93	**-2s Action Limit:** 42.77
Sigma: n/a	**CV:** 40.10%	**+1s Warning Limit:** 136.3	**+2s Action Limit:** 200.5

Quality Control Data

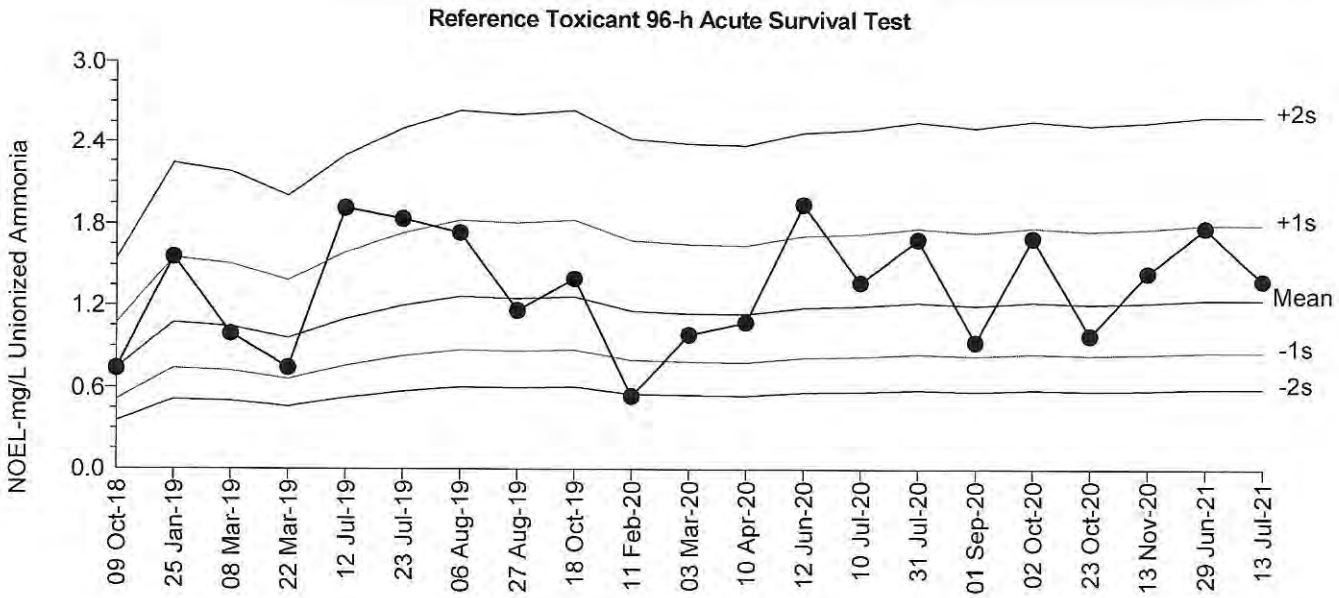
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2018	Oct	9	15:00	134	41.43	0.9574			20-4720-6933	14-7074-1873	EcoAnalysts
2	2019	Jan	25	13:35	138	45.43	1.034	(+)		11-7689-4812	07-3953-2151	EcoAnalysts
3		Mar	8	15:05	71.3	-21.27	-0.6759			13-2397-9481	07-4616-8731	EcoAnalysts
4			22	14:35	63.6	-28.97	-0.9717			01-8305-5138	01-5094-6419	EcoAnalysts
5		Jul	12	15:00	131	38.43	0.8988			11-8021-4502	11-6723-5493	EcoAnalysts
6			23	15:15	162	69.43	1.449	(+)		17-6815-2027	16-9478-2247	EcoAnalysts
7		Aug	6	15:55	158	65.43	1.384	(+)		04-7165-8948	03-2243-7067	EcoAnalysts
8			27	14:25	75.8	-16.77	-0.5175			16-1141-7710	12-2316-3444	EcoAnalysts
9		Oct	18	14:40	78	-14.57	-0.4434			10-1139-9672	05-2006-4501	EcoAnalysts
10	2020	Feb	11	11:30	52.1	-40.47	-1.488	(-)		09-3507-3124	13-5894-1723	EcoAnalysts
11		Mar	3	10:50	50.5	-42.07	-1.569	(-)		01-7038-2185	21-4048-9176	EcoAnalysts
12		Apr	10	14:35	104	11.43	0.3013			15-3093-6458	05-9305-5932	EcoAnalysts
13		Jun	12	14:25	154	61.43	1.318	(+)		17-6535-4072	07-6969-7095	EcoAnalysts
14		Jul	10	14:19	75.8	-16.77	-0.5175			21-2712-7178	13-0630-6125	EcoAnalysts
15			31	13:31	80.9	-11.67	-0.3489			19-0166-9324	03-5532-3283	EcoAnalysts
16		Sep	1	11:50	53.7	-38.87	-1.41	(-)		02-9531-4833	07-4441-0331	EcoAnalysts
17		Oct	2	13:55	131	38.43	0.8988			10-8959-5787	16-6668-9815	EcoAnalysts
18			23	10:35	74.1	-18.47	-0.5762			09-8256-6636	18-1896-1590	EcoAnalysts
19		Nov	13	15:42	113	20.43	0.5161			12-1804-8521	08-0142-9966	EcoAnalysts
20	2021	Jun	29	16:15	85.1	-7.473	-0.2179			07-6082-1836	16-9941-2080	EcoAnalysts
21		Jul	13	13:45	80.3	-12.27	-0.3682			15-1767-0094	15-0390-7924	EcoAnalysts

CETIS QC Plot

Report Date: 07 Sep-21 14:35 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: EPA/600/R-94/025 (1994)
Organism: Eohaustorius estuarius (Amphipod)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean: 1.256 **Count:** 20 **-1s Warning Limit:** 0.8701 **-2s Action Limit:** 0.6027
Sigma: n/a **CV:** 38.00% **+1s Warning Limit:** 1.813 **+2s Action Limit:** 2.618

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2018	Oct	9	15:00	0.74	-0.5161	-1.441	(-)		17-3069-9320	05-9114-6332	EcoAnalysts
2	2019	Jan	25	13:35	1.561	0.3049	0.5918			00-5848-5748	04-1670-4578	EcoAnalysts
3		Mar	8	15:05	0.992	-0.2641	-0.6428			06-0570-4350	05-4558-3875	EcoAnalysts
4			22	14:35	0.748	-0.5081	-1.412	(-)		08-8020-3971	02-0863-1050	EcoAnalysts
5		Jul	12	15:00	1.919	0.6629	1.154	(+)		01-3966-5124	09-4580-1187	EcoAnalysts
6			23	15:15	1.841	0.5849	1.041	(+)		08-1022-0183	07-2627-9819	EcoAnalysts
7		Aug	6	15:55	1.74	0.4839	0.8875			10-1925-5694	11-7110-4221	EcoAnalysts
8			27	14:25	1.169	-0.08709	-0.1957			18-5396-1387	17-3719-5174	EcoAnalysts
9		Oct	18	14:40	1.403	0.1469	0.3012			01-8678-8913	18-9446-3335	EcoAnalysts
10	2020	Feb	11	11:30	0.542	-0.7141	-2.289	(-)	(-)	20-1044-3853	05-7199-7325	EcoAnalysts
11		Mar	3	10:50	0.993	-0.2631	-0.64			02-4224-7585	21-0063-9299	EcoAnalysts
12		Apr	10	14:35	1.083	-0.1731	-0.4038			03-6100-0320	05-0989-9940	EcoAnalysts
13		Jun	12	14:25	1.954	0.6979	1.203	(+)		12-0347-2631	14-7232-3891	EcoAnalysts
14		Jul	10	14:19	1.377	0.1209	0.2503			19-2747-2298	01-8578-1404	EcoAnalysts
15			31	13:31	1.7	0.4439	0.8242			00-3001-9040	15-3409-7029	EcoAnalysts
16		Sep	1	11:50	0.941	-0.3151	-0.7865			20-8197-8748	17-0650-0152	EcoAnalysts
17		Oct	2	13:55	1.712	0.4559	0.8433			11-7285-1322	15-2673-4105	EcoAnalysts
18			23	10:35	0.99	-0.2661	-0.6483			06-9998-7880	14-0668-5693	EcoAnalysts
19		Nov	13	15:42	1.455	0.1989	0.4003			18-9101-0953	07-0117-9007	EcoAnalysts
20	2021	Jun	29	16:15	1.788	0.5319	0.9616			19-9925-7350	08-0508-5283	EcoAnalysts
21		Jul	13	13:45	1.396	0.1399	0.2876			19-3066-6785	11-7333-5005	EcoAnalysts

CETIS Summary Report

Report Date: 17 Aug-21 16:11 (p 1 of 1)
Test Code/ID: P190612.188 / 15-1767-0094

Reference Toxicant 96-h Acute Survival Test

EcoAnalysts

Batch ID:	09-2354-7229	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 13:45 ✓	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater
Ending Date:	17 Jul-21 13:21 ✓	Species:	Eohaustorius estuarius	Brine:	Not Applicable
Test Length:	96h	Taxon:	Malacostraca	Source:	Northwestern Aquatic Scien Age:

Sample ID:	18-9546-9721	Code:	P190612.188 ✓	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Total Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.188
Sample Age:	762d 14h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
15-0390-7924	Proportion Survived	Dunnett Multiple Comparison Test		80.3	186	122.2		13.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
07-8834-3646	Proportion Survived	Linear Interpolation (ICPIN)		EC5	88.27	n/a	111.1		1
				EC10	104.9	80.3	141.5		
				EC15	124.6	87.03	179.7		
				EC20	147.9	87.71	227.9		
				EC25	175.7	86.69	213.9		
				EC40	207.7	162.1	232.5		
				EC50	225.7	185	252.6		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
28		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%
55		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%
80.3		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
186		3	0.7333	0.4465	1.0000	0.6000	0.8000	0.0667	0.1155	15.75%	26.67%
323		3	0.0667	0.0000	0.3535	0.0000	0.2000	0.0667	0.1155	173.21%	93.33%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
28		1.0000	0.9000	1.0000
55		1.0000	1.0000	0.9000
80.3		1.0000	1.0000	1.0000
186		0.8000	0.6000	0.8000
323		0.2000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
28		10/10	9/10	10/10
55		9/9	10/10	9/10
80.3		10/10	10/10	10/10
186		8/10	6/10	8/10
323		2/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 17 Aug-21 16:11 (p 1 of 1)
Test Code/ID: P190612.188 / 15-1767-0094

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	13 Jul-21 13:45	**Species:**	Eohaustorius estuarius	**Sample Code:**	P190612.188
End Date:	17 Jul-21 13:21	**Protocol:**	EPA/600/R-94/025 (1994)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.188

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	6	10	10	
0	D	2	4	10	10	
0	D	3	3	10	10	
28		1	2	10	10	
28		2	12	10	9	
28		3	10	10	10	
55		1	7	9	9	
55		2	9	10	10	
55		3	14	10	9	
80.3		1	17	10	10	
80.3		2	13	10	10	
80.3		3	11	10	10	
186		1	1	10	8	
186		2	8	10	6	
186		3	16	10	8	
323		1	18	10	2	
323		2	5	10	0	
323		3	15	10	0	

Analyst: MK QA: MAA

CETIS Summary Report

Report Date: 07 Sep-21 14:34 (p 1 of 1)
Test Code/ID: P190612.188 / 19-3066-6785

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Batch ID:	09-2354-7229	**Test Type:**	Survival	**Analyst:**	
Start Date:	13 Jul-21 13:45	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	17 Jul-21 13:21	**Species:**	Eohaustorius estuarius	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Malacostraca	**Source:**	Northwestern Aquatic Scien **Age:**

Sample ID:	03-4085-7040	**Code:**	P190612.188	**Project:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Source:**	Reference Toxicant
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.188
Sample Age:	762d 14h	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
11-7333-5005	Proportion Survived	Dunnett Multiple Comparison Test		1.396	2.596	1.904		13.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
16-4976-7245	Proportion Survived	Linear Interpolation (ICPIN)		EC5	1.508	n/a	1.712		1
				EC10	1.725	1.408	2.093		
				EC15	1.962	1.532	2.524		
				EC20	2.218	1.674	3.011		
				EC25	2.498	1.838	2.753		
				EC40	2.659	2.593	2.725		
				EC50	2.706	2.639	2.774		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.758		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%
1.189		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%
1.396		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
2.596		3	0.7333	0.4465	1.0000	0.6000	0.8000	0.0667	0.1155	15.75%	26.67%
2.92		3	0.0667	0.0000	0.3535	0.0000	0.2000	0.0667	0.1155	173.21%	93.33%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
0.758		1.0000	0.9000	1.0000
1.189		1.0000	1.0000	0.9000
1.396		1.0000	1.0000	1.0000
2.596		0.8000	0.6000	0.8000
2.92		0.2000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
0.758		10/10	9/10	10/10
1.189		9/9	10/10	9/10
1.396		10/10	10/10	10/10
2.596		8/10	6/10	8/10
2.92		2/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 07 Sep-21 14:34 (p 1 of 1)
Test Code/ID: P190612.188 / 19-3066-6785

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	13 Jul-21 13:45	**Species:**	Eohaustorius estuarius	**Sample Code:**	P190612.188
End Date:	17 Jul-21 13:21	**Protocol:**	EPA/600/R-94/025 (1994)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.188

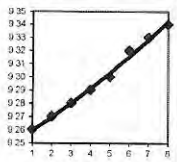
Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	17	10	10	
0	D	2	10	10	10	
0	D	3	14	10	10	
0.758		1	15	10	10	
0.758		2	13	10	9	
0.758		3	8	10	10	
1.189		1	4	9	9	
1.189		2	9	10	10	
1.189		3	5	10	9	
1.396		1	1	10	10	
1.396		2	12	10	10	
1.396		3	3	10	10	
2.596		1	11	10	8	
2.596		2	6	10	6	
2.596		3	7	10	8	
2.92		1	18	10	2	
2.92		2	16	10	0	
2.92		3	2	10	0	

Un-ionized Ammonia Calculator

CLIENT:	--	Date of Test:	July 13, 2021
PROJECT:	--	Test Type:	*Eoh* RT
COMMENTS:	--		

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa^s
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa^s*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	20		28	29	8.0	15.6	288.75	9.2557		**0.758**
4	40		55	29	7.9	15.6	288.75	9.2557		**1.189**
5	80		80.3	29	7.8	15.7	288.85	9.2557		**1.396**
6	160		186	29	7.7	15.8	288.95	9.2557		**2.596**
7	320		323	29	7.5	16.0	289.15	9.2557		**2.902**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

QA ✓ MASL

EcoAnalysts

Ammonia Reference Toxicant Test Water Quality Data Sheet

CLIENT	PROJECT		Laboratory	PROTOCOL
Wood	Mole Pier	*Eohaustorius estuarius*	Port Gamble .	ITM
TEST ID: P190612.188	LOT #: 18H13560763	DILUTION PREP INITIALS: SH		

CHAMBER SIZE/TYPE	EXPOSURE VOLUME	TEST START DATE	INITIALS	TIME	TEST END DATE	TIME
Pint jar	250 ml	13Jul21	MK SH	1345	17Jul21	1321 NH/IP

WATER QUALITY DATA

TEST CONDITIONS					DO (mg/L) > 5.1		TEMP(C) 15 ± 1		SAL (ppt) 28 ± 2		pH 7.8 ± 0.5		TECHNICIAN	AMMONIA		
SAMPLE ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WQ TECH/ DATE	AMMONIA METER	AMMONIA mg/L	Tech
Ref.Tox.-ammonia	0	mg/L	0	Stock	8	7.7	8	15.8	8	28	8	8.0	7/13/21 MK	10	0.00	SH
			4	1	9	7.2	9	15.3	9	29	9	7.8	7/17 NH/IP			
Ref.Tox.-ammonia	20	mg/L	0	Stock	8	7.8	8	15.6	8	29	8	8.0	7/13/21 MK	10	28.0	SH
			4	1	9	7.3	9	15.3	9	29	9	7.8	7/17 NH/IP			
Ref.Tox.-ammonia	40	mg/L	0	Stock	8	7.9	8	15.6	8	29	8	7.9	7/13/21 MK	10	55.0	SH
			4	1	9	7.6	9	15.4	9	29	9	7.9	7/17 NH/IP			
Ref.Tox.-ammonia	80	mg/L	0	Stock	8	7.9	8	15.7	8	29	8	7.8	7/13/21 MK	10	80.3	SH
			4	1	9	7.5	9	15.6	9	29	9	7.8	7/17 NH/IP			
Ref.Tox.-ammonia	160	mg/L	0	Stock	8	7.8	8	15.8	8	29	8	7.7	7/13/21 MK	10	186	SH
			4	1	9	7.5	9	15.7	9	30	9	7.8	7/17 NH/IP			
Ref.Tox.-ammonia	320	mg/L	0	Stock	8	7.8	8	16.0	8	29	8	7.5	7/13/21 MK	10	323	SH
			4	1	9	7.4	9	15.7	9	30	9	7.7	7/17 NH/IP			

ECO ANALYSTS

Ammonia Reference Toxicant Test Water Quality Data Sheet

CLIENT	PROJECT	SPECIES		
Wood	Mole Pier	*Eohaustorius estuarius*		
		PROJECT MANAGER	LABORATORY	PROTOCOL
		M. Knowlen	Port Gamble .	ITM

SURVIVAL & BEHAVIOR DATA

OBSERVATION KEY
N = Normal
LOE = Loss of equilibium
Q = Quinscent
DC = Discoloration
NB = No body
F = Floating on surface

INITIAL # OF ORGANISMS: 10

SAMPLE ID	CONC. value	CONC. units	REP	INITIAL NUMBER	DAY 1 DATE: 7/14 TECHNICIAN: MS			DAY 2 DATE: 7/15/21 TECHNICIAN: NL			DAY 3 DATE: 7/16/21 TECHNICIAN: MK			DAY 4 DATE: 7/17/21 TECHNICIAN: NL/IP		
					#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS
Ref.Tox.- Ammonia	0	mg/L	1	10	10	0	1FOS	10	0	N	10	0	N	10	0	N
			2	10	10	0	N	10	0	N	10	0	N	10	0	1F
			3	10	10	0	N	10	0	N	10	0	N	10	0	N
Ref.Tox.- Ammonia	20	mg/L	1	10	10	0	2FOS	10	0	3F	10	0	1F	10	0	2F
			2	10	10	0	3FOS	10	0	3F	10	0	N	9	1	N
			3	10	10	0	7FOS	10	0	N	10	0	2F	10	0	2F
Ref.Tox.- Ammonia	40	mg/L	1	10	9	1 (1)	1FOS	9	0	1F	9	0	N	9	0	1F
			2	10	10	0	2FOS	10	0	N	10	0	1F	10	0	2F
			3	10	10	0	2FOS	10	0	2F	10	0	N	9	1	Q
Ref.Tox.- Ammonia	80	mg/L	1	10	10	0	1FOS	10	0	1F	10	0	N	10	0	Q
			2	10	10	0	2FOS	10	0	N	10	0	N	10	0	Q
			3	10	10	0	2FOS	10	0	1F	10	0	1F	10	0	N
Ref.Tox.- Ammonia	160	mg/L	1	10	10	0	3FOS	10	0	2F,Q	10	0	Q	8	2	Q
			2	10	10	0	4FOS	10	0	2F/Q	10	0	1F,Q	6	4	Q
			3	10	10	0	2FOS	9	1	Q	9	0	Q	8	1	Q
Ref.Tox.- Ammonia	320	mg/L	1	10	10	0	Q	7	3	Q	6	1	Q	2	4	Q
			2	10	10	0	1FOS	6	4	Q	6	0	Q	0	6	Q
			3	10	9	1	1FOS	4	5	Q	3	1	Q	0	4	Q

(1) removed from chamber b/c it seemed to be dead. After adding one dead from highest conc. the fish from 40mg/L started moving. MS 7/14

Ammonia Reference Toxicant
Spiking Worksheet

Reference Toxicant ID: P190612.188
Date Prepared: 7/13/21
Technician Initials: SH

Eoh NH_3 RT

Assumptions in Model
Stock ammonia concentration is 10,000 mg/L = 10 mg/mL

Date: 6/29/2021
Measurement: 9,027

Test Solutions			Volume of stock to reach desired concentration
Measured Concentration	**Desired Concentration**	**Volume**	
mg/L	mg/L	mL	mL stock to increase
0.00			SALT WATER
28.0	**20**	750	**2.493**
55.0	**40**	750	**4.985**
80.3	**80**	750	**9.970**
186 ~~160~~ ①	**160**	750	**19.941**
323	**320**	750	**39.882**

① I.E. - SH 7/13

Daily Quality Assurance Checks

Project name: MolePier /SCPA

Test: EOh NH3 RT

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	MK	7/13	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges			
1	Test datasheets checked for completeness and legibility	NL	7/14	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	NL	7/15	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility	7/16	7/16	
	Test data within acceptable ranges	↓	↓	
4	Test datasheets checked for completeness and legibility	~~7/17~~ NL	7/17	
	Test data within acceptable ranges	↓	↓	

(1) IE-NL 7/17

Eoh

Prdm #3

∅	1	2
	2	11
	3	5
20	4	14
	5	17
	6	18
40	7	8
	8	15
	9	6
80	10	3
	11	1
	12	9
160	13	16
	14	13
	15	10
320	16	7
	17	12
	18	4

2. *Ampelisca abdita* 10-day Solid-Phase Test

2.1 *Ampelisca abdita* Test Data

Version T.2

GENERAL

Client	Wood / KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Oldest Sample Collected	5/31/2021
Sample Holding Time	43
Test Start Date	07/13/21
Test Species	*Ampelisca abdita*
Organism Supplier	John Brezina
Organism Acquired	7/9/2021
Organism Acclimation	4
Organism Age	Immature
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Bath 5
Sample Treatment	None
Control Sediment Source	Paradise Quay
Water Batch	FSW071121.01 &FSW071121.02
Test Lighting	Continuous
Test Chamber	1 L mason jars
Replicates Per Treatment	5 + 2 Surr
Organisms per Replicate	20
Exposure Volume	2 cm sediment/ 775 mL water
Feeding Information	None
Test Dissolved Oxygen	> 4.6
Test Temperature	20 ± 1
Test Salinity	28 ± 2
Test pH	7.8 ± 0.5
Water Renewal Info	None

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO	4.6	
Temp	19	21
Sal	26	30
pH	7.3	8.3

TEST START TIME:	1020
TEST END TIME:	845

	CLIENT SAMPLE ID	LAB ID
1	Control	P210709.02
2	LA-5 REF	P210707.01
3	Composite B	P210707.03
4	.	
5	.	.
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Ampelisca abdita*	Port Gamble , Bath 5	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 &FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
Control	0	1	16c	RE	07/13/21	8	7.7	19.6	29	8.0	
Control	0	2	9c	RE	07/13/21	8	7.7	19.4	29	8.0	
Control	0	3	3c	RE	07/13/21	8	7.6	19.4	29	8.0	
Control	0	4	10c	RE	07/13/21	8	7.7	19.4	29	8.0	
Control	0	5	14c	RE	07/13/21	8	7.7	19.4	29	8.0	
Control	1	Surr	18c	NL	07/14/21	9	7.5	19.8	29	8.0	
Control	2	Surr	18c	DM	07/15/21	8	7.7	20.3	29	8.0	
Control	3	Surr	18c	NL	07/16/21	9	7.5	20.1	29	8.1	
Control	4	Surr	18c	NL	07/17/21	8	7.7	20.3	29	8.1	
Control	5	Surr	18c	NL	07/18/21	9	7.6	19.9	30	8.1	
Control	6	Surr	18c	MS	07/19/21	8	7.7	19.9	29	8.1	
Control	7	Surr	18c	IP	07/20/21	8	7.7	20.4	29	8.1	
Control	8	Surr	18c	IP	07/21/21	8	7.8	19.8	29	8.2	
Control	9	Surr	18c	MK	07/22/21	9	7.5	19.7	29	8.1	
Control	10	1	16c	DM	07/23/21	9	7.6	19.9	29	8.2	
Control	10	2	9c	DM	07/23/21	9	7.6	19.6	29	8.1	
Control	10	3	3c	DM	07/23/21	9	7.6	19.6	29	8.1	
Control	10	4	10c	DM	07/23/21	9	7.6	19.7	29	8.2	
Control	10	5	14c	DM	07/23/21	9	7.6	19.8	29	8.2	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Ampelisca abdita*	Port Gamble , Bath 5	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 &FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
LA-5 REF	0	1	11	RE	07/13/21	8	7.7	19.8	29	8.2	
LA-5 REF	0	2	8	RE	07/13/21	8	7.8	19.9	28	8.2	
LA-5 REF	0	3	5	RE	07/13/21	8	7.7	19.9	29	8.2	
LA-5 REF	0	4	6	RE	07/13/21	8	7.7	19.9	29	8.1	
LA-5 REF	0	5	4	RE	07/13/21	8	7.7	19.8	29	8.1	
LA-5 REF	1	Surr	9	SH	07/14/21	9	7.5	20.0	29	8.2	
LA-5 REF	2	Surr	9	DM	07/15/21	8	7.6	20.5	29	8.1	
LA-5 REF	3	Surr	9	NL	07/16/21	9	7.5	20.2	29	8.2	
LA-5 REF	4	Surr	9	IP	07/17/21	9	7.6	20.2	30	8.1	
LA-5 REF	5	Surr	9	IP	07/18/21	8	7.6	20.6	29	8.1	
LA-5 REF	6	Surr	9	MS	07/19/21	8	7.7	19.9	29	8.2	
LA-5 REF	7	Surr	9	IP	07/20/21	8	7.6	20.5	29	8.1	
LA-5 REF	8	Surr	9	IP	07/21/21	8	7.6	19.9	29	8.1	
LA-5 REF	9	Surr	9	NL	07/22/21	9	7.6	19.7	29	8.1	
LA-5 REF	10	1	11	DM	07/23/21	9	7.5	20.0	30	8.2	
LA-5 REF	10	2	8	DM	07/23/21	9	7.5	20.0	29	8.1	
LA-5 REF	10	3	5	DM	07/23/21	9	7.5	20.0	29	8.1	
LA-5 REF	10	4	6	DM	07/23/21	9	7.5	20.0	29	8.1	
LA-5 REF	10	5	4	DM	07/23/21	9	7.5	20.0	29	8.1	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Ampelisca abdita*	Port Gamble , Bath 5	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 &FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 26 - 30	pH 7.3 - 8.3	Notes
Composite B	0	1	1	RE	07/13/21	8	7.5	19.9	29	8.1	
Composite B	0	2	7	RE	07/13/21	8	7.6	20.0	29	8.1	
Composite B	0	3	3	RE	07/13/21	8	7.6	19.9	29	8.1	
Composite B	0	4	10	RE	07/13/21	8	7.6	20.0	28	8.1	
Composite B	0	5	12	RE	07/13/21	8	7.7	19.8	29	8.1	
Composite B	1	Surr	2	SH	07/14/21	9	7.4	20.0	29	8.1	
Composite B	2	Surr	2	DM	07/15/21	8	7.5	20.3	29	8.1	
Composite B	3	Surr	2	NL	07/16/21	9	7.3	20.1	29	8.1	
Composite B	4	Surr	2	IP	07/17/21	9	7.4	20.2	30	8.1	
Composite B	5	Surr	2	IP	07/18/21	8	7.5	20.6	29	8.1	
Composite B	6	Surr	2	MS	07/19/21	8	7.6	19.8	29	8.1	
Composite B	7	Surr	2	IP	07/20/21	8	7.5	20.4	29	8.1	
Composite B	8	Surr	2	IP	07/21/21	8	7.7	19.9	29	8.1	
Composite B	9	Surr	2	NL	07/22/21	9	7.5	19.8	29	8.1	
Composite B	10	1	1	DM	07/23/21	9	7.4	20.0	29	8.0	
Composite B	10	2	7	DM	07/23/21	9	7.4	20.1	29	8.0	
Composite B	10	3	3	DM	07/23/21	9	7.5	19.9	30	8.1	
Composite B	10	4	10	DM	07/23/21	9	7.4	20.0	29	8.1	
Composite B	10	5	12	DM	07/23/21	9	7.5	19.9	29	8.1	

10 Day SP Test Observation Data Sheet

CLIENT	PROJECT	PROJECT N0.	PROJECT MANAGER	LABORATORY LOCATION	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 5	OTM/ITM ,	*Ampelisca abdita*

Observation Key
#FOS = Num Floating on Water Surface
#E = Num Emerged from Sediment
#M = Number of Mortalities
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

CLIENT ID	REP	Jar #	Initial #	Day	1	2	3	4	5	6	7	8	9	10	Comments
				Tech	SH	DM	NL	NL	IP	MS	IP	IP	NL	DM	
				Date	07/14/21	07/15/21	07/16/21	07/17/21	07/18/21	07/19/21	07/20/21	07/21/21	07/22/21	07/23/21	
Control	1	16c	20		N	G	G	G	G	G	G,1E	G	N	G	
Control	2	9c	20		N	N	N	N	N	G	G,1E	G	N	G	
Control	3	3c	20		N	N	N	N	N	N	G	G,1E	N	G	
Control	4	10c	20		N	N	N	N	N	G	G,1E	G,1E	N	G	
Control	5	14c	20		N	G	G	G	G	G	G	G	N	G	
LA-5 REF	1	11	20		N	N	N	N	N	N	1E	N	N	N	
LA-5 REF	2	8	20		N	N	N	N	N	N	N	1E	N	N	
LA-5 REF	3	5	20		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	4	6	20		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	5	4	20		N	1FOS	N	N	N	N	N	N	1FOS	N	
Composite B	1	1	20		N	N	N	N	N	1FOS	N	N	N	N	
Composite B	2	7	20		N	1E	N	N	N	2FOS	N	1FOS	N	N	
Composite B	3	3	20		N	N	N	N	N	N	N	N	N	N	
Composite B	4	10	20		N	N	N	N	N	1FOS	N	N	N	N	
Composite B	5	12	20		N	N	N	N	N	N	N	N	N	N	

10 Day SP Test Survival Summary

CLIENT	PROJECT		SPECIES
Wood / KMEA	Mole Pier		*Ampelisca abdita*
PROJECT MANAGER	**PROJECT NUMBER**	**Date Recovered:**	
M. Knowlen	PG1217	**7/23/21 MK JW**	

Sample ID	Rep	Jar #	# Initiated	# Alive	# Dead	Initials	# Missing or Dead	Comments
Control	1	16c	20	17	0	JW	3	
Control	2	9c	20	20	0	MK	0	
Control	3	3c	20	19	0	MK	1	
Control	4	10c	20	18	0	JW	2	
Control	5	14c	20	20	0	JW	0	
LA-5 REF	1	11	20	19	1	JW	1	
LA-5 REF	2	8	20	20	0	MK	0	
LA-5 REF	3	5	20	20	0	MK	0	
LA-5 REF	4	6	20	19	0	JW	1	
LA-5 REF	5	4	20	19	1	MK	1	
Composite B	1	1	20	20	0	MK	0	
Composite B	2	7	20	19	0	JW	1	
Composite B	3	3	20	19	1	MK	1	
Composite B	4	10	20	20	0	JW	0	
Composite B	5	12	20	18	2	MK	2	

10 Day SP Test Survival Summary

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood / KMEA	Mole Pier	PG1217	*Ampelisca abdita*

Sample ID	Rep	# Initiated	# Alive	% Survival	Survival Statistics: Mean Survival (%)	Survival Statistics: SD	% Mortality	Mortality Statistics: Mean Mortality (%)	Mortality Statistics: SD
Control	1	20	17	85			15		
Control	2	20	20	100			0		
Control	3	20	19	95			5		
Control	4	20	18	90			10		
Control	5	20	20	100	94.0	6.5	0	6.0	6.5
LA-5 REF	1	20	19	95			5		
LA-5 REF	2	20	20	100			0		
LA-5 REF	3	20	20	100			0		
LA-5 REF	4	20	19	95			5		
LA-5 REF	5	20	19	95	97.0	2.7	5	3.0	2.7
Composite B	1	20	20	100			0		
Composite B	2	20	19	95			5		
Composite B	3	20	19	95			5		
Composite B	4	20	20	100			0		
Composite B	5	20	18	90	96.0	4.2	10	4.0	4.2

EcoANALYSTS, INC.

10 Day SP Test Day 0 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Ampelisca abdita*

Calibration Standards Temperature: 20.0 **Date:** 7/13/2021 **Tech:** DM

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	
Control	0	Overlying	0.216	19.7	T17	29	8.0	19.4	292.59	9.2557	0.008	
LA-5 REF	0	Overlying	0.525	20.0	T17	29	8.2	19.9	293.01	9.2557	0.027	
Composite B	0	Overlying	0.760	19.8	T17	29	8.1	19.9	293.07	9.2557	0.035	

10 Day SP Test Day 0 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Ampelisca abdita*

Calibration Standards Temperature: 20.0 **Date:** 7/13/2021 **Tech:** DM

NH_3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Record	Record	Calculated	Calculated	Calculated	Calculated	
Control	0	Porewater	0.864	21.0	T17/9	30	7.8	19.4	292.59	9.2559	0.020	
LA-5 REF	0	Porewater	1.93	21.0	T17/9	31	8.0	19.9	293.01	9.2561	0.071	
Composite B	0	Porewater	2.97	20.7	T17/9	31	7.9	19.9	293.07	9.2561	0.088	

10 Day SP Test Day 10 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Ampelisca abdita*

Calibration Standards Temperature: 20.1 **Date:** 7/23/2021 **Tech:** SH

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Notes
Control	10	Overlying	0.00	19.90	T17	29	8.2	19.7	292.87	9.2557	0.000	
LA-5 REF	10	Overlying	1.18	20.4	T17	29	8.1	20.0	293.15	9.2558	0.057	Remeasured - SH 7/23/21
Composite B	10	Overlying	0.00	19.9	T17	29	8.1	20.0	293.13	9.2558	0.000	

10 Day SP Test Day 10 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Ampelisca abdita*

Calibration Standards Temperature:	20.1	Date:	7/23/2021	Tech:	SH

NH3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Column A on WQ Sheet MUST be sorted Smallest to Largest

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa* [5]	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Record	Record	Calculated	Calculated	Calculated	Calculated	
Control	10	Porewater	0.203	21.0	M9/T17	29	7.6	19.7	292.87	9.2557	0.003	
LA-5 REF	10	Porewater	1.52	21.0	M9/T17	29	7.7	20.0	293.15	9.2557	0.029	
Composite B	10	Porewater	1.48	21.0	M9/T17	30	7.6	20.0	293.13	9.2559	0.022	

2.2 *Ampelisca abdita* Statistical Results

CETIS Summary Report

Report Date: 19 Aug-21 11:26 (p 1 of 1)
Test Code/ID: Mole Pier / 12-4689-6266

Ampelisca 10-d Survival Sediment Test

EcoAnalysts

Batch ID:	20-1021-0231	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 10:20	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 08:45	Species:	Ampelisca abdita	Brine:	Not Applicable
Test Length:	9d 22h	Taxon:	Malacostraca	Source:	Brezina and Associates Age:

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
Amp Control	01-5295-9848	~~09 Jul-21~~ NA	09 Jul-21	4d 10h	Wood	Mole Pier
LA-5 Ref	17-8537-9307	31 May-21 12:05	02 Jun-21 12:20	42d 22h (0.2 °C)		
Composite B	18-8309-5004	01 Jun-21 08:00	03 Jun-21 12:30	42d 2h (0 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
Amp Control	Sediment Sample	Mole Pier	P210709.02	
LA-5 Ref	Sediment Sample	Mole Pier	P210707.01	
Composite B	Sediment Sample	Mole Pier	P210707.03	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
11-9242-5106	Proportion Survived	Equal Variance t Two-Sample Test	0.7900	Composite B passed proportion survived	1
11-9242-5106	Proportion Survived	Equal Variance t Two-Sample Test	0.7900	LA-5 Ref passed proportion survived	1
11-9242-5106	Proportion Survived	Equal Variance t Two-Sample Test	0.7900	Amp Control passed proportion survived	1
17-0235-2662	Proportion Survived	Equal Variance t Two-Sample Test	0.3509	Composite B passed proportion survived	1
17-0235-2662	Proportion Survived	Equal Variance t Two-Sample Test	0.3509	LA-5 Ref passed proportion survived	1
17-0235-2662	Proportion Survived	Equal Variance t Two-Sample Test	0.3509	Amp Control passed proportion survived	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
11-9242-5106	Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria

Proportion Survived Summary

Conc-unit	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
Amp Control	CS	5	0.9400	0.8591	1.0000	0.8500	1.0000	0.0292	0.0652	6.94%	0.00%
LA-5 Ref	RS	5	0.9700	0.9360	1.0000	0.9500	1.0000	0.0123	0.0274	2.82%	-3.19%
Composite B		5	0.9600	0.9081	1.0000	0.9000	1.0000	0.0187	0.0418	4.36%	-2.13%

Proportion Survived Detail

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Amp Control	CS	0.8500	1.0000	0.9500	0.9000	1.0000
LA-5 Ref	RS	0.9500	1.0000	1.0000	0.9500	0.9500
Composite B		1.0000	0.9500	0.9500	1.0000	0.9000

Proportion Survived Binomials

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Amp Control	CS	17/20	20/20	19/20	18/20	20/20
LA-5 Ref	RS	19/20	20/20	20/20	19/20	19/20
Composite B		20/20	19/20	19/20	20/20	18/20

CETIS Analytical Report

Report Date: 19 Aug-21 11:26 (p 1 of 4)
Test Code/ID: Mole Pier / 12-4689-6266

Ampelisca 10-d Survival Sediment Test

EcoAnalysts

Analysis ID:	11-9242-5106	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 11:24	Analysis:	Parametric-Two Sample	Status Level:	1

Batch ID:	20-1021-0231	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 10:20	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 08:45	Species:	Ampelisca abdita	Brine:	Not Applicable
Test Length:	9d 22h	Taxon:	Malacostraca	Source:	Brezina and Associates Age:

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	LA-5 Ref passed proportion survived	6.21%

Equal Variance t Two-Sample Test

Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Reference Sed	-0.85	1.86	0.117	8	CDF	0.7900	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0072051	0.0072051	1	0.7226	0.4200	Non-Significant Effect
Error	0.0797712	0.0099714	8			
Total	0.0869763		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	3.015	11.26	0.1207	Equal Variances
Variances	Mod Levene Equality of Variance Test	3.338	13.75	0.1175	Equal Variances
Variances	Variance Ratio F Test	4.162	23.15	0.1961	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.3638	3.878	0.4441	Normal Distribution
Distribution	D'Agostino Skewness Test	0.2811	2.576	0.7787	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1851	0.3025	0.4795	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9362	0.7411	0.5121	Normal Distribution

Proportion Survived Summary

Conc-unit	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Amp Control	CS	5	0.9400	0.8591	1.0000	0.9500	0.8500	1.0000	0.0292	6.94%	0.00%
LA-5 Ref	RS	5	0.9700	0.9360	1.0000	0.9500	0.9500	1.0000	0.0123	2.82%	-3.19%

Angular (Corrected) Transformed Summary

Conc-unit	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Amp Control	CS	5	1.337	1.18	1.494	1.345	1.173	1.459	0.05671	9.48%	0.00%
LA-5 Ref	RS	5	1.391	1.314	1.468	1.345	1.345	1.459	0.0278	4.47%	-4.02%

Proportion Survived Detail

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Amp Control	CS	0.8500	1.0000	0.9500	0.9000	1.0000
LA-5 Ref	RS	0.9500	1.0000	1.0000	0.9500	0.9500

Angular (Corrected) Transformed Detail

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Amp Control	CS	1.173	1.459	1.345	1.249	1.459
LA-5 Ref	RS	1.345	1.459	1.459	1.345	1.345

Proportion Survived Binomials

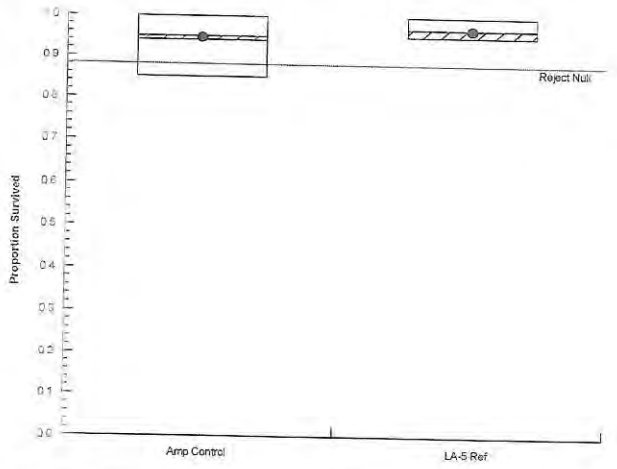
Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Amp Control	CS	17/20	20/20	19/20	18/20	20/20
LA-5 Ref	RS	19/20	20/20	20/20	19/20	19/20

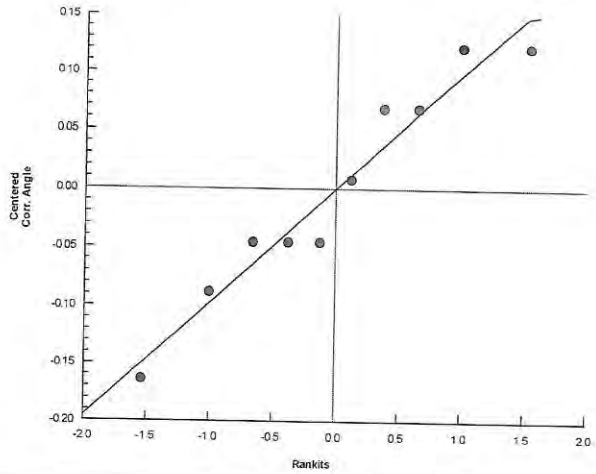
Ampelisca 10-d Survival Sediment Test

EcoAnalysts

Analysis ID:	11-9242-5106	**Endpoint:**	Proportion Survived	**CETIS Version:**	CETISv1.9.4
Analyzed:	19 Aug-21 11:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1

Graphics





Ampelisca 10-d Survival Sediment Test

EcoAnalysts

Analysis ID:	17-0235-2662	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 11:24	Analysis:	Parametric-Two Sample	Status Level:	1

Batch ID:	20-1021-0231	Test Type:	Survival	Analyst:		
Start Date:	13 Jul-21 10:20	Protocol:	EPA/600/R-94/025 (1994)	Diluent:	Laboratory Seawater	
Ending Date:	23 Jul-21 08:45	Species:	Ampelisca abdita	Brine:	Not Applicable	
Test Length:	9d 22h	Taxon:	Malacostraca	Source:	Brezina and Associates	Age:

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Composite B passed proportion survived	4.26%

Equal Variance t Two-Sample Test

Sample I	vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Composite B	0.3968	1.86	0.090	8	CDF	0.3509	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0009262	0.0009262	1	0.1575	0.7019	Non-Significant Effect
Error	0.0470499	0.0058812	8			
Total	0.0479761		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	0.6072	11.26	0.4583	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.3189	13.75	0.5927	Equal Variances
Variances	Variance Ratio F Test	2.045	23.15	0.5055	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	0.7527	3.878	0.0498	Normal Distribution
Distribution	D'Agostino Skewness Test	0.103	2.576	0.9180	Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.2412	0.3025	0.1027	Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.8693	0.7411	0.0980	Normal Distribution

Proportion Survived Summary

Conc-unit	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	0.9700	0.9360	1.0000	0.9500	0.9500	1.0000	0.0123	2.82%	0.00%
Composite B		5	0.9600	0.9081	1.0000	0.9500	0.9000	1.0000	0.0187	4.36%	1.03%

Angular (Corrected) Transformed Summary

Conc-unit	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	1.391	1.314	1.468	1.345	1.345	1.459	0.0278	4.47%	0.00%
Composite B		5	1.371	1.261	1.482	1.345	1.249	1.459	0.03975	6.48%	1.38%

Proportion Survived Detail

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	0.9500	1.0000	1.0000	0.9500	0.9500
Composite B		1.0000	0.9500	0.9500	1.0000	0.9000

Angular (Corrected) Transformed Detail

Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	1.345	1.459	1.459	1.345	1.345
Composite B		1.459	1.345	1.345	1.459	1.249

Proportion Survived Binomials

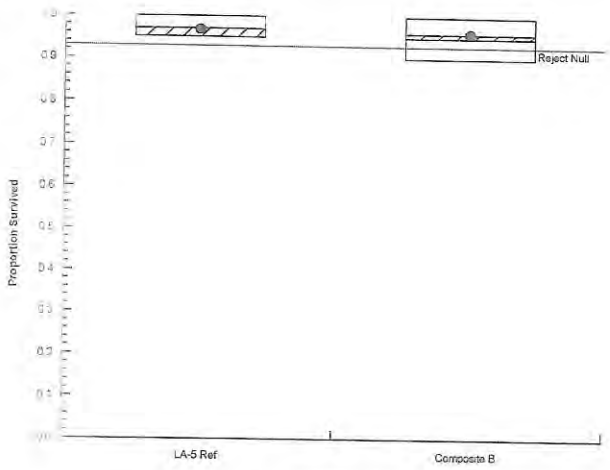
Conc-unit	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	19/20	20/20	20/20	19/20	19/20
Composite B		20/20	19/20	19/20	20/20	18/20

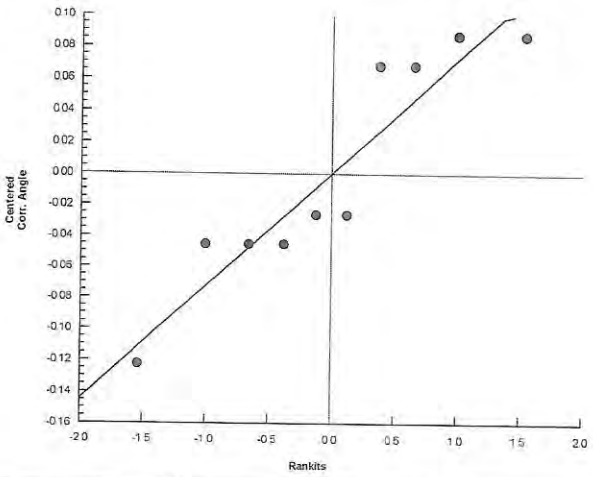
Ampelisca 10-d Survival Sediment Test

EcoAnalysts

Analysis ID:	17-0235-2662	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 11:24	Analysis:	Parametric-Two Sample	Status Level:	1

Graphics





CETIS Test Data Worksheet

Report Date: 19 Aug-21 11:28 (p 1 of 1)
Test Code/ID: Mole Pier / 12-4689-6266

Ampelisca 10-d Survival Sediment Test — **EcoAnalysts**

Start Date:	13 Jul-21 10:20	**Species:**	Ampelisca abdita	**Sample Code:**	Composite B
End Date:	23 Jul-21 08:45	**Protocol:**	EPA/600/R-94/025 (1994)	**Sample Source:**	Mole Pier
Sample Date:	01 Jun-21 08:00	**Material:**	Sediment Sample	**Sample Station:**	P210707.03

Conc-unit	Rep	Pos	# Exposed	# Survived	Notes
Amp Control	1	8	20	17	
Amp Control	2	5	20	20	
Amp Control	3	9	20	19	
Amp Control	4	12	20	18	
Amp Control	5	14	20	20	
LA-5 Ref	1	10	20	19	
LA-5 Ref	2	3	20	20	
LA-5 Ref	3	13	20	20	
LA-5 Ref	4	4	20	19	
LA-5 Ref	5	15	20	19	
Composite B	1	2	20	20	
Composite B	2	1	20	19	
Composite B	3	11	20	19	
Composite B	4	7	20	20	
Composite B	5	6	20	18	

Analyst: MK QA: [illegible]

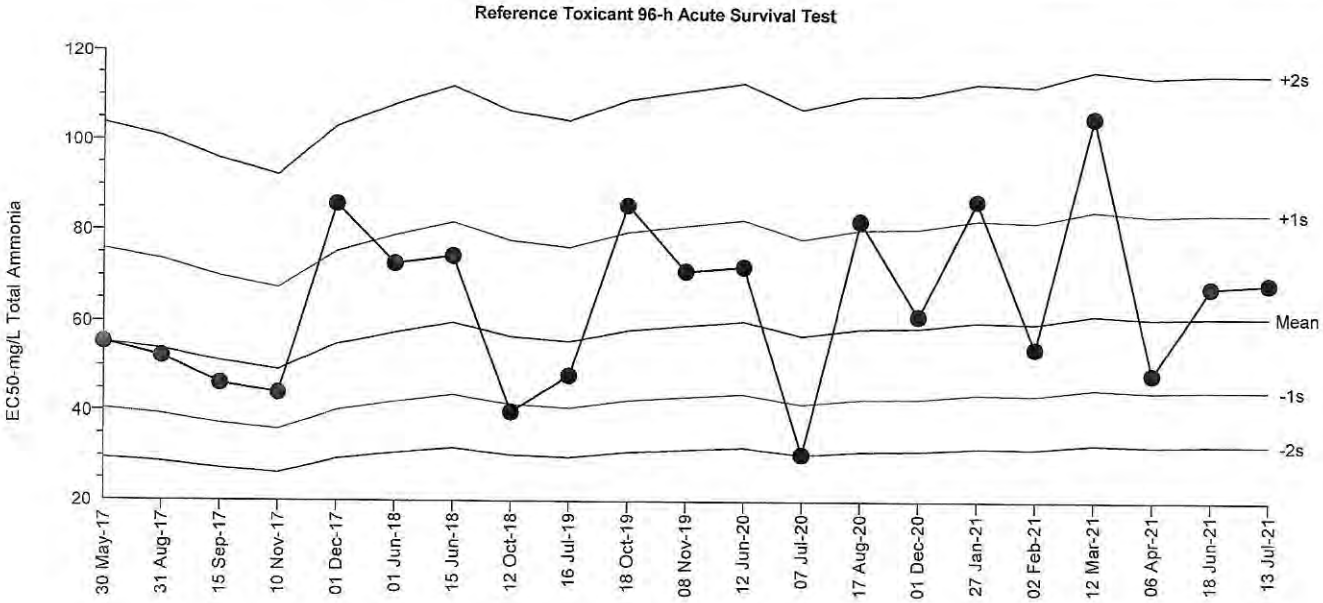
2.3 *Ampelisca abdita* Reference Toxicant Test Results

CETIS QC Plot

Report Date: 17 Aug-21 15:56 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: All Protocols
Organism: Ampelisca abdita (Amphipod)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean:	61.56	**Count:**	20	**-1s Warning Limit:**	44.94	**-2s Action Limit:**	32.81
Sigma:	n/a	**CV:**	32.20%	**+1s Warning Limit:**	84.29	**+2s Action Limit:**	115.4

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2017	May	30	15:35	55.36	-6.2	-0.3376			18-4556-1237	01-8351-3308	EcoAnalysts
2		Aug	31	15:10	52.24	-9.321	-0.5221			21-1097-1012	02-1415-7452	EcoAnalysts
3		Sep	15	15:10	46.17	-15.39	-0.915			08-7239-4298	14-5958-2198	EcoAnalysts
4		Nov	10	15:35	44.12	-17.44	-1.059	(-)		08-5861-7934	05-9756-5542	EcoAnalysts
5		Dec	1	11:55	85.94	24.38	1.061	(+)		05-0826-4896	06-0306-3939	EcoAnalysts
6	2018	Jun	1	16:05	72.9	11.34	0.5375			08-0954-1539	15-3369-8340	EcoAnalysts
7			15	15:00	74.56	13	0.6094			08-8726-5944	08-7006-7615	EcoAnalysts
8		Oct	12	11:25	39.97	-21.59	-1.374	(-)		10-9979-0612	11-8404-6573	EcoAnalysts
9	2019	Jul	16	10:20	48.14	-13.42	-0.7816			12-7567-8337	18-2045-6480	EcoAnalysts
10		Oct	18	16:00	85.82	24.26	1.056	(+)		13-2404-3256	07-0618-0816	EcoAnalysts
11		Nov	8	12:05	71.38	9.82	0.4706			14-6982-9625	10-9263-3614	EcoAnalysts
12	2020	Jun	12	14:00	72.42	10.86	0.5166			00-6793-4132	03-7513-2232	EcoAnalysts
13		Jul	7	14:25	30.66	-30.9	-2.216	(-)	(-)	10-0647-0326	09-3360-5271	EcoAnalysts
14		Aug	17	11:47	82.47	20.91	0.9299			14-3908-2449	01-7464-9511	EcoAnalysts
15		Dec	1	10:45	61.58	0.02545	0.001314			11-4250-6913	20-3364-4422	EcoAnalysts
16	2021	Jan	27	15:51	87.01	25.45	1.1	(+)		12-5568-3213	03-9632-4879	EcoAnalysts
17		Feb	2	13:45	54.41	-7.152	-0.3927			08-3266-1878	14-5513-0929	EcoAnalysts
18		Mar	12	14:20	105.8	44.25	1.722	(+)		07-8197-1687	08-6230-6050	EcoAnalysts
19		Apr	6	14:14	48.74	-12.82	-0.7427			10-0089-4907	20-9781-0298	EcoAnalysts
20		Jun	18	15:02	68.15	6.594	0.3236			06-2297-2695	14-0678-2113	EcoAnalysts
21		Jul	13	13:55	68.98	7.424	0.362			17-4325-5508	04-8869-9594	EcoAnalysts

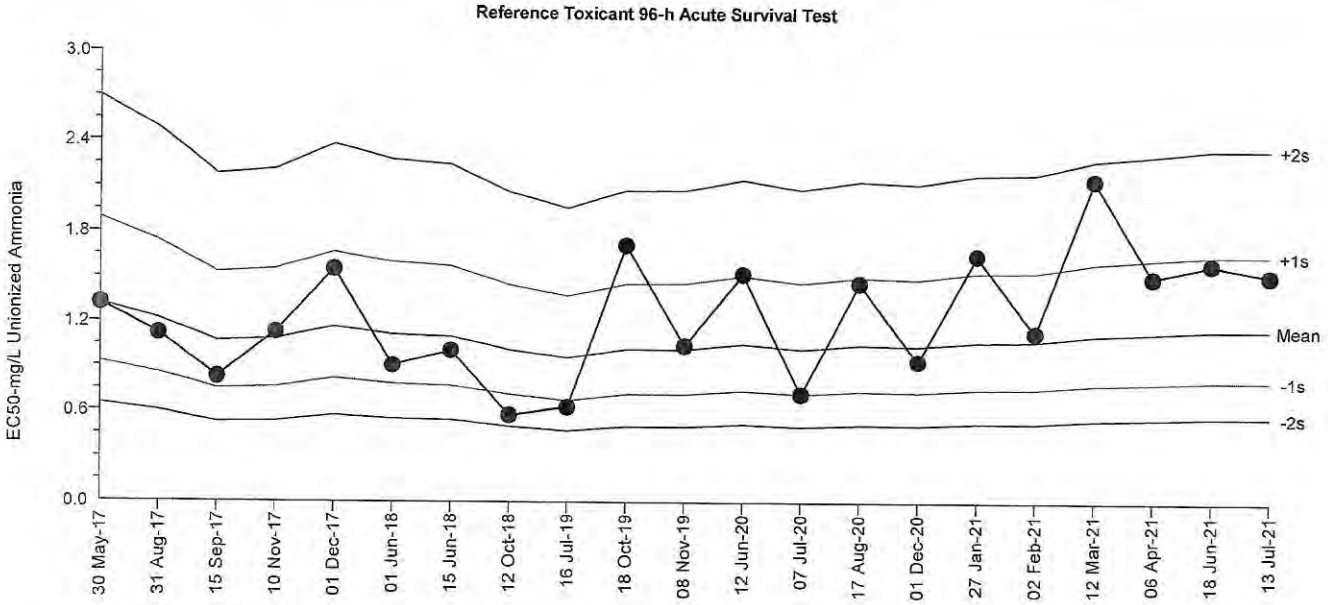
Analyst: MK QA: MAM

CETIS QC Plot

Report Date: 17 Aug-21 15:56 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: All Protocols
Organism: Ampelisca abdita (Amphipod)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean: 1.16	**Count:** 20	**-1s Warning Limit:** 0.8124	**-2s Action Limit:** 0.5689
Sigma: n/a	**CV:** 36.80%	**+1s Warning Limit:** 1.656	**+2s Action Limit:** 2.365

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2017	May	30	15:35	1.323	0.1631	0.3692			12-0637-1241	06-4006-3677	EcoAnalysts
2		Aug	31	15:10	1.122	-0.03808	-0.09371			10-4283-2104	01-7654-1389	EcoAnalysts
3		Sep	15	15:10	0.8283	-0.3317	-0.9454			06-0509-8884	07-4483-6517	EcoAnalysts
4		Nov	10	15:35	1.132	-0.02784	-0.0682			10-7402-7953	02-7299-3693	EcoAnalysts
5		Dec	1	11:55	1.552	0.3922	0.8178			07-0913-6595	17-7926-6065	EcoAnalysts
6	2018	Jun	1	16:05	0.9074	-0.2526	-0.6894			19-4385-9207	09-4348-3861	EcoAnalysts
7			15	15:00	1.011	-0.1492	-0.3866			16-3031-1155	09-7716-0032	EcoAnalysts
8		Oct	12	11:25	0.5753	-0.5847	-1.969	(-)		03-2703-0034	06-6560-5833	EcoAnalysts
9	2019	Jul	16	10:20	0.6309	-0.5291	-1.71	(-)		18-6307-0041	14-6181-7101	EcoAnalysts
10		Oct	18	16:00	1.718	0.5578	1.102	(+)		19-5229-7608	06-6973-7944	EcoAnalysts
11		Nov	8	12:05	1.048	-0.1124	-0.2862			03-9475-0389	05-6288-9956	EcoAnalysts
12	2020	Jun	12	14:00	1.527	0.3674	0.7725			00-0374-2789	15-5313-7219	EcoAnalysts
13		Jul	7	14:25	0.7211	-0.4389	-1.335	(-)		13-3932-7622	12-8619-3586	EcoAnalysts
14		Aug	17	11:47	1.468	0.3084	0.6618			13-6426-1588	01-4993-0083	EcoAnalysts
15		Dec	1	10:45	0.9448	-0.2152	-0.576			01-0665-5883	11-9021-0094	EcoAnalysts
16	2021	Jan	27	15:51	1.655	0.4953	0.9983			10-1434-1504	13-8631-8730	EcoAnalysts
17		Feb	2	13:45	1.138	-0.0215	-0.05252			14-6065-9054	15-6923-8264	EcoAnalysts
18		Mar	12	14:20	2.163	1.003	1.749	(+)		17-8450-8322	15-6462-1531	EcoAnalysts
19		Apr	6	14:14	1.51	0.3504	0.741			04-7813-0758	11-9004-4910	EcoAnalysts
20		Jun	18	15:02	1.599	0.4388	0.9007			09-0098-8951	16-6175-8046	EcoAnalysts
21		Jul	13	13:55	1.525	0.3647	0.7675			05-7082-8279	20-1712-4003	EcoAnalysts

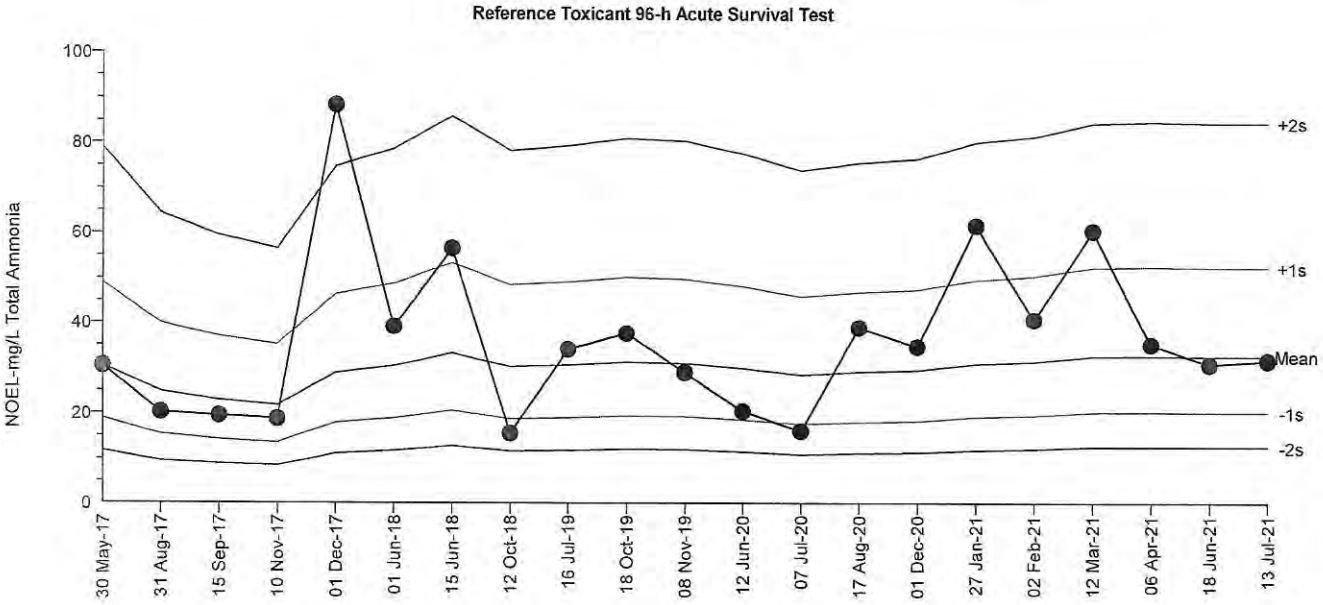
Analyst: MK QA: MMM

CETIS QC Plot

Report Date: 17 Aug-21 15:56 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival | **Organism:** Ampelisca abdita (Amphipod) | **Material:** Total Ammonia
Protocol: All Protocols | **Endpoint:** Proportion Survived | **Source:** Reference Toxicant-REF



Mean:	32.66	**Count:**	20	**-1s Warning Limit:**	20.27	**-2s Action Limit:**	12.58
Sigma:	n/a	**CV:**	50.50%	**+1s Warning Limit:**	52.63	**+2s Action Limit:**	84.8

Quality Control Data

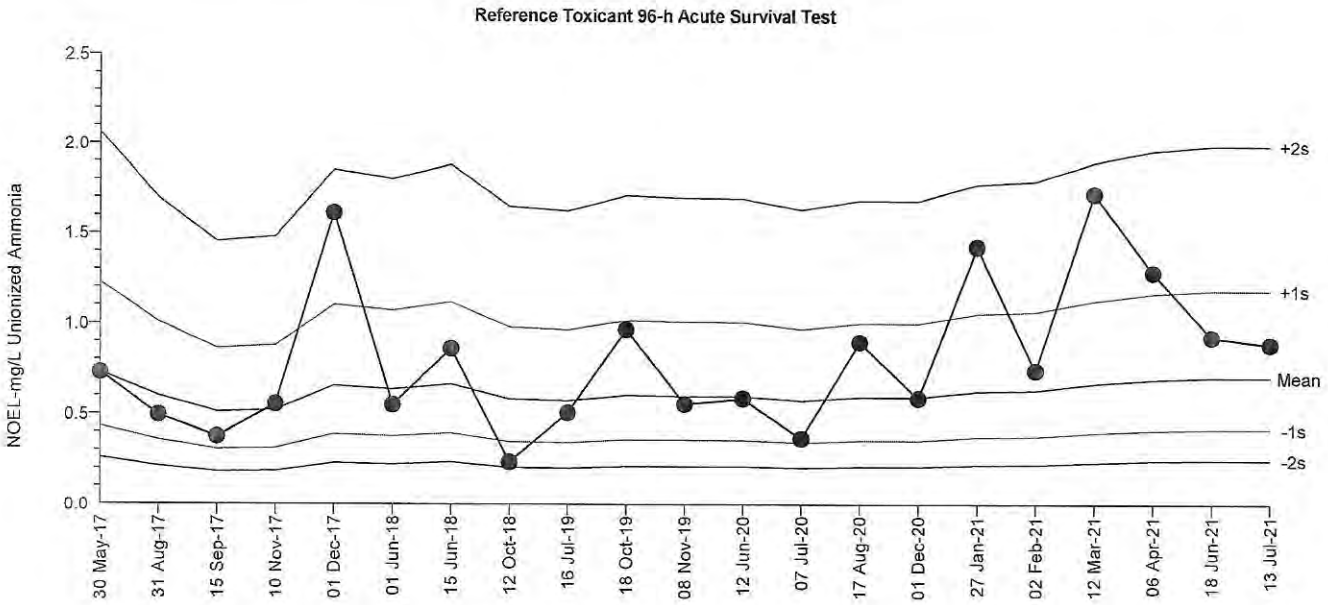
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2017	May	30	15:35	30.4	-2.255	-0.15			18-4556-1237	05-9756-4746	EcoAnalysts
2		Aug	31	15:10	20.2	-12.46	-1.007	(-)		21-1097-1012	15-8697-5699	EcoAnalysts
3		Sep	15	15:10	19.5	-13.16	-1.081	(-)		08-7239-4298	02-6828-9045	EcoAnalysts
4		Nov	10	15:35	18.8	-13.86	-1.158	(-)		08-5861-7934	05-0863-1160	EcoAnalysts
5		Dec	1	11:55	88.5	55.84	2.09	(+)	(+)	05-0826-4896	00-4477-5769	EcoAnalysts
6	2018	Jun	1	16:05	39.1	6.445	0.3776			08-0954-1539	18-8085-7752	EcoAnalysts
7			15	15:00	56.6	23.94	1.153	(+)		08-8726-5944	05-8782-1414	EcoAnalysts
8		Oct	12	11:25	15.6	-17.06	-1.549	(-)		10-9979-0612	06-7822-9094	EcoAnalysts
9	2019	Jul	16	10:20	34.1	1.445	0.09077			12-7567-8337	20-9024-5970	EcoAnalysts
10		Oct	18	16:00	37.7	5.045	0.3012			13-2404-3256	05-7269-4391	EcoAnalysts
11		Nov	8	12:05	29	-3.655	-0.2489			14-6982-9625	17-3330-3865	EcoAnalysts
12	2020	Jun	12	14:00	20.5	-12.16	-0.976			00-6793-4132	18-2121-5533	EcoAnalysts
13		Jul	7	14:25	16.1	-16.56	-1.483	(-)		10-0647-0326	07-6149-2597	EcoAnalysts
14		Aug	17	11:47	39	6.345	0.3722			14-3908-2449	11-9841-4490	EcoAnalysts
15		Dec	1	10:45	34.7	2.045	0.1273			11-4250-6913	19-9874-3209	EcoAnalysts
16	2021	Jan	27	15:51	61.9	29.24	1.341	(+)		12-5568-3213	11-5897-6749	EcoAnalysts
17		Feb	2	13:45	40.9	8.245	0.472			08-3266-1878	13-1001-2433	EcoAnalysts
18		Mar	12	14:20	60.7	28.04	1.3	(+)		07-8197-1687	05-6429-7356	EcoAnalysts
19		Apr	6	14:14	35.2	2.545	0.1573			10-0089-4907	07-2727-6842	EcoAnalysts
20		Jun	18	15:02	30.9	-1.755	-0.1158			06-2297-2695	15-3734-2189	EcoAnalysts
21		Jul	13	13:55	31.7	-0.9551	-0.06223			17-4325-5508	08-5222-9238	EcoAnalysts

CETIS QC Plot

Report Date: 17 Aug-21 15:56 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: All Protocols
Organism: Ampelisca abdita (Amphipod)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean:	0.7064	**Count:**	20	**-1s Warning Limit:**	0.4197	**-2s Action Limit:**	0.2494
Sigma:	n/a	**CV:**	55.80%	**+1s Warning Limit:**	1.189	**+2s Action Limit:**	2

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2017	May	30	15:35	0.728	0.02162	0.05792			12-0637-1241	19-9634-1361	EcoAnalysts
2		Aug	31	15:10	0.494	-0.2124	-0.6871			10-4283-2104	08-5280-3124	EcoAnalysts
3		Sep	15	15:10	0.375	-0.3314	-1.217	(-)		06-0509-8884	20-7280-0035	EcoAnalysts
4		Nov	10	15:35	0.556	-0.1504	-0.4599			10-7402-7953	02-9974-2628	EcoAnalysts
5		Dec	1	11:55	1.617	0.9106	1.591	(+)		07-0913-6595	05-9065-9632	EcoAnalysts
6	2018	Jun	1	16:05	0.552	-0.1544	-0.4738			19-4385-9207	09-6859-0894	EcoAnalysts
7			15	15:00	0.863	0.1566	0.3847			16-3031-1155	15-7245-3260	EcoAnalysts
8		Oct	12	11:25	0.235	-0.4714	-2.114	(-)	(-)	03-2703-0034	17-5120-8217	EcoAnalysts
9	2019	Jul	16	10:20	0.509	-0.1974	-0.6296			18-6307-0041	01-3820-7422	EcoAnalysts
10		Oct	18	16:00	0.97	0.2636	0.6093			19-5229-7608	14-4935-2756	EcoAnalysts
11		Nov	8	12:05	0.558	-0.1484	-0.453			03-9475-0389	16-0644-2134	EcoAnalysts
12	2020	Jun	12	14:00	0.589	-0.1174	-0.3491			00-0374-2789	07-8912-1333	EcoAnalysts
13		Jul	7	14:25	0.367	-0.3394	-1.258	(-)		13-3932-7622	17-7712-9300	EcoAnalysts
14		Aug	17	11:47	0.902	0.1956	0.4697			13-6426-1588	20-2169-3307	EcoAnalysts
15		Dec	1	10:45	0.591	-0.1154	-0.3426			01-0665-5883	16-6557-1923	EcoAnalysts
16	2021	Jan	27	15:51	1.431	0.7246	1.356	(+)		10-1434-1504	03-2400-5642	EcoAnalysts
17		Feb	2	13:45	0.744	0.03762	0.09968			14-6065-9054	11-1569-5006	EcoAnalysts
18		Mar	12	14:20	1.731	1.025	1.722	(+)		17-8450-8322	13-3451-6581	EcoAnalysts
19		Apr	6	14:14	1.29	0.5836	1.157	(+)		04-7813-0758	18-7899-5035	EcoAnalysts
20		Jun	18	15:02	0.933	0.2266	0.5346			09-0098-8951	02-9568-7121	EcoAnalysts
21		Jul	13	13:55	0.891	0.1846	0.4461			05-7082-8279	02-7934-2633	EcoAnalysts

CETIS Summary Report

Report Date: 17 Aug-21 16:00 (p 1 of 1)
Test Code/ID: P190612.189 / 17-4325-5508

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Batch ID:	10-3207-2118	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 13:55 ✓	Protocol:	EPA/600/R-94/024 (1994)	Diluent:	Laboratory Seawater
Ending Date:	17 Jul-21 13:10 ✓	Species:	Ampelisca abdita	Brine:	Not Applicable
Test Length:	95h	Taxon:	Malacostraca	Source:	Brezina and Associates Age:

Sample ID:	13-4185-7180	Code:	P190612.189	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Total Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.189 ✓
Sample Age:	762d 14h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
08-5222-9238	Proportion Survived	Dunnett Multiple Comparison Test		31.7	66.4	45.88		16.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
04-8869-9594	Proportion Survived	Linear Interpolation (ICPIN)		EC5	33.43	20.36	36.42		1
				EC10	36.27	30.2	40.56		
				EC15	39.34	32.89	45.13		
				EC20	42.67	35.8	50.35		
				EC25	46.27	38.16	56.76		
				EC40	58.97	45.33	77.1		
				EC50	68.98	50.55	84.85		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9000	0.6516	1.0000	0.8000	1.0000	0.0577	0.1000	11.11%	0.00%
18.1		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
31.7		3	0.9333	0.7899	1.0000	0.9000	1.0000	0.0333	0.0577	6.19%	-3.70%
66.4		3	0.5000	0.2516	0.7484	0.4000	0.6000	0.0577	0.1000	20.00%	44.44%
142		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%
247		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	0.8000	1.0000	0.9000
18.1		1.0000	1.0000	1.0000
31.7		0.9000	1.0000	0.9000
66.4		0.5000	0.4000	0.6000
142		0.0000	0.0000	0.0000
247		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	8/10	10/10	9/10
18.1		10/10	10/10	10/10
31.7		9/10	10/10	9/10
66.4		5/10	4/10	6/10
142		0/10	0/10	0/10
247		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 17 Aug-21 16:02 (p 1 of 1)
Test Code/ID: P190612.189 / 17-4325-5508

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	13 Jul-21 13:55	**Species:**	Ampelisca abdita	**Sample Code:**	P190612.189
End Date:	17 Jul-21 13:10	**Protocol:**	EPA/600/R-94/024 (1994)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.189

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	9	10	8	
0	D	2	5	10	10	
0	D	3	14	10	9	
18.1		1	16	10	10	
18.1		2	4	10	10	
18.1		3	15	10	10	
31.7		1	7	10	9	
31.7		2	3	10	10	
31.7		3	18	10	9	
66.4		1	17	10	5	
66.4		2	13	10	4	
66.4		3	12	10	6	
142		1	10	10	0	
142		2	6	10	0	
142		3	2	10	0	
247		1	1	10	0	
247		2	8	10	0	
247		3	11	10	0	

CETIS Summary Report

Report Date: 17 Aug-21 16:00 (p 1 of 1)
Test Code/ID: P190612.189 / 05-7082-8279

Reference Toxicant 96-h Acute Survival Test

EcoAnalysts

Batch ID:	10-3207-2118	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 13:55	Protocol:	EPA/600/R-94/024 (1994)	Diluent:	Laboratory Seawater
Ending Date:	17 Jul-21 13:10	Species:	Ampelisca abdita	Brine:	Not Applicable
Test Length:	95h	Taxon:	Malacostraca	Source:	Brezina and Associates Age:

Sample ID:	02-7740-4697	Code:	P190612.189	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Unionized Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.189
Sample Age:	762d 14h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
02-7934-2633	Proportion Survived	Dunnett Multiple Comparison Test		0.891	1.48	1.148		16.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
20-1712-4003	Proportion Survived	Linear Interpolation (ICPIN)		EC5	0.9278	0.4996	0.9874		1
				EC10	0.986	0.8213	1.065		
				EC15	1.046	0.8714	1.146		
				EC20	1.108	0.9312	1.229		
				EC25	1.171	0.9781	1.316		
				EC40	1.374	1.164	1.619		
				EC50	1.525	1.247	1.77		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9000	0.6516	1.0000	0.8000	1.0000	0.0577	0.1000	11.11%	0.00%
0.509		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-11.11%
0.891		3	0.9333	0.7899	1.0000	0.9000	1.0000	0.0333	0.0577	6.19%	-3.70%
1.48		3	0.5000	0.2516	0.7484	0.4000	0.6000	0.0577	0.1000	20.00%	44.44%
2.544		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%
2.83		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	0.8000	1.0000	0.9000
0.509		1.0000	1.0000	1.0000
0.891		0.9000	1.0000	0.9000
1.48		0.5000	0.4000	0.6000
2.544		0.0000	0.0000	0.0000
2.83		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	8/10	10/10	9/10
0.509		10/10	10/10	10/10
0.891		9/10	10/10	9/10
1.48		5/10	4/10	6/10
2.544		0/10	0/10	0/10
2.83		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 17 Aug-21 16:02 (p 1 of 1)
Test Code/ID: P190612.189 / 05-7082-8279

Reference Toxicant 96-h Acute Survival Test — **EcoAnalysts**

Start Date:	13 Jul-21 13:55	**Species:**	Ampelisca abdita	**Sample Code:**	P190612.189
End Date:	17 Jul-21 13:10	**Protocol:**	EPA/600/R-94/024 (1994)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.189

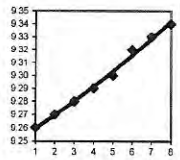
Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	10	10	8	
0	D	2	1	10	10	
0	D	3	17	10	9	
0.509		1	2	10	10	
0.509		2	7	10	10	
0.509		3	14	10	10	
0.891		1	18	10	9	
0.891		2	3	10	10	
0.891		3	11	10	9	
1.48		1	15	10	5	
1.48		2	8	10	4	
1.48		3	12	10	6	
2.544		1	13	10	0	
2.544		2	9	10	0	
2.544		3	16	10	0	
2.83		1	5	10	0	
2.83		2	6	10	0	
2.83		3	4	10	0	

Un-ionized Ammonia Calculator

CLIENT:	Internal	Date of Test:	July 13, 2021
PROJECT:	Ref Tox	Test Type:	*Ampelisca abdita*
COMMENTS:			

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa[s]
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa[s]*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	15		18.1	29	7.9	19.2	292.35	9.2557		**0.509**
4	30		31.7	29	7.9	19.2	292.35	9.2557		**0.891**
5	60		66.4	29	7.8	19.1	292.25	9.2557		**1.480**
6	120		142.0	29	7.7	19.2	292.35	9.2557		**2.544**
7	240		247.0	30	7.5	19.3	292.45	9.2559		**2.830**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

DAV 7/14/21

ECO ANALYSTS

Ammonia Reference Toxicant Test Water Quality Data Sheet

CLIENT	PROJECT		Laboratory	PROTOCOL
~~Wooch~~ —	~~Mole Pier~~ —	*Ampelisca abdita*	Port Gamble .	ITM/OTM

TEST ID	LOT #:	DILUTION PREP INITIALS:
P190612.189	18H13567763	SH

CHAMBER SIZE/TYPE	EXPOSURE VOLUME	TEST START DATE	INITIALS	TIME	TEST END DATE	TIME
Pint jar	250 ml	13Jul21	MK	1355	17Jul21	1310 NL

WATER QUALITY DATA

TEST CONDITIONS					DO (mg/L) > 3.0		TEMP(C) 20 ± 2		SAL (ppt) 30 ± 2		pH 7-9		TECHNICIAN	AMMONIA		
SAMPLE ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WQ TECH/ DATE	AMMONIA METER	AMMONIA mg/L	Tech
Ref.Tox.-ammonia	0	mg/L	0	Stock	9	7.6	9	19.2	9	29	9	8.0	7/13/21 SH	10	~~18.1~~ 08.00	SH
			4	1	9	7.3	9	19.7	9	29	9	8.0	7/17 NL			
Ref.Tox.-ammonia	15	mg/L	0	Stock	9	7.6	9	19.2	9	29	9	7.9	7/13/21 SH	10	18.1	SH
			4	1	9	7.4	9	19.6	9	29	9	8.0	7/17 NL			
Ref.Tox.-ammonia	30	mg/L	0	Stock	9	7.6	9	19.2	9	29	9	7.9	7/13/21 SH	10	31.7	SH
			4	1	9	7.4	9	20.0	9	29	9	8.0	7/17 NL			
Ref.Tox.-ammonia	60	mg/L	0	Stock	9	7.6	9	19.1	9	29	9	7.8	7/13/21 SH	10	66.4	SH
			4	1	9	7.4	9	19.8	9	29	9	8.0	7/17 NL			
Ref.Tox.-ammonia	120	mg/L	0	Stock	9	7.6	9	19.2	9	29	9	7.7	7/13/21 SH	10	142	SH
			4	1	—											
Ref.Tox.-ammonia	240	mg/L	0	Stock	9	7.6	9	19.3	9	30	9	7.5	7/13/21 SH	10	247	SH
			4	1	—											

① w.c. -SH 7/13

ECOANALYSTS

Ammonia Reference Toxicant Test Water Quality Data Sheet

CLIENT	PROJECT	SPECIES	PROJECT MANAGER	LABORATORY	PROTOCOL
~~Wood~~ —	~~Galveston~~ —	*Ampelisca abdita*	M. Knowlen	Port Gamble .	ITM/OTM

SURVIVAL & BEHAVIOR DATA

OBSERVATION KEY
N = Normal
LOE = Loss of equilibium
Q = Quiescent
DC = Discoloration
NB = No body
F = Floating on surface

INITIAL # OF ORGANISMS: 10

SAMPLE ID	CONC. value	CONC. units	REP	INITIAL NUMBER	DAY 1 DATE	DAY 1 TECHNICIAN	DAY 2 DATE	DAY 2 TECHNICIAN	DAY 3 DATE	DAY 3 TECHNICIAN	DAY 4 DATE	DAY 4 TECHNICIAN
					① ~~MS~~ 7/14	~~07/14~~ MS	7/15/21	NL	7/16/21	MK	7/17/21	NL

SAMPLE ID	CONC.	REP	INITIAL NUMBER	DAY 1 #ALIVE	DAY 1 #DEAD	DAY 1 OBS	DAY 2 #ALIVE	DAY 2 #DEAD	DAY 2 OBS	DAY 3 #ALIVE	DAY 3 #DEAD	DAY 3 OBS	DAY 4 #ALIVE	DAY 4 #DEAD	DAY 4 OBS
Ref.Tox.- Ammonia	0 mg/L	1	10	9	INB	N	9	0	1F	② 8	0	1F	8	0	N
		2		10	0	N	10	0	2F	10	0	2F	10	0	2F
		3		10	0	N	9	1	N	9	0	1F	9	0	1F
Ref.Tox.- Ammonia	15 mg/L	1		10	0	N	10	0	1F	10	0	N	10	0	1F
		2		10	0	N	10	0	1F	10	0	N	10	0	1F
		3		10	0	N	10	0	1F	10	0	N	10	0	1F
Ref.Tox.- Ammonia	30 mg/L	1		10	0	N	9	INB	N	9	0	N	9	0	N
		2		10	0	N	10	0	N	10	0	N	10	0	N
		3		10	0	Q	9	1	N	9	0	1F	9	0	N
Ref.Tox.- Ammonia	60 mg/L	1		10	0	Q	9	1	Q	6	3	Q	5	1	Q
		2		10	0	Q	9	1	Q	7	2	Q	4	3	Q
		3		10	0	Q	10	0	Q	7	3	Q	6	1	Q
Ref.Tox.- Ammonia	120 mg/L	1		9	1	Q	4	5	Q	0	4	–			
		2		9	1	Q	3	6	Q	0	3	–			
		3		9	1	Q	1	8	Q	0	1	–			
Ref.Tox.- Ammonia	240 mg/L	1		5	5	Q	0	5	–						
		2		4	6	Q	0	4	–						
		3		2	8	Q	0	2	–						

① W.C. - changed on and by → NL 7/15/21
② W.C. MK 7/16.

Ammonia Reference Toxicant
Spiking Worksheet

Reference Toxicant ID: P190612.189
Date Prepared: 7/13/21
Technician Initials: SH

Amp/Eoh NH_3 RT

Assumptions in Model
Stock ammonia concentration is 10,000 mg/L = 10 mg/mL

Date: 6/29/2021
Measurement: 9,027

Test Solutions			Volume of stock to reach desired concentration
Measured Concentration	**Desired Concentration**	**Volume**	
mg/L	mg/L	mL	mL stock to increase
0.00			SALT WATER
18.1	**15**	750	**1.869**
31.7	**30**	750	**3.739**
66.4	**60**	750	**7.478**
142	**120**	750	**14.956**
247	**240**	750	**29.911**

Daily Quality Assurance Checks

Project name: Mole Pier / SCPA

Test: Amp NH_3 RT

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	MK	7/13	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges			
1	Test datasheets checked for completeness and legibility	NL	7/14	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	NL	7/15	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility	MK	7/16	
	Test data within acceptable ranges	↓	↓	
4	Test datasheets checked for completeness and legibility	NL	7/17	
	Test data within acceptable ranges	↓	↓	

Amps

Random #s

Ø	1	13
	2	2
	3	14
15	4	17
	5	8
	6	11
30	7	1
	8	12
	9	9
60	10	10
	11	3
	12	18
120	13	16
	14	7
	15	4
240	16	6
	17	15
	18	5

3. *Neanthes arenaceodentata* 10-day Solid-Phase Test

3.1 *Neanthes arenaceodentata* Test Data

Version T.2

GENERAL

Client	Wood / KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Oldest Sample Collected	5/31/2021
Sample Holding Time	43
Test Start Date	07/13/21
Test Species	*Neanthes arenaceodentata*
Organism Supplier	ATS
Organism Acquired	7/13/2021
Organism Acclimation	0
Organism Age	2-3 weeks post-emergence
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Bath 4
Sample Treatment	None
Control Sediment Source	Eoh Control
Water Batch	FSW071121.01 & FSW071121.02
Test Lighting	12hr light / 12hr dark
Test Chamber	1 L mason jars
Replicates Per Treatment	5 + 2 Surr
Organisms per Replicate	10
Exposure Volume	2 cm sediment/ 775 mL water
Feeding Information	None
Test Dissolved Oxygen	> 4.6
Test Temperature	20 ± 1
Test Salinity	30 ± 2
Test pH	8 ± 1
Water Renewal Info	None

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO	4.6	
Temp	18.5	21.4
Sal	28	32
pH	7	9

TEST START TIME:	1120
TEST END TIME:	1330

	CLIENT SAMPLE ID	LAB ID
1	Control	P210708.01
2	LA-5 REF	P210707.01
3	Composite A	P210707.02
4	Composite B	P210707.03
5	Composite D	P210707.04
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*	Port Gamble , Bath 4	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7 - 9	Notes
Control	0	1	2c	RE	07/13/21	8	7.8	19.2	30	8.1	
Control	0	2	11c	RE	07/13/21	8	7.8	19.2	30	8.1	
Control	0	3	13c	RE	07/13/21	8	7.8	19.2	30	8.1	
Control	0	4	12c	RE	07/13/21	8	7.8	19.2	30	8.1	
Control	0	5	8c	RE	07/13/21	8	7.8	19.2	30	8.1	
Control	1	Surr	3c	NL	07/14/21	9	7.5	19.2	30	8.1	
Control	2	Surr	3c	DM	07/15/21	8	7.7	19.8	30	8.1	
Control	3	Surr	3c	NL	07/16/21	9	7.4	19.5	30	8.1	
Control	4	Surr	3c	IP	07/17/21	9	7.6	19.7	31	8.1	
Control	5	Surr	3c	NL	07/18/21	9	7.6	19.8	31	8.1	
Control	6	Surr	3c	MS	07/19/21	8	7.7	19.6	30	8.1	
Control	7	Surr	3c	IP	07/20/21	8	7.7	20.1	30	8.1	
Control	8	Surr	3c	IP	07/21/21	8	7.8	19.4	30	8.1	
Control	9	Surr	3c	NL	07/22/21	9	7.6	19.3	30	8.1	
Control	10	1	2c	DM	07/23/21	9	7.5	19.6	30	8.1	
Control	10	2	11c	DM	07/23/21	9	7.6	19.4	30	8.1	
Control	10	3	13c	DM	07/23/21	9	7.6	19.5	30	8.1	
Control	10	4	12c	DM	07/23/21	9	7.6	19.4	30	8.1	
Control	10	5	8c	DM	07/23/21	9	7.5	19.5	30	8.1	

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*	Port Gamble , Bath 4	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7 - 9	Notes
LA-5 REF	0	1	17	RE	07/13/21	8	7.6	19.4	30	8.1	
LA-5 REF	0	2	23	RE	07/13/21	8	7.7	19.4	30	8.2	
LA-5 REF	0	3	5	RE	07/13/21	8	7.7	19.5	30	8.1	
LA-5 REF	0	4	4	RE	07/13/21	8	7.7	19.3	30	8.2	
LA-5 REF	0	5	19	RE	07/13/21	8	7.7	19.5	30	8.1	
LA-5 REF	1	Surr	21	SH	07/14/21	9	7.4	19.6	31	8.2	
LA-5 REF	2	Surr	21	DM	07/15/21	8	7.6	20.0	30	8.1	
LA-5 REF	3	Surr	21	NL	07/16/21	9	7.4	19.7	31	8.2	
LA-5 REF	4	Surr	21	IP	07/17/21	9	7.5	19.8	31	8.1	
LA-5 REF	5	Surr	21	NL	07/18/21	9	7.4	19.9	31	8.1	
LA-5 REF	6	Surr	21	MS	07/19/21	8	7.7	19.6	31	8.1	
LA-5 REF	7	Surr	21	IP	07/20/21	8	7.6	19.9	31	8.1	
LA-5 REF	8	Surr	21	IP	07/21/21	8	7.7	19.6	31	8.1	
LA-5 REF	9	Surr	21	NL	07/22/21	9	7.5	19.4	31	8.2	
LA-5 REF	10	1	17	DM	07/23/21	9	7.4	19.8	31	8.1	
LA-5 REF	10	2	23	DM	07/23/21	9	7.5	19.7	31	8.1	
LA-5 REF	10	3	5	DM	07/23/21	9	7.5	19.7	31	8.2	
LA-5 REF	10	4	4	DM	07/23/21	9	7.5	19.5	31	8.1	
LA-5 REF	10	5	19	DM	07/23/21	9	7.5	19.8	31	8.1	

EcoAnalysts, Inc.

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*	Port Gamble , Bath 4	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7 - 9	Notes
Composite A	0	1	3	RE	07/13/21	8	7.7	19.4	30	8.1	
Composite A	0	2	6	RE	07/13/21	8	7.7	19.4	30	8.1	
Composite A	0	3	16	RE	07/13/21	8	7.7	19.4	30	8.1	
Composite A	0	4	10	RE	07/13/21	8	7.7	19.4	30	8.1	
Composite A	0	5	29	RE	07/13/21	8	7.6	19.3	30	8.1	
Composite A	1	Surr	20	SH	07/14/21	9	7.4	19.5	31	8.1	
Composite A	2	Surr	20	DM	07/15/21	8	7.6	20.0	30	8.1	
Composite A	3	Surr	20	NL	07/16/21	9	7.4	19.8	31	8.1	
Composite A	4	Surr	20	IP	07/17/21	9	7.4	19.9	31	8.0	
Composite A	5	Surr	20	NL	07/18/21	9	7.4	20.0	31	8.1	
Composite A	6	Surr	20	MS	07/19/21	8	7.6	19.6	30	8.1	
Composite A	7	Surr	20	IP	07/20/21	8	7.6	19.9	30	8.1	
Composite A	8	Surr	20	IP	07/21/21	8	7.7	19.6	30	8.1	
Composite A	9	Surr	20	NL	07/22/21	9	7.5	19.5	31	8.1	
Composite A	10	1	3	DM	07/23/21	9	7.5	19.6	31	8.1	
Composite A	10	2	6	DM	07/23/21	9	7.5	19.7	30	8.1	
Composite A	10	3	16	DM	07/23/21	9	7.5	19.8	31	8.1	
Composite A	10	4	10	DM	07/23/21	9	7.5	19.7	31	8.1	
Composite A	10	5	29	DM	07/23/21	9	7.5	19.4	31	8.0	

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*	Port Gamble , Bath 4	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7 - 9	Notes
Composite B	0	1	7	RE	07/13/21	8	7.6	19.4	30	8.1	
Composite B	0	2	12	RE	07/13/21	8	7.5	19.5	30	8.1	
Composite B	0	3	28	RE	07/13/21	8	7.6	19.3	30	8.1	
Composite B	0	4	18	RE	07/13/21	8	7.6	19.4	30	8.1	
Composite B	0	5	8	RE	07/13/21	8	7.7	19.4	30	8.1	
Composite B	1	Surr	13	SH	07/14/21	9	7.3	19.6	31	8.1	
Composite B	2	Surr	13	DM	07/15/21	8	7.4	20.1	30	8.1	
Composite B	3	Surr	13	NL	07/16/21	9	7.4	19.9	31	8.2	
Composite B	4	Surr	13	IP	07/17/21	9	7.3	19.9	31	8.0	
Composite B	5	Surr	13	NL	07/18/21	9	7.4	20.0	31	8.1	
Composite B	6	Surr	13	MS	07/19/21	8	7.5	19.8	31	8.1	
Composite B	7	Surr	13	IP	07/20/21	8	7.4	20.1	30	8.1	
Composite B	8	Surr	13	IP	07/21/21	8	7.6	19.8	31	8.1	
Composite B	9	Surr	13	NL	07/22/21	9	7.4	19.7	30	8.1	
Composite B	10	1	7	DM	07/23/21	9	7.5	19.6	31	8.1	
Composite B	10	2	12	DM	07/23/21	9	7.5	19.8	31	8.1	
Composite B	10	3	28	DM	07/23/21	9	7.5	19.4	31	8.1	
Composite B	10	4	18	DM	07/23/21	9	7.5	19.5	31	8.1	
Composite B	10	5	8	DM	07/23/21	9	7.3	19.9	31	8.0	

10 Day SP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY LOCATION	PROTOCOL
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*	Port Gamble , Bath 4	OTM/ITM ,
PROJECT NUMBER	**TEST TYPE/DURATION**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	10-Day Solid Phase	FSW071121.01 & FSW071121.02	13-Jul-2021	23-Jul-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 4.6	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7 - 9	Notes
Composite D	0	1	9	RE	07/13/21	8	7.7	19.3	30	8.1	
Composite D	0	2	26	RE	07/13/21	8	7.8	19.3	30	8.1	
Composite D	0	3	1	RE	07/13/21	8	7.7	19.3	30	8.1	
Composite D	0	4	14	RE	07/13/21	8	7.8	19.4	30	8.1	
Composite D	0	5	25	RE	07/13/21	8	7.8	19.3	30	8.1	
Composite D	1	Surr	30	SH	07/14/21	9	7.5	19.2	31	8.1	
Composite D	2	Surr	30	DM	07/15/21	8	7.7	19.7	30	8.1	
Composite D	3	Surr	30	NL	07/16/21	9	7.5	19.4	31	8.1	
Composite D	4	Surr	30	IP	07/17/21	9	7.5	19.5	31	8.1	
Composite D	5	Surr	30	NL	07/18/21	9	7.5	19.7	31	8.1	
Composite D	6	Surr	30	MS	07/19/21	8	7.7	19.4	30	8.1	
Composite D	7	Surr	30	IP	07/20/21	8	7.7	19.7	30	8.1	
Composite D	8	Surr	30	IP	07/21/21	8	7.7	19.2	30	8.1	
Composite D	9	Surr	30	NL	07/22/21	9	7.6	19.0	30	8.1	
Composite D	10	1	9	DM	07/23/21	9	7.5	19.8	31	8.1	
Composite D	10	2	26	DM	07/23/21	9	7.5	19.5	31	8.1	
Composite D	10	3	1	DM	07/23/21	9	7.5	19.7	31	8.1	
Composite D	10	4	14	DM	07/23/21	9	7.5	19.6	30	8.1	
Composite D	10	5	25	DM	07/23/21	9	7.5	19.5	31	8.1	

10 Day SP Test Observation Data Sheet

CLIENT	PROJECT	PROJECT N0.	PROJECT MANAGER	LABORATORY LOCATION	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 4	OTM/ITM ,	*Neanthes arenaceodentata*

Observation Key
#FOS = Num Floating on Water Surface
#E = Num Emerged from Sediment
#M = Number of Mortalities
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

				Tech	SH	DM	NL	IP	NL	MS	IP	IP	NL	DM	
				Date	07/14/21	07/15/21	07/16/21	07/17/21	07/18/21	07/19/21	07/20/21	07/21/21	07/22/21	07/23/21	
CLIENT ID	REP	Jar #	Initial #	Day	1	2	3	4	5	6	7	8	9	10	Comments
Control	1	2c	10		N	N	N	N	N	N	N	N	N	N	
Control	2	11c	10		N	N	N	N	N	N	N	N	N	N	
Control	3	13c	10		N	N	N	N	N	N	N	N	N	N	
Control	4	12c	10		N	N	N	N	N	N	N	N	N	N	
Control	5	8c	10		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	1	17	10		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	2	23	10		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	3	5	10		N	N	N	1E	N	N	N	N	N	N	
LA-5 REF	4	4	10		N	N	N	N	N	N	N	N	N	N	
LA-5 REF	5	19	10		N	N	N	N	N	N	N	N	N	N	
Composite A	1	3	10		N	N	N	N	N	N	N	N	N	N	
Composite A	2	6	10		N	N	N	3E	N	N	2E	1E	N	N	
Composite A	3	16	10		N	N	N	N	N	N	N	N	N	N	
Composite A	4	10	10		N	N	N	N	N	N	N	N	N	N	
Composite A	5	29	10		N	N	N	N	N	N	N	N	N	N	

EcoAnalysts, Inc.

10 Day SP Test Observation Data Sheet

CLIENT	PROJECT	PROJECT N0.	PROJECT MANAGER	LABORATORY LOCATION	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 4	OTM/ITM ,	*Neanthes arenaceodentata*

Observation Key
#FOS = Num Floating on Water Surface
#E = Num Emerged from Sediment
#M = Number of Mortalities
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

					ENDPOINT DATA & OBSERVATIONS										
				Tech	SH	DM	NL	IP	NL	MS	IP	IP	NL	DM	
				Date	07/14/21	07/15/21	07/16/21	07/17/21	07/18/21	07/19/21	07/20/21	07/21/21	07/22/21	07/23/21	
CLIENT ID	REP	Jar #	Initial #	Day	1	2	3	4	5	6	7	8	9	10	Comments
Composite B	1	7	10		N	N	N	N	N	N	N	N	N	N	
Composite B	2	12	10		N	N	N	4E	N	N	N	N	N	N	
Composite B	3	28	10		N	N	N	N	N	N	N	N	N	N	
Composite B	4	18	10		N	N	N	1E	N	N	N	N	N	N	
Composite B	5	8	10		N	N	N	N	N	N	N	N	N	N	
Composite D	1	9	10		N	N	N	N	N	N	N	N	N	N	
Composite D	2	26	10		N	N	N	N	N	N	N	N	N	N	
Composite D	3	1	10		N	N	N	N	N	N	N	N	N	N	
Composite D	4	14	10		N	N	N	N	N	N	N	N	N	N	
Composite D	5	25	10		N	N	N	N	N	N	N	N	N	N	

10 Day SP Test Survival Summary

CLIENT	PROJECT		SPECIES
Wood / KMEA	Mole Pier		*Neanthes arenaceodentata*
PROJECT MANAGER	**PROJECT NUMBER**	**Date Recovered:**	
M. Knowlen	PG1217	**7/23/21 JW MK**	

Sample ID	Rep	Jar #	# Initiated	# Alive	# Dead	Initials	# Missing or Dead	Comments
Control	1	2c	10	10	0	MK	0	
Control	2	11c	10	10	0	MK	0	
Control	3	13c	10	10	0	JW	0	
Control	4	12c	10	10	0	MK	0	
Control	5	8c	10	10	0	MK	0	
LA-5 REF	1	17	10	10	0	MK	0	
LA-5 REF	2	23	10	10	0	JW	0	
LA-5 REF	3	5	10	10	0	MK	0	
LA-5 REF	4	4	10	10	0	JW	0	
LA-5 REF	5	19	10	10	0	MK	0	

10 Day SP Test Survival Summary

CLIENT	PROJECT		SPECIES
Wood / KMEA	Mole Pier		*Neanthes arenaceodentata*
PROJECT MANAGER	**PROJECT NUMBER**	**Date Recovered:**	
M. Knowlen	PG1217	**7/23/21 JW MK**	

Sample ID	Rep	Jar #	# Initiated	# Alive	# Dead	Initials	# Missing or Dead	Comments
Composite A	1	3	10	10	0	JW	0	
Composite A	2	6	10	10	0	JW	0	
Composite A	3	16	10	10	0	JW	0	
Composite A	4	10	10	10	0	MK	0	
Composite A	5	29	10	10	0	JW	0	
Composite B	1	7	10	10	0	MK	0	
Composite B	2	12	10	10	0	MK	0	
Composite B	3	28	10	10	0	MK	0	
Composite B	4	18	10	9	0	MK	1	
Composite B	5	8	10	10	0	MK	0	
Composite D	1	9	10	10	0	MK	0	
Composite D	2	26	10	10	0	MK	0	
Composite D	3	1	10	10	0	MK	0	
Composite D	4	14	10	9	0	MK	1	
Composite D	5	25	10	10	0	MK	0	

10 Day SP Test Survival Summary

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood / KMEA	Mole Pier	PG1217	*Neanthes arenaceodentata*

				Survival Statistics			Mortality Statistics		
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	% Mortality	Mean Mortality (%)	SD
Control	1	10	10	100			0		
Control	2	10	10	100			0		
Control	3	10	10	100			0		
Control	4	10	10	100			0		
Control	5	10	10	100	100.0	0.0	0	0.0	0.0
LA-5 REF	1	10	10	100			0		
LA-5 REF	2	10	10	100			0		
LA-5 REF	3	10	10	100			0		
LA-5 REF	4	10	10	100			0		
LA-5 REF	5	10	10	100	100.0	0.0	0	0.0	0.0

10 Day SP Test Survival Summary

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood / KMEA	Mole Pier	PG1217	*Neanthes arenaceodentata*

				Survival Statistics			Mortality Statistics		
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	% Mortality	Mean Mortality (%)	SD
Composite A	1	10	10	100			0		
Composite A	2	10	10	100			0		
Composite A	3	10	10	100			0		
Composite A	4	10	10	100			0		
Composite A	5	10	10	100	100.0	0.0	0	0.0	0.0
Composite B	1	10	10	100			0		
Composite B	2	10	10	100			0		
Composite B	3	10	10	100			0		
Composite B	4	10	9	90			10		
Composite B	5	10	10	100	98.0	4.5	0	2.0	4.5
Composite D	1	10	10	100			0		
Composite D	2	10	10	100			0		
Composite D	3	10	10	100			0		
Composite D	4	10	9	90			10		
Composite D	5	10	10	100	98.0	4.5	0	2.0	4.5

EcoANALYSTS, INC.

10 Day SP Test Day 0 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*

Calibration Standards Temperature: 20.0 **Date:** 7/13/2021 **Tech:** DM

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Notes
Control	0	Overlying	0.0265	19.7	T17	30	8.1	19.2	292.35	9.2559	0.001	
LA-5 REF	0	Overlying	0.657	19.9	T17	30	8.1	19.4	292.57	9.2559	0.032	
Composite A	0	Overlying	0.472	19.7	T17	30	8.1	19.4	292.53	9.2559	0.021	
Composite B	0	Overlying	0.954	19.9	T17	30	8.1	19.4	292.55	9.2559	0.042	
Composite D	0	Overlying	0.354	20.0	T17	30	8.1	19.3	292.47	9.2559	0.016	

10 Day SP Test Day 0 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*

Calibration Standards Temperature:	20.0	Date:	7/13/2021	Tech:	DM

NH_3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Notes
Control	0	Porewater	0.0808	20.0	T17/9	30	7.7	19.2	292.35	9.2559	0.001	
LA-5 REF	0	Porewater	1.66	19.5	T17/9	31	8.0	19.4	292.57	9.2561	0.059	
Composite A	0	Porewater	1.75	19.8	T17/9	31	8.0	19.4	292.53	9.2561	0.062	
Composite B	0	Porewater	3.63	19.8	T17/9	32	8.0	19.4	292.55	9.2563	0.129	
Composite D	0	Porewater	1.47	19.8	T17/9	31	7.9	19.3	292.47	9.2561	0.042	

EcoANALYSTS, INC.

10 Day SP Test Day 10 Overlying Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*

Calibration Standards Temperature: 20.1 **Date:** 7/23/2021 **Tech:** SH

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*Average test salinity (ppt)*	*Average test pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Notes
Control	10	Overlying	0.00	19.7	T17	30	8.1	19.5	292.63	9.2559	0.000	
LA-5 REF	10	Overlying	1.59	19.8	T17	31	8.1	19.7	292.85	9.2561	0.075	
Composite A	10	Overlying	0.374	19.7	T17	31	8.1	19.6	292.79	9.2561	0.016	
Composite B	10	Overlying	0.319	19.9	T17	31	8.1	19.6	292.79	9.2561	0.014	
Composite D	10	Overlying	1.22	19.7	T17	31	8.1	19.6	292.77	9.2561	0.055	

10 Day SP Test Day 10 Porewater Ammonia

CLIENT	PROJECT	SPECIES
Wood / KMEA	Mole Pier	*Neanthes arenaceodentata*

Calibration Standards Temperature: 20.1 **Date:** 7/23/2021 **Tech:** SH

NH3 Sample temperature should be within +/- 1°C of standard temp at time and date of analysis **Column A on WQ Sheet MUST be sorted Smallest to Largest**

Sample	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 Sample Temp*	*Meter*	*NH_3 Sample Salinity (ppt)*	*NH_3 Sample pH*	*Average test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	**Sourced**		**Record**	**Record**	**Record**	**Record**	**Record**	**Calculated**	**Calculated**	**Calculated**	**Calculated**	**Notes**
Control	10	Porewater	0.224	20.8	M9/T17	30	7.4	19.5	292.63	9.2559	0.002	
LA-5 REF	10	Porewater	1.45	20.9	M9/T17	31	7.7	19.7	292.85	9.2561	0.027	
Composite A	10	Porewater	0.710	21.1	M9/T17	31	7.7	19.6	292.79	9.2561	0.013	
Composite B	10	Porewater	0.990	21.1	M9/T17	31	7.6	19.6	292.79	9.2561	0.015	
Composite D	10	Porewater	1.66	21.0	M9/T17	31	7.6	19.6	292.77	9.2561	0.024	

3.2 *Neanthes arenaceodentata* Statistical Results

CETIS Summary Report

Report Date: 08 Sep-21 09:53 (p 1 of 2)
Test Code/ID: Mole Pier / 02-1482-2737

Neanthes 10-d Survival and Growth Sediment Test

EcoAnalysts

Batch ID:	15-3021-1647	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	13 Jul-21 11:20	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	23 Jul-21 13:30	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Test Length:	10d 2h	**Taxon:**	Polychaeta	**Source:**	Aquatic Toxicology Support **Age:** 22 d

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
Control	19-7369-1461	08 Jul-21	08 Jul-21	5d 11h	Wood	Mole Pier
LA-5 Ref	17-8537-9307	31 May-21 12:05	02 Jun-21 12:20	42d 23h (0.2 °C)		
Composite A	06-6245-4601	04 Jun-21 07:30	08 Jun-21 12:11	39d 4h (0.8 °C)		
Composite B	18-8309-5004	01 Jun-21 08:00	03 Jun-21 12:30	42d 3h (0 °C)		
Composite D	13-5785-5903	01 Jun-21 08:00	03 Jun-21 12:30	42d 3h (0.1 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
Control	Sediment Sample	Mole Pier	P210708.01	
LA-5 Ref	Sediment Sample	Mole Pier	P210707.01	
Composite A	Sediment Sample	Mole Pier	P210707.02	
Composite B	Sediment Sample	Mole Pier	P210707.03	
Composite D	Sediment Sample	Mole Pier	P210707.04	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
13-3152-7050	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	1.0000	LA-5 Ref passed proportion survived	1
13-3152-7050	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	1.0000	Composite A passed proportion survived	1
13-3152-7050	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	1.0000	Composite B passed proportion survived	1
13-3152-7050	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	1.0000	Composite D passed proportion survived	1
13-3152-7050	Proportion Survived	Wilcoxon Rank Sum Two-Sample Test	1.0000	Control passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.7500	LA-5 Ref passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.7500	Composite D passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.7500	Composite B passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.7500	Control passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.7500	Composite A passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Control passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	LA-5 Ref passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite A passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite B passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite D passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Control passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite D passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite A passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	Composite B passed proportion survived	1
06-7086-8339	Proportion Survived	Steel Many-One Rank Sum Test	0.5314	LA-5 Ref passed proportion survived	1

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
Control	CS	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
LA-5 Ref	RS	5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
Composite A		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
Composite B		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%
Composite D		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	2.00%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	1.0000	1.0000	1.0000	1.0000	1.0000
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	1.0000
Composite A		1.0000	1.0000	1.0000	1.0000	1.0000
Composite B		1.0000	1.0000	1.0000	0.9000	1.0000
Composite D		1.0000	1.0000	1.0000	0.9000	1.0000

Neanthes 10-d Survival and Growth Sediment Test

EcoAnalysts

Proportion Survived Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	10/10	10/10	10/10	10/10	10/10
LA-5 Ref	RS	10/10	10/10	10/10	10/10	10/10
Composite A		10/10	10/10	10/10	10/10	10/10
Composite B		10/10	10/10	10/10	9/10	10/10
Composite D		10/10	10/10	10/10	9/10	10/10

CETIS Analytical Report

Neanthes 10-d Survival and Growth Sediment Test

EcoAnalysts

Analysis ID:	13-3152-7050	**Endpoint:**	Proportion Survived	**CETIS Version:**	CETISv1.9.4
Analyzed:	19 Aug-21 12:46	**Analysis:**	Nonparametric-Two Sample	**Status Level:**	1
Batch ID:	15-3021-1647	**Test Type:**	Survival-Growth	**Analyst:**	
Start Date:	13 Jul-21 11:20	**Protocol:**	ASTM E1611-00 (2000)	**Diluent:**	Laboratory Seawater
Ending Date:	23 Jul-21 13:30	**Species:**	Neanthes arenaceodentata	**Brine:**	Not Applicable
Test Length:	10d 2h	**Taxon:**	Polychaeta	**Source:**	Aquatic Toxicology Support **Age:** 22 d

Wilcoxon Rank Sum Two-Sample Test

Sample I	vs	Sample II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Control Sed		Reference Sed	27.5	n/a	1	8	Exact	1.0000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65540	<1.0E-37	Significant Effect
Error	0	0	8			
Total	0		9			

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Control	CS	5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
LA-5 Ref	RS	5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Control	CS	5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
LA-5 Ref	RS	5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	1.0000	1.0000	1.0000	1.0000	1.0000
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	1.0000

Angular (Corrected) Transformed Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	1.412	1.412	1.412	1.412	1.412
LA-5 Ref	RS	1.412	1.412	1.412	1.412	1.412

Proportion Survived Binomials

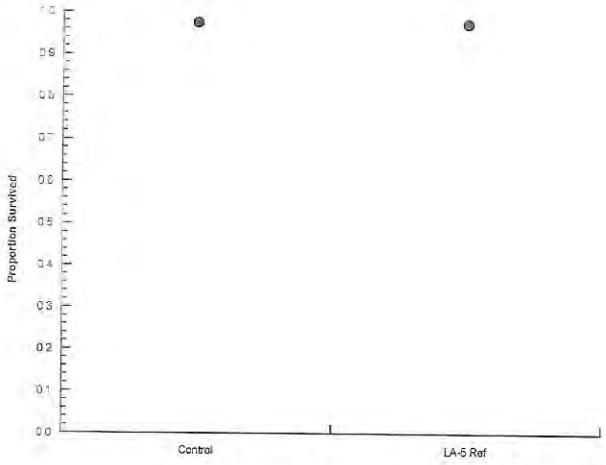
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Control	CS	10/10	10/10	10/10	10/10	10/10
LA-5 Ref	RS	10/10	10/10	10/10	10/10	10/10

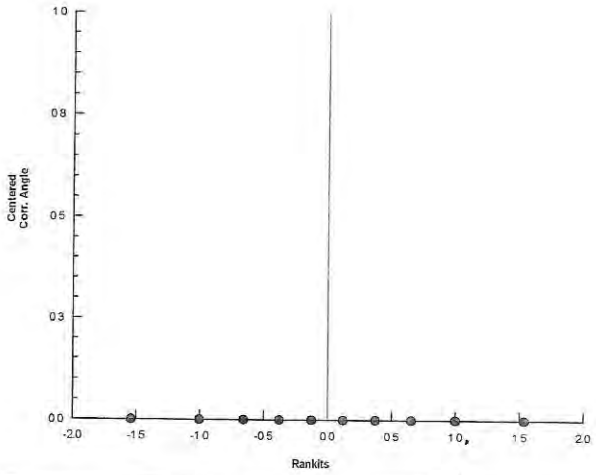
Neanthes 10-d Survival and Growth Sediment Test

EcoAnalysts

Analysis ID:	13-3152-7050	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 12:46	Analysis:	Nonparametric-Two Sample	Status Level:	1

Graphics





Neanthes 10-d Survival and Growth Sediment Test

EcoAnalysts

Analysis ID:	06-7086-8339	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 12:46	Analysis:	Nonparametric-Control vs Treatments	Status Level:	1
Batch ID:	15-3021-1647	Test Type:	Survival-Growth	Analyst:	
Start Date:	13 Jul-21 11:20	Protocol:	ASTM E1611-00 (2000)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 13:30	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Test Length:	10d 2h	Taxon:	Polychaeta	Source:	Aquatic Toxicology Support Age: 22 d

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Composite A passed proportion survived	5.26%
		Composite B passed proportion survived	5.26%
		Composite D passed proportion survived	5.26%

Steel Many-One Rank Sum Test

Sample I	vs	Sample II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Composite A	27.5	17	1	8	Asymp	0.7500	Non-Significant Effect
		Composite B	25	17	1	8	Asymp	0.5314	Non-Significant Effect
		Composite D	25	17	1	8	Asymp	0.5314	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0053119	0.0017706	3	0.6667	0.5847	Non-Significant Effect
Error	0.0424949	0.0026559	16			
Total	0.0478068		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	4.741	5.292	0.0150	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.6667	5.953	0.5885	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	3.573	3.878	<1.0E-37	Non-Normal Distribution
Distribution	D'Agostino Kurtosis Test	2.814	2.576	0.0049	Non-Normal Distribution
Distribution	D'Agostino Skewness Test	3.685	2.576	2.3E-04	Non-Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus Test	21.5	9.21	2.1E-05	Non-Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.4	0.2235	2.9E-09	Non-Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.6038	0.866	3.2E-06	Non-Normal Distribution

Proportion Survived Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
Composite A		5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
Composite B		5	0.9800	0.9245	1.0000	1.0000	0.9000	1.0000	0.0200	4.56%	2.00%
Composite D		5	0.9800	0.9245	1.0000	1.0000	0.9000	1.0000	0.0200	4.56%	2.00%

Angular (Corrected) Transformed Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
LA-5 Ref	RS	5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
Composite A		5	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	0.00%
Composite B		5	1.379	1.289	1.47	1.412	1.249	1.412	0.03259	5.28%	2.31%
Composite D		5	1.379	1.289	1.47	1.412	1.249	1.412	0.03259	5.28%	2.31%

Proportion Survived Detail

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	1.0000	1.0000	1.0000	1.0000	1.0000
Composite A		1.0000	1.0000	1.0000	1.0000	1.0000
Composite B		1.0000	1.0000	1.0000	0.9000	1.0000
Composite D		1.0000	1.0000	1.0000	0.9000	1.0000

Neanthes 10-d Survival and Growth Sediment Test — EcoAnalysts

Analysis ID:	06-7086-8339	Endpoint:	Proportion Survived	CETIS Version:	CETISv1.9.4
Analyzed:	19 Aug-21 12:46	Analysis:	Nonparametric-Control vs Treatments	Status Level:	1

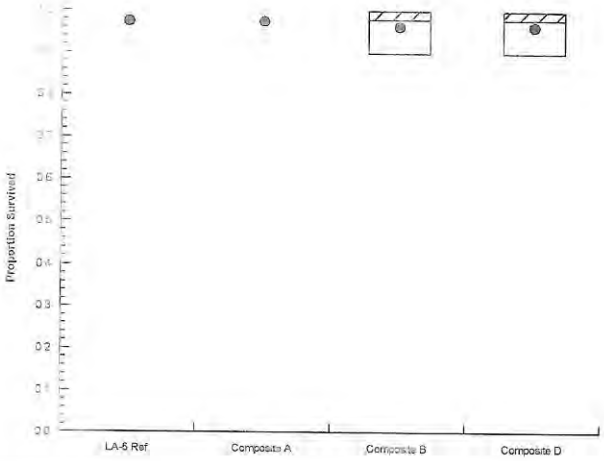
Angular (Corrected) Transformed Detail

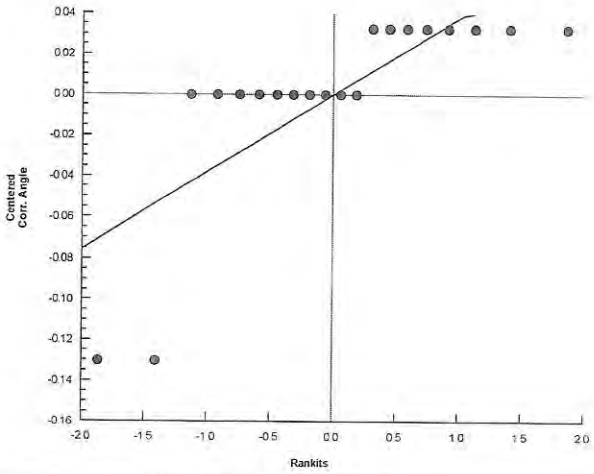
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	1.412	1.412	1.412	1.412	1.412
Composite A		1.412	1.412	1.412	1.412	1.412
Composite B		1.412	1.412	1.412	1.249	1.412
Composite D		1.412	1.412	1.412	1.249	1.412

Proportion Survived Binomials

Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
LA-5 Ref	RS	10/10	10/10	10/10	10/10	10/10
Composite A		10/10	10/10	10/10	10/10	10/10
Composite B		10/10	10/10	10/10	9/10	10/10
Composite D		10/10	10/10	10/10	9/10	10/10

Graphics





CETIS Test Data Worksheet

Report Date: 08 Sep-21 09:58 (p 1 of 1)
Test Code/ID: Mole Pier / 02-1482-2737

Neanthes 10-d Survival and Growth Sediment Test — **EcoAnalysts**

Start Date: 13 Jul-21 11:20
End Date: 23 Jul-21 13:30
Sample Date: 04 Jun-21 07:30

Species: Neanthes arenaceodentata
Protocol: ASTM E1611-00 (2000)
Material: Sediment Sample

Sample Code: Composite A
Sample Source: Mole Pier
Sample Station: P210707.02

Sample	Rep	Pos	# Exposed	# Survived	Total Weight-mg	Tare Weight-mg	Pan Count	Mean Length-mm	Notes
Control	1	6	10	10		0			
Control	2	22	10	10		0			
Control	3	19	10	10		0			
Control	4	18	10	10		0			
Control	5	4	10	10		0			
LA-5 Ref	1	25	10	10		0			
LA-5 Ref	2	11	10	10		0			
LA-5 Ref	3	16	10	10		0			
LA-5 Ref	4	24	10	10		0			
LA-5 Ref	5	1	10	10		0			
Composite A	1	14	10	10		0			
Composite A	2	12	10	10		0			
Composite A	3	15	10	10		0			
Composite A	4	5	10	10		0			
Composite A	5	2	10	10		0			
Composite B	1	13	10	10		0			
Composite B	2	20	10	10		0			
Composite B	3	9	10	10		0			
Composite B	4	10	10	9		0			
Composite B	5	3	10	10		0			
Composite D	1	23	10	10		0			
Composite D	2	17	10	10		0			
Composite D	3	7	10	10		0			
Composite D	4	21	10	9		0			
Composite D	5	8	10	10		0			

3.3 *Neanthes arenaceodentata* Reference Toxicant Test Results

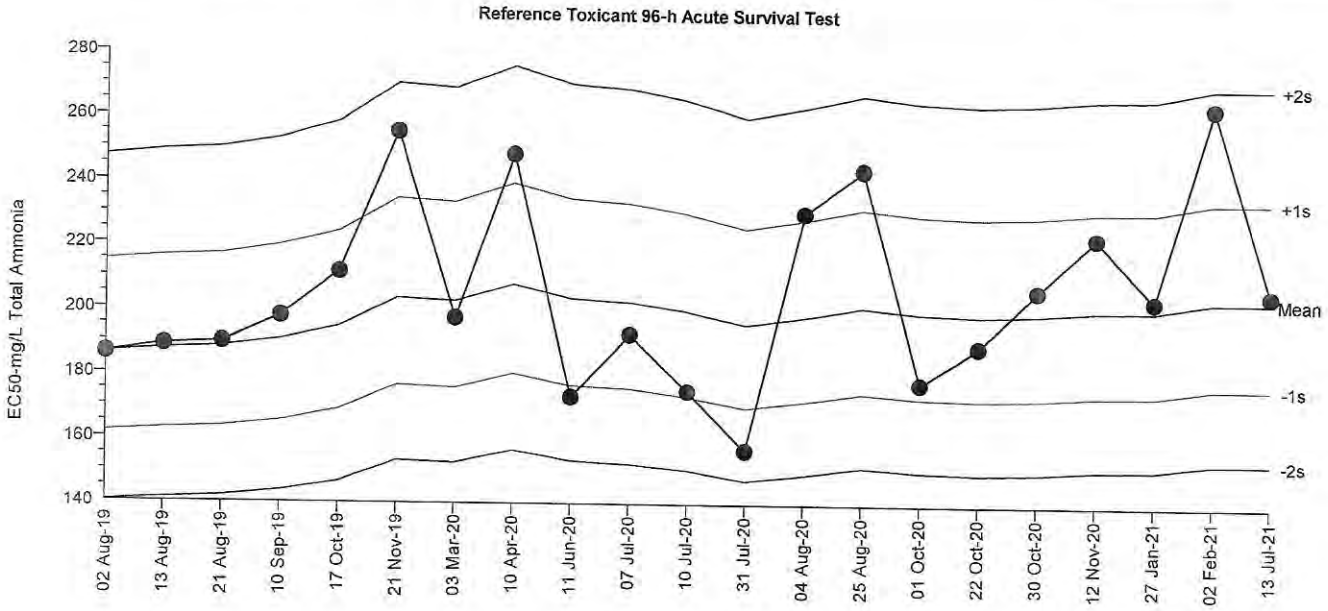
CETIS QC Plot

Report Date: 18 Aug-21 09:57 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: All Protocols
Organism: Neanthes arenaceodentata (Polycha
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean:	203.8	**Count:**	20	**-1s Warning Limit:**	176.8	**-2s Action Limit:**	153.4
Sigma:	n/a	**CV:**	14.30%	**+1s Warning Limit:**	234.8	**+2s Action Limit:**	270.6

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Aug	2	15:20	186.2	-17.55	-0.6348			17-0846-5905	16-9911-4308	EcoAnalysts
2			13	15:55	188.8	-14.98	-0.538			08-6399-0477	04-6509-2576	EcoAnalysts
3			21	13:30	189.7	-14.03	-0.5027			21-2736-4211	02-0545-5733	EcoAnalysts
4		Sep	10	14:45	197.8	-5.983	-0.21			15-3198-9821	13-4571-7808	EcoAnalysts
5		Oct	17	15:45	211.7	7.888	0.2676			00-3306-4323	18-7634-5789	EcoAnalysts
6		Nov	21	13:15	255.4	51.58	1.59	(+)		08-1679-8006	07-2089-5036	EcoAnalysts
7	2020	Mar	3	12:15	197.4	-6.322	-0.2221			02-7065-4747	20-0669-2254	EcoAnalysts
8		Apr	10	13:50	248.5	44.74	1.399	(+)		09-2249-5175	02-1750-8038	EcoAnalysts
9		Jun	11	14:20	173.3	-30.52	-1.143	(-)		10-7038-3789	15-7766-7010	EcoAnalysts
10		Jul	7	14:00	192.8	-10.98	-0.3903			04-7853-7168	03-6064-3133	EcoAnalysts
11			10	13:45	175.2	-28.56	-1.064	(-)		10-0532-1506	02-3392-3332	EcoAnalysts
12			31	14:00	156.9	-46.83	-1.84	(-)		08-1285-8329	16-2351-8024	EcoAnalysts
13		Aug	4	14:00	230.8	27.03	0.8777			07-0264-3028	04-2417-7144	EcoAnalysts
14			25	15:25	244.5	40.69	1.283	(+)		01-2445-0323	09-2790-4163	EcoAnalysts
15		Oct	1	15:24	177.8	-25.93	-0.9592			06-8958-2434	09-3027-2985	EcoAnalysts
16			22	12:45	189.4	-14.36	-0.515			18-2772-3076	15-3659-2902	EcoAnalysts
17			30	14:30	206.9	3.145	0.108			15-8988-3985	05-6115-8684	EcoAnalysts
18		Nov	12	13:15	223.5	19.77	0.6525			12-5983-6597	04-1875-7385	EcoAnalysts
19	2021	Jan	27	15:00	204	0.2034	0.00703			07-1796-2534	20-2560-6364	EcoAnalysts
20		Feb	2	15:30	264.5	60.75	1.839	(+)		12-6803-5751	16-7187-7247	EcoAnalysts
21		Jul	13	12:50	206	2.228	0.07665			09-4145-4780	15-2595-5928	EcoAnalysts

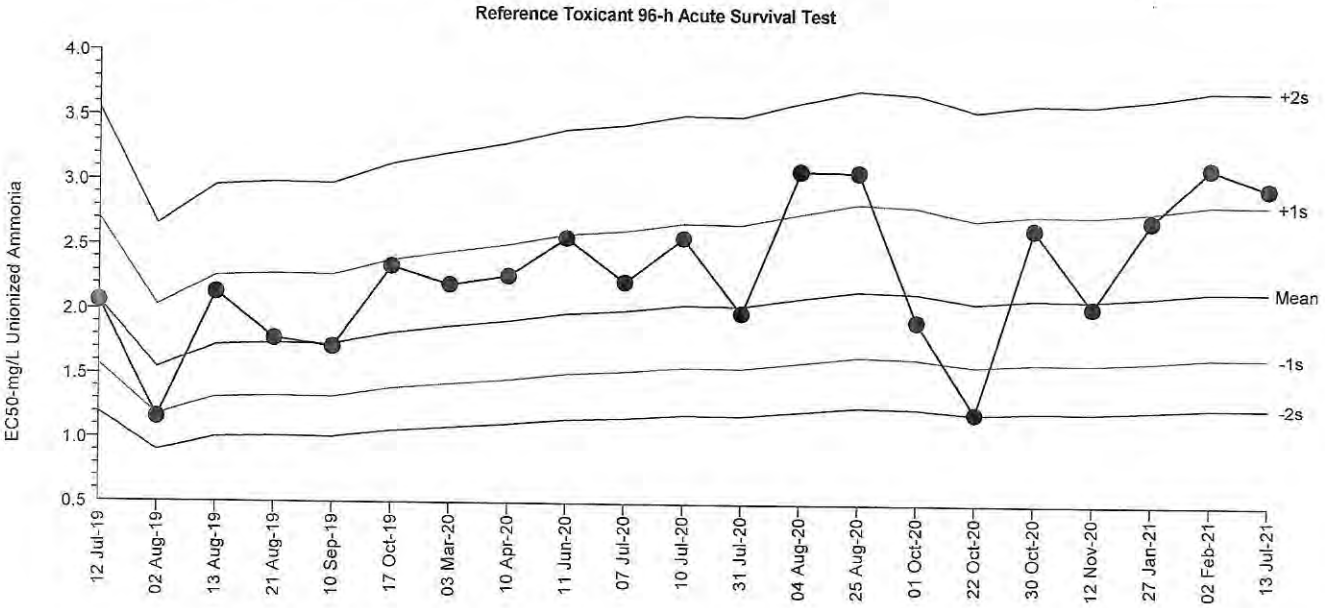
CETIS QC Plot

Report Date: 18 Aug-21 09:57 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: All Protocols
Organism: Neanthes arenaceodentata (Polycha
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean:	2.176	**Count:**	20	**-1s Warning Limit:**	1.66	**-2s Action Limit:**	1.266
Sigma:	n/a	**CV:**	27.60%	**+1s Warning Limit:**	2.853	**+2s Action Limit:**	3.741

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Jul	12	14:30	2.065	-0.1112	-0.1937			19-1480-3456	07-7235-5107	EcoAnalysts
2		Aug	2	15:20	1.163	-1.014	-2.315	(-)	(-)	10-1976-9391	00-8421-1808	EcoAnalysts
3			13	15:55	2.137	-0.03946	-0.06757			00-5853-2505	10-3089-9902	EcoAnalysts
4			21	13:30	1.779	-0.3976	-0.745			14-7963-5363	12-5100-5995	EcoAnalysts
5		Sep	10	14:45	1.715	-0.4617	-0.8804			08-0609-5167	04-3709-1344	EcoAnalysts
6		Oct	17	15:45	2.345	0.1685	0.2753			10-0475-9886	14-9451-4606	EcoAnalysts
7	2020	Mar	3	12:15	2.203	0.02671	0.04504			19-4100-6388	19-4072-0594	EcoAnalysts
8		Apr	10	13:50	2.272	0.09584	0.1591			08-8618-3055	09-6455-0943	EcoAnalysts
9		Jun	11	14:20	2.573	0.3969	0.6185			19-5183-7417	12-7291-4257	EcoAnalysts
10		Jul	7	14:00	2.229	0.05285	0.08859			04-3243-8508	19-7306-7310	EcoAnalysts
11			10	13:45	2.578	0.4012	0.6247			17-0317-7911	12-0227-7891	EcoAnalysts
12			31	14:00	1.992	-0.1848	-0.3276			17-3373-8768	01-6654-9862	EcoAnalysts
13		Aug	4	14:00	3.098	0.9217	1.304	(+)		17-2104-8850	15-6640-3919	EcoAnalysts
14			25	15:25	3.091	0.9144	1.295	(+)		19-8320-1596	05-6772-0397	EcoAnalysts
15		Oct	1	15:24	1.934	-0.2428	-0.4367			10-7496-8147	02-8737-4922	EcoAnalysts
16			22	12:45	1.218	-0.9587	-2.144	(-)	(-)	05-5100-7142	10-2404-8829	EcoAnalysts
17			30	14:30	2.658	0.482	0.7388			01-3731-2040	11-2351-8876	EcoAnalysts
18		Nov	12	13:15	2.049	-0.1274	-0.2228			12-9901-3703	05-8140-5916	EcoAnalysts
19	2021	Jan	27	15:00	2.728	0.5514	0.8339			12-9966-3998	00-2755-1557	EcoAnalysts
20		Feb	2	15:30	3.136	0.9595	1.349	(+)		12-0475-2746	18-0917-0562	EcoAnalysts
21		Jul	13	12:50	2.985	0.8085	1.167	(+)		07-4298-1789	21-1474-3341	EcoAnalysts

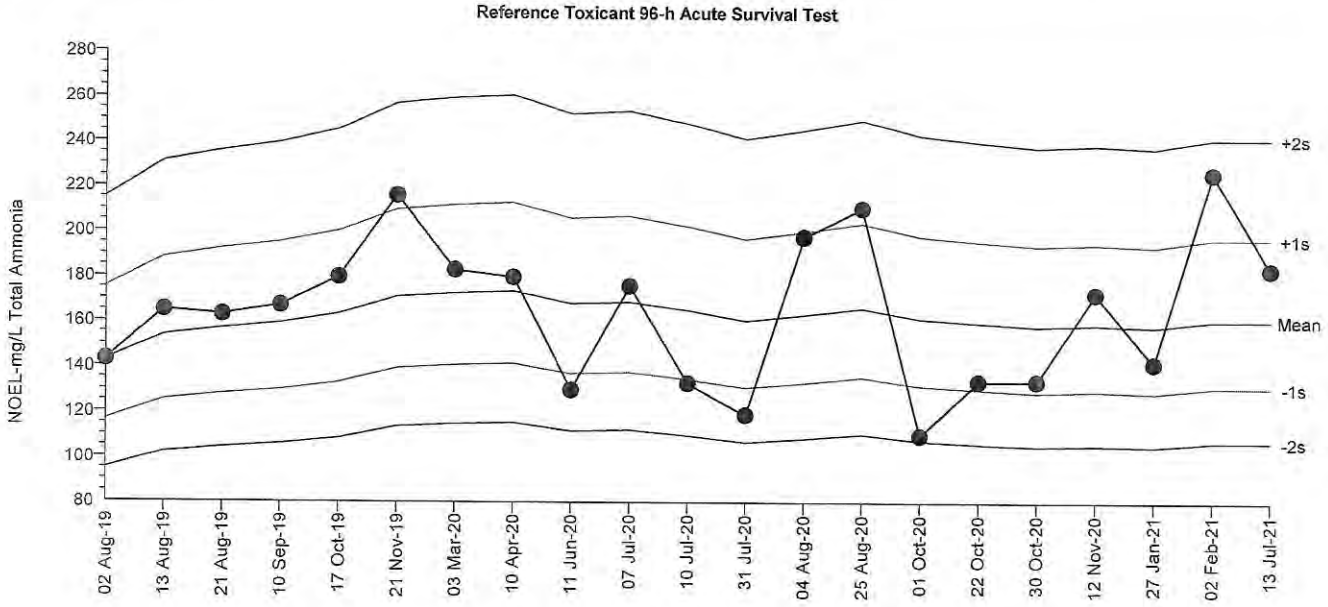
Analyst: MK QA: MSCL

CETIS QC Plot

Report Date: 18 Aug-21 09:57 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: All Protocols
Organism: Neanthes arenaceodentata (Polycha
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean: 160.9	**Count:** 20	**-1s Warning Limit:** 131.3	**-2s Action Limit:** 107
Sigma: n/a	**CV:** 20.60%	**+1s Warning Limit:** 197.5	**+2s Action Limit:** 242.3

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Aug	2	15:20	143	-17.93	-0.5783			17-0846-5905	19-7316-2458	EcoAnalysts
2			13	15:55	165	4.065	0.1221			08-6399-0477	02-9565-0844	EcoAnalysts
3			21	13:30	163	2.065	0.06241			21-2736-4211	17-5434-7893	EcoAnalysts
4		Sep	10	14:45	167	6.065	0.1811			15-3198-9821	19-4980-7373	EcoAnalysts
5		Oct	17	15:45	180	19.07	0.548			00-3306-4323	14-6485-5861	EcoAnalysts
6		Nov	21	13:15	216	55.07	1.44	(+)		08-1679-8006	16-1846-4388	EcoAnalysts
7	2020	Mar	3	12:15	183	22.07	0.6289			02-7065-4747	03-2467-0304	EcoAnalysts
8		Apr	10	13:50	180	19.07	0.548			09-2249-5175	16-9643-7292	EcoAnalysts
9		Jun	11	14:20	130	-30.93	-1.045	(-)		10-7038-3789	00-6560-5727	EcoAnalysts
10		Jul	7	14:00	176	15.07	0.438			04-7853-7168	10-9179-6173	EcoAnalysts
11			10	13:45	133	-27.93	-0.9332			10-0532-1506	10-3843-7493	EcoAnalysts
12			31	14:00	119	-41.93	-1.478	(-)		08-1285-8329	04-7113-9667	EcoAnalysts
13		Aug	4	14:00	198	37.07	1.015	(+)		07-0264-3028	02-0234-7421	EcoAnalysts
14			25	15:25	211	50.07	1.326	(+)		01-2445-0323	11-1245-2780	EcoAnalysts
15		Oct	1	15:24	110	-50.93	-1.863	(-)		06-8958-2434	05-1165-3582	EcoAnalysts
16			22	12:45	134	-26.93	-0.8965			18-2772-3076	03-0905-9354	EcoAnalysts
17			30	14:30	134	-26.93	-0.8965			15-8988-3985	10-8137-0576	EcoAnalysts
18		Nov	12	13:15	173	12.07	0.3539			12-5983-6597	07-1593-8015	EcoAnalysts
19	2021	Jan	27	15:00	142	-18.93	-0.6127			07-1796-2534	02-2911-2660	EcoAnalysts
20		Feb	2	15:30	227	66.07	1.684	(+)		12-6803-5751	14-4852-5615	EcoAnalysts
21		Jul	13	12:50	184	23.07	0.6556			09-4145-4780	08-9052-1051	EcoAnalysts

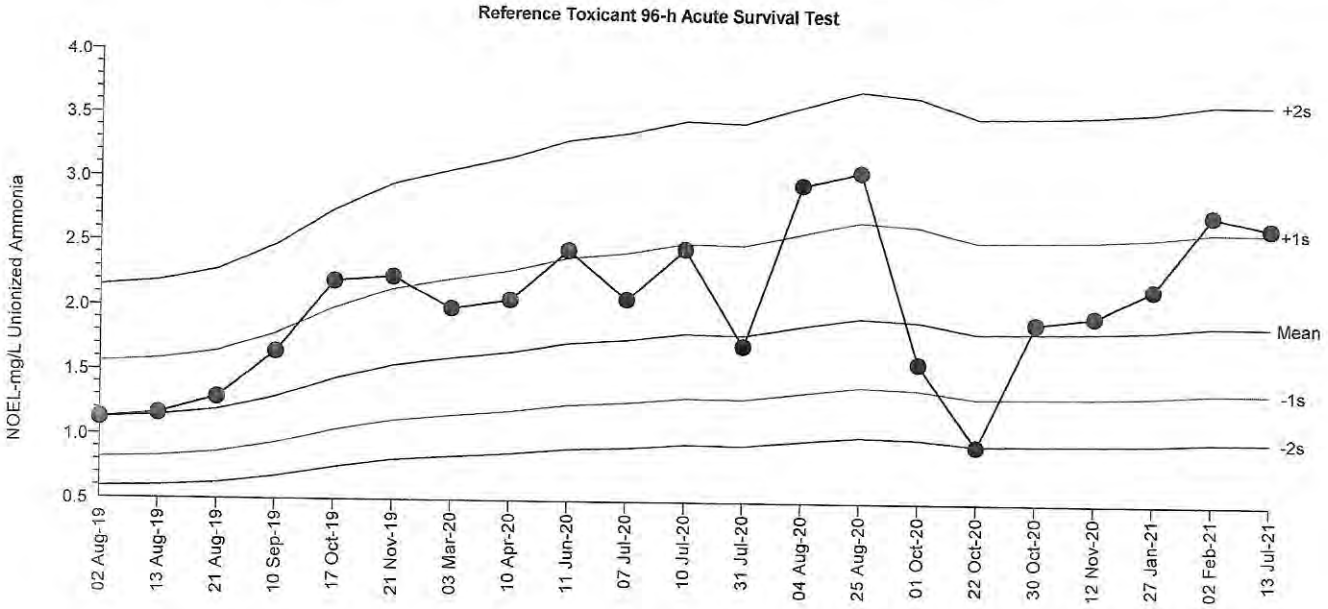
CETIS QC Plot

Report Date: 18 Aug-21 09:57 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: All Protocols
Organism: Neanthes arenaceodentata (Polycha
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean:	1.904	**Count:**	20	**-1s Warning Limit:**	1.377	**-2s Action Limit:**	0.9957
Sigma:	n/a	**CV:**	33.30%	**+1s Warning Limit:**	2.632	**+2s Action Limit:**	3.639

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Aug	2	15:20	1.127	-0.7765	-1.618	(-)		10-1976-9391	08-7104-1750	EcoAnalysts
2			13	15:55	1.165	-0.7385	-1.515	(-)		00-5853-2505	06-3471-0420	EcoAnalysts
3			21	13:30	1.292	-0.6115	-1.196	(-)		14-7963-5363	20-8907-8030	EcoAnalysts
4		Sep	10	14:45	1.648	-0.2555	-0.4449			08-0609-5167	00-6589-3953	EcoAnalysts
5		Oct	17	15:45	2.2	0.2965	0.4468			10-0475-9886	00-3718-6473	EcoAnalysts
6		Nov	21	13:15	2.237	0.3335	0.4983			17-3983-7570	18-0011-8937	EcoAnalysts
7	2020	Mar	3	12:15	1.995	0.09149	0.1449			19-4100-6388	02-6955-3876	EcoAnalysts
8		Apr	10	13:50	2.064	0.1605	0.2498			08-8618-3055	17-3212-9760	EcoAnalysts
9		Jun	11	14:20	2.453	0.5495	0.7828			19-5183-7417	13-9382-6189	EcoAnalysts
10		Jul	7	14:00	2.078	0.1745	0.2707			04-3243-8508	08-7308-6971	EcoAnalysts
11			10	13:45	2.47	0.5665	0.8041			17-0317-7911	13-9340-7163	EcoAnalysts
12			31	14:00	1.723	-0.1805	-0.3075			17-3373-8768	20-5342-8593	EcoAnalysts
13		Aug	4	14:00	2.977	1.073	1.38	(+)		17-2104-8850	18-3454-0594	EcoAnalysts
14			25	15:25	3.082	1.178	1.487	(+)		19-8320-1596	14-9540-7760	EcoAnalysts
15		Oct	1	15:24	1.595	-0.3085	-0.5458			10-7496-8147	09-2299-9045	EcoAnalysts
16			22	12:45	0.952	-0.9515	-2.139	(-)	(-)	05-5100-7142	08-2410-5818	EcoAnalysts
17			30	14:30	1.915	0.01149	0.01857			01-3731-2040	16-2281-9663	EcoAnalysts
18		Nov	12	13:15	1.969	0.06549	0.1044			12-9901-3703	01-2547-4284	EcoAnalysts
19	2021	Jan	27	15:00	2.184	0.2805	0.4243			12-9966-3998	18-0563-5166	EcoAnalysts
20		Feb	2	15:30	2.764	0.8605	1.151	(+)		12-0475-2746	00-8469-6997	EcoAnalysts
21		Jul	13	12:50	2.667	0.7635	1.041	(+)		07-4298-1789	06-7493-7869	EcoAnalysts

CETIS Summary Report

Report Date: 18 Aug-21 09:52 (p 1 of 1)
Test Code/ID: P190612.190 / 09-4145-4780

Reference Toxicant 96-h Acute Survival Test

EcoAnalysts

Batch ID:	17-7109-5487	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 12:50	Protocol:	PSEP (1995)	Diluent:	Laboratory Seawater
Ending Date:	17 Jul-21 12:46	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Test Length:	96h	Taxon:	Polychaeta	Source:	Aquatic Toxicology Support Age:
Sample ID:	05-7674-0755	Code:	P190612.190	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Total Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.190
Sample Age:	762d 13h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
08-9052-1051	Proportion Survived	Dunnett Multiple Comparison Test	184	206	194.7		17.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	mg/L	95% LCL	95% UCL	TU	S
15-2595-5928	Proportion Survived	Linear Interpolation (ICPIN)	EC5	184	105.6	189.5		1
			EC10	186.3	127.3	192.5		
			EC15	188.7	150.7	195.6		
			EC20	191.1	176.2	198.7		
			EC25	193.5	181.5	201.8		
			EC40	200.9	186.3	211.6		
			EC50	206	188.1	236.5		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
94.4		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
136		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
184		3	0.9333	0.6465	1.0000	0.8000	1.0000	0.0667	0.1155	12.37%	6.67%
206		3	0.4667	0.0000	1.0000	0.2000	0.6000	0.1333	0.2309	49.49%	53.33%
310		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
94.4		1.0000	1.0000	1.0000
136		1.0000	1.0000	1.0000
184		0.8000	1.0000	1.0000
206		0.6000	0.2000	0.6000
310		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
94.4		5/5	5/5	10/10
136		5/5	5/5	10/10
184		4/5	5/5	10/10
206		3/5	1/5	6/10
310		0/5	0/5	0/5

CETIS Test Data Worksheet

Report Date: 18 Aug-21 09:52 (p 1 of 1)
Test Code/ID: P190612.190 / 09-4145-4780

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	13 Jul-21 12:50	**Species:**	Neanthes arenaceodentata	**Sample Code:**	P190612.190
End Date:	17 Jul-21 12:46	**Protocol:**	PSEP (1995)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.190

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	14	10	10	
0	D	2	2	10	10	
0	D	3	11	10	10	
94.4		1	18	5	5	
94.4		2	6	5	5	
94.4		3	13	10	10	
136		1	5	5	5	
136		2	4	5	5	
136		3	15	10	10	
184		1	10	5	4	
184		2	8	5	5	
184		3	16	10	10	
206		1	7	5	3	
206		2	9	5	1	
206		3	12	10	6	
310		1	3	5	0	
310		2	17	5	0	
310		3	1	5	0	

CETIS Summary Report

Report Date: 18 Aug-21 09:56 (p 1 of 1)
Test Code/ID: 2C49009D / 07-4298-1789

Reference Toxicant 96-h Acute Survival Test

EcoAnalysts

Batch ID:	17-7109-5487	Test Type:	Survival	Analyst:	
Start Date:	13 Jul-21 12:50	Protocol:	PSEP (1995)	Diluent:	Laboratory Seawater
Ending Date:	17 Jul-21 12:46	Species:	Neanthes arenaceodentata	Brine:	Not Applicable
Test Length:	96h	Taxon:	Polychaeta	Source:	Aquatic Toxicology Support Age:
Sample ID:	17-7812-3231	Code:	P190612.190	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Unionized Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.190
Sample Age:	762d 13h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
06-7493-7869	Proportion Survived	Dunnett Multiple Comparison Test		2.667	2.985	2.822		17.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
21-1474-3341	Proportion Survived	Linear Interpolation (ICPIN)		EC5	2.667	1.739	2.747		1
				EC10	2.701	2.244	2.791		
				EC15	2.735	2.612	2.836		
				EC20	2.77	2.634	2.881		
				EC25	2.805	2.656	2.926		
				EC40	2.912	2.702	3.065		
				EC50	2.985	2.715	3.181		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
1.729		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
1.986		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
2.667		3	0.9333	0.6465	1.0000	0.8000	1.0000	0.0667	0.1155	12.37%	6.67%
2.985		3	0.4667	0.0000	1.0000	0.2000	0.6000	0.1333	0.2309	49.49%	53.33%
3.578		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
1.729		1.0000	1.0000	1.0000
1.986		1.0000	1.0000	1.0000
2.667		0.8000	1.0000	1.0000
2.985		0.6000	0.2000	0.6000
3.578		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
1.729		5/5	5/5	10/10
1.986		5/5	5/5	10/10
2.667		4/5	5/5	10/10
2.985		3/5	1/5	6/10
3.578		0/5	0/5	0/5

CETIS Test Data Worksheet

Report Date: 18-Aug-21 09:56 (p 1 of 1)
Test Code/ID: 2C49009D / 07-4298-1789

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	13 Jul-21 12:50	**Species:**	Neanthes arenaceodentata	**Sample Code:**	P190612.190
End Date:	17 Jul-21 12:46	**Protocol:**	PSEP (1995)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.190

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	5	10	10	
0	D	2	18	10	10	
0	D	3	10	10	10	
1.729		1	7	5	5	
1.729		2	14	5	5	
1.729		3	11	10	10	
1.986		1	8	5	5	
1.986		2	15	5	5	
1.986		3	17	10	10	
2.667		1	9	5	4	
2.667		2	12	5	5	
2.667		3	3	10	10	
2.985		1	6	5	3	
2.985		2	16	5	1	
2.985		3	4	10	6	
3.578		1	13	5	0	
3.578		2	2	5	0	
3.578		3	1	5	0	

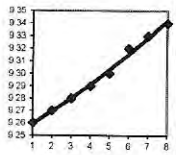
Analyst: MK QA: [illegible]

Un-ionized Ammonia Calculator

CLIENT:	--	Date of Test:	July 13, 2021
PROJECT:	--	Test Type:	*Neanthes* RT
COMMENTS:			

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa^s
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa^s*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	90		94.4	29	7.7	19.5	292.65	9.2557		**1.729**
4	130		136.0	29	7.6	19.5	292.65	9.2557		**1.986**
5	170		184	29	7.6	19.4	292.55	9.2557		**2.667**
6	210		206	30	7.6	19.4	292.55	9.2559		**2.985**
7	250		310	30	7.5	19.4	292.55	9.2559		**3.578**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

QA ✓ [illegible]

Ammonia Reference Toxicant Test Survival Data Sheet

CLIENT	PROJECT	SPECIES	LABORATORY	PROTOCOL
[redacted]	[redacted]	*Neanthes arenaceodentata*	Port Gamble .	PSEP 1995

TEST ID	LOT #:	TEST START DATE	TIME	4-DAY END DATE	TIME
P190612.190	18H 13567763	13Jul21	1250 MK	17Jul21	1246 NL ①

CHAMBER SIZE/TYPE	EXPOSURE VOLUME
Glass pint jar	250 mL

WATER QUALITY DATA

TEST CONDITIONS					DO (mg/L) > 4.6		TEMP(C) 20 ± 1		SAL (ppt) 28 ± 2		pH 7 - 9		TECHNICIAN	AMMONIA			SULFIDES		
CLIENT/ENVIRON ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WQ TECH/ DATE	AMMONIA METER	AMMONIA mg/L	Tech	SULFIDES meter	SULFIDES mg/L	Tech
Ref.Tox.-ammonia	0	mg/L	0	Stock	9	7.5	9	19.4	9	29	9	8.0	7/13/21 MK	10	~~0~~ 0.00				—
			4	1	9	7.0	9	19.5	9	29	9	7.9	7/17 NL						
Ref.Tox.-ammonia	90	mg/L	0	Stock	9	7.6	9	19.5	9	29	9	7.7	7/13/21 MK	10	94.4				—
			4	1	9	7.2	9	19.5	9	29	9	7.9	7/17 NL						
Ref.Tox.-ammonia	130	mg/L	0	Stock	9	7.6	9	19.5	9	29	9	7.6	7/13/21 MK	10	136				—
			4	1	9	7.1	9	19.4	9	29	9	7.8	7/17 NL						
Ref.Tox.-ammonia	170	mg/L	0	Stock	9	7.6	9	19.4	9	29	9	7.6	7/13/21 MK	10	184				—
			4	1	9	7.1	9	19.3	9	30	9	7.8	7/17 NL						
Ref.Tox.-ammonia	210	mg/L	0	Stock	9	7.6	9	19.4	9	30	9	~~7.5~~ 7.6 ②	7/13/21 MK	10	206				—
			4	1	9	7.0	9	19.3	9	30	9	7.8	7/17 NL						
Ref.Tox.-ammonia	250	mg/L	0	Stock	9	7.6	9	19.4	9	30	9	~~7.4~~ 7.5 ②	7/13/21 MK	10	310				—
			4	1	~~9~~ ③ —		~~9~~ ③ —		—		—		—						

① illegible. MK 7/13. NL 7/17

② Remeasured. MK 7/13.

③ concentration was not present due to 100% mortality. NL 7/17

Ammonia Reference Toxicant Test Survival Data Sheet

CLIENT	PROJECT	TEST ID	SPECIES	PROJECT MANAGER	LABORATORY	PROTOCOL
[redacted]	[redacted]	P190612.190	*Neanthes arenaceodentata*	M. Knowlen	Port Gamble .	PSEP 1995

SURVIVAL & BEHAVIOR DATA

OBSERVATION KEY
- N = Normal
- LOE = Loss of equilibium
- Q = Quiescent
- DC = Discoloration
- NB = No body
- F = Floating on surface

INITIAL # OF ORGANISMS: ~~10~~ ①

CLIENT/ENVIRON ID	CONC. value	CONC. units	REP	INITIAL NUMBER	DAY 1 #ALIVE	DAY 1 #DEAD	DAY 1 OBS	DAY 2 #ALIVE	DAY 2 #DEAD	DAY 2 OBS	DAY 3 #ALIVE	DAY 3 #DEAD	DAY 3 OBS	DAY 4 #ALIVE	DAY 4 #DEAD	DAY 4 OBS
					DATE 7/14/21			DATE 7/15/21			DATE 7/16/21			DATE 7/17/21		
					TECHNICIAN NL/IP			TECHNICIAN NL			TECHNICIAN MK			TECHNICIAN NL		
Ref.Tox.- Ammonia	0 mg/L		1	10	10	0	N	10	④ ~~0~~ 0	N	10	0	N	10	0	N
			2	10	10	0	N	10	0	N	10	0	N	10	0	N
			3	10	10	0	IF	10	0	N	10	0	N	10	0	N
Ref.Tox.- Ammonia	90 mg/L		1	5 ②	~~10~~	0	N	5	0	N	5	0	N	5	0	N
			2	5 ②	~~10~~	0	N	5	0	N	5	0	N	5	0	N
			3	10	10	0	N	10	0	N	10	0	N	10	0	N
Ref.Tox.- Ammonia	130 mg/L		1	5 ②	~~10~~	0	N	5	0	N	5	0	N	5	0	N
			2	5 ②	~~10~~	0	N	5	0	N	5	0	N	5	0	N
			3	10	10	0	N	10	0	N	10	0	N	10	0	N
Ref.Tox.- Ammonia	170 mg/L		1	5 ③	~~0~~	0	N	5	0	N	5	0	Q	4	1	Q
			2	5	5	0	N	5	0	N	5	0	Q	5	0	Q
			3	10	10	0	N	10	0	N	10	0	Q	10	0	Q
Ref.Tox.- Ammonia	210 mg/L		1	5	5	0	Q	5	0	Q	5	0	Q	3	2	Q
			2	5	5	0	Q	5	0	Q	5	0	Q	1	4	Q
			3	10	10	0	Q	10	0	Q	10	0	Q	6	8	Q
Ref.Tox.- Ammonia	250 mg/L		1	5	5	0	Q	4	1	Q	0	4	–			
			2	5	5	0	Q	5	0	Q	0	5	–			
			3	5	5	0	Q	5	0	Q	0	5	–			

① IE. See ind. initial # column for count per chamber. MK 7/13.

② IE → actual = 5 organisms/chamber – IP 7/14/21

③ IE → actual = 5 organisms/chamber – IP 7/14/21

④ I.W. - NL 7/15/21

Ammonia Reference Toxicant
Spiking Worksheet

Reference Toxicant ID: P190612.190
Date Prepared: 7/13/21
Technician Initials: SH

Neanthes NH_3 RT

Assumptions in Model
Stock ammonia concentration is 10,000 mg/L = 10 mg/mL

Date: 6/29/2021
Measurement: 9026.67

Test Solutions			Volume of stock to reach desired concentration	
Measured Concentration	**Desired Concentration**	**Volume**		
mg/L	mg/L	mL	mL stock to increase	
0.00			FRESH WATER (mL)	SALT WATER (mL)
94.4	**90**	750		11.22
136	**130**	750		16.20
184	**170**	750		21.19
206	**210**	750		26.17
310	**250**	750		31.16

Daily Quality Assurance Checks

Project name: Mole Pier/SCPA

Test: Neanthes NH_3 RT

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	MK	7/13	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges	↓	↓	
1	Test datasheets checked for completeness and legibility	SH	7/14	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	NL	7/15	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility	MK	7/16	
	Test data within acceptable ranges	↓	↓	
4	Test datasheets checked for completeness and legibility	NL	7/17	
	Test data within acceptable ranges	↓	↓	

Neanthes

Rndm #3

Ø	1	1
	2	12
	3	3
	4	13
90	5	10
	6	5
	7	2
130	8	9
	9	6
	10	14
170	11	8
	12	11
	13	16
210	14	15
	15	7
	16	18
250	17	17
	18	4

4. *Americamysis bahia* SPP Water-Column Test

4.1 *Americamysis bahia* Test Data

Version T.1

GENERAL

Client	Wood /KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Sample Collected (Oldest Sample)	6/1/2021
Sample Holding Time	49
Test Start Date	07/20/21
Test End Date	07/24/21
Test Species	*Americamysis bahia*
Organism Supplier	ABS
Date Organism Acquired	7/20/2021
Organism Acclimation Time (Days)	0
Organism Batch	ABS072021.02
Test Type	SPP
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Bath 6
Sample Treatment	None
Water Batch	FSW071821.01
Test Lighting	16L:8D
Test Chamber	12 oz. plastic
Replicates Per Treatment	5
Organisms per Replicate	10
Exposure Volume	250 mL
Feeding Information	0.1 mL nauplii twice daily
Test Dissolved Oxygen	> 3
Test Temperature	20 ± 1
Test Salinity	30 ± 2
Test pH	7.8 ± 0.5
Water Renewal Info	None

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO:	3.0	
Temp:	18.5	21.4
Sal:	28	32
pH:	7.3	8.3

TEST START TIME:	14:12
TEST END TIME:	12:45

	CLIENT SAMPLE ID (Concentration %)	LAB ID
Control	Control	.
2	Composite A 10%	P210707.02
3	Composite A 50%	P210707.02
4	Composite A 100%	P210707.02
5	Composite B 10%	P210707.03
6	Composite B 50%	P210707.03
7	Composite B 100%	P210707.03
8	Composite D 10%	P210707.04
9	Composite D 50%	P210707.04
10	Composite D 100%	P210707.04
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.

EcoAnalysts, Inc.

SPP ELUTRIATE PREPARATION WORKSHEET

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER
Wood /KMEA	Mole Pier	PG1217	M. Knowlen

DILUENT SOURCE: (sitewater/labwater):

labwater

PROJECT SITEWATER CLIENT ID:	LABORATORY WATER LAB ID:
	FSW071821.01

STANDARD ELUTRIATE IS PREPARED AT 1 PART SEDIMENT TO 4 PARTS WATER

ELUTRIATE RATIO SELECTED:	1:4
TOTAL VOLUME OF ELUTRIATE PREPARATION VESSEL:	8L
VOLUME OF SEDIMENT PER SAMPLE:	1.5L per cont (3 L total)
VOLUME OF DILUENT:	6L per cont (12 L total)
TOTAL NUMBER OF PREPARTION VESSELS PER SAMPLE:	2

# Cont's	Sample ID	Date Spin Start	Time Spin Start	Time Settle Start	Time of Elutriate Collection	Initial Volume Recovered (units)	Centrifuged (Y/N)	Settled Overnight (Y/N)	Secondary Volume Recovered (units)	Total Volume (units)	Comments
2	Composite A	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP
2	Composite B	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP
2	Composite D	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP

EcoAnalysts, Inc.

SPP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION			PROTOCOL		
Wood /KMEA	Mole Pier	*Americamysis bahia*	Port Gamble / Bath 6			OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**PROJECT NUMBER**	**TEST START DATE**	**TIME**	**INITIALS**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	SPP	PG1217	July 20, 2021	14:12	JL/MK	July 24, 2021	12:45	SH

WATER QUALITY DATA

SAMPLE ID (Concentration %)	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 3	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	Feeding 0.1 mL nauplii twice daily AM	Feeding 0.1 mL nauplii twice daily PM	Notes
Control	0	Stock		JL	07/20/21	8	7.8	19.7	30	8.0		JL/IP	
Control	1	1	30	SH	07/21/21	9	6.5	19.4	30	7.9	JL/IP	SH	
Control	2	2	34	MK	07/22/21	9	5.5	19.5	30	7.7	SH	DM	
Control	3	3	40	DM	07/23/21	9	5.5	19.7	30	7.6	SH	JL	
Control	4	4	19	IP	07/24/21	8	5.2	20.0	30	7.7	SH		
Composite A 10%	0	Stock		JL	07/20/21	8	7.8	21.0	30	8.1		JL/IP	
Composite A 10%	1	1	22	SH	07/21/21	9	6.8	19.3	30	7.9	JL/IP	SH	
Composite A 10%	2	2	48	MK	07/22/21	9	5.1	19.5	30	7.7	SH	DM	
Composite A 10%	3	3	20	DM	07/23/21	9	5.2	19.4	30	7.5	SH	JL	
Composite A 10%	4	4	32	IP	07/24/21	8	4.9	19.9	30	7.6	SH		
Composite A 50%	0	Stock		JL	07/20/21	8	7.8	21.0	30	8.1		JL/IP	
Composite A 50%	1	1	7	SH	07/21/21	9	6.6	19.4	30	7.9	JL/IP	SH	
Composite A 50%	2	2	46	MK	07/22/21	9	4.9	19.7	30	7.7	SH	DM	
Composite A 50%	3	3	45	DM	07/23/21	9	5.2	19.5	30	7.5	SH	JL	
Composite A 50%	4	4	47	IP	07/24/21	8	5.1	20.0	30	7.7	SH		
Composite A 100%	0	Stock		JL	07/20/21	8	7.9	19.5	30	8.1		JL/IP	
Composite A 100%	1	1	10	SH	07/21/21	9	6.6	19.4	30	7.9	JL/IP	SH	
Composite A 100%	2	2	43	MK	07/22/21	9	5.1	19.7	30	7.7	SH	DM	
Composite A 100%	3	3	12	DM	07/23/21	9	5.1	19.5	30	7.6	SH	JL	
Composite A 100%	4	4	8	IP	07/24/21	8	5.1	19.9	30	7.7	SH		

EcoAnalysts, Inc.

SPP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION			PROTOCOL		
Wood /KMEA	Mole Pier	*Americamysis bahia*	Port Gamble / Bath 6			OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**PROJECT NUMBER**	**TEST START DATE**	**TIME**	**INITIALS**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	SPP	PG1217	July 20, 2021	14:12	JL/MK	July 24, 2021	12:45	SH

WATER QUALITY DATA

SAMPLE ID (Concentration %)	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 3	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	Feeding 0.1 mL nauplii twice daily AM	Feeding 0.1 mL nauplii twice daily PM	Notes
Composite B 10%	0	Stock		JL	07/20/21	8	7.8	20.6	30	8.1		JL/IP	
Composite B 10%	1	1	49	SH	07/21/21	9	6.5	19.5	30	7.9	JL/IP	SH	
Composite B 10%	2	2	27	MK	07/22/21	9	5.4	19.5	30	7.7	SH	DM	
Composite B 10%	3	3	26	DM	07/23/21	9	5.0	19.4	30	7.6	SH	JL	
Composite B 10%	4	4	14	IP	07/24/21	8	5.0	20.0	30	7.7	SH		
Composite B 50%	0	Stock		JL	07/20/21	8	7.9	19.7	30	8.1		JL/IP	
Composite B 50%	1	1	6	SH	07/21/21	9	6.6	19.4	30	7.9	JL/IP	SH	
Composite B 50%	2	2	39	MK	07/22/21	9	5.6	19.6	30	7.7	SH	DM	
Composite B 50%	3	3	42	DM	07/23/21	9	4.5	19.6	30	7.5	SH	JL	
Composite B 50%	4	4	2	IP	07/24/21	8	5.4	19.9	30	7.7	SH		
Composite B 100%	0	Stock		JL	07/20/21	8	7.8	19.1	30	8.2		JL/IP	
Composite B 100%	1	1	31	SH	07/21/21	9	6.5	19.5	30	7.9	JL/IP	SH	
Composite B 100%	2	2	36	MK	07/22/21	9	5.5	19.6	30	7.7	SH	DM	
Composite B 100%	3	3	44	DM	07/23/21	9	5.0	19.6	30	7.6	SH	JL	
Composite B 100%	4	4	29	IP	07/24/21	8	4.8	20.0	30	7.7	SH		
Composite D 10%	0	Stock		JL	07/20/21	8	7.8	19.7	30	8.1		JL/IP	
Composite D 10%	1	1	23	SH	07/21/21	9	6.7	19.3	30	7.9	JL/IP	SH	
Composite D 10%	2	2	50	MK	07/22/21	9	5.1	19.6	30	7.7	SH	DM	
Composite D 10%	3	3	38	DM	07/23/21	9	4.9	19.6	30	7.5	SH	JL	
Composite D 10%	4	4	18	IP	07/24/21	8	5.0	20.0	30	7.6	SH		

EcoAnalysts, Inc.

SPP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION			PROTOCOL		
Wood /KMEA	Mole Pier	*Americamysis bahia*	Port Gamble / Bath 6			OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**PROJECT NUMBER**	**TEST START DATE**	**TIME**	**INITIALS**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	SPP	PG1217	July 20, 2021	14:12	JL/MK	July 24, 2021	12:45	SH

WATER QUALITY DATA

SAMPLE ID (Concentration %)	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 3	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	Feeding 0.1 mL nauplii twice daily AM	Feeding 0.1 mL nauplii twice daily PM	Notes
Composite D 50%	0	Stock		JL	07/20/21	8	7.8	19.3	30	8.0		JL/IP	
Composite D 50%	1	1	41	SH	07/21/21	9	6.6	19.4	30	7.8	JL/IP	SH	
Composite D 50%	2	2	11	MK	07/22/21	9	5.2	19.5	30	7.7	SH	DM	
Composite D 50%	3	3	21	DM	07/23/21	9	5.0	19.5	30	7.5	SH	JL	
Composite D 50%	4	4	16	IP	07/24/21	8	5.2	20.0	30	7.7	SH		
Composite D 100%	0	Stock		JL	07/20/21	8	8.0	19.1	30	8.0		JL/IP	
Composite D 100%	1	1	28	SH	07/21/21	9	6.5	19.4	30	7.9	JL/IP	SH	
Composite D 100%	2	2	15	MK	07/22/21	9	5.3	19.7	30	7.8	SH	DM	
Composite D 100%	3	3	5	DM	07/23/21	9	5.5	19.4	30	7.6	SH	JL	
Composite D 100%	4	4	37	IP	07/24/21	8	4.5	20.0	30	7.6	SH		

EcoAnalysts, Inc.

SPP Test Observation and Endpoint Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LOCATION	PROTOCOL	SPECIES
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 6	OTM/ITM /	*Americamysis bahia*

Observation Key
N = Normal
Q = Quiescent
#LOS=Loss of equilibrium
#NB = Num no body
TC = Too cloudy for observations
TCLO = Too cloudy to count, but live organisms observed

			ENDPOINT DATA & OBSERVATIONS													
			Day	1			2			3			4			
			Tech	MS			DM			DM			SH			
			Date	07/21/21			07/22/21			07/23/21			07/24/21			
CLIENT ID (Concentration %)	REP	Initial #		Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Comments
Control	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	2	10		10	0	N	10	0	N	9	1	N	7	2NB	N	
Control	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 50%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 50%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite A 50%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1	N	
Composite A 50%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 50%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite A 100%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 100%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 100%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 100%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite A 100%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	

EcoAnalysts, Inc.

SPP Test Observation and Endpoint Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LOCATION	PROTOCOL	SPECIES
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 6	OTM/ITM /	*Americamysis bahia*

Observation Key
N = Normal
Q = Quiescent
#LOS=Loss of equilibrium
#NB = Num no body
TC = Too cloudy for observations
TCLO = Too cloudy to count, but live organisms observed

			ENDPOINT DATA & OBSERVATIONS													
			Day	1			2			3			4			
			Tech	MS			DM			DM			SH			
			Date	07/21/21			07/22/21			07/23/21			07/24/21			
CLIENT ID (Concentration %)	REP	Initial #		Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Comments
Composite B 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	3	10		10	0	N	10	0	N	10	0	N	9	1NB	N	
Composite B 10%	4	10		10	0	N	10	0	N	10	0	N	9	1NB	N	
Composite B 10%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 50%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 50%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 50%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite B 50%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 50%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 100%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 100%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 100%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite B 100%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite B 100%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	

EcoAnalysts, Inc.

SPP Test Observation and Endpoint Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LOCATION	PROTOCOL	SPECIES
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 6	OTM/ITM /	*Americamysis bahia*

Observation Key
N = Normal
Q = Quiescent
#LOS=Loss of equilibrium
#NB = Num no body
TC = Too cloudy for observations
TCLO = Too cloudy to count, but live organisms observed

			ENDPOINT DATA & OBSERVATIONS													
			Day	1			2			3			4			
			Tech	MS			DM			DM			SH			
			Date	07/21/21			07/22/21			07/23/21			07/24/21			
CLIENT ID (Concentration %)	REP	Initial #		Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Comments
Composite D 50%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 50%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 50%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 50%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 50%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite D 100%	1	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 100%	2	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 100%	3	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	9	1NB	N	
Composite D 100%	4	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	
Composite D 100%	5	10		TCLO	0	TCLO	TCLO	0	TCLO	TCLO	0	TCLO	10	0	N	

EcoAnalysts, Inc.

SPP Test Stats

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Americamysis bahia*

Sample ID (Concentration %)	Rep	# Initiated	# Alive	# Missing or Dead	Survival Statistics: % Survival	Survival Statistics: Mean Survival (%)	Survival Statistics: SD	Mortality Statistics: % Mortality	Mortality Statistics: Mean Mortality (%)	Mortality Statistics: SD
Control	1	10	10	0	100			0		
Control	2	10	7	3	70			30		
Control	3	10	10	0	100			0		
Control	4	10	10	0	100			0		
Control	5	10	10	0	100	94.0	13.4	0	6.0	13.4
Composite A 10%	1	10	10	0	100			0		
Composite A 10%	2	10	10	0	100			0		
Composite A 10%	3	10	10	0	100			0		
Composite A 10%	4	10	10	0	100			0		
Composite A 10%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite A 50%	1	10	10	0	100			0		
Composite A 50%	2	10	9	1	90			10		
Composite A 50%	3	10	9	1	90			10		
Composite A 50%	4	10	10	0	100			0		
Composite A 50%	5	10	9	1	90	94.0	5.5	10	6.0	5.5
Composite A 100%	1	10	10	0	100			0		
Composite A 100%	2	10	10	0	100			0		
Composite A 100%	3	10	10	0	100			0		
Composite A 100%	4	10	10	0	100			0		
Composite A 100%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite B 10%	1	10	10	0	100			0		
Composite B 10%	2	10	10	0	100			0		
Composite B 10%	3	10	9	1	90			10		
Composite B 10%	4	10	9	1	90			10		
Composite B 10%	5	10	10	0	100	96.0	5.5	0	4.0	5.5
Composite B 50%	1	10	10	0	100			0		
Composite B 50%	2	10	10	0	100			0		
Composite B 50%	3	10	9	1	90			10		
Composite B 50%	4	10	10	0	100			0		
Composite B 50%	5	10	10	0	100	98.0	4.5	0	2.0	4.5
Composite B 100%	1	10	10	0	100			0		
Composite B 100%	2	10	10	0	100			0		
Composite B 100%	3	10	10	0	100			0		
Composite B 100%	4	10	9	1	90			10		
Composite B 100%	5	10	10	0	100	98.0	4.5	0	2.0	4.5

EcoAnalysts, Inc.

SPP Test Stats

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Americamysis bahia*

Sample ID (Concentration %)	Rep	# Initiated	# Alive	# Missing or Dead	% Survival	Survival Statistics: Mean Survival (%)	Survival Statistics: SD	% Mortality	Mortality Statistics: Mean Mortality (%)	Mortality Statistics: SD
Composite D 10%	1	10	10	0	100			0		
Composite D 10%	2	10	10	0	100			0		
Composite D 10%	3	10	10	0	100			0		
Composite D 10%	4	10	10	0	100			0		
Composite D 10%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite D 50%	1	10	10	0	100			0		
Composite D 50%	2	10	10	0	100			0		
Composite D 50%	3	10	10	0	100			0		
Composite D 50%	4	10	10	0	100			0		
Composite D 50%	5	10	9	1	90	98.0	4.5	10	2.0	4.5
Composite D 100%	1	10	10	0	100			0		
Composite D 100%	2	10	10	0	100			0		
Composite D 100%	3	10	9	1	90			10		
Composite D 100%	4	10	10	0	100			0		
Composite D 100%	5	10	10	0	100	98.0	4.5	0	2.0	4.5

SPP Test Day 0 Ammonia

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Americamysis bahia*
Calibration Standards Temperature: 20.7	Date: 7/20/2021 Tech: MS	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	Notes
Control	0	Overlying	0.00960	20.0	T17	30	8.0	19.7	292.85	9.2559	0.000	
Composite A 10%	0	Overlying	0.00210	20.2	T17	30	8.1	21.0	294.15	9.2559	0.000	
Composite A 50%	0	Overlying	0.0628	20.2	T17	30	8.1	21.0	294.15	9.2559	0.003	
Composite A 100%	0	Overlying	0.143	20.3	T17	30	8.1	19.5	292.65	9.2559	0.006	
Composite B 10%	0	Overlying	0.0519	20.2	T17	30	8.1	20.6	293.75	9.2559	0.003	
Composite B 50%	0	Overlying	0.210	20.4	T17	30	8.1	19.7	292.85	9.2559	0.010	
Composite B 100%	0	Overlying	0.414	20.2	T17	30	8.2	19.1	292.25	9.2559	0.022	
Composite D 10%	0	Overlying	0.0151	20.4	T17	30	8.1	19.7	292.85	9.2559	0.001	
Composite D 50%	0	Overlying	0.0842	20.8	T17	30	8.0	19.3	292.45	9.2559	0.003	
Composite D 100%	0	Overlying	0.144	20.3	T17	30	8.0	19.1	292.25	9.2559	0.005	

SPP Test Day 4 Ammonia

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Americamysis bahia*
Calibration Standards Temperature: 20.4	**Date:** 7/24/2021 **Tech:** SH	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	Notes
Control	4	Overlying	0.918	20.1	T17	30	7.7	20.0	293.15	9.2559	0.017	
Composite A 10%	4	Overlying	1.03	20.1	T17	30	7.6	19.9	293.05	9.2559	0.015	
Composite A 50%	4	Overlying	0.914	20.0	T17	30	7.7	20.0	293.15	9.2559	0.017	
Composite A 100%	4	Overlying	0.924	19.9	T17	30	7.7	19.9	293.05	9.2559	0.017	
Composite B 10%	4	Overlying	0.993	20.0	T17	30	7.7	20.0	293.15	9.2559	0.019	
Composite B 50%	4	Overlying	1.14	20.2	T17	30	7.7	19.9	293.05	9.2559	0.021	
Composite B 100%	4	Overlying	1.14	20.0	T17	30	7.7	20.0	293.15	9.2559	0.022	
Composite D 10%	4	Overlying	0.978	20.0	T17	30	7.6	20.0	293.15	9.2559	0.015	
Composite D 50%	4	Overlying	1.02	20.0	T17	30	7.7	20.0	293.15	9.2559	0.019	
Composite D 100%	4	Overlying	0.918	20.0	T17	30	7.6	20.0	293.15	9.2559	0.014	

4.2 *Americamysis bahia* Statistical Results

CETIS Summary Report

Report Date:	08 Sep-21 10:02 (p 1 of 1)
Test Code/ID:	Mole Pier / 19-5884-6244

Mysidopsis 96-h Acute Survival Test — **EcoAnalysts**

Batch ID:	07-3715-4375	**Test Type:**	Survival (96h)	**Analyst:**			
Start Date:	20 Jul-21 14:12	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater		
Ending Date:	24 Jul-21 12:45	**Species:**	Americamysis bahia	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Malacostraca	**Source:**	Aquatic Biosystems, CO	**Age:**	4

Sample ID:	00-7081-4133	**Code:**	Composite A	**Project:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Source:**	Mole Pier
Receipt Date:	08 Jun-21 12:11	**CAS (PC):**		**Station:**	P210707.02
Sample Age:	46d 7h (0.8 °C)	**Client:**	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
20-7241-8383	96h Proportion Survived	Steel Many-One Rank Sum Test		100	>100	n/a	1	8.97%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
13-0790-3944	96h Proportion Survived	Linear Interpolation (ICPIN)		EC5	>100	n/a	n/a	<1	1
				EC10	>100	n/a	n/a	<1	
				EC15	>100	n/a	n/a	<1	
				EC20	>100	n/a	n/a	<1	
				EC25	>100	n/a	n/a	<1	
				EC40	>100	n/a	n/a	<1	
				EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
13-0790-3944	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria
20-7241-8383	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9400	0.7734	1.0000	0.7000	1.0000	0.0600	0.1342	14.27%	0.00%
10		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-6.38%
50		5	0.9400	0.8720	1.0000	0.9000	1.0000	0.0245	0.0548	5.83%	0.00%
100		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-6.38%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	0.7000	1.0000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	0.9000	0.9000	1.0000	0.9000
100		1.0000	1.0000	1.0000	1.0000	1.0000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	7/10	10/10	10/10	10/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	9/10	9/10	10/10	9/10
100		10/10	10/10	10/10	10/10	10/10

CETIS Test Data Worksheet

Report Date: 08 Sep-21 10:02 (p 1 of 1)
Test Code/ID: Mole Pier / 19-5884-6244

Mysidopsis 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:12	**Species:**	Americamysis bahia	**Sample Code:**	Composite A
End Date:	24 Jul-21 12:45	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Sample Station:**	P210707.02

Conc-%	Code	Rep	Pos	# Exposed	Survival 24h	Survival 48h	Survival 72h	Survival 96h	Notes
0	D	1	17	10				10	
0	D	2	9	10				7	
0	D	3	5	10				10	
0	D	4	2	10				10	
0	D	5	4	10				10	
10		1	1	10				10	
10		2	19	10				10	
10		3	13	10				10	
10		4	16	10				10	
10		5	8	10				10	
50		1	15	10				10	
50		2	10	10				9	
50		3	12	10				9	
50		4	3	10				10	
50		5	14	10				9	
100		1	11	10				10	
100		2	7	10				10	
100		3	20	10				10	
100		4	6	10				10	
100		5	18	10				10	

CETIS Summary Report

Report Date: 19 Aug-21 13:20 (p 1 of 1)
Test Code/ID: Mole Pier / 08-1363-5848

Mysidopsis 96-h Acute Survival Test

EcoAnalysts

Batch ID:	07-3715-4375	Test Type:	Survival (96h)	Analyst:	
Start Date:	20 Jul-21 14:12	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Laboratory Seawater
Ending Date:	24 Jul-21 12:45	Species:	Americamysis bahia	Brine:	Not Applicable
Test Length:	95h	Taxon:	Malacostraca	Source:	Aquatic Biosystems, CO Age: 4

Sample ID:	06-8841-5644	Code:	Composite B	Project:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Source:	Mole Pier
Receipt Date:	03 Jun-21 12:30	CAS (PC):		Station:	P210707.03
Sample Age:	49d 6h (0 °C)	Client:	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
01-7361-8118	96h Proportion Survived	Steel Many-One Rank Sum Test		100	>100	n/a	1	10.3%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
02-1290-2709	96h Proportion Survived	Linear Interpolation (ICPIN)		EC5	>100	n/a	n/a	<1	1
				EC10	>100	n/a	n/a	<1	
				EC15	>100	n/a	n/a	<1	
				EC20	>100	n/a	n/a	<1	
				EC25	>100	n/a	n/a	<1	
				EC40	>100	n/a	n/a	<1	
				EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
01-7361-8118	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria
02-1290-2709	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9400	0.7734	1.0000	0.7000	1.0000	0.0600	0.1342	14.27%	0.00%
10		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	-2.13%
50		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-4.26%
100		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-4.26%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	0.7000	1.0000	1.0000	1.0000
10		1.0000	1.0000	0.9000	0.9000	1.0000
50		1.0000	1.0000	0.9000	1.0000	1.0000
100		1.0000	1.0000	1.0000	0.9000	1.0000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	7/10	10/10	10/10	10/10
10		10/10	10/10	9/10	9/10	10/10
50		10/10	10/10	9/10	10/10	10/10
100		10/10	10/10	10/10	9/10	10/10

CETIS Test Data Worksheet

Report Date: 19 Aug-21 13:20 (p 1 of 1)
Test Code/ID: Mole Pier / 08-1363-5848

Mysidopsis 96-h Acute Survival Test — **EcoAnalysts**

Start Date:	20 Jul-21 14:12	**Species:**	Americamysis bahia	**Sample Code:**	Composite B
End Date:	24 Jul-21 12:45	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Mole Pier
Sample Date:	01 Jun-21 08:00	**Material:**	Sediment Elutriate	**Sample Station:**	P210707.03

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	D	1	1	10				10	
0	D	2	7	10				7	
0	D	3	3	10				10	
0	D	4	16	10				10	
0	D	5	9	10				10	
10		1	6	10				10	
10		2	17	10				10	
10		3	13	10				9	
10		4	8	10				9	
10		5	11	10				10	
50		1	19	10				10	
50		2	20	10				10	
50		3	10	10				9	
50		4	4	10				10	
50		5	12	10				10	
100		1	18	10				10	
100		2	14	10				10	
100		3	5	10				10	
100		4	15	10				9	
100		5	2	10				10	

CETIS Summary Report

Report Date:	08 Sep-21 10:12 (p 1 of 1)
Test Code/ID:	Mole Pier / 12-0685-6389

Mysidopsis 96-h Acute Survival Test — **EcoAnalysts**

Batch ID:	07-3715-4375	**Test Type:**	Survival (96h)	**Analyst:**			
Start Date:	20 Jul-21 14:12	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater		
Ending Date:	24 Jul-21 12:45	**Species:**	Americamysis bahia	**Brine:**	Not Applicable		
Test Length:	95h	**Taxon:**	Malacostraca	**Source:**	Aquatic Biosystems, CO	**Age:**	4

Sample ID:	15-3306-9758	**Code:**	Composite D	**Project:**	Mole Pier
Sample Date:	01 Jun-21 08:00	**Material:**	Sediment Elutriate	**Source:**	Mole Pier
Receipt Date:	03 Jun-21 12:30	**CAS (PC):**		**Station:**	P210707.04
Sample Age:	49d 6h (0.1 °C)	**Client:**	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
02-5635-2970	96h Proportion Survived	Steel Many-One Rank Sum Test		100	>100	n/a	1	9.3%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
10-4878-4275	96h Proportion Survived	Linear Interpolation (ICPIN)		EC5	>100	n/a	n/a	<1	1
				EC10	>100	n/a	n/a	<1	
				EC15	>100	n/a	n/a	<1	
				EC20	>100	n/a	n/a	<1	
				EC25	>100	n/a	n/a	<1	
				EC40	>100	n/a	n/a	<1	
				EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
02-5635-2970	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria
10-4878-4275	96h Proportion Survived	Control Resp	0.94	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9400	0.7734	1.0000	0.7000	1.0000	0.0600	0.1342	14.27%	0.00%
10		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-6.38%
50		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-4.26%
100		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-4.26%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	1.0000	0.7000	1.0000	1.0000
10		1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	0.9000
100		1.0000	1.0000	0.9000	1.0000	1.0000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	10/10	7/10	10/10	10/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	9/10
100		10/10	10/10	9/10	10/10	10/10

CETIS Test Data Worksheet

Report Date: 08 Sep-21 10:07 (p 1 of 1)
Test Code/ID: Mole Pier / 12-0685-6389

Mysidopsis 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:12	**Species:**	Americamysis bahia	**Sample Code:**	Composite D
End Date:	24 Jul-21 12:45	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Mole Pier
Sample Date:	01 Jun-21 08:00	**Material:**	Sediment Elutriate	**Sample Station:**	P210707.04

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	D	1	11	10				10	
0	D	2	9	10				10	
0	D	3	5	10				7	
0	D	4	12	10				10	
0	D	5	19	10				10	
10		1	1	10				10	
10		2	4	10				10	
10		3	8	10				10	
10		4	10	10				10	
10		5	17	10				10	
50		1	16	10				10	
50		2	14	10				10	
50		3	13	10				10	
50		4	3	10				10	
50		5	15	10				9	
100		1	2	10				10	
100		2	6	10				10	
100		3	18	10				9	
100		4	7	10				10	
100		5	20	10				10	

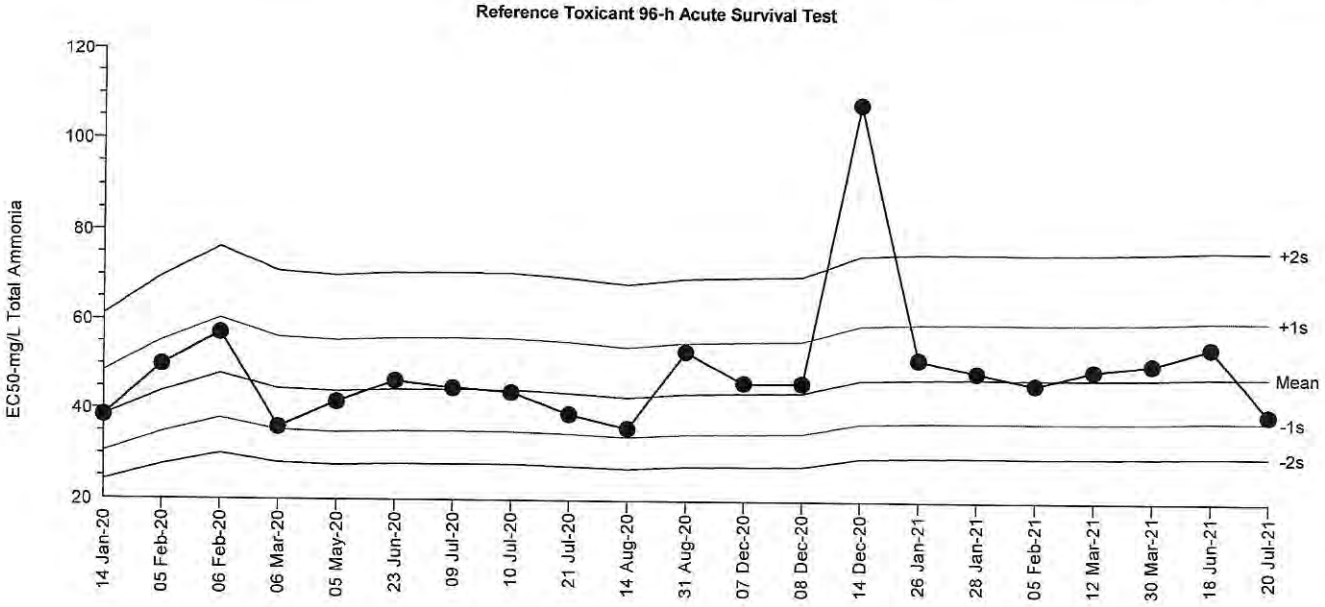
4.3 *Americamysis bahia* Reference Toxicant Test Results

CETIS QC Plot

Report Date: 12 Aug-21 12:30 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival | **Organism:** Americamysis bahia (Atlantic Mysid) | **Material:** Total Ammonia
Protocol: EPA/821/R-02-012 (2002) | **Endpoint:** Proportion Survived | **Source:** Reference Toxicant-REF



Mean:	47.99	**Count:**	20	**-1s Warning Limit:**	38.02	**-2s Action Limit:**	30.13
Sigma:	n/a	**CV:**	23.60%	**+1s Warning Limit:**	60.55	**+2s Action Limit:**	76.4

Quality Control Data

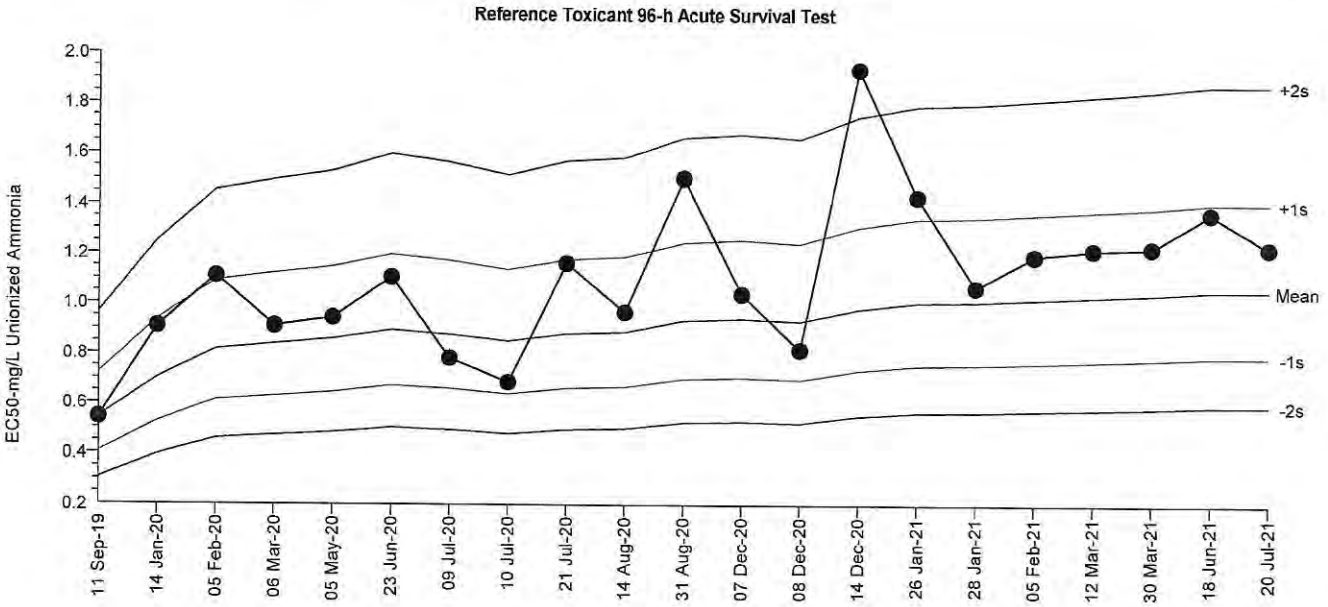
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Jan	14	14:53	38.42	-9.568	-0.956			00-7805-7277	10-0937-1070	EcoAnalysts
2		Feb	5	14:50	49.93	1.942	0.1706			04-5978-9555	10-8148-7500	EcoAnalysts
3			6	14:30	57.07	9.081	0.7451			18-9114-5801	03-6543-8421	EcoAnalysts
4		Mar	6	15:10	36.01	-11.99	-1.235	(-)		13-8778-1382	17-2291-3622	EcoAnalysts
5		May	5	15:30	41.62	-6.372	-0.6125			01-1343-3231	20-3812-1665	EcoAnalysts
6		Jun	23	14:47	46.43	-1.562	-0.1422			13-2358-8498	17-5848-0383	EcoAnalysts
7		Jul	9	15:43	44.86	-3.131	-0.2901			05-1849-3884	17-9787-9691	EcoAnalysts
8			10	15:10	43.92	-4.066	-0.3806			06-3462-5875	10-1435-4362	EcoAnalysts
9			21	15:40	39.08	-8.909	-0.8828			21-0310-7822	09-4372-1332	EcoAnalysts
10		Aug	14	14:00	35.99	-12	-1.237	(-)		04-8610-1899	02-2689-6359	EcoAnalysts
11			31	16:00	53.29	5.299	0.4503			17-9414-4489	13-6138-3222	EcoAnalysts
12		Dec	7	15:48	46.29	-1.705	-0.1555			11-8958-0407	21-1836-6845	EcoAnalysts
13			8	16:03	46.31	-1.683	-0.1535			15-3792-3203	03-7958-7657	EcoAnalysts
14			14	16:45	108.4	60.42	3.503	(+)	(+)	16-3348-0909	18-3738-8906	EcoAnalysts
15	2021	Jan	26	16:52	51.72	3.734	0.3221			10-9780-3692	03-4036-5177	EcoAnalysts
16			28	16:20	48.87	0.8755	0.07772			14-7963-0355	07-3515-3787	EcoAnalysts
17		Feb	5	15:08	46.19	-1.799	-0.1643			19-8703-5268	12-3605-4689	EcoAnalysts
18		Mar	12	16:14	49.37	1.377	0.1217			18-5434-9515	18-6079-9086	EcoAnalysts
19			30	13:55	50.83	2.837	0.2469			17-3756-7744	04-0053-5233	EcoAnalysts
20		Jun	18	16:30	54.64	6.646	0.5576			01-8844-2510	20-0148-5495	EcoAnalysts
21		Jul	20	14:00	39.61	-8.376	-0.8246			13-1683-1120	17-0510-9818	EcoAnalysts

CETIS QC Plot

Report Date: 12 Aug-21 12:29 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Americamysis bahia (Atlantic Mysid)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean:	1.056	**Count:**	20	**-1s Warning Limit:**	0.7906	**-2s Action Limit:**	0.5922
Sigma:	n/a	**CV:**	29.50%	**+1s Warning Limit:**	1.409	**+2s Action Limit:**	1.882

Quality Control Data

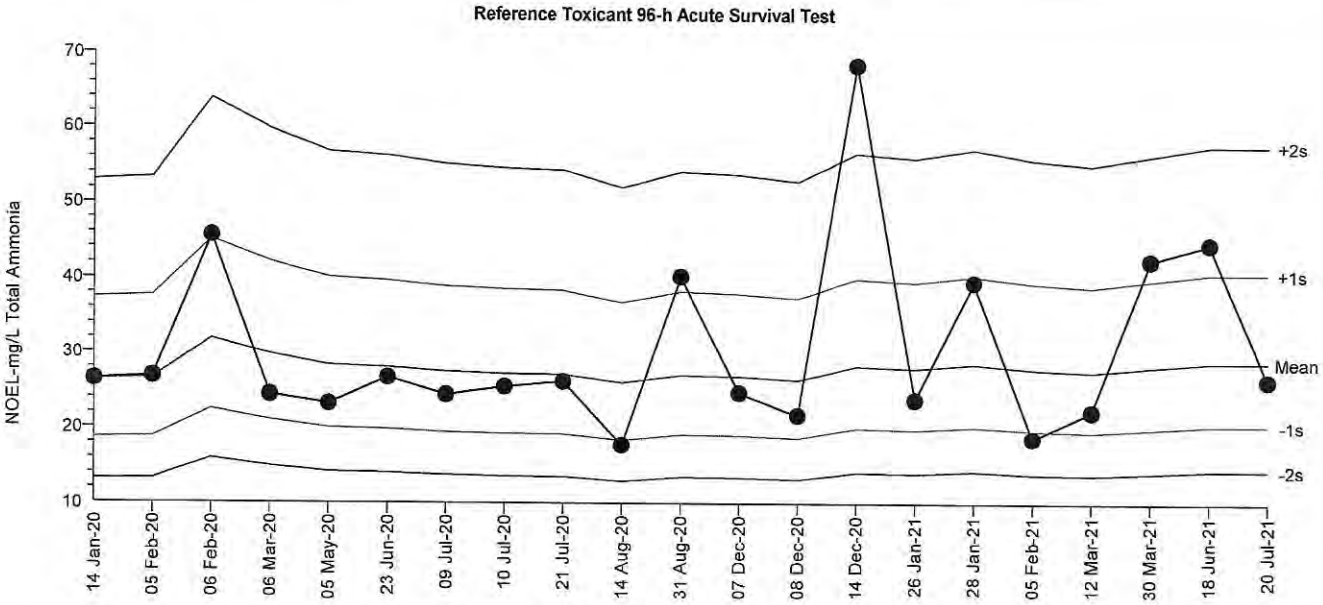
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Sep	11	15:25	0.5413	-0.5143	-2.311	(-)	(-)	19-2309-0255	08-4502-1144	EcoAnalysts
2	2020	Jan	14	14:53	0.9085	-0.147	-0.519			09-5076-5459	13-8868-8245	EcoAnalysts
3		Feb	5	14:50	1.109	0.05362	0.1715			10-6999-2782	03-5333-9849	EcoAnalysts
4		Mar	6	15:10	0.9109	-0.1447	-0.5101			07-8861-2965	07-5480-5186	EcoAnalysts
5		May	5	15:30	0.9439	-0.1117	-0.387			02-1552-2850	11-1466-3319	EcoAnalysts
6		Jun	23	14:47	1.105	0.04922	0.1577			15-8614-1003	14-3048-4403	EcoAnalysts
7		Jul	9	15:43	0.783	-0.2725	-1.033	(-)		19-2212-2549	01-8132-3562	EcoAnalysts
8			10	15:10	0.6851	-0.3704	-1.496	(-)		17-6411-2528	15-2163-3829	EcoAnalysts
9			21	15:40	1.163	0.1072	0.3348			20-7986-8562	05-5447-6011	EcoAnalysts
10		Aug	14	14:00	0.9663	-0.08924	-0.3056			18-0205-1977	16-0541-9082	EcoAnalysts
11			31	16:00	1.508	0.4528	1.235	(+)		16-7373-8648	10-3187-1552	EcoAnalysts
12		Dec	7	15:48	1.04	-0.01541	-0.05088			09-3084-5937	02-2873-8548	EcoAnalysts
13			8	16:03	0.8198	-0.2357	-0.8744			19-3676-6982	16-9098-1918	EcoAnalysts
14			14	16:45	1.943	0.8874	2.111	(+)	(+)	13-9152-9959	04-7187-1836	EcoAnalysts
15	2021	Jan	26	16:52	1.435	0.3796	1.063	(+)		08-8996-6688	09-9979-0627	EcoAnalysts
16			28	16:20	1.069	0.01336	0.04351			03-2522-7157	09-3899-0313	EcoAnalysts
17		Feb	5	15:08	1.197	0.1413	0.4348			17-7556-1949	08-8145-0076	EcoAnalysts
18		Mar	12	16:14	1.222	0.1662	0.5061			17-1664-8225	19-6080-5490	EcoAnalysts
19			30	13:55	1.23	0.1747	0.5298			06-7126-5819	07-8529-2108	EcoAnalysts
20		Jun	18	16:30	1.369	0.3136	0.9002			19-2327-7644	12-0910-6238	EcoAnalysts
21		Jul	20	14:00	1.231	0.1756	0.5324			21-3428-6324	03-0006-1373	EcoAnalysts

CETIS QC Plot

Report Date: 12 Aug-21 12:31 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Americamysis bahia (Atlantic Mysid)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean:	28.79	**Count:**	20	**-1s Warning Limit:**	20.33	**-2s Action Limit:**	14.35
Sigma:	n/a	**CV:**	35.90%	**+1s Warning Limit:**	40.8	**+2s Action Limit:**	57.79

Quality Control Data

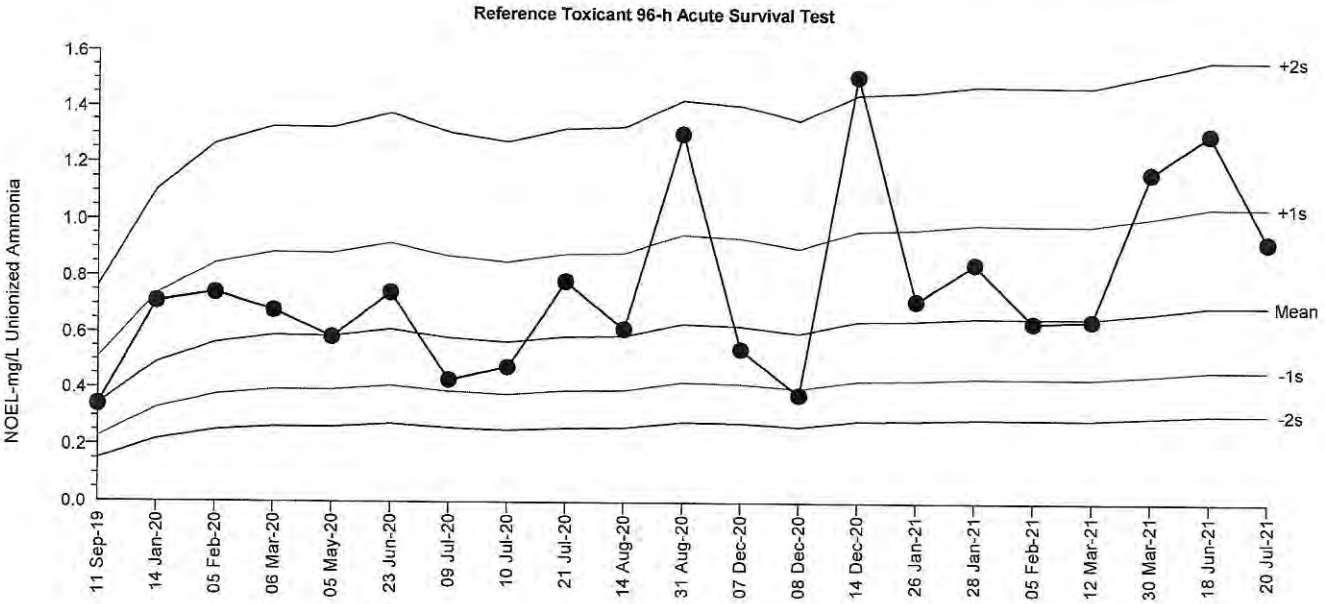
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Jan	14	14:53	26.4	-2.389	-0.2488			00-7805-7277	04-5161-9224	EcoAnalysts
2		Feb	5	14:50	26.8	-1.989	-0.2056			04-5978-9555	19-4663-3542	EcoAnalysts
3			6	14:30	45.6	16.81	1.321	(+)		18-9114-5801	19-3086-4075	EcoAnalysts
4		Mar	6	15:10	24.4	-4.389	-0.4751			13-8778-1382	03-2847-9089	EcoAnalysts
5		May	5	15:30	23.2	-5.589	-0.6199			01-1343-3231	07-4089-3130	EcoAnalysts
6		Jun	23	14:47	26.7	-2.089	-0.2164			13-2358-8498	20-6953-0344	EcoAnalysts
7		Jul	9	15:43	24.4	-4.389	-0.4751			05-1849-3884	00-3591-0055	EcoAnalysts
8			10	15:10	25.5	-3.289	-0.3484			06-3462-5875	21-1239-2072	EcoAnalysts
9			21	15:40	26.2	-2.589	-0.2707			21-0310-7822	06-4866-2774	EcoAnalysts
10		Aug	14	14:00	17.7	-11.09	-1.397	(-)		04-8610-1899	09-7292-5658	EcoAnalysts
11			31	16:00	40.3	11.51	0.966			17-9414-4489	12-8219-9729	EcoAnalysts
12		Dec	7	15:48	24.7	-4.089	-0.44			11-8958-0407	14-1644-1226	EcoAnalysts
13			8	16:03	21.7	-7.089	-0.8119			15-3792-3203	14-5080-9423	EcoAnalysts
14			14	16:45	68.6	39.81	2.494	(+)	(+)	16-3348-0909	15-2551-6134	EcoAnalysts
15	2021	Jan	26	16:52	23.8	-4.989	-0.5466			10-9780-3692	06-6994-5185	EcoAnalysts
16			28	16:20	39.6	10.81	0.9156			14-7963-0355	17-9940-2953	EcoAnalysts
17		Feb	5	15:08	18.6	-10.19	-1.255	(-)		19-8703-5268	06-1939-5672	EcoAnalysts
18		Mar	12	16:14	22.2	-6.589	-0.7464			18-5434-9515	06-3166-9850	EcoAnalysts
19			30	13:55	42.5	13.71	1.119	(+)		17-3756-7744	19-2405-2892	EcoAnalysts
20		Jun	18	16:30	44.7	15.91	1.264	(+)		01-8844-2510	18-3510-4990	EcoAnalysts
21		Jul	20	14:00	26.4	-2.389	-0.2488			13-1683-1120	11-8486-9940	EcoAnalysts

CETIS QC Plot

Report Date: 12 Aug-21 12:32 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival **Organism:** Americamysis bahia (Atlantic Mysid) **Material:** Unionized Ammonia
Protocol: EPA/821/R-02-012 (2002) **Endpoint:** Proportion Survived **Source:** Reference Toxicant-REF



Mean: 0.7027	**Count:** 20	**-1s Warning Limit:** 0.4689	**-2s Action Limit:** 0.3128
Sigma: n/a	**CV:** 42.20%	**+1s Warning Limit:** 1.053	**+2s Action Limit:** 1.579

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Sep	11	15:25	0.34	-0.3627	-1.794	(-)		19-2309-0255	00-6774-3010	EcoAnalysts
2	2020	Jan	14	14:53	0.71	0.007282	0.02547			09-5076-5459	09-5991-8112	EcoAnalysts
3		Feb	5	14:50	0.742	0.03928	0.1344			10-6999-2782	13-2134-7414	EcoAnalysts
4		Mar	6	15:10	0.681	-0.02172	-0.07757			07-8861-2965	01-5092-2714	EcoAnalysts
5		May	5	15:30	0.585	-0.1177	-0.453			02-1552-2850	06-6389-5312	EcoAnalysts
6		Jun	23	14:47	0.744	0.04128	0.1411			15-8614-1003	11-5543-6069	EcoAnalysts
7		Jul	9	15:43	0.431	-0.2717	-1.208	(-)		19-2212-2549	02-5972-3382	EcoAnalysts
8			10	15:10	0.477	-0.2257	-0.9573			17-6411-2528	06-9396-7145	EcoAnalysts
9			21	15:40	0.785	0.08228	0.2736			20-7986-8562	16-1974-5532	EcoAnalysts
10		Aug	14	14:00	0.617	-0.08572	-0.3214			18-0205-1977	11-0545-0884	EcoAnalysts
11			31	16:00	1.308	0.6053	1.535	(+)		16-7373-8648	00-3464-7929	EcoAnalysts
12		Dec	7	15:48	0.546	-0.1567	-0.6235			09-3084-5937	13-6729-2090	EcoAnalysts
13			8	16:03	0.38	-0.3227	-1.519	(-)		19-3676-6982	05-9206-3638	EcoAnalysts
14			14	16:45	1.517	0.8143	1.901	(+)		13-9152-9959	08-7179-0225	EcoAnalysts
15	2021	Jan	26	16:52	0.719	0.01628	0.0566			08-8996-6688	20-6542-6959	EcoAnalysts
16			28	16:20	0.851	0.1483	0.4731			03-2522-7157	14-3097-2453	EcoAnalysts
17		Feb	5	15:08	0.644	-0.05872	-0.2156			17-7556-1949	10-1394-0730	EcoAnalysts
18		Mar	12	16:14	0.652	-0.05072	-0.1851			17-1664-8225	03-8757-7885	EcoAnalysts
19			30	13:55	1.176	0.4733	1.272	(+)		06-7126-5819	19-6461-7569	EcoAnalysts
20		Jun	18	16:30	1.312	0.6093	1.543	(+)		19-2327-7644	17-6725-2516	EcoAnalysts
21		Jul	20	14:00	0.933	0.2303	0.7004			21-3428-6324	17-9912-5078	EcoAnalysts

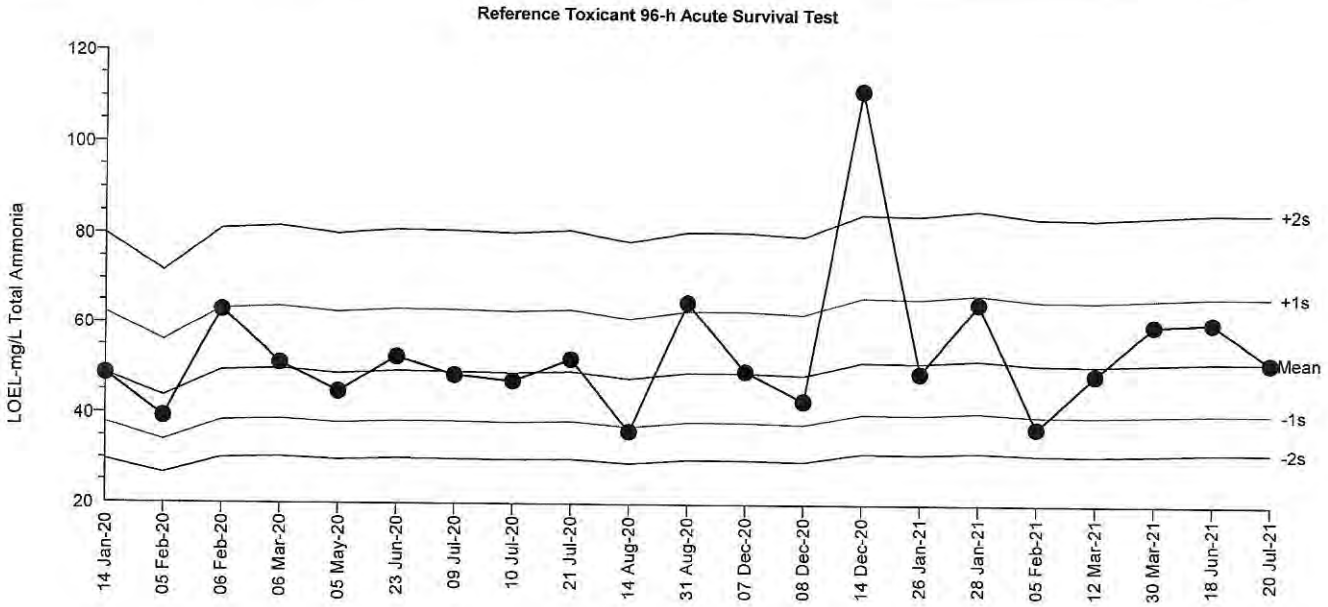
Analyst: MK QA: [illegible]

CETIS QC Plot

Report Date: 12 Aug-21 12:31 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival | **Organism:** Americamysis bahia (Atlantic Mysid) | **Material:** Total Ammonia
Protocol: EPA/821/R-02-012 (2002) | **Endpoint:** Proportion Survived | **Source:** Reference Toxicant-REF



Mean:	51.99	**Count:**	20	**-1s Warning Limit:**	40.55	**-2s Action Limit:**	31.63
Sigma:	n/a	**CV:**	25.20%	**+1s Warning Limit:**	66.67	**+2s Action Limit:**	85.49

Quality Control Data

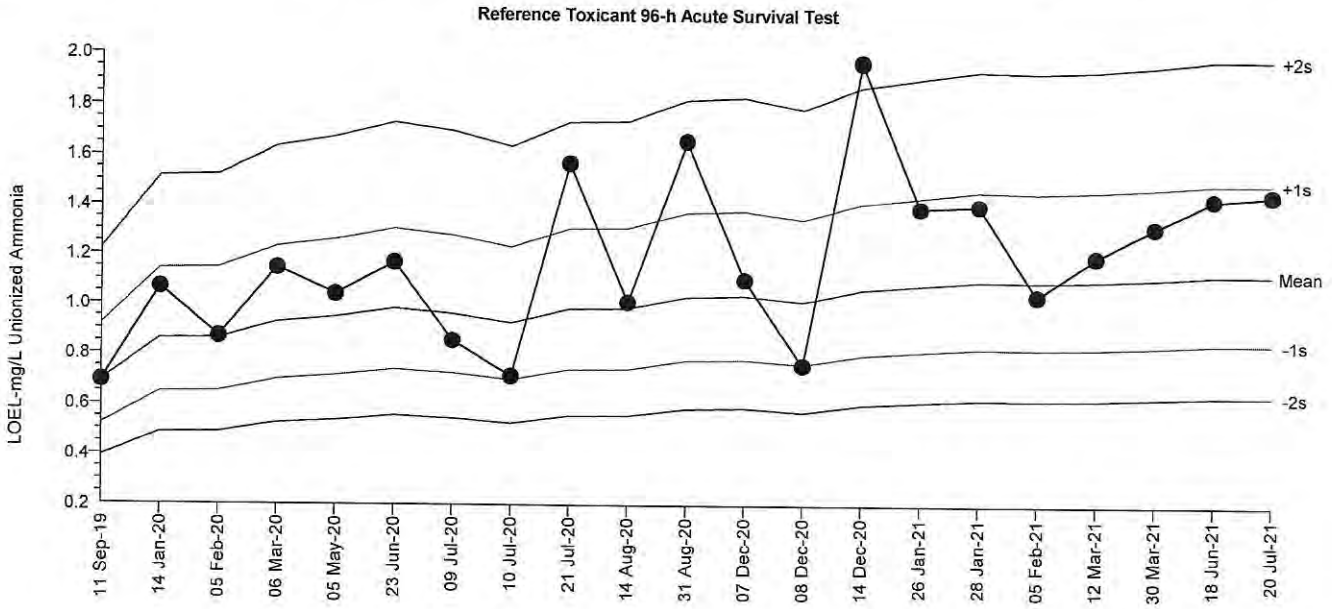
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Jan	14	14:53	48.6	-3.387	-0.271			00-7805-7277	04-5161-9224	EcoAnalysts
2		Feb	5	14:50	39.3	-12.69	-1.125	(-)		04-5978-9555	19-4663-3542	EcoAnalysts
3			6	14:30	63	11.01	0.7729			18-9114-5801	19-3086-4075	EcoAnalysts
4		Mar	6	15:10	51.1	-0.8873	-0.06925			13-8778-1382	03-2847-9089	EcoAnalysts
5		May	5	15:30	44.8	-7.187	-0.5985			01-1343-3231	07-4089-3130	EcoAnalysts
6		Jun	23	14:47	52.5	0.5127	0.03947			13-2358-8498	20-6953-0344	EcoAnalysts
7		Jul	9	15:43	48.5	-3.487	-0.2793			05-1849-3884	00-3591-0055	EcoAnalysts
8			10	15:10	47.2	-4.787	-0.3886			06-3462-5875	21-1239-2072	EcoAnalysts
9			21	15:40	52.1	0.1127	0.008708			21-0310-7822	06-4866-2774	EcoAnalysts
10		Aug	14	14:00	36.3	-15.69	-1.445	(-)		04-8610-1899	09-7292-5658	EcoAnalysts
11			31	16:00	65	13.01	0.8986			17-9414-4489	12-8219-9729	EcoAnalysts
12		Dec	7	15:48	49.6	-2.387	-0.1891			11-8958-0407	14-1644-1226	EcoAnalysts
13			8	16:03	43.1	-8.887	-0.7541			15-3792-3203	14-5080-9423	EcoAnalysts
14			14	16:45	112	60.01	3.087	(+)	(+)	16-3348-0909	15-2551-6134	EcoAnalysts
15	2021	Jan	26	16:52	49.3	-2.687	-0.2135			10-9780-3692	06-6994-5185	EcoAnalysts
16			28	16:20	65	13.01	0.8986			14-7963-0355	17-9940-2953	EcoAnalysts
17		Feb	5	15:08	37.3	-14.69	-1.336	(-)		19-8703-5268	06-1939-5672	EcoAnalysts
18		Mar	12	16:14	49	-2.987	-0.2381			18-5434-9515	06-3166-9850	EcoAnalysts
19			30	13:55	60.2	8.213	0.59			17-3756-7744	19-2405-2892	EcoAnalysts
20		Jun	18	16:30	60.8	8.813	0.6299			01-8844-2510	18-3510-4990	EcoAnalysts
21		Jul	20	14:00	51.8	-0.1873	-0.01452			13-1683-1120	11-8486-9940	EcoAnalysts

CETIS QC Plot

Report Date: 12 Aug-21 12:31 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Americamysis bahia (Atlantic Mysid)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean:	1.129	**Count:**	20	**-1s Warning Limit:**	0.8496	**-2s Action Limit:**	0.6396
Sigma:	n/a	**CV:**	29.00%	**+1s Warning Limit:**	1.499	**+2s Action Limit:**	1.992

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Sep	11	15:25	0.692	-0.4366	-1.722	(-)		19-2309-0255	00-6774-3010	EcoAnalysts
2	2020	Jan	14	14:53	1.067	-0.06162	-0.1977			09-5076-5459	09-5991-8112	EcoAnalysts
3		Feb	5	14:50	0.87	-0.2586	-0.9164			10-6999-2782	13-2134-7414	EcoAnalysts
4		Mar	6	15:10	1.147	0.01838	0.05687			07-8861-2965	01-5092-2714	EcoAnalysts
5		May	5	15:30	1.042	-0.08662	-0.2812			02-1552-2850	06-6389-5312	EcoAnalysts
6		Jun	23	14:47	1.17	0.04138	0.1268			15-8614-1003	11-5543-6069	EcoAnalysts
7		Jul	9	15:43	0.856	-0.2726	-0.9735			19-2212-2549	02-5972-3382	EcoAnalysts
8			10	15:10	0.715	-0.4136	-1.607	(-)		17-6411-2528	06-9396-7145	EcoAnalysts
9			21	15:40	1.573	0.4444	1.169	(+)		20-7986-8562	16-1974-5532	EcoAnalysts
10		Aug	14	14:00	1.012	-0.1166	-0.3841			18-0205-1977	11-0545-0884	EcoAnalysts
11			31	16:00	1.662	0.5334	1.363	(+)		16-7373-8648	00-3464-7929	EcoAnalysts
12		Dec	7	15:48	1.104	-0.02462	-0.07768			09-3084-5937	13-6729-2090	EcoAnalysts
13			8	16:03	0.76	-0.3686	-1.392	(-)		19-3676-6982	05-9206-3638	EcoAnalysts
14			14	16:45	1.976	0.8474	1.972	(+)		13-9152-9959	08-7179-0225	EcoAnalysts
15	2021	Jan	26	16:52	1.396	0.2674	0.7486			08-8996-6688	20-6542-6959	EcoAnalysts
16			28	16:20	1.408	0.2794	0.7788			03-2522-7157	14-3097-2453	EcoAnalysts
17		Feb	5	15:08	1.041	-0.08762	-0.2846			17-7556-1949	10-1394-0730	EcoAnalysts
18		Mar	12	16:14	1.201	0.07238	0.2189			17-1664-8225	03-8757-7885	EcoAnalysts
19			30	13:55	1.322	0.1934	0.5569			06-7126-5819	19-6461-7569	EcoAnalysts
20		Jun	18	16:30	1.436	0.3074	0.8481			19-2327-7644	17-6725-2516	EcoAnalysts
21		Jul	20	14:00	1.455	0.3264	0.8944			21-3428-6324	17-9912-5078	EcoAnalysts

Analyst: MK QA: [illegible]

CETIS Summary Report

Report Date:	12 Aug-21 12:19 (p 1 of 1)
Test Code/ID:	4E7D3F90 / 13-1683-1120

Reference Toxicant 96-h Acute Survival Test — **EcoAnalysts**

Batch ID:	03-7194-0691	**Test Type:**	Survival	**Analyst:**			
Start Date:	20 Jul-21 14:00	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater		
Ending Date:	24 Jul-21 13:56	**Species:**	Americamysis bahia	**Brine:**	Not Applicable		
Test Length:	96h	**Taxon:**	Malacostraca	**Source:**	Aquatic Biosystems, CO	**Age:**	4

Sample ID:	16-5450-6079	**Code:**	629DC25F	**Project:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Source:**	Reference Toxicant
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.193
Sample Age:	769d 14h	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
11-8486-9940	Proportion Survived	Fisher Exact Test		26.4	51.8	36.98		n/a	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
17-0510-9818	Proportion Survived	Linear Interpolation (ICPIN)		EC5	27.5	27.18	27.95		1
				EC10	28.64	27.97	29.58		
				EC15	29.83	28.79	31.31		
				EC20	31.07	29.62	33.12		
				EC25	32.36	30.48	35.03		
				EC40	36.54	33.19	41.41		
				EC50	39.61	35.11	46.25		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
13.6		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
26.4		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
51.8		3	0.1667	0.0000	0.6838	0.0000	0.4000	0.1202	0.2082	124.90%	83.33%
72.2		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%
104		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
13.6		1.0000	1.0000	1.0000
26.4		1.0000	1.0000	1.0000
51.8		0.4000	0.0000	0.1000
72.2		0.0000	0.0000	0.0000
104		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
13.6		10/10	10/10	10/10
26.4		10/10	10/10	10/10
51.8		4/10	0/10	1/10
72.2		0/10	0/10	0/10
104		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 12 Aug-21 12:18 (p 1 of 1)
Test Code/ID: 4E7D3F90 / 13-1683-1120

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:00	**Species:**	Americamysis bahia	**Sample Code:**	629DC25F
End Date:	24 Jul-21 13:56	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.193

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	5	10	10	
0	D	2	17	10	10	
0	D	3	9	10	10	
13.6		1	16	10	10	
13.6		2	8	10	10	
13.6		3	1	10	10	
26.4		1	2	10	10	
26.4		2	13	10	10	
26.4		3	10	10	10	
51.8		1	11	10	4	
51.8		2	4	10	0	
51.8		3	18	10	1	
72.2		1	3	10	0	
72.2		2	6	10	0	
72.2		3	7	10	0	
104		1	12	10	0	
104		2	14	10	0	
104		3	15	10	0	

CETIS Summary Report

Report Date: 12 Aug-21 12:23 (p 1 of 1)
Test Code/ID: 7F369FF4 / 21-3428-6324

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Batch ID:	03-7194-0691	**Test Type:**	Survival	**Analyst:**	
Start Date:	20 Jul-21 14:00	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Jul-21 13:56	**Species:**	Americamysis bahia	**Brine:**	Not Applicable
Test Length:	96h	**Taxon:**	Malacostraca	**Source:**	Aquatic Biosystems, CO **Age:** 4

Sample ID:	15-3708-4994	**Code:**	5B9E0E42	**Project:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Source:**	Reference Toxicant
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.193
Sample Age:	769d 14h	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
17-9912-5078	Proportion Survived	Fisher Exact Test		0.933	1.455	1.165		n/a	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
03-0006-1373	Proportion Survived	Linear Interpolation (ICPIN)		EC5	0.9609	0.9511	0.984		1
				EC10	0.9893	0.9693	1.036		
				EC15	1.018	0.9877	1.09		
				EC20	1.047	1.006	1.144		
				EC25	1.077	1.025	1.2		
				EC40	1.168	1.082	1.376		
				EC50	1.231	1.12	1.5		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.484		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
0.933		3	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
1.455		3	0.1667	0.0000	0.6838	0.0000	0.4000	0.1202	0.2082	124.90%	83.33%
1.632		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%
2.368		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	1.0000	1.0000
0.484		1.0000	1.0000	1.0000
0.933		1.0000	1.0000	1.0000
1.455		0.4000	0.0000	0.1000
1.632		0.0000	0.0000	0.0000
2.368		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	10/10	10/10
0.484		10/10	10/10	10/10
0.933		10/10	10/10	10/10
1.455		4/10	0/10	1/10
1.632		0/10	0/10	0/10
2.368		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 12 Aug-21 12:29 (p 1 of 1)
Test Code/ID: 7F369FF4 / 21-3428-6324

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:00	**Species:**	Americamysis bahia	**Sample Code:**	5B9E0E42
End Date:	24 Jul-21 13:56	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.193

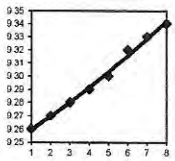
Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	1	10	10	
0	D	2	13	10	10	
0	D	3	5	10	10	
0.484		1	10	10	10	
0.484		2	16	10	10	
0.484		3	14	10	10	
0.933		1	11	10	10	
0.933		2	15	10	10	
0.933		3	2	10	10	
1.455		1	3	10	4	
1.455		2	7	10	0	
1.455		3	12	10	1	
1.632		1	8	10	0	
1.632		2	6	10	0	
1.632		3	9	10	0	
2.368		1	4	10	0	
2.368		2	18	10	0	
2.368		3	17	10	0	

Un-ionized Ammonia Calculator

CLIENT:	Internal	Date of Test:	July 20, 2021
PROJECT:	Ref Tox	Test Type:	*Americamysis bahia*
COMMENTS:			

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa^s
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa^s*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	10		13.6	30	8.0	19.4	292.55	9.2559		**0.484**
4	20		26.4	30	8.0	19.3	292.45	9.2559		**0.933**
5	40		51.8	30	7.9	19.2	292.35	9.2559		**1.455**
6	60		72.2	30	7.8	19.3	292.45	9.2559		**1.632**
7	80		104	30	7.8	19.4	292.55	9.2559		**2.368**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

QA ✓ MSRC

ECO ANALYSTS

96-Hour Mysid Ammonia Reference Toxicant Test

Toxicant:	Ammonium Chloride
Ref Tox ID:	PP0612.193
Lot #:	18H1356763
Protocol:	TOX099
Replicates:	3

Date Test Started:	7/20/2021
Date Test Ended:	7/24/2021
Matrix:	Liquid
Species:	*Americamysis bahia*
No. of Org. per Chamber:	10

	Conc.	Meter #:	DO (mg/L) (>4.6)	Meter #:	Temp (°C) (20±1°C)	Meter #:	Salinity (ppt) (30±2ppt)	Meter #:	pH (7 - 9)
Day 0 (Stock)	Control	8	7.6	8	19.4	8	30	8	8.0
Date: 7/20/21	10		7.7		19.4		30		8.0
Time: 1300	20		7.7		19.3		30		8.0
Technician: JL	40		7.7		19.2		30		7.9
	60		7.7		19.3		30		7.8
PM Feed: JL	80		7.7		19.4		30		7.8

		Day 1	Day 2	Day 3	Day 4
Temperature (OLD)		19.7	19.6	19.8	19.7
Temperature (NEW)					
Feed: 0.1mL *Artemia* (Time/Init.)	AM	1P	0920 SH	0815 SH	0700 SH
	PM	1715 SH	② 0151 DM	1640 JL	

Day 4	Control	8	5.3	8	19.7	8	30	8	7.7
Date: 7/24/21	10		5.0		19.7		30		7.7
Time: 7:26	20		5.2		19.7		30		7.7
Replicate No.: 1	40		5.9		19.7		30		7.8
Technician: 1P	60								
	80								

Dilution Preparation (Mysid NH_3 RT Spiking Worksheet)

Test Solution NH_3 Concentration				Volume of Stock to Reach Desired Concentration	
Measured		Desired	Volume		
mg/L		mg/L	mL	mL stock to increase	
Day 0	Day 2				SALT WATER
0.055		0	750		0.000
13.6		10	750		① ~~1.246~~ 1.207
26.4		20	750		~~2.493~~ 2.413
51.9		40	750		~~4.985~~ 4.827
72.2		60	750		~~7.478~~ 7.240
104		80	750		~~9.970~~ 9.653

Start Time:	1400 JL, MK
End Time:	1356 1P
Test Acceptability:	≥90% survival in control

Test Location:	Bath 6
Dilution Water Batch:	PSW071821.01
Supplier:	Aquatic Biosystems
Organism Batch:	ABS072021.02 Age: 4d
Chamber Size/Type:	12 oz plastic cup
Exposure Volume:	250 mL

① New NH_3 stock solution, updated NH_3 spiking values - DM - 7/20/21
② IE - DM - 7/22/21

ECOANALYSTS, INC.

96-Hour Mysid Ammonia Reference Toxicant Test

Toxicant:	Ammonium Chloride
Ref Tox ID:	P190612-193
Species:	*Americamysis bahia*

Date Test Started:	7/20/2021
Date Test Ended:	7/24/2021

Concentration	Rep	Day 1 Date: 7/21/21 Time: 1226		Day 2 Date: 7/22/21 Time: 1255		Day 3 Date: 7/23/21 Time: 1354		Day 4 Date: 7/24/21 Time: 1356	
		# Alive	# Dead	# Alive	# Dead	# Alive	# Dead	# Alive	# Dead
Control	1	10	0	10	0	10	0	10	0
	2	10	0	10	0	10	0	10	0
	3	10	0	10	0	10	0	10	0
10	1	10	0	10	0	10	0	10	0
	2	10	0	10	0	10	0	10	0
	3	10	0	10	0	10	0	10	0
20	1	10	0	10	0	10	0	10	0
	2	10	0	10	0	10	0	10	0
	3	10	0	10	0	10	0	10	0
40	1	9	1 NB	8	2 (1FB)	8	0	4	3, 1NB
	2	9	1	7	2	7	0	0	7
	3	9	1NB	6	4 (1FB)	6	0	1	5
60	1	5	5	2	3	0	2		
	2	6	4	0	6	—	—		
	3	5	5	3	2	0	3		
80	1	0	10	—	—				
	2	0	10	—	—				
	3	2	8	0	2				
INITIALS:		MK		MK		DM		IP	

Daily Quality Assurance Checks

Project name: Mysid NH3 RT

Test:

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	[illegible]	7/20	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges	↓	↓	
1	Test datasheets checked for completeness and legibility	MK	7/21	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	MK	7/22	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility	MK	7/23	
	Test data within acceptable ranges	↓	↓	
4	Test datasheets checked for completeness and legibility	SH	7/24	
	Test data within acceptable ranges	↓	↓	

5. *Menidia beryllina* SPP Water-Column Test

5.1 *Menidia beryllina* Test Data

Version T.1

GENERAL

Client	Wood /KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Sample Collected (Oldest Sample)	6/1/2021
Sample Holding Time	49
Test Start Date	07/20/21
Test End Date	07/24/21
Test Species	*Menidia beryllina*
Organism Supplier	ABS
Date Organism Acquired	7/20/2021
Organism Acclimation Time (Days)	0
Organism Batch	ABS072021.01
Test Type	SPP
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Bath 6
Sample Treatment	None
Water Batch	FSW071821.01
Test Lighting	16L:8D
Test Chamber	16 oz plastic
Replicates Per Treatment	5
Organisms per Replicate	10
Exposure Volume	300 mL
Feeding Information	0.1 mL nauplii daily
Test Dissolved Oxygen	> 3
Test Temperature	20 ± 1
Test Salinity	30 ± 2
Test pH	7.8 ± 0.5
Water Renewal Info	None

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO:	3.0	
Temp:	18.5	21.4
Sal:	28	32
pH:	7.3	8.3

TEST START TIME:	14:27
TEST END TIME:	13:44

	CLIENT SAMPLE ID (Concentration %)	LAB ID
Control	Control	.
2	Composite A 10%	P210707.02
3	Composite A 50%	P210707.02
4	Composite A 100%	P210707.02
5	Composite B 10%	P210707.03
6	Composite B 50%	P210707.03
7	Composite B 100%	P210707.03
8	Composite D 10%	P210707.04
9	Composite D 50%	P210707.04
10	Composite D 100%	P210707.04
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.

EcoAnalysts, Inc.

SPP ELUTRIATE PREPARATION WORKSHEET

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER
Wood /KMEA	Mole Pier	PG1217	M. Knowlen

DILUENT SOURCE: (sitewater/labwater):

labwater

PROJECT SITEWATER CLIENT ID:	LABORATORY WATER LAB ID:
	FSW071821.01

STANDARD ELUTRIATE IS PREPARED AT 1 PART SEDIMENT TO 4 PARTS WATER

ELUTRIATE RATIO SELECTED:	1:4
TOTAL VOLUME OF ELUTRIATE PREPARATION VESSEL:	8L
VOLUME OF SEDIMENT PER SAMPLE:	1.5L per cont (3 L total)
VOLUME OF DILUENT:	6L per cont (12 L total)
TOTAL NUMBER OF PREPARTION VESSELS PER SAMPLE:	2

# Cont's	Sample ID	Date Spin Start	Time Spin Start	Time Settle Start	Time of Elutriate Collection	Initial Volume Recovered (units)	Centrifuged (Y/N)	Settled Overnight (Y/N)	Secondary Volume Recovered (units)	Total Volumne (units)	Comments
2	Composite A	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP
2	Composite B	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP
2	Composite D	07/20/21	845	915	1015	7L	N	N	NA	7L	Shared w/ menidia SPP

EcoAnalysts, Inc.

SPP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION			PROTOCOL		
Wood /KMEA	Mole Pier	*Menidia beryllina*	Port Gamble / Bath 6			OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**PROJECT NUMBER**	**TEST START DATE**	**TIME**	**INITIALS**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	SPP	PG1217	July 20, 2021	14:27	DM/MS	July 24, 2021	13:44	SH

WATER QUALITY DATA

SAMPLE ID (Concentration %)	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 3	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	Feeding 0.1 mL nauplii daily AM	Feeding 0.1 mL nauplii daily PM	Notes
Control	0	Stock		JL	07/20/21	8	7.8	19.7	30	8.0		JL/IP	
Control	1	1	24	SH	07/21/21	9	6.8	19.5	30	7.9		SH	
Control	2	2	3	MK	07/22/21	9	6.4	19.6	30	7.9		DM	
Control	3	3	14	DM	07/23/21	8	6.9	19.6	30	7.9		JL	
Control	4	4	50	IP	07/24/21	8	6.6	19.9	30	7.9			
Composite A 10%	0	Stock		JL	07/20/21	8	7.8	21.0	30	8.1		JL/IP	
Composite A 10%	1	1	9	SH	07/21/21	9	7.0	19.5	30	7.9		SH	
Composite A 10%	2	2	32	MK	07/22/21	9	6.5	19.3	30	7.9		DM	
Composite A 10%	3	3	26	DM	07/23/21	8	6.9	19.7	30	7.9		JL	
Composite A 10%	4	4	35	IP	07/24/21	8	6.7	19.8	30	7.9			
Composite A 50%	0	Stock		JL	07/20/21	8	7.8	21.0	30	8.1		JL/IP	
Composite A 50%	1	1	46	SH	07/21/21	9	7.1	19.1	30	7.9		SH	
Composite A 50%	2	2	29	MK	07/22/21	9	6.4	19.5	30	7.9		DM	
Composite A 50%	3	3	45	DM	07/23/21	8	6.7	19.8	30	7.9		JL	
Composite A 50%	4	4	16	IP	07/24/21	8	6.6	19.8	30	7.9			
Composite A 100%	0	Stock		JL	07/20/21	8	7.9	19.5	30	8.1		JL/IP	
Composite A 100%	1	1	43	SH	07/21/21	9	7.0	19.1	30	7.9		SH	
Composite A 100%	2	2	12	MK	07/22/21	9	6.4	19.5	30	7.9		DM	
Composite A 100%	3	3	40	DM	07/23/21	8	6.8	19.8	30	7.9		JL	
Composite A 100%	4	4	8	IP	07/24/21	8	6.7	19.9	30	7.9			
Composite B 10%	0	Stock		JL	07/20/21	8	7.8	20.6	30	8.1		JL/IP	
Composite B 10%	1	1	10	SH	07/21/21	9	6.9	19.5	30	7.9		SH	
Composite B 10%	2	2	47	MK	07/22/21	9	6.6	19.5	30	7.9		DM	
Composite B 10%	3	3	49	DM	07/23/21	8	6.9	19.7	30	7.9		JL	
Composite B 10%	4	4	25	IP	07/24/21	8	6.7	19.9	30	7.9			

EcoAnalysts, Inc.

SPP Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION			PROTOCOL		
Wood /KMEA	Mole Pier	*Menidia beryllina*	Port Gamble / Bath 6			OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**PROJECT NUMBER**	**TEST START DATE**	**TIME**	**INITIALS**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	SPP	PG1217	July 20, 2021	14:27	DM/MS	July 24, 2021	13:44	SH

WATER QUALITY DATA

SAMPLE ID (Concentration %)	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 3	TEMP (°C) 19 - 21	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	Feeding 0.1 mL nauplii daily AM	Feeding 0.1 mL nauplii daily PM	Notes
Composite B 50%	0	Stock		JL	07/20/21	8	7.9	19.7	30	8.1		JL/IP	
Composite B 50%	1	1	4	SH	07/21/21	9	6.9	19.5	30	7.9		SH	
Composite B 50%	2	2	30	MK	07/22/21	9	6.6	19.5	30	7.9		DM	
Composite B 50%	3	3	13	DM	07/23/21	8	6.9	19.7	30	7.9		JL	
Composite B 50%	4	4	37	IP	07/24/21	8	6.7	19.7	30	8.0			
Composite B 100%	0	Stock		JL	07/20/21	8	7.8	19.1	30	8.2		JL/IP	
Composite B 100%	1	1	20	SH	07/21/21	9	6.7	19.6	30	8.0		SH	
Composite B 100%	2	2	23	MK	07/22/21	9	6.6	19.5	30	7.9		DM	
Composite B 100%	3	3	11	DM	07/23/21	8	7.0	19.6	30	7.9		JL	
Composite B 100%	4	4	19	IP	07/24/21	8	6.3	19.9	30	7.9			
Composite D 10%	0	Stock		JL	07/20/21	8	7.8	19.7	30	8.1		JL/IP	
Composite D 10%	1	1	21	SH	07/21/21	9	7.0	19.1	30	7.9		SH	
Composite D 10%	2	2	28	MK	07/22/21	9	6.7	19.3	30	7.9		DM	
Composite D 10%	3	3	6	DM	07/23/21	8	7.3	19.5	30	7.9		JL	
Composite D 10%	4	4	42	IP	07/24/21	8	6.9	19.9	30	7.9			
Composite D 50%	0	Stock		JL	07/20/21	8	7.8	19.3	30	8.0		JL/IP	
Composite D 50%	1	1	18	SH	07/21/21	9	7.1	19.3	30	7.9		SH	
Composite D 50%	2	2	36	MK	07/22/21	9	6.6	19.4	30	7.9		DM	
Composite D 50%	3	3	1	DM	07/23/21	8	7.1	19.6	30	7.9		JL	
Composite D 50%	4	4	15	IP	07/24/21	8	6.6	20.0	30	7.9			
Composite D 100%	0	Stock		JL	07/20/21	8	8.0	19.1	30	8.0		JL/IP	
Composite D 100%	1	1	34	SH	07/21/21	9	7.1	19.2	30	7.9		SH	
Composite D 100%	2	2	5	MK	07/22/21	9	6.6	19.5	30	7.9		DM	
Composite D 100%	3	3	22	DM	07/23/21	8	7.2	19.6	30	7.9		JL	
Composite D 100%	4	4	33	IP	07/24/21	8	6.8	19.7	30	7.9			

EcoAnalysts, Inc.

SPP Test Observation and Endpoint Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LOCATION	PROTOCOL	SPECIES
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 6	OTM/ITM /	*Menidia beryllina*

Observation Key
N = Normal
Q = Quiescent
#LOS=Loss of equilibrium
#NB = Num no body
TC = Too cloudy for observations
TCLO = Too cloudy to count, but live organisms observed

			ENDPOINT DATA & OBSERVATIONS													
			Day	1			2			3			4			
			Tech	MS			DM			DM			SH			
			Date	07/21/21			07/22/21			07/23/21			07/24/21			
CLIENT ID (Concentration %)	REP	Initial #		Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Comments
Control	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	3	10		9	1	N	9	0	N	9	0	N	9	0	N	
Control	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Control	5	10		9	1	N	9	0	N	9	0	N	9	0	N	
Composite A 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	3	10		10	0	N	9	1	N	9	0	N	9	0	N	
Composite A 10%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 10%	5	10		10	0	N	9	1	N	9	0	N	9	0	N	
Composite A 50%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 50%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 50%	3	10		10	0	N	10	0	N	9	1	N	9	0	N	
Composite A 50%	4	10		9	1	N	9	0	N	9	0	N	9	0	N	
Composite A 50%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 100%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 100%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 100%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 100%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite A 100%	5	10		9	1	N	9	0	N	9	0	N	9	0	N	
Composite B 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 10%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	

EcoAnalysts, Inc.

SPP Test Observation and Endpoint Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LOCATION	PROTOCOL	SPECIES
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble / Bath 6	OTM/ITM /	*Menidia beryllina*

Observation Key
N = Normal
Q = Quiescent
#LOS=Loss of equilibrium
#NB = Num no body
TC = Too cloudy for observations
TCLO = Too cloudy to count, but live organisms observed

			ENDPOINT DATA & OBSERVATIONS													
			Day	1			2			3			4			
			Tech	MS			DM			DM			SH			
			Date	07/21/21			07/22/21			07/23/21			07/24/21			
CLIENT ID (Concentration %)	REP	Initial #		Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Alive	Dead	Obs	Comments
Composite B 50%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 50%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 50%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 50%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 50%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 100%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 100%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 100%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 100%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite B 100%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 10%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 50%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 50%	2	10		10	0	N	9	1	N	9	0	N	9	0	N	
Composite D 50%	3	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 50%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 50%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 100%	1	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 100%	2	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 100%	3	10		10	0	N	8	2	N	8	0	N	8	0	N	
Composite D 100%	4	10		10	0	N	10	0	N	10	0	N	10	0	N	
Composite D 100%	5	10		10	0	N	10	0	N	10	0	N	10	0	N	

EcoAnalysts, Inc.

SPP Test Stats

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Menidia beryllina*

Sample ID (Concentration %)	Rep	# Initiated	# Alive	# Missing or Dead	% Survival	Survival Statistics: Mean Survival (%)	Survival Statistics: SD	Mortality Statistics: % Mortality	Mortality Statistics: Mean Mortality (%)	Mortality Statistics: SD
Control	1	10	10	0	100			0		
Control	2	10	10	0	100			0		
Control	3	10	9	1	90			10		
Control	4	10	10	0	100			0		
Control	5	10	9	1	90	96.0	5.5	10	4.0	5.5
Composite A 10%	1	10	10	0	100			0		
Composite A 10%	2	10	10	0	100			0		
Composite A 10%	3	10	9	1	90			10		
Composite A 10%	4	10	10	0	100			0		
Composite A 10%	5	10	9	1	90	96.0	5.5	10	4.0	5.5
Composite A 50%	1	10	10	0	100			0		
Composite A 50%	2	10	10	0	100			0		
Composite A 50%	3	10	9	1	90			10		
Composite A 50%	4	10	9	1	90			10		
Composite A 50%	5	10	10	0	100	96.0	5.5	0	4.0	5.5
Composite A 100%	1	10	10	0	100			0		
Composite A 100%	2	10	10	0	100			0		
Composite A 100%	3	10	10	0	100			0		
Composite A 100%	4	10	10	0	100			0		
Composite A 100%	5	10	9	1	90	98.0	4.5	10	2.0	4.5
Composite B 10%	1	10	10	0	100			0		
Composite B 10%	2	10	10	0	100			0		
Composite B 10%	3	10	10	0	100			0		
Composite B 10%	4	10	10	0	100			0		
Composite B 10%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite B 50%	1	10	10	0	100			0		
Composite B 50%	2	10	10	0	100			0		
Composite B 50%	3	10	10	0	100			0		
Composite B 50%	4	10	10	0	100			0		
Composite B 50%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite B 100%	1	10	10	0	100			0		
Composite B 100%	2	10	10	0	100			0		
Composite B 100%	3	10	10	0	100			0		
Composite B 100%	4	10	10	0	100			0		
Composite B 100%	5	10	10	0	100	100.0	0.0	0	0.0	0.0

Composite D 10%	1	10	10	0	100			0		
Composite D 10%	2	10	10	0	100			0		
Composite D 10%	3	10	10	0	100			0		
Composite D 10%	4	10	10	0	100			0		
Composite D 10%	5	10	10	0	100	100.0	0.0	0	0.0	0.0
Composite D 50%	1	10	10	0	100			0		
Composite D 50%	2	10	9	1	90			10		
Composite D 50%	3	10	10	0	100			0		
Composite D 50%	4	10	10	0	100			0		
Composite D 50%	5	10	10	0	100	98.0	4.5	0	2.0	4.5
Composite D 100%	1	10	10	0	100			0		
Composite D 100%	2	10	10	0	100			0		
Composite D 100%	3	10	8	2	80			20		
Composite D 100%	4	10	10	0	100			0		
Composite D 100%	5	10	10	0	100	96.0	8.9	0	4.0	8.9

SPP Test Day 0 Ammonia

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Menidia beryllina*
Calibration Standards Temperature: 20.7	Date: 7/20/2021 Tech: MS	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	Notes
Control	0	Overlying	0.00960	20.0	T17	30	8.0	19.7	292.85	9.2559	0.000	
Composite A 10%	0	Overlying	0.00210	20.2	T17	30	8.1	21.0	294.15	9.2559	0.000	
Composite A 50%	0	Overlying	0.0628	20.2	T17	30	8.1	21.0	294.15	9.2559	0.003	
Composite A 100%	0	Overlying	0.143	20.3	T17	30	8.1	19.5	292.65	9.2559	0.006	
Composite B 10%	0	Overlying	0.0519	20.2	T17	30	8.1	20.6	293.75	9.2559	0.003	
Composite B 50%	0	Overlying	0.210	20.4	T17	30	8.1	19.7	292.85	9.2559	0.010	
Composite B 100%	0	Overlying	0.414	20.2	T17	30	8.2	19.1	292.25	9.2559	0.022	
Composite D 10%	0	Overlying	0.0151	20.4	T17	30	8.1	19.7	292.85	9.2559	0.001	
Composite D 50%	0	Overlying	0.0842	20.8	T17	30	8.0	19.3	292.45	9.2559	0.003	
Composite D 100%	0	Overlying	0.144	20.3	T17	30	8.0	19.1	292.25	9.2559	0.005	

SPP Test Day 4 Ammonia

CLIENT	PROJECT	SPECIES
Wood /KMEA	Mole Pier	*Menidia beryllina*
Calibration Standards Temperature: 20.4	**Date:** 7/24/2021 **Tech:** SH	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	
Control	4	Overlying	0.320	20.0	T17	30	7.9	19.9	293.05	9.2559	0.009	
Composite A 10%	4	Overlying	0.258	20.0	T17	30	7.9	19.8	292.95	9.2559	0.008	
Composite A 50%	4	Overlying	0.228	20.0	T17	30	7.9	19.8	292.95	9.2559	0.007	
Composite A 100%	4	Overlying	0.294	20.0	T17	30	7.9	19.9	293.05	9.2559	0.009	
Composite B 10%	4	Overlying	0.334	20.0	T17	30	7.9	19.9	293.05	9.2559	0.010	
Composite B 50%	4	Overlying	0.571	20.0	T17	30	8.0	19.7	292.85	9.2559	0.021	
Composite B 100%	4	Overlying	0.682	20.0	T17	30	7.9	19.9	293.05	9.2559	0.020	
Composite D 10%	4	Overlying	0.178	20.0	T17	30	7.9	19.9	293.05	9.2559	0.005	
Composite D 50%	4	Overlying	0.447	20.0	T17	30	7.9	20.0	293.15	9.2559	0.013	
Composite D 100%	4	Overlying	0.281	20.0	T17	30	7.9	19.7	292.85	9.2559	0.008	

5.2 *Menidia beryllina* Statistical Results

CETIS Summary Report

Report Date: 08 Sep-21 10:15 (p 1 of 1)
Test Code/ID: Mole Pier / 18-0759-2162

Inland Silverside 96-h Acute Survival Test

EcoAnalysts

Batch ID:	01-5197-5143	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	20 Jul-21 14:27	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Jul-21 13:44	**Species:**	Menidia beryllina	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO **Age:** 11

Sample ID:	00-7081-4133	**Code:**	Composite A	**Project:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Source:**	Mole Pier
Receipt Date:	08 Jun-21 12:11	**CAS (PC):**		**Station:**	P210707.02
Sample Age:	46d 7h (0.8 °C)	**Client:**	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	TU	PMSD	S
00-8017-9263	96h Proportion Survived	Steel Many-One Rank Sum Test	100	>100	n/a	1	7.7%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
08-5092-5708	96h Proportion Survived	Linear Interpolation (ICPIN)	EC5	>100	n/a	n/a	<1	1
			EC10	>100	n/a	n/a	<1	
			EC15	>100	n/a	n/a	<1	
			EC20	>100	n/a	n/a	<1	
			EC25	>100	n/a	n/a	<1	
			EC40	>100	n/a	n/a	<1	
			EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
00-8017-9263	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria
08-5092-5708	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	0.00%
10		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	0.00%
50		5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	0.00%
100		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-2.08%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	1.0000	0.9000	1.0000	0.9000
10		1.0000	1.0000	0.9000	1.0000	0.9000
50		1.0000	1.0000	0.9000	0.9000	1.0000
100		1.0000	1.0000	1.0000	1.0000	0.9000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	10/10	9/10	10/10	9/10
10		10/10	10/10	9/10	10/10	9/10
50		10/10	10/10	9/10	9/10	10/10
100		10/10	10/10	10/10	10/10	9/10

CETIS Test Data Worksheet

Test Code/ID: Mole Pier / 18-0759-2162

Inland Silverside 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:27	**Species:**	Menidia beryllina	**Sample Code:**	Composite A
End Date:	24 Jul-21 13:44	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Sample Station:**	P210707.02

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	D	1	19	10				10	
0	D	2	11	10				10	
0	D	3	15	10				9	
0	D	4	13	10				10	
0	D	5	6	10				9	
10		1	8	10				10	
10		2	16	10				10	
10		3	17	10				9	
10		4	4	10				10	
10		5	5	10				9	
50		1	20	10				10	
50		2	14	10				10	
50		3	9	10				9	
50		4	18	10				9	
50		5	7	10				10	
100		1	3	10				10	
100		2	2	10				10	
100		3	12	10				10	
100		4	1	10				10	
100		5	10	10				9	

Analyst: WK QA: [illegible]

CETIS Summary Report

Report Date: 19 Aug-21 13:37 (p 1 of 1)
Test Code/ID: Mole Pier / 04-2114-9097

Inland Silverside 96-h Acute Survival Test

EcoAnalysts

Batch ID:	01-5197-5143	Test Type:	Survival (96h)	Analyst:	
Start Date:	20 Jul-21 14:27	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Laboratory Seawater
Ending Date:	24 Jul-21 13:44	Species:	Menidia beryllina	Brine:	Not Applicable
Test Length:	95h	Taxon:	Actinopterygii	Source:	Aquatic Biosystems, CO Age: 11

Sample ID:	06-8841-5644	Code:	Composite B	Project:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Source:	Mole Pier
Receipt Date:	03 Jun-21 12:30	CAS (PC):		Station:	P210707.03
Sample Age:	49d 6h (0 °C)	Client:	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
13-9108-2282	96h Proportion Survived	Steel Many-One Rank Sum Test		100	>100	n/a	1	4.17%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
05-0904-1358	96h Proportion Survived	Linear Interpolation (ICPIN)		EC5	>100	n/a	n/a	<1	1
				EC10	>100	n/a	n/a	<1	
				EC15	>100	n/a	n/a	<1	
				EC20	>100	n/a	n/a	<1	
				EC25	>100	n/a	n/a	<1	
				EC40	>100	n/a	n/a	<1	
				EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
05-0904-1358	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria
13-9108-2282	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	0.00%
10		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-4.17%
50		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-4.17%
100		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-4.17%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	1.0000	0.9000	1.0000	0.9000
10		1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	10/10	9/10	10/10	9/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10	10/10

CETIS Test Data Worksheet

Report Date: 19 Aug-21 13:36 (p 1 of 1)
Test Code/ID: Mole Pier / 04-2114-9097

Inland Silverside 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:27	Species:	Menidia beryllina	Sample Code:	Composite B
End Date:	24 Jul-21 13:44	Protocol:	EPA/821/R-02-012 (2002)	Sample Source:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Sample Station:	P210707.03

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	D	1	7	10				10	
0	D	2	8	10				10	
0	D	3	2	10				9	
0	D	4	10	10				10	
0	D	5	6	10				9	
10		1	17	10				10	
10		2	4	10				10	
10		3	9	10				10	
10		4	5	10				10	
10		5	19	10				10	
50		1	13	10				10	
50		2	15	10				10	
50		3	20	10				10	
50		4	16	10				10	
50		5	12	10				10	
100		1	14	10				10	
100		2	11	10				10	
100		3	1	10				10	
100		4	3	10				10	
100		5	18	10				10	

CETIS Summary Report

Report Date: 19 Aug-21 13:35 (p 1 of 1)
Test Code/ID: Mole Pier / 12-9181-8520

Inland Silverside 96-h Acute Survival Test

EcoAnalysts

Batch ID:	01-5197-5143	Test Type:	Survival (96h)	Analyst:	
Start Date:	20 Jul-21 14:27	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Laboratory Seawater
Ending Date:	24 Jul-21 13:44	Species:	Menidia beryllina	Brine:	Not Applicable
Test Length:	95h	Taxon:	Actinopterygii	Source:	Aquatic Biosystems, CO Age: 11

Sample ID:	15-3306-9758	Code:	Composite D	Project:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Source:	Mole Pier
Receipt Date:	03 Jun-21 12:30	CAS (PC):		Station:	P210707.04
Sample Age:	49d 6h (0.1 °C)	Client:	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
01-8151-3808	96h Proportion Survived	Steel Many-One Rank Sum Test		100	>100	n/a	1	8.06%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
00-4372-9717	96h Proportion Survived	Linear Interpolation (ICPIN)		EC5	>100	n/a	n/a	<1	1
				EC10	>100	n/a	n/a	<1	
				EC15	>100	n/a	n/a	<1	
				EC20	>100	n/a	n/a	<1	
				EC25	>100	n/a	n/a	<1	
				EC40	>100	n/a	n/a	<1	
				EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
00-4372-9717	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria
01-8151-3808	96h Proportion Survived	Control Resp	0.96	0.9	>>	Yes	Passes Criteria

96h Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9600	0.8920	1.0000	0.9000	1.0000	0.0245	0.0548	5.71%	0.00%
10		5	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-4.17%
50		5	0.9800	0.9245	1.0000	0.9000	1.0000	0.0200	0.0447	4.56%	-2.08%
100		5	0.9600	0.8489	1.0000	0.8000	1.0000	0.0400	0.0894	9.32%	0.00%

96h Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	1.0000	1.0000	0.9000	1.0000	0.9000
10		1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	0.9000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.8000	1.0000	1.0000

96h Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	10/10	10/10	9/10	10/10	9/10
10		10/10	10/10	10/10	10/10	10/10
50		10/10	9/10	10/10	10/10	10/10
100		10/10	10/10	8/10	10/10	10/10

CETIS Test Data Worksheet

Report Date: 19 Aug-21 13:34 (p 1 of 1)
Test Code/ID: Mole Pier / 12-9181-8520

Inland Silverside 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:27	Species:	Menidia beryllina	Sample Code:	Composite D
End Date:	24 Jul-21 13:44	Protocol:	EPA/821/R-02-012 (2002)	Sample Source:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Sample Station:	P210707.04

Conc-%	Code	Rep	Pos	# Exposed	24h Survival	48h Survival	72h Survival	96h Survival	Notes
0	D	1	2	10				10	
0	D	2	11	10				10	
0	D	3	8	10				9	
0	D	4	19	10				10	
0	D	5	18	10				9	
10		1	17	10				10	
10		2	4	10				10	
10		3	6	10				10	
10		4	12	10				10	
10		5	14	10				10	
50		1	1	10				10	
50		2	3	10				9	
50		3	9	10				10	
50		4	13	10				10	
50		5	10	10				10	
100		1	16	10				10	
100		2	15	10				10	
100		3	20	10				8	
100		4	7	10				10	
100		5	5	10				10	

5.3 *Menidia beryllina* Reference Toxicant Test Results

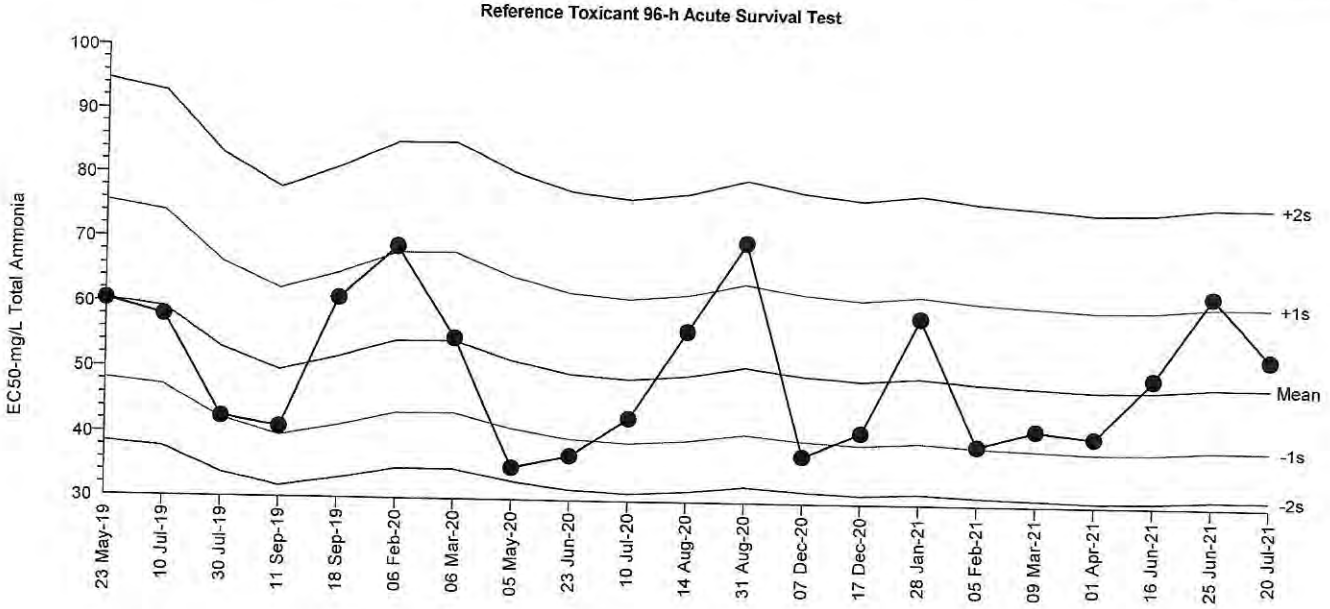
CETIS QC Plot

Report Date: 12 Aug-21 12:40 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Menidia beryllina (Inland Silverside)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean: 48.91	**Count:** 20	**-1s Warning Limit:** 39.06	**-2s Action Limit:** 31.19
Sigma: n/a	**CV:** 22.80%	**+1s Warning Limit:** 61.26	**+2s Action Limit:** 76.72

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	May	23	11:30	60.39	11.48	0.9369			09-2801-7694	01-5363-9647	EcoAnalysts
2		Jul	10	14:50	58.03	9.116	0.7596			05-3277-4526	11-9407-6094	EcoAnalysts
3			30	15:30	42.58	-6.327	-0.6157			07-1650-4683	17-1533-8558	EcoAnalysts
4		Sep	11	15:30	41.1	-7.811	-0.7733			02-5795-2426	11-2119-1179	EcoAnalysts
5			18	15:40	61.01	12.1	0.9824			18-8313-1946	04-3044-5820	EcoAnalysts
6	2020	Feb	6	16:07	69.07	20.16	1.534	(+)		06-5508-6187	13-6068-2429	EcoAnalysts
7		Mar	6	16:00	54.92	6.01	0.5151			03-1701-3706	14-6072-0379	EcoAnalysts
8		May	5	16:55	35.08	-13.83	-1.477	(-)		05-6208-9442	00-7153-5052	EcoAnalysts
9		Jun	23	15:40	37.03	-11.88	-1.237	(-)		16-7223-1537	05-9595-8484	EcoAnalysts
10		Jul	10	16:10	43.07	-5.84	-0.5651			13-0209-8250	04-6792-3187	EcoAnalysts
11		Aug	14	14:09	56.5	7.587	0.6409			01-1221-8946	17-4313-6406	EcoAnalysts
12			31	16:00	70.32	21.41	1.614	(+)		02-2518-7244	05-4108-9367	EcoAnalysts
13		Dec	7	15:39	37.47	-11.44	-1.184	(-)		05-5451-5248	15-9597-7431	EcoAnalysts
14			17	15:28	41.27	-7.637	-0.7545			12-3407-9221	18-5355-8769	EcoAnalysts
15	2021	Jan	28	15:56	59.01	10.1	0.8345			08-2609-5771	06-6185-5034	EcoAnalysts
16		Feb	5	16:10	39.43	-9.479	-0.9575			20-9551-6669	14-5011-3569	EcoAnalysts
17		Mar	9	16:19	41.97	-6.944	-0.6805			14-6813-9582	02-3946-7701	EcoAnalysts
18		Apr	1	16:03	40.93	-7.985	-0.7922			08-5787-8575	04-4789-1242	EcoAnalysts
19		Jun	16	15:23	50.13	1.215	0.109			08-0844-9323	02-0114-3753	EcoAnalysts
20			25	13:55	62.96	14.05	1.122	(+)		08-7739-1040	15-8169-5140	EcoAnalysts
21		Jul	20	14:09	53.26	4.344	0.3782			09-5776-1996	06-7405-6938	EcoAnalysts

Analyst: MF QA: [illegible]

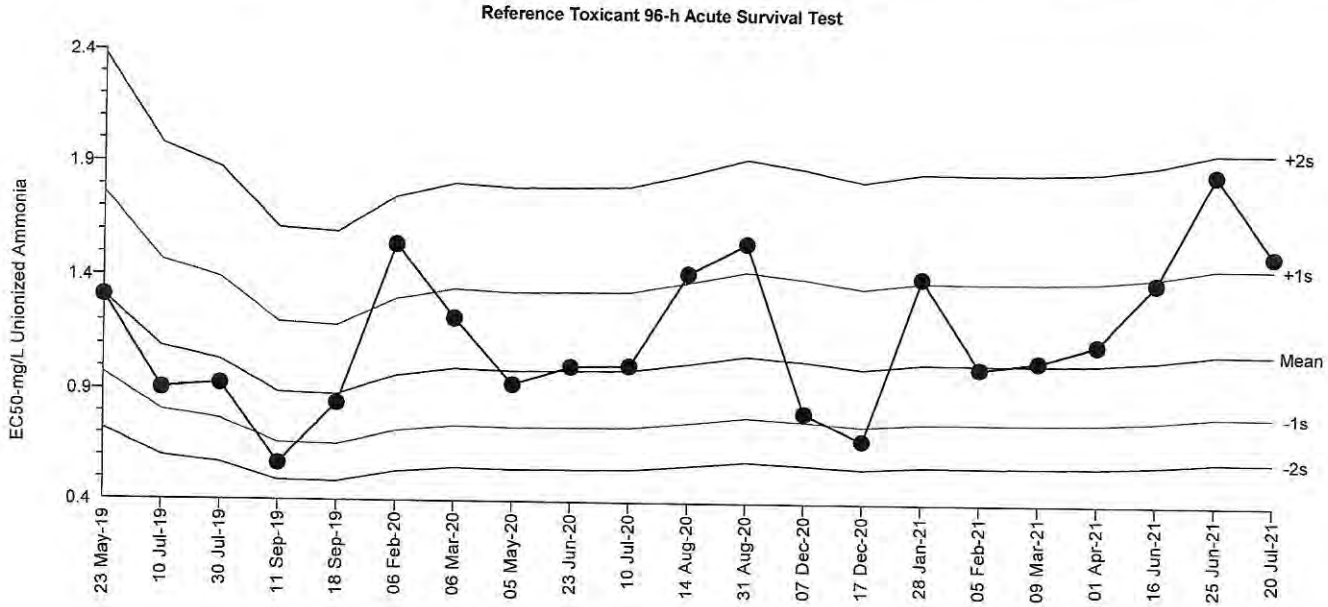
CETIS QC Plot

Report Date: 12 Aug-21 12:40 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Menidia beryllina (Inland Silverside)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean: 1.086	**Count:** 20	**-1s Warning Limit:** 0.8062	**-2s Action Limit:** 0.5983
Sigma: n/a	**CV:** 30.50%	**+1s Warning Limit:** 1.464	**+2s Action Limit:** 1.972

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	May	23	11:30	1.31	0.2234	0.6272			01-6627-8698	20-9088-9025	EcoAnalysts
2		Jul	10	14:50	0.9064	-0.1799	-0.6073			20-1012-9980	17-1832-8382	EcoAnalysts
3			30	15:30	0.9281	-0.1582	-0.5278			01-9666-7010	07-6742-1299	EcoAnalysts
4		Sep	11	15:30	0.5673	-0.519	-2.179	(-)	(-)	03-4153-8153	03-6176-4437	EcoAnalysts
5			18	15:40	0.8415	-0.2448	-0.8564			19-3127-9680	06-2401-4743	EcoAnalysts
6	2020	Feb	6	16:07	1.543	0.4566	1.177	(+)		00-4507-7456	07-8193-5953	EcoAnalysts
7		Mar	6	16:00	1.22	0.134	0.3901			20-0582-0540	02-8661-3786	EcoAnalysts
8		May	5	16:55	0.9311	-0.1552	-0.5171			12-3916-7331	05-1695-3813	EcoAnalysts
9		Jun	23	15:40	1.011	-0.07493	-0.2397			05-0113-0910	05-2400-4561	EcoAnalysts
10		Jul	10	16:10	1.018	-0.06836	-0.2179			04-3641-5657	18-9540-4826	EcoAnalysts
11		Aug	14	14:09	1.423	0.3372	0.9065			04-8312-4159	15-9683-6103	EcoAnalysts
12			31	16:00	1.56	0.4734	1.213	(+)		09-2735-3923	09-5242-7630	EcoAnalysts
13		Dec	7	15:39	0.8122	-0.2741	-0.9751			17-4840-1791	18-8229-3836	EcoAnalysts
14			17	15:28	0.6864	-0.3999	-1.539	(-)		09-3077-3821	14-0930-8809	EcoAnalysts
15	2021	Jan	28	15:56	1.412	0.3259	0.8797			19-2617-1129	03-1087-8851	EcoAnalysts
16		Feb	5	16:10	1.018	-0.06832	-0.2178			02-4791-5615	18-1904-7488	EcoAnalysts
17		Mar	9	16:19	1.048	-0.03816	-0.1199			09-2586-2171	16-5460-9361	EcoAnalysts
18		Apr	1	16:03	1.124	0.03769	0.1144			09-9187-7814	16-8972-3526	EcoAnalysts
19		Jun	16	15:23	1.398	0.312	0.8467			17-0871-1817	10-1262-5116	EcoAnalysts
20			25	13:55	1.882	0.7956	1.843	(+)		09-0041-1256	06-7154-9685	EcoAnalysts
21		Jul	20	14:09	1.521	0.4345	1.128	(+)		04-4597-3060	19-8284-0260	EcoAnalysts

Analyst: MK QA: MAM

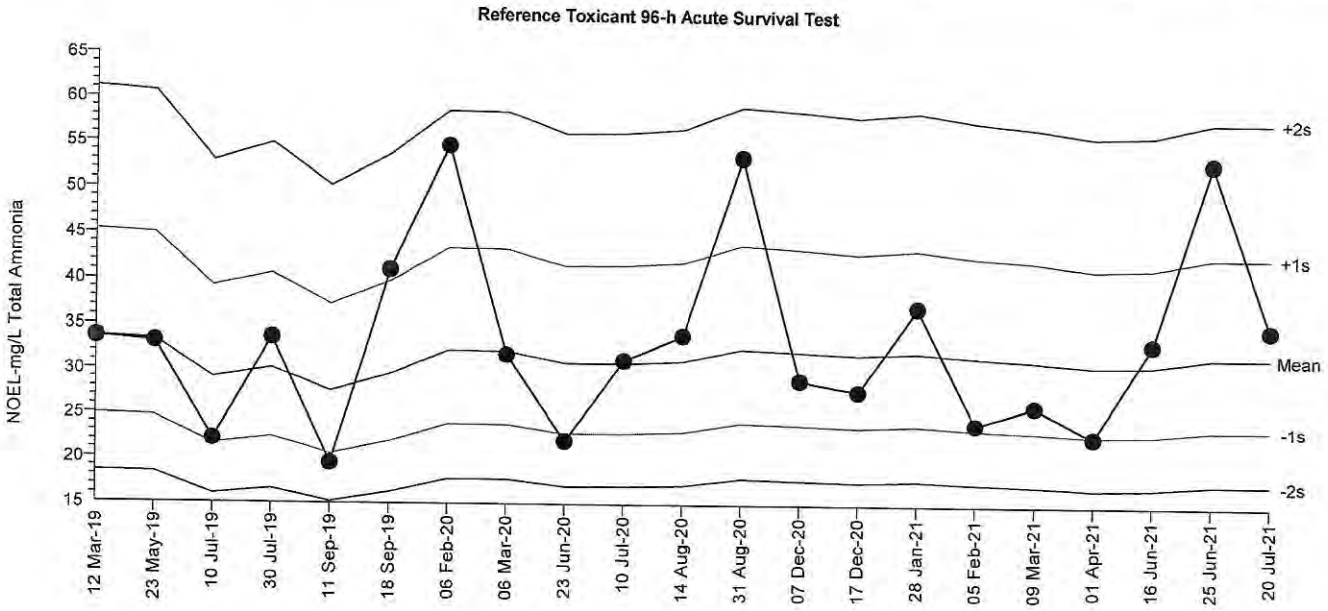
CETIS QC Plot

Report Date: 12 Aug-21 12:40 (1 of 1)

Reference Toxicant 96-h Acute Survival Test

All Matching Labs

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Menidia beryllina (Inland Silverside)
Endpoint: Proportion Survived
Material: Total Ammonia
Source: Reference Toxicant-REF



Mean:	31.75	**Count:**	20	**-1s Warning Limit:**	23.54	**-2s Action Limit:**	17.45
Sigma:	n/a	**CV:**	30.70%	**+1s Warning Limit:**	42.87	**+2s Action Limit:**	57.85

Quality Control Data

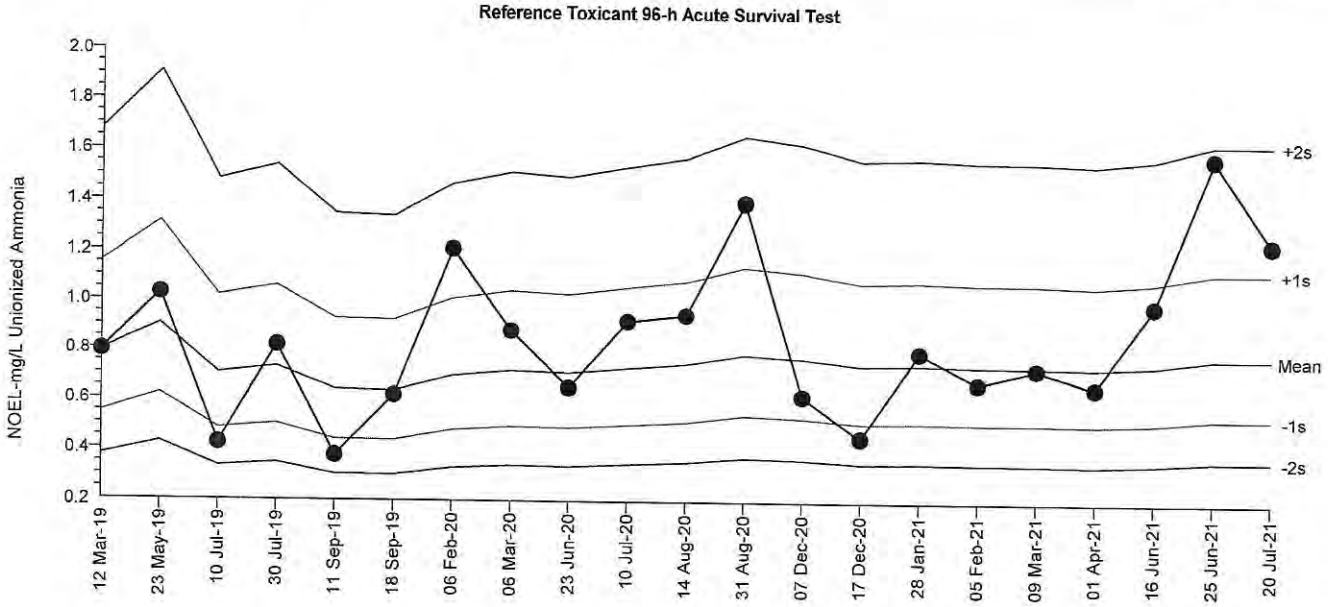
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Mar	12	15:40	33.6	1.847	0.1886			09-6216-5611	10-1392-3436	EcoAnalysts
2		May	23	11:30	33.1	1.347	0.1386			09-2801-7694	15-6146-0109	EcoAnalysts
3		Jul	10	14:50	22.1	-9.653	-1.209	(-)		05-3277-4526	08-3422-3482	EcoAnalysts
4			30	15:30	33.6	1.847	0.1886			07-1650-4683	10-8249-3830	EcoAnalysts
5		Sep	11	15:30	19.4	-12.35	-1.644	(-)		02-5795-2426	14-0172-8924	EcoAnalysts
6			18	15:40	41.1	9.347	0.8609			18-8313-1946	09-2994-1374	EcoAnalysts
7	2020	Feb	6	16:07	54.7	22.95	1.815	(+)		06-5508-6187	15-8426-6463	EcoAnalysts
8		Mar	6	16:00	31.8	0.04659	0.004892			03-1701-3706	17-2666-0571	EcoAnalysts
9		Jun	23	15:40	22	-9.753	-1.224	(-)		16-7223-1537	15-3242-8539	EcoAnalysts
10		Jul	10	16:10	31.2	-0.5534	-0.05866			13-0209-8250	14-1537-5224	EcoAnalysts
11		Aug	14	14:09	34	2.247	0.2281			01-1221-8946	18-6573-8280	EcoAnalysts
12			31	16:00	53.6	21.85	1.747	(+)		02-2518-7244	10-7936-4429	EcoAnalysts
13		Dec	7	15:39	29	-2.753	-0.3026			05-5451-5248	03-8609-9662	EcoAnalysts
14			17	15:28	27.8	-3.953	-0.4437			12-3407-9221	13-2598-4000	EcoAnalysts
15	2021	Jan	28	15:56	37.3	5.547	0.5372			08-2609-5771	06-9479-9801	EcoAnalysts
16		Feb	5	16:10	24.1	-7.653	-0.9202			20-9551-6669	04-2790-8714	EcoAnalysts
17		Mar	9	16:19	26.2	-5.553	-0.6414			14-6813-9582	08-2695-5375	EcoAnalysts
18		Apr	1	16:03	22.7	-9.053	-1.12	(-)		08-5787-8575	15-9753-0186	EcoAnalysts
19		Jun	16	15:23	33.3	1.547	0.1587			08-0844-9323	19-1126-9370	EcoAnalysts
20			25	13:55	53.3	21.55	1.728	(+)		08-7739-1040	00-2808-8459	EcoAnalysts
21		Jul	20	14:09	35	3.247	0.3248			09-5776-1996	05-4351-5132	EcoAnalysts

CETIS QC Plot

Report Date: 12 Aug-21 12:40 (1 of 1)

Reference Toxicant 96-h Acute Survival Test — **All Matching Labs**

Test Type: Survival
Protocol: EPA/821/R-02-012 (2002)
Organism: Menidia beryllina (Inland Silverside)
Endpoint: Proportion Survived
Material: Unionized Ammonia
Source: Reference Toxicant-REF



Mean: 0.7758	**Count:** 20	**-1s Warning Limit:** 0.5335	**-2s Action Limit:** 0.3668
Sigma: n/a	**CV:** 38.80%	**+1s Warning Limit:** 1.128	**+2s Action Limit:** 1.641

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2019	Mar	12	15:40	0.794	0.01815	0.06176			03-0130-4359	17-8575-3907	EcoAnalysts
2		May	23	11:30	1.029	0.2532	0.754			01-6627-8698	03-2102-4375	EcoAnalysts
3		Jul	10	14:50	0.423	-0.3528	-1.62	(-)		20-1012-9980	12-5519-6649	EcoAnalysts
4			30	15:30	0.817	0.04115	0.138			01-9666-7010	10-2074-0198	EcoAnalysts
5		Sep	11	15:30	0.375	-0.4008	-1.941	(-)		03-4153-8153	12-4646-7156	EcoAnalysts
6			18	15:40	0.616	-0.1598	-0.616			19-3127-9680	14-3051-6451	EcoAnalysts
7	2020	Feb	6	16:07	1.21	0.4342	1.187	(+)		00-4507-7456	00-9987-8595	EcoAnalysts
8		Mar	6	16:00	0.881	0.1052	0.3394			20-0582-0540	00-3215-1110	EcoAnalysts
9		Jun	23	15:40	0.65	-0.1258	-0.4726			05-0113-0910	20-5250-0965	EcoAnalysts
10		Jul	10	16:10	0.922	0.1462	0.4609			04-3641-5657	18-0479-2426	EcoAnalysts
11		Aug	14	14:09	0.948	0.1722	0.5351			04-8312-4159	16-5161-8221	EcoAnalysts
12			31	16:00	1.401	0.6252	1.578	(+)		09-2735-3923	03-6491-0696	EcoAnalysts
13		Dec	7	15:39	0.618	-0.1578	-0.6074			17-4840-1791	09-8225-1270	EcoAnalysts
14			17	15:28	0.452	-0.3238	-1.443	(-)		09-3077-3821	10-2359-5021	EcoAnalysts
15	2021	Jan	28	15:56	0.796	0.02015	0.06848			19-2617-1129	18-0667-0945	EcoAnalysts
16		Feb	5	16:10	0.672	-0.1038	-0.3837			02-4791-5615	08-6009-1997	EcoAnalysts
17		Mar	9	16:19	0.731	-0.04485	-0.159			09-2586-2171	20-9560-2739	EcoAnalysts
18		Apr	1	16:03	0.656	-0.1198	-0.448			09-9187-7814	01-1053-5715	EcoAnalysts
19		Jun	16	15:23	0.992	0.2162	0.6563			17-0871-1817	05-7915-1459	EcoAnalysts
20			25	13:55	1.586	0.8102	1.909	(+)		09-0041-1256	00-7952-9577	EcoAnalysts
21		Jul	20	14:09	1.246	0.4702	1.265	(+)		04-4597-3060	09-8654-5367	EcoAnalysts

CETIS Summary Report

Report Date: 12 Aug-21 12:37 (p 1 of 1)
Test Code/ID: 391649CC / 09-5776-1996

Reference Toxicant 96-h Acute Survival Test

EcoAnalysts

Batch ID:	01-7106-4029	**Test Type:**	Survival	**Analyst:**	
Start Date:	20 Jul-21 14:09	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	24 Jul-21 13:34	**Species:**	Menidia beryllina	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**	Actinopterygii	**Source:**	Aquatic Biosystems, CO **Age:** 11

Sample ID:	01-9131-7366	**Code:**	B674576	**Project:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Source:**	Reference Toxicant
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.192
Sample Age:	769d 14h	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
05-4351-5132	Proportion Survived	Dunnett Multiple Comparison Test		35	48	40.99		23.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
06-7405-6938	Proportion Survived	Linear Interpolation (ICPIN)		EC5	25.49	n/a	45.95		1
				EC10	29.02	21.15	50.84		
				EC15	33.03	21.43	65.44		
				EC20	38.08	20.71	61.85		
				EC25	44.37	19.04	56.95		
				EC40	50.84	36.75	56.09		
				EC50	53.26	43.35	57.81		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	0.00%
16.3		3	0.9333	0.7899	1.0000	0.9000	1.0000	0.0333	0.0577	6.19%	3.45%
23.4		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	0.00%
35		3	0.8000	0.3697	1.0000	0.6000	0.9000	0.1000	0.1732	21.65%	17.24%
48		3	0.7000	0.2032	1.0000	0.5000	0.9000	0.1155	0.2000	28.57%	27.59%
67.1		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9000	1.0000
16.3		0.9000	0.9000	1.0000
23.4		1.0000	0.9000	1.0000
35		0.9000	0.9000	0.6000
48		0.5000	0.9000	0.7000
67.1		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	9/10	10/10
16.3		9/10	9/10	10/10
23.4		10/10	9/10	10/10
35		9/10	9/10	6/10
48		5/10	9/10	7/10
67.1		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 12 Aug-21 12:36 (p 1 of 1)
Test Code/ID: 391649CC / 09-5776-1996

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:09	**Species:**	Menidia beryllina	**Sample Code:**	B674576
End Date:	24 Jul-21 13:34	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.192

Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	11	10	10	
0	D	2	17	10	9	
0	D	3	6	10	10	
16.3		1	10	10	9	
16.3		2	12	10	9	
16.3		3	2	10	10	
23.4		1	8	10	10	
23.4		2	14	10	9	
23.4		3	9	10	10	
35		1	4	10	9	
35		2	13	10	9	
35		3	3	10	6	
48		1	16	10	5	
48		2	15	10	9	
48		3	7	10	7	
67.1		1	18	10	0	
67.1		2	5	10	0	
67.1		3	1	10	0	

CETIS Summary Report

Report Date: 12 Aug-21 12:39 (p 1 of 1)
Test Code/ID: 1A950244 / 04-4597-3060

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Batch ID:	01-7106-4029	Test Type:	Survival	Analyst:	
Start Date:	20 Jul-21 14:09	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Laboratory Seawater
Ending Date:	24 Jul-21 13:34	Species:	Menidia beryllina	Brine:	Not Applicable
Test Length:	95h	Taxon:	Actinopterygii	Source:	Aquatic Biosystems, CO Age: 11

Sample ID:	05-7678-3170	Code:	22610342	Project:	Reference Toxicant
Sample Date:	12 Jun-19	Material:	Unionized Ammonia	Source:	Reference Toxicant
Receipt Date:	12 Jun-19	CAS (PC):		Station:	P190612.192
Sample Age:	769d 14h	Client:	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
09-8654-5367	Proportion Survived	Dunnett Multiple Comparison Test		1.246	1.368	1.306		23.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
19-8284-0260	Proportion Survived	Linear Interpolation (ICPIN)		EC5	0.9084	n/a	1.634		1
				EC10	1.04	0.7274	1.664		
				EC15	1.18	0.7651	1.612		
				EC20	1.278	0.8115	1.562		
				EC25	1.337	0.9419	1.555		
				EC40	1.451	1.211	1.608		
				EC50	1.521	1.234	1.655		

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	0.00%
0.576		3	0.9333	0.7899	1.0000	0.9000	1.0000	0.0333	0.0577	6.19%	3.45%
0.827		3	0.9667	0.8232	1.0000	0.9000	1.0000	0.0333	0.0577	5.97%	0.00%
1.246		3	0.8000	0.3697	1.0000	0.6000	0.9000	0.1000	0.1732	21.65%	17.24%
1.368		3	0.7000	0.2032	1.0000	0.5000	0.9000	0.1155	0.2000	28.57%	27.59%
1.898		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9000	1.0000
0.576		0.9000	0.9000	1.0000
0.827		1.0000	0.9000	1.0000
1.246		0.9000	0.9000	0.6000
1.368		0.5000	0.9000	0.7000
1.898		0.0000	0.0000	0.0000

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	10/10	9/10	10/10
0.576		9/10	9/10	10/10
0.827		10/10	9/10	10/10
1.246		9/10	9/10	6/10
1.368		5/10	9/10	7/10
1.898		0/10	0/10	0/10

CETIS Test Data Worksheet

Report Date: 12 Aug-21 12:39 (p 1 of 1)
Test Code/ID: 1A950244 / 04-4597-3060

Reference Toxicant 96-h Acute Survival Test — EcoAnalysts

Start Date:	20 Jul-21 14:09	**Species:**	Menidia beryllina	**Sample Code:**	22610342
End Date:	24 Jul-21 13:34	**Protocol:**	EPA/821/R-02-012 (2002)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.192

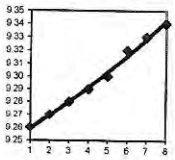
Conc-mg/L	Code	Rep	Pos	# Exposed	# Survived	Notes
0	D	1	8	10	10	
0	D	2	1	10	9	
0	D	3	2	10	10	
0.576		1	10	10	9	
0.576		2	13	10	9	
0.576		3	17	10	10	
0.827		1	11	10	10	
0.827		2	15	10	9	
0.827		3	16	10	10	
1.246		1	5	10	9	
1.246		2	14	10	9	
1.246		3	7	10	6	
1.368		1	6	10	5	
1.368		2	4	10	9	
1.368		3	12	10	7	
1.898		1	9	10	0	
1.898		2	3	10	0	
1.898		3	18	10	0	

Un-ionized Ammonia Calculator

CLIENT:	Internal	Date of Test:	July 20, 2021
PROJECT:	Ref Tox	Test Type:	*Menidia beryllina*
COMMENTS:			

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa[s]
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa[s]*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	17		16.3	30	8.0	19.3	292.45	9.2559		**0.576**
4	25		23.4	30	8.0	19.3	292.45	9.2559		**0.827**
5	35		35.0	30	8.0	19.4	292.55	9.2559		**1.246**
6	50		48.0	30	7.9	19.4	292.55	9.2559		**1.368**
7	65		67.1	30	7.9	19.3	292.45	9.2559		**1.898**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

OA / MARS

96-Hour Menidia Ammonia Reference Toxicant Test

Toxicant:	Ammonium Chloride
Ref Tox ID:	PA0012.192
Lot #:	19H1356763
Protocol:	TOX099
Replicates:	4

Date Test Started:	7/20/2021
Date Test Ended:	7/24/2021
Matrix:	Liquid
Species:	*Menidia beryllina*
No. of Org. per Chamber:	10

	Conc.	Meter #:	DO (mg/L) (>4.6)	Meter #:	Temp (°C) (20±1°C)	Meter #:	Salinity (ppt) (30±2ppt)	Meter #:	pH (7 - 9)
Day 0 (Stock)	Control	B	7.7	B	19.4	B	30	B	8.0
Date: 7/20/21	17		7.7		19.3		30		8.0
Time: 1310	25		7.7		19.3		30		8.0
Technician: JL	35		7.7		19.4		30		8.0
	50		7.7		19.4		30		7.9
feed: N	65		7.7		19.3		30		7.9
			Day 1		Day 2		Day 3		Day 4
Temperature (OLD)			20.0		19.7		20.0		19.6
Temperature (NEW)									
Feed: 0.1 mL *Artemia* (Time/Init.)	AM								
	PM		1715 SH		1511 DM		1640 JL		
Day 4	Control	8	6.6	8	19.7	8	30	8	② 7.9
Date: 7/24/21	17		6.8		19.9		30		8.0
Time: 7:49	25		6.6		19.9		30		③ ~~8.0~~ 8.0
Replicate No.: 1	35		6.6		19.9		30		7.9
Technician: IP	50		6.9		19.9		30		8.0
	65								

Dilution Preparation (Menidia NH_3 RT Spiking Worksheet)

Test Solution NH_3 Concentration				Volume of Stock to Reach Desired Concentration	
Measured		Desired	Volume		
mg/L		mg/L	mL	mL stock to increase	
Day 0	Day 2				SALT WATER
~~0.0455~~		0	1000		0.000
16.3		17	1000		① ~~2.825~~ 2.735
23.4		25	1000		~~4.154~~ 4.022
~~35~~		35	1000		~~5.816~~ 5.631
~~48~~		50	1000		~~8.309~~ 8.044
67.1		65	1000		~~10.801~~ 10.458

Start Time:	1409 DM/MS
End Time:	1334 IP
Test Acceptability:	≥90% survival in control

Test Location:	Bath 6	
Dilution Water Batch:	FSW0710021.01	
Supplier:	Aquatic Biosystems	
Organism Batch:	AB507202L.01	Age: 11d
Chamber Size/Type:	12 oz Plastic cup	
Exposure Volume:	250 mL	

① New NH_3 stock solution, updated NH_3 spiking values - DM - 7/20/21

② IE - IP - 7/24/21

③ IL - IP - 7/24/21

96-Hour Menidia Ammonia Reference Toxicant Test

Toxicant:	Ammonium Chloride
Ref Tox ID:	PM0612.192
Species:	Menidia beryllina

Date Test Started:	7/20/2021
Date Test Ended:	7/24/2021

Concentration	Rep	Day 1 Date: 7/21/21 Time: 1217		Day 2 Date: 7/22/21 Time: 1305		Day 3 Date: 7/23/21 Time: 1411		Day 4 Date: 7/24/21 Time: 1334	
		# Alive	# Dead	# Alive	# Dead	# Alive	# Dead	# Alive	# Dead
Control	1	10	0	10	0	10	0	10	0
	2	10	0	9	1	9	0	9	0
	3	10	0	10	0	10	0	10	0
17	1	9	1	9	0	9	0	9	0
	2	10	0	9	1	9	0	9	0
	3	10	0	10	0	10	0	10	0
25	1	10	0	10	0	10	0	10	0
	2	10	0	10	0	10	0	9	1
	3	10	0	10	0	10	0	10	0
35	1	10	0	10	0	10	0	9	1
	2	9	1	9	0	9	0	9	0
	3	9	1	8	1	7	1	6	1
50	1	10	0	6	4	5	1	5	0
	2	10	0	9	1	9	0	9	0
	3	10	0	8	2	8	0	7	1
65	1	7	3	0	7	—			
	2	7	3	1	6	0	1		
	3	7	3	2	5	0	2		
INITIALS:		MK		MK		DM		IP	

Daily Quality Assurance Checks

Project name:

Test: 96-hr Ammonia RT / meridia

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	UL	7/20	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges	↓	↓	
1	Test datasheets checked for completeness and legibility	MK	7/21	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	MK	7/22	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility	MK	7/23	
	Test data within acceptable ranges	↓	↓	
4	Test datasheets checked for completeness and legibility	SH	7/24	
	Test data within acceptable ranges			

6. *Mytilus galloprovincialis* SPP Water-Column Test

6.1 *Mytilus galloprovincialis* Test Data

Version T.1

GENERAL

Client	Wood /KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	M. Knowlen
Date Sample Collected (Oldest Sample)	6/1/2021
Sample Holding Time	50
Test Start Date	07/21/21
Test End Date	07/23/21
Test Species	*Mytilus galloprovincialis*
Organism Supplier	Taylor Shellfish
Date Organism Acquired	7/20/2021
Organism Acclimation Time (Days)	1
Organism Batch	TS072021
Test Type	Larval Development SPP
Test Protocol	OTM/ITM
Regional Protocol	
Laboratory Location	Port Gamble
Test Location	Incubator 1
Sample Treatment	None
Water Batch	FSW072121.01
Test Lighting	16L:8D
Test Chamber	26 mL shell vials
Replicates Per Treatment	5
Exposure Volume	10 mL
Test Dissolved Oxygen	> 3.3
Test Temperature	16 ± 1
Test Salinity	30 ± 1
Test pH	7.8 ± 0.5

Note: input lowest and highest decimal for temp

Test Parameters		
	Min	**Max**
DO:	3.3	
Temp:	14.5	17.4
Sal:	29	31
pH:	7.3	8.3

TEST START TIME:	15:40
TEST END TIME:	1630

	CLIENT SAMPLE ID	LAB ID
Control	Control	.
2	Composite A 1%	P210707.02
3	Composite A 10%	P210707.02
4	Composite A 50%	P210707.02
5	Composite A 100%	P210707.02
6	Composite B 1%	P210707.03
7	Composite B 10%	P210707.03
8	Composite B 50%	P210707.03
9	Composite B 100%	P210707.03
10	Composite D 1%	P210707.04
11	Composite D 10%	P210707.04
12	Composite D 50%	P210707.04
13	Composite D 100%	P210707.04
14	.	.
15	.	.
16	.	.

EcoAnalysts, Inc.

SPP ELUTRIATE PREPARATION WORKSHEET

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER
Wood /KMEA	Mole Pier	PG1217	M. Knowlen

DILUENT SOURCE: (sitewater/labwater):

labwater

PROJECT SITEWATER CLIENT ID:	LABORATORY WATER LAB ID:
	FSW072121.01

STANDARD ELUTRIATE IS PREPARED AT 1 PART SEDIMENT TO 4 PARTS WATER

ELUTRIATE RATIO SELECTED:	1 to 4
TOTAL VOLUME OF ELUTRIATE PREPARATION VESSEL:	1L
VOLUME OF SEDIMENT PER SAMPLE:	180mL
VOLUME OF DILUENT:	720mL
TOTAL NUMBER OF PREPARTION VESSELS PER SAMPLE:	1

# Cont's	Sample ID	Date Spin Start	Time Spin Start	Time Settle Start	Time of Elutriate Collection	Initial Volume Recovered (units)	Centrifuged (Y/N)	Settled Overnight (Y/N)	Secondary Volume Recovered (units)	Total Volumne (units)	Comments
1	Composite A	07/21/21	11:45	12:15	13:00	~700mL	Y	N	NA	~700mL	
1	Composite B	07/21/21	11:45	12:15	13:00	~700mL	Y	N	NA	~700mL	
1	Composite D	07/21/21	11:45	12:15	13:00	~700mL	Y	N	NA	~700mL	

96 Hour Larval Test

CLIENT	PROJECT	PROJECT NUMBER	PROJECT MANAGER	LABORATORY	PROTOCOL
Wood /KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble , Incubato	OTM/ITM ,

TEST ORGANISM SPAWNING DATA

SPECIES			**TEST START DATE**	**SEDIMENT TREATMENT**	
Mytilus galloprovincialis			21-Jul-21	None	
SUPPLIER			**ORGANISM BATCH**	**TEST CHAMBERS**	
Taylor Shellfish			TS072021	26 mL shell vials	
SPAWNING METHOD		**INITIAL SPAWNING TIME**	**FINAL SPAWNING TIME**	**EXPOSURE VOLUME**	
Heat Shock		1135	1335	10 mL	
MALES	**FEMALES**	**SPERM VIABILITY**	**EGG CONDITION**	**TIME OF INITIATION**	**INITIALS**
4	8	Good	Good	15:40	JL/MK
BEGIN FERTILIZATION	**END FERTILIZATION**		**CONDITION OF EMBRYOS**	**ROSE BENGAL LOT #**	**FORMALIN LOT #**
1335	15:40		Good	5135	200924-20

EMBRYO DENSITY CALCULATIONS

No. of embryos in 1 mL of 100x diluted stock

308

mL of original embryo stock added to each test chamber

0.01

96 Hour Larval Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION		PROTOCOL		
Wood /KMEA	Mole Pier	*Mytilus galloprovincialis*	Port Gamble / Incubator 1		OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**Project Number**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	Larval Development SPP	PG1217	July 21, 2021	15:40	July 23, 2021	1630	MK

WATER QUALITY DATA

SAMPLE ID (CONCENTRATION %)	DAY	REP	TECHNICIAN	Date	Meter	DO (mg/L) > 3.3	TEMP (°C) 15 - 17	SALINITY (ppt) 29 - 31	pH 7.3 - 8.3	Notes
Control	0	Surr	MK	07/21/21	9	7.3	17.0	30	7.8	Temp blank used. MK 7/21
Control	1	Surr	MARH	07/22/21	9	8.0	16.2	30	7.9	Used temp blank 7/22/21 MARH
Control	2	Surr	DM	07/23/21	8	7.8	16.0	30	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Control	3	Surr								
Control	4	Surr								
Composite A 1%	0	Surr	MK	07/21/21	9	7.3	17.0	30	7.8	Temp blank used. MK 7/21
Composite A 1%	1	Surr	MARH	07/22/21	9	8.0	16.2	31	7.9	Used temp blank 7/22/21 MARH
Composite A 1%	2	Surr	DM	07/23/21	8	7.9	16.0	31	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite A 1%	3	Surr								
Composite A 1%	4	Surr								
Composite A 10%	0	Surr	MK	07/21/21	9	7.3	17.0	30	7.9	Temp blank used. MK 7/21
Composite A 10%	1	Surr	MARH	07/22/21	9	7.9	16.2	30	7.9	Used temp blank 7/22/21 MARH
Composite A 10%	2	Surr	DM	07/23/21	8	8.1	16.0	30	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite A 10%	3	Surr								
Composite A 10%	4	Surr								
Composite A 50%	0	Surr	MK	07/21/21	9	7.4	17.0	30	7.9	Temp blank used. MK 7/21
Composite A 50%	1	Surr	MARH	07/22/21	9	7.7	16.2	31	8.0	Used temp blank 7/22/21 MARH
Composite A 50%	2	Surr	DM	07/23/21	8	8.1	16.0	30	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite A 50%	3	Surr								
Composite A 50%	4	Surr								

96 Hour Larval Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION		PROTOCOL		
Wood /KMEA	Mole Pier	*Mytilus galloprovincialis*	Port Gamble / Incubator 1		OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**Project Number**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	Larval Development SPP	PG1217	July 21, 2021	15:40	July 23, 2021	1630	MK

WATER QUALITY DATA

SAMPLE ID (CONCENTRATION %)	DAY	REP	TECHNICIAN	Date	Meter	DO (mg/L) > 3.3	TEMP (°C) 15 - 17	SALINITY (ppt) 29 - 31	pH 7.3 - 8.3	Notes
Composite A 100%	0	Surr	MK	07/21/21	9	7.5	17.0	31	8.1	Temp blank used. MK 7/21
Composite A 100%	1	Surr	MARH	07/22/21	9	7.7	16.2	31	8.0	Used temp blank 7/22/21 MARH
Composite A 100%	2	Surr	DM	07/23/21	8	8.1	16.0	31	8.1	Temp blank from Inc. #1 used-DM-7/23/21
Composite A 100%	3	Surr								
Composite A 100%	4	Surr								
Composite B 1%	0	Surr	MK	07/21/21	9	7.2	17.0	30	7.8	Temp blank used. MK 7/21
Composite B 1%	1	Surr	MARH	07/22/21	9	7.7	16.2	30	7.9	Used temp blank 7/22/21 MARH
Composite B 1%	2	Surr	DM	07/23/21	8	7.9	16.0	30	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite B 1%	3	Surr								
Composite B 1%	4	Surr								
Composite B 10%	0	Surr	MK	07/21/21	9	7.3	17.0	30	7.9	Temp blank used. MK 7/21
Composite B 10%	1	Surr	MARH	07/22/21	9	7.5	16.2	30	7.9	Used temp blank 7/22/21 MARH
Composite B 10%	2	Surr	DM	07/23/21	8	7.3	16.0	31	7.9	Temp blank from Inc. #1 used-DM-7/23/21
Composite B 10%	3	Surr								
Composite B 10%	4	Surr								
Composite B 50%	0	Surr	MK	07/21/21	9	7.4	17.0	30	8.0	Temp blank used. MK 7/21
Composite B 50%	1	Surr	MARH	07/22/21	9	7.5	16.2	31	8.0	Used temp blank 7/22/21 MARH
Composite B 50%	2	Surr	DM	07/23/21	8	7.5	16.0	31	8.1	Temp blank from Inc. #1 used-DM-7/23/21
Composite B 50%	3	Surr								
Composite B 50%	4	Surr								

96 Hour Larval Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION		PROTOCOL		
Wood /KMEA	Mole Pier	*Mytilus galloprovincialis*	Port Gamble / Incubator 1		OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**Project Number**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	Larval Development SPP	PG1217	July 21, 2021	15:40	July 23, 2021	1630	MK

WATER QUALITY DATA

SAMPLE ID (CONCENTRATION %)	DAY	REP	TECHNICIAN	Date	Meter	DO (mg/L) > 3.3	TEMP (°C) 15 - 17	SALINITY (ppt) 29 - 31	pH 7.3 - 8.3	Notes
Composite B 100%	0	Surr	MK	07/21/21	9	7.4	17.0	31	8.1	Temp blank used. MK 7/21
Composite B 100%	1	Surr	MARH	07/22/21	9	7.4	16.2	30	8.1	Used temp blank 7/22/21 MARH
Composite B 100%	2	Surr	DM	07/23/21	8	7.8	16.0	31	8.1	Temp blank from Inc. #1 used-DM-7/23/21
Composite B 100%	3	Surr								
Composite B 100%	4	Surr								
Composite D 1%	0	Surr	MK	07/21/21	9	7.1	17.0	30	7.9	Temp blank used. MK 7/21
Composite D 1%	1	Surr	MARH	07/22/21	9	7.5	16.2	30	7.9	Used temp blank 7/22/21 MARH
Composite D 1%	2	Surr	DM	07/23/21	8	6.8	16.0	30	7.8	Temp blank from Inc. #1 used-DM-7/23/21
Composite D 1%	3	Surr								
Composite D 1%	4	Surr								
Composite D 10%	0	Surr	MK	07/21/21	9	7.2	17.0	30	7.9	Temp blank used. MK 7/21
Composite D 10%	1	Surr	MARH	07/22/21	9	7.9	16.2	30	8.0	Used temp blank 7/22/21 MARH
Composite D 10%	2	Surr	DM	07/23/21	8	7.8	16.0	31	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite D 10%	3	Surr								
Composite D 10%	4	Surr								
Composite D 50%	0	Surr	MK	07/21/21	9	7.3	17.0	31	7.9	Temp blank used. MK 7/21
Composite D 50%	1	Surr	MARH	07/22/21	9	7.8	16.2	30	8.0	Used temp blank 7/22/21 MARH
Composite D 50%	2	Surr	DM	07/23/21	8	7.9	16.0	31	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite D 50%	3	Surr								
Composite D 50%	4	Surr								

96 Hour Larval Test WQ Data Sheet

CLIENT	PROJECT	SPECIES	LOCATION		PROTOCOL		
Wood /KMEA	Mole Pier	*Mytilus galloprovincialis*	Port Gamble / Incubator 1		OTM/ITM ,		
PROJECT MANAGER	**TEST TYPE**	**Project Number**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**	**INITIALS**
M. Knowlen	Larval Development SPP	PG1217	July 21, 2021	15:40	July 23, 2021	1630	MK

WATER QUALITY DATA

SAMPLE ID (CONCENTRATION %)	DAY	REP	TECHNICIAN	Date	Meter	DO (mg/L) > 3.3	TEMP (°C) 15 - 17	SALINITY (ppt) 29 - 31	pH 7.3 - 8.3	Notes
Composite D 100%	**0**	Surr	MK	07/21/21	9	7.5	17.0	31	7.9	Temp blank used. MK 7/21
Composite D 100%	**1**	Surr	MARH	07/22/21	9	7.7	16.2	31	8.0	Used temp blank 7/22/21 MARH
Composite D 100%	**2**	Surr	DM	07/23/21	8	7.9	16.0	31	8.0	Temp blank from Inc. #1 used-DM-7/23/21
Composite D 100%	**3**	Surr								
Composite D 100%	**4**	Surr								

96 Hour Larval Test Summary

CLIENT	PROJECT	PROJECT NUMBER
Wood /KMEA	Mole Pier	PG1217
PROJECT MANAGER	**TEST TYPE**	**SPECIES**
M. Knowlen	Larval Development SPP	*Mytilus galloprovincialis*

LARVAL ENDPOINT DATA

Sample ID (Concentration %)	Rep	# Normal	# Abnormal	Total	Date	Tech	Comments / QA Counts
Stocking Density	1			322	08/05/21	MK	
Stocking Density	2			338	08/05/21	MK	
Stocking Density	3			364	08/05/21	MK	
Stocking Density	4			356	08/05/21	MK	
Stocking Density	5			346	08/05/21	MK	
Control	1	311	19	330	08/09/21	MK	
Control	2	290	15	305	08/09/21	MK	
Control	3	314	11	325	08/09/21	MK	
Control	4	298	18	316	08/09/21	MK	
Control	5	299	9	308	08/09/21	MK	
Composite A 1%	1	329	13	342	08/09/21	MK	
Composite A 1%	2	315	13	328	08/09/21	MK	
Composite A 1%	3	302	16	318	08/09/21	MK	QA MARH N 298 A 19
Composite A 1%	4	310	11	321	08/09/21	MK	
Composite A 1%	5	320	7	327	08/09/21	MK	
Composite A 10%	1	323	11	334	08/09/21	MK	
Composite A 10%	2	324	12	336	08/09/21	MK	
Composite A 10%	3	335	10	345	08/09/21	MK	
Composite A 10%	4	336	11	347	08/09/21	MK	
Composite A 10%	5	308	11	319	08/09/21	MK	
Composite A 50%	1	348	15	363	08/09/21	MK	
Composite A 50%	2	334	12	346	08/09/21	MK	
Composite A 50%	3	351	13	364	08/09/21	MK	
Composite A 50%	4	299	12	311	08/09/21	MK	QA MARH N 309 A 17
Composite A 50%	5	323	4	327	08/09/21	MK	
Composite A 100%	1	336	16	352	08/09/21	MK	
Composite A 100%	2	298	13	311	08/09/21	MK	
Composite A 100%	3	327	22	349	08/09/21	MK	
Composite A 100%	4	352	6	358	08/09/21	MK	
Composite A 100%	5	316	17	333	08/09/21	MK	

96 Hour Larval Test Summary

CLIENT	PROJECT	PROJECT NUMBER
Wood /KMEA	Mole Pier	PG1217
PROJECT MANAGER	**TEST TYPE**	**SPECIES**
M. Knowlen	Larval Development SPP	*Mytilus galloprovincialis*

LARVAL ENDPOINT DATA

Sample ID (Concentration %)	Rep	# Normal	# Abnormal	Total	Date	Tech	Comments / QA Counts
Composite B 1%	1	307	13	320	08/09/21	MK	
Composite B 1%	2	298	10	308	08/09/21	MK	
Composite B 1%	3	317	10	327	08/09/21	MK	
Composite B 1%	4	311	10	321	08/09/21	MK	
Composite B 1%	5	308	13	321	08/09/21	MK	QA MARH N 311 A 19
Composite B 10%	1	346	14	360	08/09/21	MK	
Composite B 10%	2	305	11	316	08/09/21	MK	
Composite B 10%	3	312	10	322	08/09/21	MK	
Composite B 10%	4	326	3	329	08/09/21	MK	
Composite B 10%	5	317	11	328	08/09/21	MK	
Composite B 50%	1	326	22	348	08/09/21	MK	QA MARH N 327 A 17
Composite B 50%	2	321	6	327	08/09/21	MK	
Composite B 50%	3	295	11	306	08/09/21	MK	
Composite B 50%	4	316	9	325	08/09/21	MK	
Composite B 50%	5	316	8	324	08/09/21	MK	
Composite B 100%	1	304	16	320	08/09/21	MK	
Composite B 100%	2	325	13	338	08/09/21	MK	
Composite B 100%	3	348	8	356	08/09/21	MK	
Composite B 100%	4	306	9	315	08/09/21	MK	
Composite B 100%	5	348	7	355	08/09/21	MK	
Composite D 1%	1	340	18	358	08/09/21	MK	
Composite D 1%	2	324	10	334	08/09/21	MK	QA MARH N 321 A 13
Composite D 1%	3	288	6	294	08/09/21	MK	
Composite D 1%	4	356	8	364	08/09/21	MK	
Composite D 1%	5	317	13	330	08/09/21	MK	
Composite D 10%	1	346	10	356	08/09/21	MK	
Composite D 10%	2	302	12	314	08/09/21	MK	
Composite D 10%	3	315	12	327	08/09/21	MK	
Composite D 10%	4	339	10	349	08/09/21	MK	
Composite D 10%	5	343	9	352	08/09/21	MK	
Composite D 50%	1	316	14	330	08/09/21	MK	
Composite D 50%	2	286	16	302	08/09/21	MK	
Composite D 50%	3	332	9	341	08/09/21	MK	QA MARH N 336 A 15
Composite D 50%	4	303	8	311	08/09/21	MK	
Composite D 50%	5	344	11	355	08/09/21	MK	
Composite D 100%	1	325	19	344	08/09/21	MK	

96 Hour Larval Test Summary

CLIENT	PROJECT	PROJECT NUMBER
Wood /KMEA	Mole Pier	PG1217
PROJECT MANAGER	**TEST TYPE**	**SPECIES**
M. Knowlen	Larval Development SPP	*Mytilus galloprovincialis*

LARVAL ENDPOINT DATA

Sample ID (Concentration %)	Rep	# Normal	# Abnormal	Total	Date	Tech	Comments / QA Counts
Composite D 100%	2	309	10	319	08/09/21	MK	
Composite D 100%	3	322	11	333	08/09/21	MK	
Composite D 100%	4	313	12	325	08/09/21	MK	QA MARH N 314 A 15
Composite D 100%	5	309	18	327	08/09/21	MK	

EcoAnalysts, Inc.

96 Hour Larval Test Summary

CLIENT	PROJECT	PROJECT NUMBER	LOCATION
Wood /KMEA	Mole Pier	PG1217	Port Gamble / Incubator 1
PROJECT MANAGER	**TEST TYPE**	**SPECIES**	**PROTOCOL**
M. Knowlen	Larval Development SPP	*Mytilus galloprovincialis*	OTM/ITM ,

LARVAL ENDPOINT STATS

Sample ID (Concentration %)	Rep	# Normal	# Abnormal	Total	% Survival	Mean % Survival	SD	% Normal	Mean % Normal	SD	% Combined Endpoint	Mean % Combined Endpoing	SD
Stocking Density	1			322									
Stocking Density	2			338									
Stocking Density	3			364									
Stocking Density	4			356		Average Stocking Density	SD Stocking Density						
Stocking Density	5			346		345.2	16.3						
Control	1	311	19	330	0.96			0.94			0.90		
Control	2	290	15	305	0.88			0.95			0.84		
Control	3	314	11	325	0.94			0.97			0.91		
Control	4	298	18	316	0.92			0.94			0.86		
Control	5	299	9	308	0.89	0.92	0.03	0.97	0.95	0.01	0.87	0.88	0.03
Composite A 1%	1	329	13	342	0.99			0.96			0.95		
Composite A 1%	2	315	13	328	0.95			0.96			0.91		
Composite A 1%	3	302	16	318	0.92			0.95			0.87		
Composite A 1%	4	310	11	321	0.93			0.97			0.90		
Composite A 1%	5	320	7	327	0.95	0.95	0.03	0.98	0.96	0.01	0.93	0.91	0.03
Composite A 10%	1	323	11	334	0.97			0.97			0.94		
Composite A 10%	2	324	12	336	0.97			0.96			0.94		
Composite A 10%	3	335	10	345	1.00			0.97			0.97		
Composite A 10%	4	336	11	347	1.01			0.97			0.97		
Composite A 10%	5	308	11	319	0.92	0.97	0.03	0.97	0.97	0.00	0.89	0.94	0.03
Composite A 50%	1	348	15	363	1.05			0.96			1.01		
Composite A 50%	2	334	12	346	1.00			0.97			0.97		
Composite A 50%	3	351	13	364	1.05			0.96			1.02		
Composite A 50%	4	299	12	311	0.90			0.96			0.87		
Composite A 50%	5	323	4	327	0.95	0.99	0.07	0.99	0.97	0.01	0.94	0.96	0.06
Composite A 100%	1	336	16	352	1.02			0.95			0.97		
Composite A 100%	2	298	13	311	0.90			0.96			0.86		
Composite A 100%	3	327	22	349	1.01			0.94			0.95		
Composite A 100%	4	352	6	358	1.04			0.98			1.02		
Composite A 100%	5	316	17	333	0.96	0.99	0.05	0.95	0.96	0.02	0.92	0.94	0.06

EcoAnalysts, Inc.

96 Hour Larval Test Summary

CLIENT	PROJECT	PROJECT NUMBER	LOCATION
Wood /KMEA	Mole Pier	PG1217	Port Gamble / Incubator 1
PROJECT MANAGER	**TEST TYPE**	**SPECIES**	**PROTOCOL**
M. Knowlen	Larval Development SPP	*Mytilus galloprovincialis*	OTM/ITM ,

LARVAL ENDPOINT STATS

Sample ID (Concentration %)	Rep	# Normal	# Abnormal	Total	% Survival	Mean % Survival	SD	% Normal	Mean % Normal	SD	% Combined Endpoint	Mean % Combined Endpoing	SD
Composite B 1%	1	307	13	320	0.93			0.96			0.89		
Composite B 1%	2	298	10	308	0.89			0.97			0.86		
Composite B 1%	3	317	10	327	0.95			0.97			0.92		
Composite B 1%	4	311	10	321	0.93			0.97			0.90		
Composite B 1%	5	308	13	321	0.93	0.93	0.02	0.96	0.96	0.01	0.89	0.89	0.02
Composite B 10%	1	346	14	360	1.04			0.96			1.00		
Composite B 10%	2	305	11	316	0.92			0.97			0.88		
Composite B 10%	3	312	10	322	0.93			0.97			0.90		
Composite B 10%	4	326	3	329	0.95			0.99			0.94		
Composite B 10%	5	317	11	328	0.95	0.96	0.05	0.97	0.97	0.01	0.92	0.93	0.05
Composite B 50%	1	326	22	348	1.01			0.94			0.94		
Composite B 50%	2	321	6	327	0.95			0.98			0.93		
Composite B 50%	3	295	11	306	0.89			0.96			0.85		
Composite B 50%	4	316	9	325	0.94			0.97			0.92		
Composite B 50%	5	316	8	324	0.94	0.94	0.04	0.98	0.97	0.02	0.92	0.91	0.03
Composite B 100%	1	304	16	320	0.93			0.95			0.88		
Composite B 100%	2	325	13	338	0.98			0.96			0.94		
Composite B 100%	3	348	8	356	1.03			0.98			1.01		
Composite B 100%	4	306	9	315	0.91			0.97			0.89		
Composite B 100%	5	348	7	355	1.03	0.98	0.06	0.98	0.97	0.01	1.01	0.94	0.06
Composite D 1%	1	340	18	358	1.04			0.95			0.98		
Composite D 1%	2	324	10	334	0.97			0.97			0.94		
Composite D 1%	3	288	6	294	0.85			0.98			0.83		
Composite D 1%	4	356	8	364	1.05			0.98			1.03		
Composite D 1%	5	317	13	330	0.96	0.97	0.08	0.96	0.97	0.01	0.92	0.94	0.07
Composite D 10%	1	346	10	356	1.03			0.97			1.00		
Composite D 10%	2	302	12	314	0.91			0.96			0.87		
Composite D 10%	3	315	12	327	0.95			0.96			0.91		
Composite D 10%	4	339	10	349	1.01			0.97			0.98		
Composite D 10%	5	343	9	352	1.02	0.98	0.05	0.97	0.97	0.01	0.99	0.95	0.06
Composite D 50%	1	316	14	330	0.96			0.96			0.92		
Composite D 50%	2	286	16	302	0.87			0.95			0.83		
Composite D 50%	3	332	9	341	0.99			0.97			0.96		
Composite D 50%	4	303	8	311	0.90			0.97			0.88		
Composite D 50%	5	344	11	355	1.03	0.95	0.06	0.97	0.96	0.01	1.00	0.92	0.07
Composite D 100%	1	325	19	344	1.00			0.94			0.94		
Composite D 100%	2	309	10	319	0.92			0.97			0.90		
Composite D 100%	3	322	11	333	0.96			0.97			0.93		
Composite D 100%	4	313	12	325	0.94			0.96			0.91		
Composite D 100%	5	309	18	327	0.95	0.95	0.03	0.94	0.96	0.01	0.90	0.91	0.02

96 Hour Larval Test Day 0 Ammonia

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood /KMEA	Mole Pier	PG1217	*Mytilus galloprovincialis*
Calibration Standards Temperature: 20.2	**Date:** 7/21/2021	**Tech:** MS	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	Notes
Control	0	Overlying	0.00	20.0	T17	30	7.8	17.0	290.15	9.2559		
Composite A 1%	0	Overlying	0.00	19.5	T17	30	7.8	17.0	290.15	9.2559		
Composite A 10%	0	Overlying	0.116	19.6	T17	30	7.9	17.0	290.15	9.2559	0.003	
Composite A 50%	0	Overlying	0.474	19.7	T17	30	7.9	17.0	290.15	9.2559	0.011	
Composite A 100%	0	Overlying	0.949	19.8	T17	31	8.1	17.0	290.15	9.2561	0.035	
Composite B 1%	0	Overlying	0.00	19.7	T17	30	7.8	17.0	290.15	9.2559		
Composite B 10%	0	Overlying	0.173	19.7	T17	30	7.9	17.0	290.15	9.2559	0.004	
Composite B 50%	0	Overlying	0.863	19.7	T17	30	8.0	17.0	290.15	9.2559	0.026	
Composite B 100%	0	Overlying	1.78	19.7	T17	31	8.1	17.0	290.15	9.2561	0.067	
Composite D 1%	0	Overlying	0.0172	19.7	T17	30	7.9	17.0	290.15	9.2559	0.000	
Composite D 10%	0	Overlying	0.0739	19.7	T17	30	7.9	17.0	290.15	9.2559	0.002	
Composite D 50%	0	Overlying	0.566	19.7	T17	31	7.9	17.0	290.15	9.2561	0.014	
Composite D 100%	0	Overlying	1.150	19.8	T17	31	7.9	17.0	290.15	9.2561	0.028	

96 Hour Larval Test Day 2 Ammonia

CLIENT	PROJECT	PROJECT NUMBER	SPECIES
Wood /KMEA	Mole Pier	PG1217	*Mytilus galloprovincialis*
Calibration Standards Temperature: 20.1	**Date:** 7/23/2021	**Tech:** SH	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample (Concentration %)	Day	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*Meter*	*Test salinity (ppt)*	*Test pH*	*Test temp (C)*	*Temp (K)*	*pKa^s*	*Unionized NH_3 (mg/L)*	Notes
Sourced	Sourced		Record	Record	Record	Sourced	Sourced	Sourced	Calculated	Calculated	Calculated	
Control	2	Overlying	0.00	19.4	T17	30	8.0	16.0	289.15	9.2559		
Composite A 1%	2	Overlying	0.00	19.4	T17	31	8.0	16.0	289.15	9.2561		
Composite A 10%	2	Overlying	0.00	19.2	T17	30	8.0	16.0	289.15	9.2559		
Composite A 50%	2	Overlying	0.219	19.2	T17	30	8.0	16.0	289.15	9.2559	0.006	
Composite A 100%	2	Overlying	0.687	19.3	T17	31	8.1	16.0	289.15	9.2561	0.024	
Composite B 1%	2	Overlying	0.00	19.3	T17	30	8.0	16.0	289.15	9.2559		
Composite B 10%	2	Overlying	0.00	19.2	T17	31	7.9	16.0	289.15	9.2561		
Composite B 50%	2	Overlying	0.610	19.3	T17	31	8.1	16.0	289.15	9.2561	0.021	
Composite B 100%	2	Overlying	1.14	19.7	T17	31	8.1	16.0	289.15	9.2561	0.040	
Composite D 1%	2	Overlying	0.00	19.4	T17	30	7.8	16.0	289.15	9.2559		
Composite D 10%	2	Overlying	0.00	19.2	T17	31	8.0	16.0	289.15	9.2561		
Composite D 50%	2	Overlying	0.385	19.4	T17	31	8.0	16.0	289.15	9.2561	0.011	
Composite D 100%	2	Overlying	0.855	19.3	T17	31	8.0	16.0	289.15	9.2561	0.024	

6.2 *Mytilus galloprovincialis* Statistical Results

CETIS Summary Report

Bivalve Larval Survival and Development Test

EcoAnalysts

Batch ID:	04-8806-9822	**Test Type:**	Development-Survival	**Analyst:**			
Start Date:	21 Jul-21 15:40	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater		
Ending Date:	23 Jul-21 16:30	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable		
Test Length:	49h	**Taxon:**	Bivalvia	**Source:**	Taylor Shellfish	**Age:**	2hr

Sample ID:	00-7081-4133	**Code:**	Composite A	**Project:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Source:**	Mole Pier
Receipt Date:	08 Jun-21 12:11	**CAS (PC):**		**Station:**	P210707.02
Sample Age:	47d 8h (0.8 °C)	**Client:**	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
06-2887-3715	Combined Proportion Norma	Dunnett Multiple Comparison Test		100	>100	n/a	1	12.4%	1
17-6495-4449	Proportion Normal	Dunnett Multiple Comparison Test		100	>100	n/a	1	2.24%	1
05-1741-2778	Proportion Survived	Dunnett Multiple Comparison Test		100	>100	n/a	1	11.0%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
15-0522-4923	Combined Proportion Norma	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
18-3571-0302	Proportion Normal	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
14-0641-2332	Proportion Survived	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
17-6495-4449	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
18-3571-0302	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
05-1741-2778	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria
14-0641-2332	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.8765	0.8408	0.9122	0.8406	0.9101	0.0129	0.0287	3.28%	0.00%
1		5	0.9136	0.8770	0.9503	0.8754	0.9536	0.0132	0.0295	3.23%	-4.23%
10		5	0.9426	0.9018	0.9834	0.8928	0.9739	0.0147	0.0329	3.49%	-7.54%
50		5	0.9542	0.8851	1.0000	0.8667	1.0000	0.0249	0.0556	5.83%	-8.86%
100		5	0.9403	0.8746	1.0000	0.8638	1.0000	0.0237	0.0529	5.63%	-7.28%

Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9546	0.9383	0.9710	0.9424	0.9708	0.0059	0.0132	1.38%	0.00%
1		5	0.9633	0.9503	0.9762	0.9497	0.9786	0.0047	0.0104	1.08%	-0.90%
10		5	0.9672	0.9640	0.9705	0.9643	0.9710	0.0012	0.0026	0.27%	-1.32%
50		5	0.9675	0.9531	0.9819	0.9587	0.9878	0.0052	0.0116	1.20%	-1.35%
100		5	0.9564	0.9352	0.9775	0.9370	0.9832	0.0076	0.0170	1.78%	-0.18%

Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9183	0.8797	0.9568	0.8841	0.9565	0.0139	0.0310	3.38%	0.00%
1		5	0.9484	0.9151	0.9817	0.9217	0.9913	0.0120	0.0268	2.83%	-3.28%
10		5	0.9733	0.9350	1.0000	0.9246	1.0000	0.0138	0.0309	3.18%	-6.00%
50		5	0.9699	0.9147	1.0000	0.9014	1.0000	0.0199	0.0444	4.58%	-5.62%
100		5	0.9733	0.9200	1.0000	0.9014	1.0000	0.0192	0.0429	4.41%	-6.00%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9014	0.8406	0.9101	0.8638	0.8667
1		0.9536	0.9130	0.8754	0.8986	0.9275
10		0.9362	0.9391	0.9710	0.9739	0.8928
50		1.0000	0.9681	1.0000	0.8667	0.9362
100		0.9739	0.8638	0.9478	1.0000	0.9159

Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9424	0.9508	0.9662	0.9430	0.9708
1		0.9620	0.9604	0.9497	0.9657	0.9786
10		0.9671	0.9643	0.9710	0.9683	0.9655
50		0.9587	0.9653	0.9643	0.9614	0.9878
100		0.9545	0.9582	0.9370	0.9832	0.9489

Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9565	0.8841	0.9420	0.9159	0.8928
1		0.9913	0.9507	0.9217	0.9304	0.9478
10		0.9681	0.9739	1.0000	1.0000	0.9246
50		1.0000	1.0000	1.0000	0.9014	0.9478
100		1.0000	0.9014	1.0000	1.0000	0.9652

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/345	290/345	314/345	298/345	299/345
1		329/345	315/345	302/345	310/345	320/345
10		323/345	324/345	335/345	336/345	308/345
50		348/348	334/345	351/351	299/345	323/345
100		336/345	298/345	327/345	352/352	316/345

Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/330	290/305	314/325	298/316	299/308
1		329/342	315/328	302/318	310/321	320/327
10		323/334	324/336	335/345	336/347	308/319
50		348/363	334/346	351/364	299/311	323/327
100		336/352	298/311	327/349	352/358	316/333

Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	330/345	305/345	325/345	316/345	308/345
1		342/345	328/345	318/345	321/345	327/345
10		334/345	336/345	345/345	345/345	319/345
50		345/345	345/345	345/345	311/345	327/345
100		345/345	311/345	345/345	345/345	333/345

CETIS Test Data Worksheet

Report Date: 08 Sep-21 10:18 (p 1 of 1)
Test Code/ID: Mole Pier / 21-1719-5234

Bivalve Larval Survival and Development Test — **EcoAnalysts**

Start Date:	21 Jul-21 15:40	**Species:**	Mytilus galloprovincialis	**Sample Code:**	Composite A
End Date:	23 Jul-21 16:30	**Protocol:**	EPA/600/R-95/136 (1995)	**Sample Source:**	Mole Pier
Sample Date:	04 Jun-21 07:30	**Material:**	Sediment Elutriate	**Sample Station:**	P210707.02

Conc-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	D	1	14	345	330	330	311	
0	D	2	22	345	305	305	290	
0	D	3	19	345	325	325	314	
0	D	4	24	345	316	316	298	
0	D	5	2	345	308	308	299	
1		1	13	345	342	342	329	
1		2	8	345	328	328	315	
1		3	10	345	318	318	302	
1		4	4	345	321	321	310	
1		5	7	345	327	327	320	
10		1	18	345	334	334	323	
10		2	23	345	336	336	324	
10		3	15	345	345	345	335	
10		4	25	345	347	347	336	
10		5	17	345	319	319	308	
50		1	21	345	363	363	348	
50		2	9	345	346	346	334	
50		3	11	345	364	364	351	
50		4	5	345	311	311	299	
50		5	6	345	327	327	323	
100		1	1	345	352	352	336	
100		2	3	345	311	311	298	
100		3	20	345	349	349	327	
100		4	12	345	358	358	352	
100		5	16	345	333	333	316	

CETIS Summary Report

Bivalve Larval Survival and Development Test

EcoAnalysts

Batch ID:	04-8806-9822	Test Type:	Development-Survival	Analyst:	
Start Date:	21 Jul-21 15:40 ✓	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 16:30 ✓	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Test Length:	49h	Taxon:	Bivalvia	Source:	Taylor Shellfish ✓ Age: 2hr ✓

Sample ID:	06-8841-5644	Code:	Composite B	Project:	Mole Pier
Sample Date:	01 Jun-21 08:00 ✓	Material:	Sediment Elutriate	Source:	Mole Pier
Receipt Date:	03 Jun-21 12:30 ✓	CAS (PC):		Station:	P210707.03 ✓
Sample Age:	50d 8h (0 °C)	Client:	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
04-9705-7455	Combined Proportion Norma	Dunnett Multiple Comparison Test		100	>100	n/a	1	12.3%	1
09-7994-5539	Proportion Normal	Dunnett Multiple Comparison Test		100	>100	n/a	1	2.39%	1
15-3707-2143	Proportion Survived	Dunnett Multiple Comparison Test		100	>100	n/a	1	9.65%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
19-6781-0491	Combined Proportion Norma	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
08-1737-5080	Proportion Normal	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
12-8510-6439	Proportion Survived	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
08-1737-5080	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
09-7994-5539	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
12-8510-6439	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria
15-3707-2143	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.8765	0.8408	0.9122	0.8406	0.9101	0.0129	0.0287	3.28%	0.00%
1		5	0.8933	0.8685	0.9182	0.8638	0.9188	0.0090	0.0200	2.24%	-1.92%
10		5	0.9304	0.8749	0.9860	0.8841	1.0000	0.0200	0.0448	4.81%	-6.15%
50		5	0.9125	0.8699	0.9550	0.8551	0.9449	0.0153	0.0343	3.75%	-4.10%
100		5	0.9420	0.8700	1.0000	0.8812	1.0000	0.0259	0.0580	6.16%	-7.47%

Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9546	0.9383	0.9710	0.9424	0.9708	0.0059	0.0132	1.38%	0.00%
1		5	0.9649	0.9586	0.9712	0.9594	0.9694	0.0023	0.0051	0.52%	-1.08%
10		5	0.9705	0.9560	0.9851	0.9611	0.9909	0.0052	0.0117	1.21%	-1.66%
50		5	0.9660	0.9443	0.9878	0.9368	0.9817	0.0078	0.0175	1.81%	-1.19%
100		5	0.9682	0.9527	0.9836	0.9500	0.9803	0.0056	0.0124	1.28%	-1.42%

Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9183	0.8797	0.9568	0.8841	0.9565	0.0139	0.0310	3.38%	0.00%
1		5	0.9258	0.9008	0.9508	0.8928	0.9478	0.0090	0.0201	2.18%	-0.82%
10		5	0.9507	0.9117	0.9897	0.9159	1.0000	0.0141	0.0314	3.30%	-3.54%
50		5	0.9432	0.8934	0.9930	0.8870	1.0000	0.0179	0.0401	4.25%	-2.71%
100		5	0.9641	0.9130	1.0000	0.9130	1.0000	0.0184	0.0411	4.27%	-4.99%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9014	0.8406	0.9101	0.8638	0.8667
1		0.8899	0.8638	0.9188	0.9014	0.8928
10		1.0000	0.8841	0.9043	0.9449	0.9188
50		0.9449	0.9304	0.8551	0.9159	0.9159
100		0.8812	0.9420	1.0000	0.8870	1.0000

Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9424	0.9508	0.9662	0.9430	0.9708
1		0.9594	0.9675	0.9694	0.9688	0.9595
10		0.9611	0.9652	0.9689	0.9909	0.9665
50		0.9368	0.9817	0.9641	0.9723	0.9753
100		0.9500	0.9615	0.9775	0.9714	0.9803

Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9565	0.8841	0.9420	0.9159	0.8928
1		0.9275	0.8928	0.9478	0.9304	0.9304
10		1.0000	0.9159	0.9333	0.9536	0.9507
50		1.0000	0.9478	0.8870	0.9420	0.9391
100		0.9275	0.9797	1.0000	0.9130	1.0000

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/345	290/345	314/345	298/345	299/345
1		307/345	298/345	317/345	311/345	308/345
10		346/346	305/345	312/345	326/345	317/345
50		326/345	321/345	295/345	316/345	316/345
100		304/345	325/345	348/348	306/345	348/348

Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/330	290/305	314/325	298/316	299/308
1		307/320	298/308	317/327	311/321	308/321
10		346/360	305/316	312/322	326/329	317/328
50		326/348	321/327	295/306	316/325	316/324
100		304/320	325/338	348/356	306/315	348/355

Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	330/345	305/345	325/345	316/345	308/345
1		320/345	308/345	327/345	321/345	321/345
10		345/345	316/345	322/345	329/345	328/345
50		345/345	327/345	306/345	325/345	324/345
100		320/345	338/345	345/345	315/345	345/345

CETIS Test Data Worksheet

Report Date: 19 Aug-21 13:47 (p 1 of 1)
Test Code/ID: Mole Pier / 13-3978-1837

Bivalve Larval Survival and Development Test — EcoAnalysts

Start Date:	21 Jul-21 15:40	Species:	Mytilus galloprovincialis	Sample Code:	Composite B
End Date:	23 Jul-21 16:30	Protocol:	EPA/600/R-95/136 (1995)	Sample Source:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Sample Station:	P210707.03

Conc-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	D	1	6	345	330	330	311	
0	D	2	16	345	305	305	290	
0	D	3	21	345	325	325	314	
0	D	4	22	345	316	316	298	
0	D	5	4	345	308	308	299	
1		1	17	345	320	320	307	
1		2	11	345	308	308	298	
1		3	2	345	327	327	317	
1		4	25	345	321	321	311	
1		5	23	345	321	321	308	
10		1	1	345	360	360	346	
10		2	7	345	316	316	305	
10		3	15	345	322	322	312	
10		4	20	345	329	329	326	
10		5	13	345	328	328	317	
50		1	24	345	348	348	326	
50		2	8	345	327	327	321	
50		3	5	345	306	306	295	
50		4	10	345	325	325	316	
50		5	3	345	324	324	316	
100		1	12	345	320	320	304	
100		2	18	345	338	338	325	
100		3	14	345	356	356	348	
100		4	19	345	315	315	306	
100		5	9	345	355	355	348	
				✓	✓	✓	✓	

CETIS Summary Report

Report Date: 19 Aug-21 13:55 (p 1 of 3)
Test Code/ID: Mole Pier / 03-4121-8908

Bivalve Larval Survival and Development Test — EcoAnalysts

Batch ID:	04-8806-9822	Test Type:	Development-Survival	Analyst:	
Start Date:	21 Jul-21 15:40 ✓	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Laboratory Seawater
Ending Date:	23 Jul-21 16:30 ✓	Species:	Mytilus galloprovincialis	Brine:	Not Applicable
Test Length:	49h	Taxon:	Bivalvia	Source:	Taylor Shellfish ✓ Age: 2hr ✓

Sample ID:	15-3306-9758	Code:	Composite D	Project:	Mole Pier
Sample Date:	01 Jun-21 08:00 ✓	Material:	Sediment Elutriate	Source:	Mole Pier
Receipt Date:	03 Jun-21 12:30 ✓	CAS (PC):		Station:	P210707.04 ✓
Sample Age:	50d 8h (0.1 °C)	Client:	Wood		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
20-2986-5056	Combined Proportion Norma	Dunnett Multiple Comparison Test		100	>100	n/a	1	14.9%	1
19-6785-8617	Proportion Normal	Dunnett Multiple Comparison Test		100	>100	n/a	1	1.95%	1
13-9831-3220	Proportion Survived	Dunnett Multiple Comparison Test		100	>100	n/a	1	12.6%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
09-6017-[illegible]60	Combined Proportion Norma	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
10-6572-6247	Proportion Normal	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	
11-0107-3184	Proportion Survived	Linear Interpolation (ICPIN)	✓	EC5	>100	n/a	n/a	<1	1
			✓	EC10	>100	n/a	n/a	<1	
			✓	EC15	>100	n/a	n/a	<1	
			✓	EC20	>100	n/a	n/a	<1	
			✓	EC25	>100	n/a	n/a	<1	
			✓	EC40	>100	n/a	n/a	<1	
			✓	EC50	>100	n/a	n/a	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
10-6572-6247	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
19-6785-8617	Proportion Normal	Control Resp	0.9546	0.9	>>	Yes	Passes Criteria
11-0107-3184	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria
13-9831-3220	Proportion Survived	Control Resp	0.9183	0.5	>>	Yes	Passes Criteria

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.8765	0.8408	0.9122	0.8406	0.9101	0.0129	0.0287	3.28%	0.00%
1		5	0.9357	0.8545	1.0000	0.8348	1.0000	0.0292	0.0654	6.99%	-6.75%
10		5	0.9530	0.8839	1.0000	0.8754	1.0000	0.0249	0.0557	5.84%	-8.73%
50		5	0.9165	0.8339	0.9992	0.8290	0.9971	0.0298	0.0666	7.26%	-4.56%
100		5	0.9148	0.8879	0.9417	0.8957	0.9420	0.0097	0.0217	2.37%	-4.37%

Proportion Normal Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9546	0.9383	0.9710	0.9424	0.9708	0.0059	0.0132	1.38%	0.00%
1		5	0.9676	0.9521	0.9831	0.9497	0.9796	0.0056	0.0125	1.29%	-1.36%
10		5	0.9686	0.9616	0.9756	0.9618	0.9744	0.0025	0.0056	0.58%	-1.46%
50		5	0.9643	0.9497	0.9789	0.9470	0.9743	0.0053	0.0118	1.22%	-1.01%
100		5	0.9577	0.9429	0.9724	0.9448	0.9687	0.0053	0.0119	1.24%	-0.32%

Proportion Survived Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	5	0.9183	0.8797	0.9568	0.8841	0.9565	0.0139	0.0310	3.38%	0.00%
1		5	0.9554	0.8798	1.0000	0.8522	1.0000	0.0272	0.0608	6.37%	-4.04%
10		5	0.9716	0.9205	1.0000	0.9101	1.0000	0.0184	0.0411	4.23%	-5.81%
50		5	0.9443	0.8769	1.0000	0.8754	1.0000	0.0243	0.0543	5.75%	-2.84%
100		5	0.9554	0.9213	0.9895	0.9246	0.9971	0.0123	0.0275	2.88%	-4.04%

Combined Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9014	0.8406	0.9101	0.8838	0.8667
1		0.9855	0.9391	0.8348	1.0000	0.9188
10		1.0000	0.8754	0.9130	0.9826	0.9942
50		0.9159	0.8290	0.9623	0.8783	0.9971
100		0.9420	0.8957	0.9333	0.9072	0.8957

Proportion Normal Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9424	0.9508	0.9662	0.9430	0.9708
1		0.9497	0.9701	0.9796	0.9780	0.9606
10		0.9719	0.9618	0.9633	0.9713	0.9744
50		0.9576	0.9470	0.9736	0.9743	0.9690
100		0.9448	0.9687	0.9670	0.9631	0.9450

Proportion Survived Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	0.9565	0.8841	0.9420	0.9159	0.8928
1		1.0000	0.9681	0.8522	1.0000	0.9565
10		1.0000	0.9101	0.9478	1.0000	1.0000
50		0.9565	0.8754	0.9884	0.9014	1.0000
100		0.9971	0.9246	0.9652	0.9420	0.9478

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/345	290/345	314/345	298/345	299/345
1		340/345	324/345	288/345	356/356	317/345
10		346/346	302/345	315/345	339/345	343/345
50		316/345	286/345	332/345	303/345	344/345
100		325/345	309/345	322/345	313/345	309/345

Proportion Normal Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	311/330	290/305	314/325	298/316	299/308
1		340/358	324/334	288/294	356/364	317/330
10		346/356	302/314	315/327	339/349	343/352
50		316/330	286/302	332/341	303/311	344/355
100		325/344	309/319	322/333	313/325	309/327

Proportion Survived Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	D	330/345	305/345	325/345	316/345	308/345
1		345/345	334/345	294/345	345/345	330/345
10		345/345	314/345	327/345	345/345	345/345
50		330/345	302/345	341/345	311/345	345/345
100		344/345	319/345	333/345	325/345	327/345

CETIS Test Data Worksheet

Report Date: 19 Aug-21 13:54 (p 1 of 1)
Test Code/ID: Mole Pier / 03-4121-8908

Bivalve Larval Survival and Development Test — EcoAnalysts

Start Date:	21 Jul-21 15:40	Species:	Mytilus galloprovincialis	Sample Code:	Composite D
End Date:	23 Jul-21 16:30	Protocol:	EPA/600/R-95/136 (1995)	Sample Source:	Mole Pier
Sample Date:	01 Jun-21 08:00	Material:	Sediment Elutriate	Sample Station:	P210707.04

Conc-%	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	D	1	12	345	330	330	311	
0	D	2	10	345	305	305	290	
0	D	3	16	345	325	325	314	
0	D	4	25	345	316	316	298	
0	D	5	9	345	308	308	299	
1		1	1	345	358	358	340	
1		2	15	345	334	334	324	
1		3	11	345	294	294	288	
1		4	7	345	364	364	356	
1		5	21	345	330	330	317	
10		1	4	345	356	356	346	
10		2	24	345	314	314	302	
10		3	19	345	327	327	315	
10		4	20	345	349	349	339	
10		5	14	345	352	352	343	
50		1	22	345	330	330	316	
50		2	5	345	302	302	286	
50		3	18	345	341	341	332	
50		4	2	345	311	311	303	
50		5	8	345	355	355	344	
100		1	3	345	344	344	325	
100		2	13	345	319	319	309	
100		3	23	345	333	333	322	
100		4	17	345	325	325	313	
100		5	6	345	327	327	309	
				✓	✓	✓	✓	

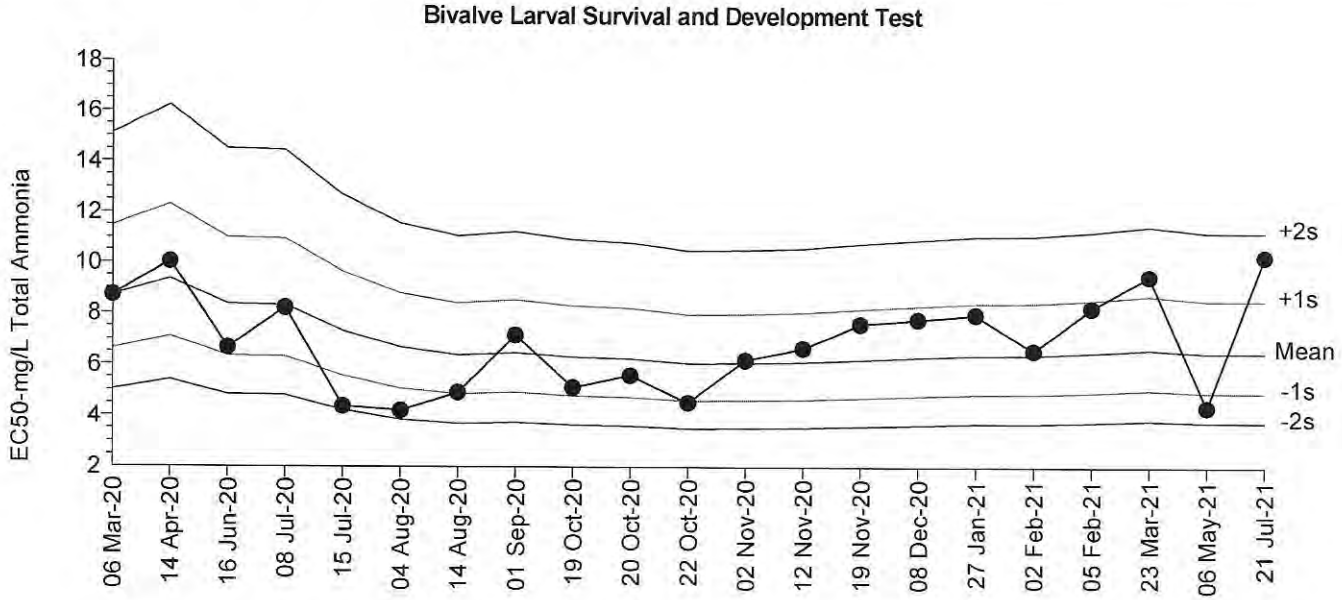
6.3 *Mytilus galloprovincialis* Reference Toxicant Test Results

CETIS QC Plot

Report Date: 07 Sep-21 14:41 (1 of 1)

Bivalve Larval Survival and Development Test — **All Matching Labs**

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel) **Material:** Total Ammonia
Protocol: EPA/600/R-95/136 (1995) **Endpoint:** Combined Proportion Normal **Source:** Reference Toxicant-REF



Mean: 6.482 **Count:** 20 **-1s Warning Limit:** 4.921 **-2s Action Limit:** 3.735
Sigma: n/a **CV:** 28.10% **+1s Warning Limit:** 8.54 **+2s Action Limit:** 11.25

Quality Control Data

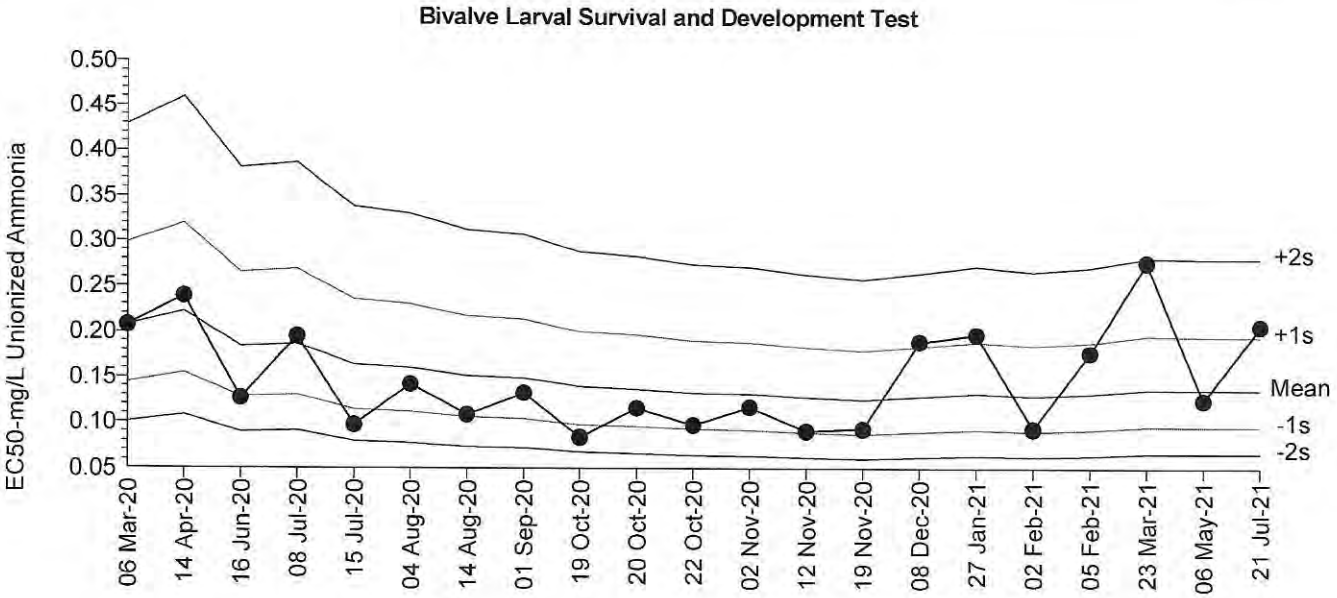
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	8.709	2.227	1.071	(+)		11-0943-5085	04-1085-3879	EcoAnalysts
2		Apr	14	17:22	10.04	3.553	1.585	(+)		16-8043-8788	02-4241-3259	EcoAnalysts
3		Jun	16	16:30	6.663	0.1814	0.1001			20-4167-7835	14-5400-1116	EcoAnalysts
4		Jul	8	16:11	8.209	1.727	0.8569			08-5035-5256	19-5704-9307	EcoAnalysts
5			15	16:23	4.365	-2.117	-1.434	(-)		15-9646-8760	06-4147-1899	EcoAnalysts
6		Aug	4	16:24	4.198	-2.284	-1.575	(-)		01-0670-7137	06-0301-5820	EcoAnalysts
7			14	16:55	4.909	-1.573	-1.008	(-)		04-3842-3020	15-6544-2892	EcoAnalysts
8		Sep	1	16:40	7.155	0.6736	0.3586			10-2380-5741	16-5117-8107	EcoAnalysts
9		Oct	19	16:12	5.11	-1.371	-0.8622			03-4887-8037	01-7158-1986	EcoAnalysts
10			20	16:45	5.584	-0.8977	-0.5407			02-8066-5792	09-4690-6741	EcoAnalysts
11			22	16:13	4.519	-1.962	-1.308	(-)		16-2361-2059	13-0949-7421	EcoAnalysts
12		Nov	2	16:25	6.19	-0.2922	-0.1673			09-9915-4860	16-6439-8802	EcoAnalysts
13			12	15:48	6.644	0.1619	0.08946			00-9253-4746	12-7689-2111	EcoAnalysts
14			19	14:25	7.603	1.121	0.5788			09-9158-3877	15-7726-4358	EcoAnalysts
15		Dec	8	17:10	7.778	1.296	0.6612			11-2786-8014	19-2146-7113	EcoAnalysts
16	2021	Jan	27	16:55	7.973	1.491	0.751			08-6647-1109	09-0625-7215	EcoAnalysts
17		Feb	2	16:06	6.555	0.07292	0.04058			13-7329-9148	11-0719-6419	EcoAnalysts
18			5	15:30	8.244	1.762	0.8721			16-8922-0204	14-2787-9134	EcoAnalysts
19		Mar	23	16:28	9.504	3.022	1.388	(+)		18-0846-5810	13-9867-0503	EcoAnalysts
20		May	6	16:56	4.347	-2.135	-1.449	(-)		20-0688-2194	11-0705-0295	EcoAnalysts
21		Jul	21	15:45	10.3	3.817	1.68	(+)		15-0733-0020	12-3161-3844	EcoAnalysts

CETIS QC Plot

Report Date: 07 Sep-21 14:42 (1 of 1)

Bivalve Larval Survival and Development Test — **All Matching Labs**

Test Type: Development-Survival | **Organism:** Mytilus galloprovincialis (Bay Mussel) | **Material:** Unionized Ammonia
Protocol: EPA/600/R-95/136 (1995) | **Endpoint:** Combined Proportion Normal | **Source:** Reference Toxicant-REF



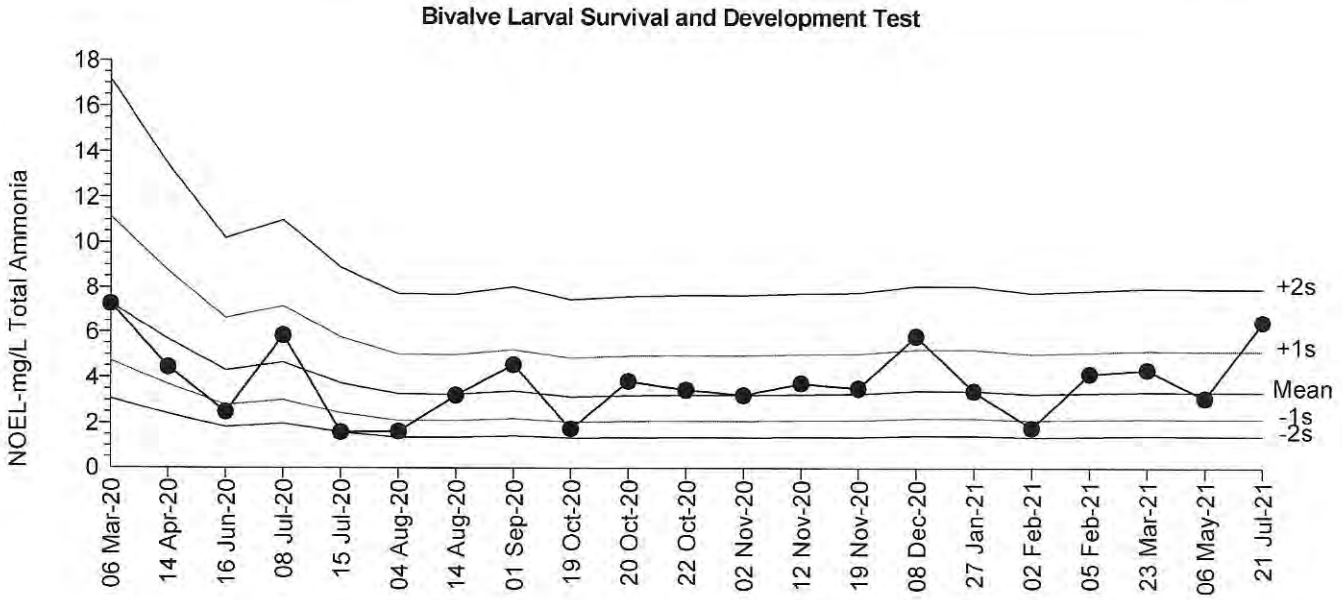
Mean:	0.1359	**Count:**	20	**-1s Warning Limit:**	0.09452	**-2s Action Limit:**	0.06575
Sigma:	n/a	**CV:**	37.50%	**+1s Warning Limit:**	0.1953	**+2s Action Limit:**	0.2807

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	0.2073	0.07146	1.165	(+)		03-0250-6235	16-3966-9345	EcoAnalysts
2		Apr	14	17:22	0.2387	0.1029	1.553	(+)		11-8738-5524	12-4582-1538	EcoAnalysts
3		Jun	16	16:30	0.1265	-0.009362	-0.1967			10-1828-9125	13-8582-5794	EcoAnalysts
4		Jul	8	16:11	0.1951	0.05923	0.997			05-5591-4841	03-7223-6999	EcoAnalysts
5			15	16:23	0.09681	-0.03907	-0.9341			21-0814-1988	04-9160-0553	EcoAnalysts
6		Aug	4	16:24	0.1422	0.006273	0.1244			04-1857-7084	12-7117-0261	EcoAnalysts
7			14	16:55	0.108	-0.02783	-0.6316			02-8126-2404	03-5088-5888	EcoAnalysts
8		Sep	1	16:40	0.1321	-0.003822	-0.07863			07-4415-5918	17-3359-5006	EcoAnalysts
9		Oct	19	16:12	0.08347	-0.05241	-1.343	(-)		05-2251-3827	15-9220-2980	EcoAnalysts
10			20	16:45	0.1153	-0.02055	-0.4518			11-2723-7877	20-9460-4276	EcoAnalysts
11			22	16:13	0.09669	-0.03919	-0.9376			14-1466-2942	09-4024-1285	EcoAnalysts
12		Nov	2	16:25	0.1166	-0.01928	-0.4216			03-2935-4227	19-7057-4430	EcoAnalysts
13			12	15:48	0.09021	-0.04567	-1.129	(-)		16-0999-2197	02-9356-3690	EcoAnalysts
14			19	14:25	0.09254	-0.04334	-1.059	(-)		04-4903-3862	00-9736-2696	EcoAnalysts
15		Dec	8	17:10	0.1894	0.05349	0.9147			10-9003-3134	12-8741-9662	EcoAnalysts
16	2021	Jan	27	16:55	0.1977	0.0618	1.033	(+)		04-1822-1173	11-6185-9712	EcoAnalysts
17		Feb	2	16:06	0.09276	-0.04311	-1.052	(-)		03-3410-8803	20-5669-0584	EcoAnalysts
18			5	15:30	0.1773	0.04139	0.7328			03-0062-6771	15-1784-5646	EcoAnalysts
19		Mar	23	16:28	0.2767	0.1409	1.96	(+)		17-8758-4170	13-9507-5330	EcoAnalysts
20		May	6	16:56	0.124	-0.01184	-0.2511			18-3396-1658	10-8311-0494	EcoAnalysts
21		Jul	21	15:45	0.2068	0.07097	1.158	(+)		17-9855-0345	08-5046-8808	EcoAnalysts

Bivalve Larval Survival and Development Test **All Matching Labs**

Test Type:	Development-Survival	**Organism:**	Mytilus galloprovincialis (Bay Mussel)	**Material:**	Total Ammonia
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Combined Proportion Normal	**Source:**	Reference Toxicant-REF



Mean:	3.374	**Count:**	20	**-1s Warning Limit:**	2.192	**-2s Action Limit:**	1.424
Sigma:	n/a	**CV:**	45.20%	**+1s Warning Limit:**	5.193	**+2s Action Limit:**	7.992

Quality Control Data

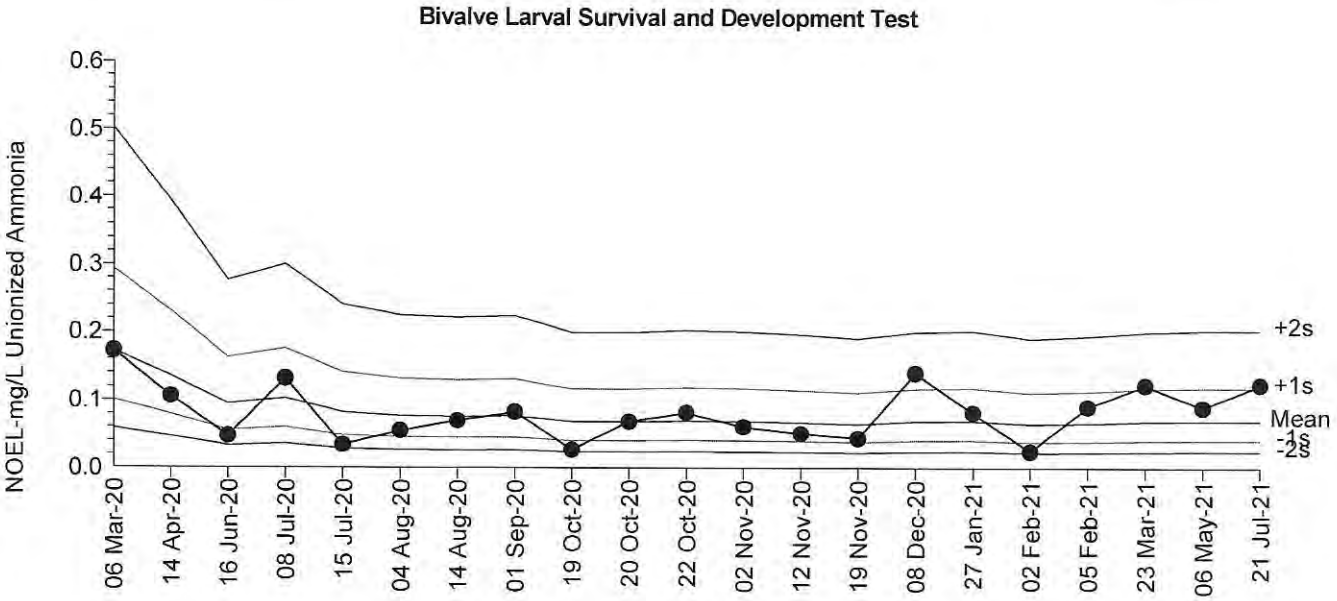
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	7.25	3.876	1.774	(+)		11-0943-5085	03-6255-8076	EcoAnalysts
2		Apr	14	17:22	4.44	1.066	0.637			16-8043-8788	04-0175-1787	EcoAnalysts
3		Jun	16	16:30	2.48	-0.8937	-0.7137			20-4167-7835	09-8607-1747	EcoAnalysts
4		Jul	8	16:11	5.84	2.466	1.273	(+)		08-5035-5256	15-3252-7371	EcoAnalysts
5			15	16:23	1.59	-1.784	-1.745	(-)		15-9646-8760	10-4026-1588	EcoAnalysts
6		Aug	4	16:24	1.62	-1.754	-1.701	(-)		01-0670-7137	02-0847-6284	EcoAnalysts
7			14	16:55	3.23	-0.1437	-0.1009			04-3842-3020	20-5656-0671	EcoAnalysts
8		Sep	1	16:40	4.56	1.186	0.6988			10-2380-5741	13-6274-7985	EcoAnalysts
9		Oct	19	16:12	1.75	-1.624	-1.522	(-)		03-4887-8037	01-3719-7130	EcoAnalysts
10			20	16:45	3.84	0.4663	0.3003			02-8066-5792	02-5619-4726	EcoAnalysts
11			22	16:13	3.47	0.09633	0.06529			16-2361-2059	19-7842-4361	EcoAnalysts
12		Nov	2	16:25	3.24	-0.1337	-0.09375			09-9915-4860	18-9549-9885	EcoAnalysts
13			12	15:48	3.76	0.3863	0.2514			00-9253-4746	08-5537-8252	EcoAnalysts
14			19	14:25	3.54	0.1663	0.1116			09-9158-3877	18-8616-2197	EcoAnalysts
15		Dec	8	17:10	5.84	2.466	1.273	(+)		11-2786-8014	13-9253-6845	EcoAnalysts
16	2021	Jan	27	16:55	3.43	0.05633	0.03841			08-6647-1109	08-3677-1779	EcoAnalysts
17		Feb	2	16:06	1.8	-1.574	-1.457	(-)		13-7329-9148	11-0410-6276	EcoAnalysts
18			5	15:30	4.19	0.8163	0.5026			16-8922-0204	02-5482-4547	EcoAnalysts
19		Mar	23	16:28	4.36	0.9863	0.5948			18-0846-5810	18-0485-1123	EcoAnalysts
20		May	6	16:56	3.12	-0.2537	-0.1813			20-0688-2194	07-1124-5995	EcoAnalysts
21		Jul	21	15:45	6.49	3.116	1.517	(+)		15-0733-0020	09-2905-9213	EcoAnalysts

CETIS QC Plot

Report Date: 07 Sep-21 14:42 (1 of 1)

Bivalve Larval Survival and Development Test — **All Matching Labs**

Test Type: Development-Survival | **Organism:** Mytilus galloprovincialis (Bay Mussel) | **Material:** Unionized Ammonia
Protocol: EPA/600/R-95/136 (1995) | **Endpoint:** Combined Proportion Normal | **Source:** Reference Toxicant-REF



Mean:	0.06981	**Count:**	20	**-1s Warning Limit:**	0.04086	**-2s Action Limit:**	0.02392
Sigma:	n/a	**CV:**	57.60%	**+1s Warning Limit:**	0.1192	**+2s Action Limit:**	0.2035

Quality Control Data

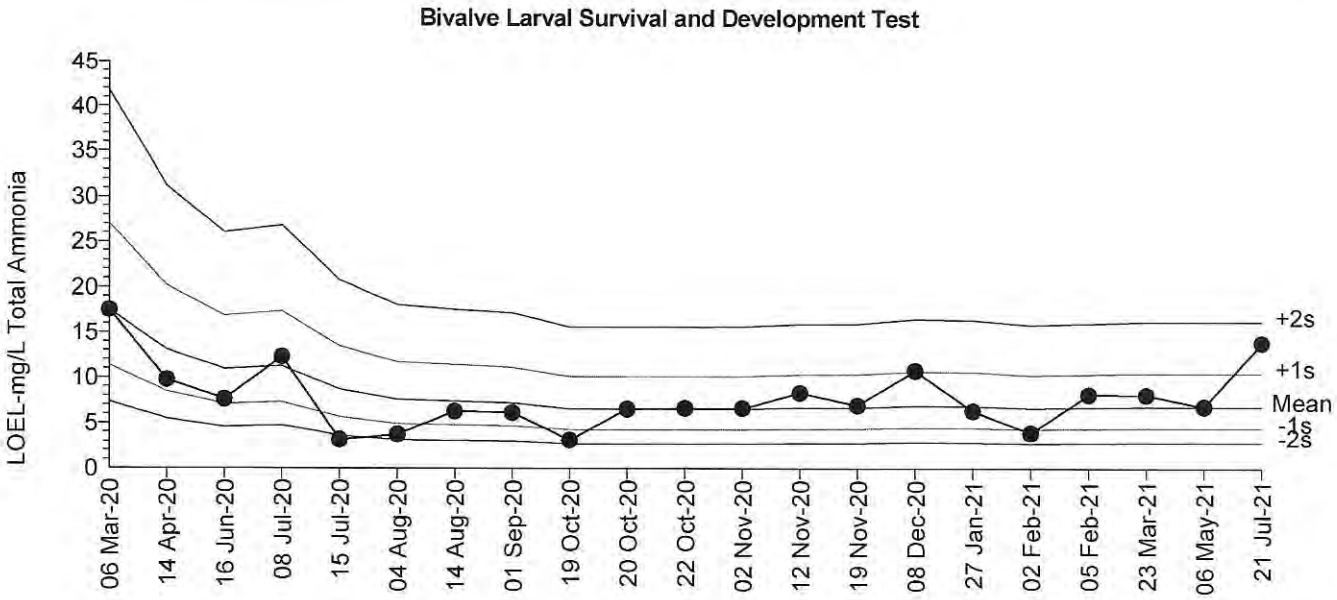
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	0.172	0.1022	1.685	(+)		03-0250-6235	18-5383-1302	EcoAnalysts
2		Apr	14	17:22	0.106	0.03619	0.7804			11-8738-5524	11-7346-3090	EcoAnalysts
3		Jun	16	16:30	0.047	-0.02281	-0.7392			10-1828-9125	07-2633-5476	EcoAnalysts
4		Jul	8	16:11	0.132	0.06219	1.19	(+)		05-5591-4841	00-4319-6663	EcoAnalysts
5			15	16:23	0.034	-0.03581	-1.344	(-)		21-0814-1988	05-7587-8424	EcoAnalysts
6		Aug	4	16:24	0.055	-0.01481	-0.4455			04-1857-7084	11-1462-8874	EcoAnalysts
7			14	16:55	0.07	0.0001915	0.00512			02-8126-2404	18-7556-0897	EcoAnalysts
8		Sep	1	16:40	0.083	0.01319	0.3234			07-4415-5918	20-4554-8417	EcoAnalysts
9		Oct	19	16:12	0.027	-0.04281	-1.775	(-)		05-2251-3827	07-5665-8609	EcoAnalysts
10			20	16:45	0.069	-0.000809	-0.02177			11-2723-7877	04-9902-9704	EcoAnalysts
11			22	16:13	0.082	0.01219	0.3008			14-1466-2942	04-7728-0995	EcoAnalysts
12		Nov	2	16:25	0.061	-0.008808	-0.252			03-2935-4227	20-0276-1184	EcoAnalysts
13			12	15:48	0.051	-0.01881	-0.5866			16-0999-2197	12-7809-1417	EcoAnalysts
14			19	14:25	0.044	-0.02581	-0.8624			04-4903-3862	18-1208-6535	EcoAnalysts
15		Dec	8	17:10	0.141	0.07119	1.314	(+)		10-9003-3134	17-9450-1535	EcoAnalysts
16	2021	Jan	27	16:55	0.082	0.01219	0.3008			04-1822-1173	06-3060-1369	EcoAnalysts
17		Feb	2	16:06	0.025	-0.04481	-1.919	(-)		03-3410-8803	06-7183-2803	EcoAnalysts
18			5	15:30	0.091	0.02119	0.4953			03-0062-6771	13-9399-7616	EcoAnalysts
19		Mar	23	16:28	0.123	0.05319	1.058	(+)		17-8758-4170	10-5996-6199	EcoAnalysts
20		May	6	16:56	0.09	0.02019	0.4747			18-3396-1658	08-0223-1186	EcoAnalysts
21		Jul	21	15:45	0.124	0.05419	1.073	(+)		17-9855-0345	02-3257-0605	EcoAnalysts

CETIS QC Plot

Report Date: 07 Sep-21 14:41 (1 of 1)

Bivalve Larval Survival and Development Test — **All Matching Labs**

Test Type: Development-Survival | **Organism:** Mytilus galloprovincialis (Bay Mussel) | **Material:** Total Ammonia
Protocol: EPA/600/R-95/136 (1995) | **Endpoint:** Combined Proportion Normal | **Source:** Reference Toxicant-REF



Mean:	6.807	**Count:**	20	**-1s Warning Limit:**	4.41	**-2s Action Limit:**	2.856
Sigma:	n/a	**CV:**	45.60%	**+1s Warning Limit:**	10.51	**+2s Action Limit:**	16.24

Quality Control Data

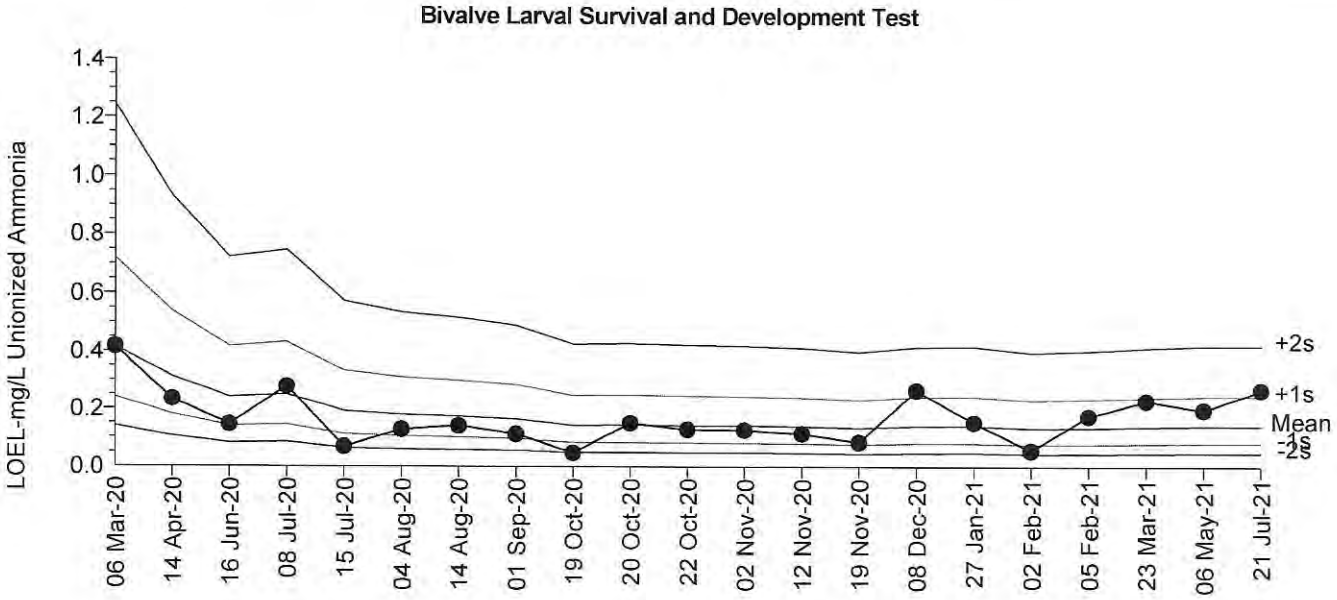
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	17.5	10.69	2.173	(+)	(+)	11-0943-5085	03-6255-8076	EcoAnalysts
2		Apr	14	17:22	9.78	2.973	0.8339			16-8043-8788	04-0175-1787	EcoAnalysts
3		Jun	16	16:30	7.62	0.8127	0.2596			20-4167-7835	09-8607-1747	EcoAnalysts
4		Jul	8	16:11	12.3	5.493	1.362	(+)		08-5035-5256	15-3252-7371	EcoAnalysts
5			15	16:23	3.15	-3.657	-1.774	(-)		15-9646-8760	10-4026-1588	EcoAnalysts
6		Aug	4	16:24	3.75	-3.057	-1.372	(-)		01-0670-7137	02-0847-6284	EcoAnalysts
7			14	16:55	6.28	-0.5273	-0.1856			04-3842-3020	20-5656-0671	EcoAnalysts
8		Sep	1	16:40	6.14	-0.6673	-0.2375			10-2380-5741	13-6274-7985	EcoAnalysts
9		Oct	19	16:12	3.12	-3.687	-1.796	(-)		03-4887-8037	01-3719-7130	EcoAnalysts
10			20	16:45	6.55	-0.2573	-0.08869			02-8066-5792	02-5619-4726	EcoAnalysts
11			22	16:13	6.66	-0.1473	-0.05036			16-2361-2059	19-7842-4361	EcoAnalysts
12		Nov	2	16:25	6.63	-0.1773	-0.06075			09-9915-4860	18-9549-9885	EcoAnalysts
13			12	15:48	8.32	1.513	0.4618			00-9253-4746	08-5537-8252	EcoAnalysts
14			19	14:25	6.94	0.1327	0.04442			09-9158-3877	18-8616-2197	EcoAnalysts
15		Dec	8	17:10	10.8	3.993	1.062	(+)		11-2786-8014	13-9253-6845	EcoAnalysts
16	2021	Jan	27	16:55	6.37	-0.4373	-0.1528			08-6647-1109	08-3677-1779	EcoAnalysts
17		Feb	2	16:06	3.92	-2.887	-1.27	(-)		13-7329-9148	11-0410-6276	EcoAnalysts
18			5	15:30	8.12	1.313	0.4058			16-8922-0204	02-5482-4547	EcoAnalysts
19		Mar	23	16:28	8.1	1.293	0.4001			18-0846-5810	18-0485-1123	EcoAnalysts
20		May	6	16:56	6.8	-0.00733	-0.00248			20-0688-2194	07-1124-5995	EcoAnalysts
21		Jul	21	15:45	13.9	7.093	1.643	(+)		15-0733-0020	09-2905-9213	EcoAnalysts

CETIS QC Plot

Report Date: 07 Sep-21 14:42 (1 of 1)

Bivalve Larval Survival and Development Test — **All Matching Labs**

Test Type: Development-Survival **Organism:** Mytilus galloprovincialis (Bay Mussel) **Material:** Unionized Ammonia
Protocol: EPA/600/R-95/136 (1995) **Endpoint:** Combined Proportion Normal **Source:** Reference Toxicant-REF



Mean:	0.1411	**Count:**	20	**-1s Warning Limit:**	0.08164	**-2s Action Limit:**	0.04722
Sigma:	n/a	**CV:**	59.10%	**+1s Warning Limit:**	0.244	**+2s Action Limit:**	0.4219

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2020	Mar	6	15:32	0.416	0.2749	1.974	(+)		03-0250-6235	18-5383-1302	EcoAnalysts
2		Apr	14	17:22	0.234	0.09286	0.9234			11-8738-5524	11-7346-3090	EcoAnalysts
3		Jun	16	16:30	0.145	0.00386	0.04928			10-1828-9125	07-2633-5476	EcoAnalysts
4		Jul	8	16:11	0.278	0.1369	1.238	(+)		05-5591-4841	00-4319-6663	EcoAnalysts
5			15	16:23	0.067	-0.07414	-1.361	(-)		21-0814-1988	05-7587-8424	EcoAnalysts
6		Aug	4	16:24	0.127	-0.01414	-0.1928			04-1857-7084	11-1462-8874	EcoAnalysts
7			14	16:55	0.14	-0.00114	-0.01482			02-8126-2404	18-7556-0897	EcoAnalysts
8		Sep	1	16:40	0.112	-0.02914	-0.4224			07-4415-5918	20-4554-8417	EcoAnalysts
9		Oct	19	16:12	0.047	-0.09414	-2.008	(-)	(-)	05-2251-3827	07-5665-8609	EcoAnalysts
10			20	16:45	0.15	0.00886	0.1112			11-2723-7877	04-9902-9704	EcoAnalysts
11			22	16:13	0.127	-0.01414	-0.1928			14-1466-2942	04-7728-0995	EcoAnalysts
12		Nov	2	16:25	0.125	-0.01614	-0.2218			03-2935-4227	20-0276-1184	EcoAnalysts
13			12	15:48	0.114	-0.02714	-0.3901			16-0999-2197	12-7809-1417	EcoAnalysts
14			19	14:25	0.084	-0.05714	-0.9478			04-4903-3862	18-1208-6535	EcoAnalysts
15		Dec	8	17:10	0.264	0.1229	1.144	(+)		10-9003-3134	17-9450-1535	EcoAnalysts
16	2021	Jan	27	16:55	0.152	0.01086	0.1354			04-1822-1173	06-3060-1369	EcoAnalysts
17		Feb	2	16:06	0.056	-0.08514	-1.688	(-)		03-3410-8803	06-7183-2803	EcoAnalysts
18			5	15:30	0.174	0.03286	0.3823			03-0062-6771	13-9399-7616	EcoAnalysts
19		Mar	23	16:28	0.229	0.08786	0.884			17-8758-4170	10-5996-6199	EcoAnalysts
20		May	6	16:56	0.196	0.05486	0.5997			18-3396-1658	08-0223-1186	EcoAnalysts
21		Jul	21	15:45	0.266	0.1249	1.158	(+)		17-9855-0345	02-3257-0605	EcoAnalysts

CETIS Summary Report

Bivalve Larval Survival and Development Test — EcoAnalysts

Batch ID:	15-5075-6977	**Test Type:**	Development-Survival	**Analyst:**			
Start Date:	21 Jul-21 15:45	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater		
Ending Date:	23 Jul-21 16:25	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable		
Test Length:	49h	**Taxon:**	Bivalvia	**Source:**	Taylor Shellfish	**Age:**	
Sample ID:	12-2330-4358	**Code:**	P190612.194	**Project:**	Reference Toxicant		
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Source:**	Reference Toxicant		
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.194		
Sample Age:	770d 16h	**Client:**	Internal Lab				

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
09-2905-9213	Combined Proportion Norma	Dunnett Multiple Comparison Test	✓	6.49	13.9	9.498		12.1%	1
08-2343-5155	Proportion Normal	Dunnett Multiple Comparison Test	✓	6.49	13.9	9.498		2.49%	1
07-9314-9349	Proportion Survived	Dunnett Multiple Comparison Test		25.8	>25.8	n/a		12.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
12-3161-3844	Combined Proportion Norma	Linear Interpolation (ICPIN)	✓	EC5	3.131	n/a	10.72		1
			✓	EC10	6.773	n/a	7.453		
			✓	EC15	7.145	5.961	7.824		
			✓	EC20	7.535	6.387	8.211		
			✓	EC25	7.943	6.839	8.614		
			✓	EC40	9.29	8.345	9.886		
			✓	EC50	10.3	9.533	10.85		
12-6483-4087	Proportion Normal	Linear Interpolation (ICPIN)		EC5	6.695	6.555	6.803		1
				EC10	7.048	6.901	7.165		
				EC15	7.416	7.252	7.543		
				EC20	7.801	7.619	7.959		
				EC25	8.204	8	8.41		
				EC40	9.527	9.249	9.904		
				EC50	10.51	10.17	11.1		
06-3408-9226	Proportion Survived	Linear Interpolation (ICPIN)		EC5	>25.8	n/a	n/a		1
				EC10	>25.8	n/a	n/a		
				EC15	>25.8	n/a	n/a		
				EC20	>25.8	n/a	n/a		
				EC25	>25.8	n/a	n/a		
				EC40	>25.8	n/a	n/a		
				EC50	>25.8	n/a	n/a		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
08-2343-5155	Proportion Normal	Control Resp	0.974	0.9	>>	Yes	Passes Criteria
12-6483-4087	Proportion Normal	Control Resp	0.974	0.9	>>	Yes	Passes Criteria
06-3408-9226	Proportion Survived	Control Resp	0.9914	0.5	>>	Yes	Passes Criteria
07-9314-9349	Proportion Survived	Control Resp	0.9914	0.5	>>	Yes	Passes Criteria
09-2905-9213	Combined Proportion Norma	PMSD	0.1212	<<	0.25	No	Passes Criteria

Bivalve Larval Survival and Development Test — **EcoAnalysts**

Combined Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9827	0.9083	1.0000	0.9481	1.0000	0.0173	0.0300	3.05%	0.00%
1.86		3	0.9635	0.8362	1.0000	0.9049	1.0000	0.0296	0.0513	5.32%	1.96%
3.68		3	0.9011	0.6722	1.0000	0.8012	0.9827	0.0532	0.0921	10.23%	8.31%
6.49		3	0.9462	0.7449	1.0000	0.8530	1.0000	0.0468	0.0810	8.56%	3.71%
13.9		3	0.2008	0.1461	0.2554	0.1816	0.2248	0.0127	0.0220	10.96%	79.57%
25.8		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9740	0.9556	0.9923	0.9669	0.9817	0.0043	0.0074	0.76%	0.00%
1.86		3	0.9725	0.9500	0.9950	0.9656	0.9828	0.0052	0.0091	0.93%	0.15%
3.68		3	0.9574	0.9175	0.9972	0.9392	0.9696	0.0093	0.0161	1.68%	1.71%
6.49		3	0.9548	0.9362	0.9735	0.9493	0.9634	0.0043	0.0075	0.79%	1.97%
13.9		3	0.2081	0.1161	0.3001	0.1842	0.2508	0.0214	0.0370	17.79%	78.63%
25.8		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9914	0.9542	1.0000	0.9741	1.0000	0.0086	0.0150	1.51%	0.00%
1.86		3	0.9779	0.8828	1.0000	0.9337	1.0000	0.0221	0.0383	3.91%	1.36%
3.68		3	0.9337	0.7486	1.0000	0.8530	1.0000	0.0430	0.0745	7.98%	5.81%
6.49		3	0.9654	0.8166	1.0000	0.8963	1.0000	0.0346	0.0599	6.20%	2.62%
13.9		3	0.9606	0.8210	1.0000	0.8963	1.0000	0.0325	0.0562	5.85%	3.10%
25.8		3	0.9539	0.8299	1.0000	0.8963	0.9827	0.0288	0.0499	5.23%	3.78%

Combined Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9481	1.0000
1.86		0.9049	0.9856	1.0000
3.68		0.9827	0.8012	0.9193
6.49		0.8530	1.0000	0.9856
13.9		0.1816	0.1960	0.2248
25.8		0.0000	0.0000	0.0000

Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	0.9669	0.9734	0.9817
1.86		0.9691	0.9828	0.9656
3.68		0.9633	0.9392	0.9696
6.49		0.9518	0.9493	0.9634
13.9		0.1842	0.1894	0.2508
25.8		0.0000	0.0000	0.0000

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9741	1.0000
1.86		0.9337	1.0000	1.0000
3.68		1.0000	0.8530	0.9481
6.49		0.8963	1.0000	1.0000
13.9		0.9856	1.0000	0.8963
25.8		0.8963	0.9827	0.9827

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	351/351	329/347	375/375
1.86		314/347	342/347	365/365
3.68		341/347	278/347	319/347
6.49		296/347	356/356	342/347
13.9		63/347	68/347	78/347
25.8		0/347	0/347	0/347

Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	351/363	329/338	375/382
1.86		314/324	342/348	365/378
3.68		341/354	278/296	319/329
6.49		296/311	356/375	342/355
13.9		63/342	68/359	78/311
25.8		0/311	0/341	0/341

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	347/347	338/347	347/347
1.86		324/347	347/347	347/347
3.68		347/347	296/347	329/347
6.49		311/347	347/347	347/347
13.9		342/347	347/347	311/347
25.8		311/347	341/347	341/347

CETIS Test Data Worksheet

Test Code/ID: P190612.194 / 15-0733-0020

Bivalve Larval Survival and Development Test — EcoAnalysts

Start Date:	21 Jul-21 15:45	**Species:**	Mytilus galloprovincialis	**Sample Code:**	P190612.194
End Date:	23 Jul-21 16:25	**Protocol:**	EPA/600/R-95/136 (1995)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Total Ammonia	**Sample Station:**	P190612.194

Conc-mg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	D	1	1	347	363	363	351	
0	D	2	4	347	338	338	329	
0	D	3	17	347	382	382	375	
1.86		1	8	347	324	324	314	
1.86		2	5	347	348	348	342	
1.86		3	2	347	378	378	365	
3.68		1	15	347	354	354	341	
3.68		2	12	347	296	296	278	
3.68		3	3	347	329	329	319	
6.49		1	9	347	311	311	296	
6.49		2	16	347	375	375	356	
6.49		3	18	347	355	355	342	
13.9		1	7	347	342	342	63	
13.9		2	11	347	359	359	68	
13.9		3	6	347	311	311	78	
25.8		1	14	347	311	311	0	
25.8		2	13	347	341	341	0	
25.8		3	10	347	341	341	0	

CETIS Summary Report

Bivalve Larval Survival and Development Test — **EcoAnalysts**

Batch ID:	15-5075-6977	**Test Type:**	Development-Survival	**Analyst:**			
Start Date:	21 Jul-21 15:45	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Laboratory Seawater		
Ending Date:	23 Jul-21 16:25	**Species:**	Mytilus galloprovincialis	**Brine:**	Not Applicable		
Test Length:	49h	**Taxon:**	Bivalvia	**Source:**	Taylor Shellfish	**Age:**	

Sample ID:	20-4341-7188	**Code:**	P190612.194	**Project:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Source:**	Reference Toxicant
Receipt Date:	12 Jun-19	**CAS (PC):**		**Station:**	P190612.194
Sample Age:	770d 16h	**Client:**	Internal Lab		

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
02-3257-0605	Combined Proportion Norma	Dunnett Multiple Comparison Test	✓	0.124	0.266	0.1816		12.1%	1
12-3290-2439	Proportion Normal	Dunnett Multiple Comparison Test	✓	0.124	0.266	0.1816		2.49%	1
17-5633-7182	Proportion Survived	Dunnett Multiple Comparison Test		0.493	>0.493	n/a		12.1%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	mg/L	95% LCL	95% UCL	TU	S
08-5046-8808	Combined Proportion Norma	Linear Interpolation (ICPIN)	✓	EC5	0.06128	n/a	0.208		1
			✓	EC10	0.1312	n/a	0.1489		
			✓	EC15	0.1404	0.1152	0.1567		
			✓	EC20	0.1497	0.1264	0.1648		
			✓	EC25	0.159	0.1377	0.173		
			✓	EC40	0.1875	0.1724	0.1979		
			✓	EC50	0.2068	0.1933	0.2159		
10-7354-4558	Proportion Normal	Linear Interpolation (ICPIN)		EC5	0.1293	0.1259	0.1317		1
				EC10	0.138	0.1346	0.1401		
				EC15	0.1469	0.1431	0.1493		
				EC20	0.1558	0.1517	0.1587		
				EC25	0.1648	0.1603	0.1682		
				EC40	0.1922	0.1866	0.1973		
				EC50	0.2108	0.2044	0.217		
19-3820-7639	Proportion Survived	Linear Interpolation (ICPIN)		EC5	>0.493	n/a	n/a		1
				EC10	>0.493	n/a	n/a		
				EC15	>0.493	n/a	n/a		
				EC20	>0.493	n/a	n/a		
				EC25	>0.493	n/a	n/a		
				EC40	>0.493	n/a	n/a		
				EC50	>0.493	n/a	n/a		

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
10-7354-4558	Proportion Normal	Control Resp	0.974	0.9	>>	Yes	Passes Criteria
12-3290-2439	Proportion Normal	Control Resp	0.974	0.9	>>	Yes	Passes Criteria
17-5633-7182	Proportion Survived	Control Resp	0.9914	0.5	>>	Yes	Passes Criteria
19-3820-7639	Proportion Survived	Control Resp	0.9914	0.5	>>	Yes	Passes Criteria
02-3257-0605	Combined Proportion Norma	PMSD	0.1212	<<	0.25	No	Passes Criteria

Bivalve Larval Survival and Development Test — **EcoAnalysts**

Combined Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9827	0.9083	1.0000	0.9481	1.0000	0.0173	0.0300	3.05%	0.00%
0.036		3	0.9635	0.8362	1.0000	0.9049	1.0000	0.0296	0.0513	5.32%	1.96%
0.07		3	0.9011	0.6722	1.0000	0.8012	0.9827	0.0532	0.0921	10.23%	8.31%
0.124		3	0.9462	0.7449	1.0000	0.8530	1.0000	0.0468	0.0810	8.56%	3.71%
0.266		3	0.2008	0.1461	0.2554	0.1816	0.2248	0.0127	0.0220	10.96%	79.57%
0.493		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Normal Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9740	0.9556	0.9923	0.9669	0.9817	0.0043	0.0074	0.76%	0.00%
0.036		3	0.9725	0.9500	0.9950	0.9656	0.9828	0.0052	0.0091	0.93%	0.15%
0.07		3	0.9574	0.9175	0.9972	0.9392	0.9696	0.0093	0.0161	1.68%	1.71%
0.124		3	0.9548	0.9362	0.9735	0.9493	0.9634	0.0043	0.0075	0.79%	1.97%
0.266		3	0.2081	0.1161	0.3001	0.1842	0.2508	0.0214	0.0370	17.79%	78.63%
0.493		3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		100.00%

Proportion Survived Summary

Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	3	0.9914	0.9542	1.0000	0.9741	1.0000	0.0086	0.0150	1.51%	0.00%
0.036		3	0.9779	0.8828	1.0000	0.9337	1.0000	0.0221	0.0383	3.91%	1.36%
0.07		3	0.9337	0.7486	1.0000	0.8530	1.0000	0.0430	0.0745	7.98%	5.81%
0.124		3	0.9654	0.8166	1.0000	0.8963	1.0000	0.0346	0.0599	6.20%	2.62%
0.266		3	0.9606	0.8210	1.0000	0.8963	1.0000	0.0325	0.0562	5.85%	3.10%
0.493		3	0.9539	0.8299	1.0000	0.8963	0.9827	0.0288	0.0499	5.23%	3.78%

Combined Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9481	1.0000
0.036		0.9049	0.9856	1.0000
0.07		0.9827	0.8012	0.9193
0.124		0.8530	1.0000	0.9856
0.266		0.1816	0.1960	0.2248
0.493		0.0000	0.0000	0.0000

Proportion Normal Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	0.9669	0.9734	0.9817
0.036		0.9691	0.9828	0.9656
0.07		0.9633	0.9392	0.9696
0.124		0.9518	0.9493	0.9634
0.266		0.1842	0.1894	0.2508
0.493		0.0000	0.0000	0.0000

Proportion Survived Detail

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	1.0000	0.9741	1.0000
0.036		0.9337	1.0000	1.0000
0.07		1.0000	0.8530	0.9481
0.124		0.8963	1.0000	1.0000
0.266		0.9856	1.0000	0.8963
0.493		0.8963	0.9827	0.9827

Bivalve Larval Survival and Development Test

EcoAnalysts

Combined Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	351/351	329/347	375/375
0.036		314/347	342/347	365/365
0.07		341/347	278/347	319/347
0.124		296/347	356/356	342/347
0.266		63/347	68/347	78/347
0.493		0/347	0/347	0/347

Proportion Normal Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	351/363	329/338	375/382
0.036		314/324	342/348	365/378
0.07		341/354	278/296	319/329
0.124		296/311	356/375	342/355
0.266		63/342	68/359	78/311
0.493		0/311	0/341	0/341

Proportion Survived Binomials

Conc-mg/L	Code	Rep 1	Rep 2	Rep 3
0	D	347/347	338/347	347/347
0.036		324/347	347/347	347/347
0.07		347/347	296/347	329/347
0.124		311/347	347/347	347/347
0.266		342/347	347/347	311/347
0.493		311/347	341/347	341/347

CETIS Test Data Worksheet

Report Date: 07 Sep-21 14:40 (p 1 of 1)
Test Code/ID: P190612.194 / 17-9855-0345

Bivalve Larval Survival and Development Test — **EcoAnalysts**

Start Date:	21 Jul-21 15:45	**Species:**	Mytilus galloprovincialis	**Sample Code:**	P190612.194
End Date:	23 Jul-21 16:25	**Protocol:**	EPA/600/R-95/136 (1995)	**Sample Source:**	Reference Toxicant
Sample Date:	12 Jun-19	**Material:**	Unionized Ammonia	**Sample Station:**	P190612.194

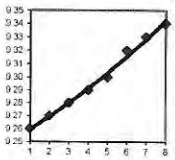
Conc-mg/L	Code	Rep	Pos	Initial Density	Final Density	# Counted	# Normal	Notes
0	D	1	8	347	363	363	351	
0	D	2	7	347	338	338	329	
0	D	3	1	347	382	382	375	
0.036		1	14	347	324	324	314	
0.036		2	5	347	348	348	342	
0.036		3	17	347	378	378	365	
0.07		1	18	347	354	354	341	
0.07		2	6	347	296	296	278	
0.07		3	15	347	329	329	319	
0.124		1	2	347	311	311	296	
0.124		2	3	347	375	375	356	
0.124		3	9	347	355	355	342	
0.266		1	10	347	342	342	63	
0.266		2	4	347	359	359	68	
0.266		3	11	347	311	311	78	
0.493		1	12	347	311	311	0	
0.493		2	16	347	341	341	0	
0.493		3	13	347	341	341	0	

Un-ionized Ammonia Calculator

CLIENT:	Internal	Date of Test:	July 21, 2021
PROJECT:	Ref Tox	Test Type:	*Mytilus*
COMMENTS:			

To convert Total Ammonia (mg/L) to Free (un-ionized) Ammonia (mg/L) enter the corresponding total ammonia, salinity, temperature, and pH.

Ionic strength	pKa[s]
1	9.26
2	9.27
3	9.28
4	9.29
5	9.30
6	9.32
7	9.33
8	9.34



$y = 0.0003x^2 + 0.0091x + 9.2502$

...

	Sample	Mod	*NH3T (mg/L)*	*salinity (ppt)*	*pH*	*temp (C)*	*temp (K)*	*pKa[s]*		NH_3U (mg/L)
	Target / Sample Name		Actual	Actual	Actual	Actual	Calculated	Calculated		**Calculated**
	Example 3.5		2.000	10.0	7.5	5.0	278.15	9.2520		**0.008**
1										
2										
3	1.5		1.86	30	7.8	17.0	290.15	9.2559		**0.036**
4	3		3.68	30	7.8	17.0	290.15	9.2559		**0.070**
5	6		6.49	30	7.8	17.0	290.15	9.2559		**0.124**
6	12		13.9	30	7.8	17.0	290.15	9.2559		**0.266**
7	18		25.8	30	7.8	17.0	290.15	9.2559		**0.493**
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										

QA ✓ [illegible]

48 Hour Bivalve Development Reference Toxicant Test

Test ID: P190612.194	Replicates: 3	Study Director: J. Levengood	Location: Incubator 1
Dilution Water Batch: ① ~~FSW06~~ FSW072121.01	Organism Batch: 15072021.	Associated Test(s): —	Organism: Mytilus spp.
Chamber Size/Type: 30 ml shell vial	Exposure Volume: 10 ml		
Toxicant: Ammonium Chloride:	Lot #: 18H1356763	Date Prepared: 7/21/21	Initials: MK
Target Concentrations: **See spiking worksheet**		Quantity of Stock: Target: See spiking worksheet	Quantity of Diluent: Target: 200 mL
See spiking worksheet		Actual: See spiking worksheet	Actual:

0 Hours Date: 7/21/21 WQ Time: 1510 MK Start Time: 1545 Initials: JL, MK

STOCK

	Control	1.5	3	6	12	18
D.O. (%) (>6 mg/L)	7.4	7.4	7.4	7.4	7.4	7.4
Temperature (16 ± 1°C)	17.0 ②	17.0	17.0	17.0	17.0	17.0
Salinity (28 ± 1 ppt)	30	30	30	30	30	30
pH (7-9)	7.9	7.8	7.8	7.8	7.8	7.8

Day 1 Temperature (16 ± 1°C) 16.2 TJ MARIA

Final Day Date: 7/23/21 WQ Time: 1615 DM End Time: 1625 Initials: MK

Formalin Lot #: 200924-20 Rose Bengal Lot #: 5135

STOCK

	Control	1.5	3	6	12	18
D.O. (%) (>6 mg/L)	8.1	8.0	7.9	7.8	7.9	7.9
Temperature (16 ± 1°C)	② 16.0	② 16.0	② 16.0	② 16.0	② 16.0	② 16.0
Salinity (28 ± 1 ppt)	30	30	31	31	32	31
pH (7-9)	8.0	8.0	8.0	7.9	7.9	7.9

Notes: ① IE. MK 7/21. ② temp blank used. MK 7/21., DM - 7/23/21

48 Hour Bivalve Development Reference Toxicant Test

Conc.	Rep	Number Normal	Number Abnormal	Date	Initials
Control	1	351	12	8/3/21	MK
	2	329	9	8/3/21	MK
	3	375	7	8/3/21	MK
1.5	1	314	10	8/3/21	MK
	2	342	6	8/3/21	MK
	3	365	13	8/3/21	MK
3	1	341	13	8/3/21	MK
	2	278	18	8/3/21	MK
	3	319	10	8/3/21	MK
6	1	296	15	8/3/21	MK
	2	356	19	8/3/21	MK
	3	342	13	8/3/21	MK
12	1	63	279	8/3/21	MK
	2	68	291	8/3/21	MK
	3	78	293	8/3/21	MK
18	1	0	311	8/3/21	MK
	2	0	341	8/3/21	MK
	3	0	341	8/3/21	MK

Stocking Density

Rep	Count	Init.
1	331	MK
2	338	MK
3	373	MK
Mean:	347	

QA Count Checks:			
#1 conc/rep 3 R1 # normal 339 # abnormal 13	#2 conc/rep 12 R2 # normal 66 # abnormal 306	#3 conc/rep _____ # normal ___ # abnormal ___	#4 conc/rep _____ # normal ___ # abnormal ___
Tech. Init. MARK	Tech. Init. MARK	Tech. Init. _____	Tech. Init. _____
Calc. QA 339/352 = 96.3% Orig 341/354 = 96.3%	QA 66/372 = 17.7% Orig 68/359 = 18.9%		

QA Check Acceptability: ☑ <5% difference in means of QA & orig. counts

Ammonia Reference Toxicant
Spiking Worksheet

Reference Toxicant ID: P190612.194
Date Prepared: 7/21/21
Technician Initials: MK

Biv / Echino NH_3 RT

Assumptions in Model
Stock ammonia concentration is 9,000 mg/L = 9 mg/mL

Date: 7/20/2021
Measurement: 9323.33

Test Solutions			Volume of stock to reach desired concentration	
Measured Concentration	Desired Concentration	Volume		
mg/L	mg/L	mL	mL stock to increase	
				SALT WATER
1.86	**1.5**	200		**0.048**
3.68	**3**	200		**0.097**
6.49	**6**	200		**0.193**
13.9	**12**	200		**0.386**
25.8	**18**	200		**0.579**

Daily Quality Assurance Checks

Project name: —

Test: larval NH_3 RT

Day of Test		Initials	Date	Comments
0	Test datasheets checked for completeness and legibility	JC	7/21	
	Headers/ footers filled in, visual check of test chambers, cover test, ensure proper lighting	↓	↓	
	Test data within acceptable ranges			
1	Test datasheets checked for completeness and legibility	MK	7/22	
	Test data within acceptable ranges	↓	↓	
2	Test datasheets checked for completeness and legibility	DM	7/23	
	Test data within acceptable ranges	↓	↓	
3	Test datasheets checked for completeness and legibility			
	Test data within acceptable ranges			
4	Test datasheets checked for completeness and legibility			
	Test data within acceptable ranges			

$\frac{2700}{30800} = 0.088 \times 100 =$ 8.8 mL egg stock

91.2 mL FSW

Deliver 100 mL

7. *Alitta virens* and *Macoma nasuta* Bioaccumulation Tests

7.1 *Alitta virens* and *Macoma nasuta* Test Data

Version T.2

GENERAL

Client	Wood / KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	**M. Knowlen**
Date Oldest Sample Collected	**5/31/2021**
Sample Holding Time	**53**
Test Start Date	**07/23/21**
Test Species 1	**Alitta virens**
Test Species 2	
Organism 1 Supplier	**ARO**
Organism 1 Acquired	**7/22/2021**
Organism 1 Acclimation	1
Organism 1 Age	**Adult**
Organism 2 Supplier	
Organism 2 Acquired	
Organism 2 Acclimation	**44400**
Organism 2 Age	
Test Protocol	**ITM/OTM**
Regional Protocol	
Laboratory Location	**Port Gamble**
Test Location	**Bath 1**
Sample Treatment	**none**
Control Sediment Source	**Boothbay Harbor**
Water Description	**10 um filtered Hood Canal Seawater**
Test Lighting	**16hr L : 8hr D**
Test Chamber	**10 gallon aquaria**
Organisms 1 per Replicate	20
Organisms 2 per Replicate	
Exposure Volume	5cm / 18.5 L
Feeding Information	None
Test Dissolved Oxygen	> 5.1
Test Temperature	14 ± 2
Test Salinity	30 ± 2
Test pH	7.8 ± 0.5
Water Flow Rate	32 - 64

Note: input lowest and highest decimal for temp

Note: if running two species, worm = Test Species 1

Test Parameters		
	Min	**Max**
DO	5.1	
Temp	11.5	16.4
Salinity	28	32
pH	7.3	8.3
Flow	32	64

TEST START TIME:	1510
TEST END TIME:	925

	CLIENT SAMPLE ID	LAB ID
1	Control	P210721.01
2	LA-5 Ref	P210707.01
3	Composite A	P210707.02
4	Composite B	P210707.03
5	Composite D	P210707.04
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.
20	.	.
21	.	.

EcoAnalysts, Inc.

28 Day Bioaccumulation Test Pretest Info

CLIENT	PROJECT	PROJECT NUMBER	PROJECT MANAGER
Wood / KMEA	Mole Pier	PG1217	M. Knowlen

SPECIES 1 *Alitta virens*

PRETEST TISSUE SUMMARY

Treatment	Rep	Depuration Begin		Remove Mucus/Fecal Matter [Init.]		Depuration End		Balance ID:			Tisue Wet Weight (g) [Total - Tare]	Init.
		Date	Time	Event 1	Event 2	Date	Time	Number Preserved	Tare Weight (g) [Jar + Lid]	Total Wet Weight (g) [Jar, Lid, Tissue]		
Pretest	1	7/22/2021	1700	--	MK	7/23/2021	1700	20	168.5	275.5	107.0	MK
Pretest	2										0.0	
Pretest	3										0.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Control	0	1	1	JL	7/23/2021	8	7.6	15.2	30	7.9	59.0	
Control	0	2	11	MS	7/23/2021	8	7.6	15.4	30	7.9	47.0	
Control	0	3	12	MS	7/23/2021	8	7.6	15.3	30	7.9	36.0	
Control	0	4	6	MS	7/23/2021	8	7.2	15.1	30	7.9	48.0	
Control	0	5	17	MS	7/23/2021	8	7.5	15.4	30	7.9	33.0	
Control	1	1	1	IP	7/24/2021	9	6.7	15.6	30	7.7	36.0	
Control	2	2	11	IP	7/25/2021	8	6.9	15.3	30	7.8	54.0	
Control	3	3	12	MK	7/26/2021	9	6.9	15.9	31	7.7	35.0	
Control	4	4	6	IP	7/27/2021	8	6.9	15.4	30	7.7	52.0	
Control	5	5	17	RE	7/28/2021	9	6.6	14.9	31	7.8	34.0	
Control	6	1	1	MS	7/29/2021	9	7.0	15.8	31	7.8	54.0	
Control	7	2	11	SH	7/30/2021	9	7.0	15.5	31	7.8	38.0	
Control	8	3	12	IP	7/31/2021	8	7.0	16.0	30	7.8	47.0	
Control	9	4	6	IP	8/1/2021	9	6.7	15.4	31	7.8	54.0	
Control	10	5	17	RE	8/2/2021	8	7.2	16.1	30	7.8	45.0	
Control	11	1	1	IP	8/3/2021	9	7.4	15.8	30	7.9	49.0	
Control	12	2	11	NL	8/4/2021	9	7.3	16.4	30	7.9	39.0	
Control	13	3	12	IP	8/5/2021	8	7.2	16.6	30	8.0	43.0	water bath temp at lowest setting-DM-8/5/21
Control	14	4	6	IP	8/6/2021	9	7.1	15.6	30	8.1	45.0	
Control	15	5	17	NL	8/7/2021	9	7.9	15.6	30	8.0	54.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Control	16	1	1	DM	8/8/2021	8	7.4	16.0	30	8.0	43.0	
Control	17	2	11	MS	8/9/2021	9	7.3	15.5	30	8.0	54.0	
Control	18	3	12	IP	8/10/2021	8	7.2	15.8	30	8.0	44.0	
Control	19	4	6	NL	8/11/2021	9	7.1	15.3	30	8.0	44.0	
Control	20	5	17	IP	8/12/2021	8	7.0	15.8	30	7.9	56.0	
Control	21	1	1	NL	8/13/2021	9	7.1	15.4	31	7.9	32.0	
Control	22	2	11	SH	8/14/2021	9	7.3	15.4	31	7.9	42.0	
Control	23	3	12	IP	8/15/2021	9	7.3	16.3	30	7.9	47.0	
Control	24	4	6	IP	8/16/2021	9	7.3	16.2	30	8.0	56.0	
Control	25	5	17	DM	8/17/2021	8	6.8	15.8	29	8.0	54.0	
Control	26	1	1	SH	8/18/2021	8	7.5	16.1	29	7.8	32.0	
Control	27	2	11	NL	8/19/2021	8	7.6	16.4	29	7.9	34.0	
Control	28	1	1	NL	8/20/2021	8	7.6	16.4	30	7.9	35.0	
Control	28	2	11	NL	8/20/2021	8	7.6	16.0	29	7.9	34.0	
Control	28	3	12	NL	8/20/2021	8	7.3	16.2	30	7.9	39.0	
Control	28	4	6	NL	8/20/2021	8	7.1	16.0	29	7.9	56.0	
Control	28	5	17	NL	8/20/2021	8	7.0	16.0	29	7.9	60.0	
Control	29	1	1	MS	8/21/2021	9	7.3	15.2	30	7.8	>32	
Control	29	2	11	MS	8/21/2021	9	7.2	14.9	30	7.9	>32	
Control	29	3	12	MS	8/21/2021	9	7.4	15.3	30	7.9	>32	
Control	29	4	6	MS	8/21/2021	9	7.4	15.0	30	7.9	>32	
Control	29	5	17	MS	8/21/2021	9	7.0	14.8	30	7.9	>32	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
LA-5 Ref	0	1	19	MS	7/23/2021	8	7.5	15.5	30	8.0	36.0	
LA-5 Ref	0	2	2	JL	7/23/2021	8	7.1	15.0	30	7.9	40.0	
LA-5 Ref	0	3	3	JL	7/23/2021	8	7.2	15.1	30	8.0	33.0	
LA-5 Ref	0	4	7	MS	7/23/2021	8	7.7	15.4	30	8.0	38.0	
LA-5 Ref	0	5	13	MS	7/23/2021	8	7.7	15.4	30	8.0	32.0	
LA-5 Ref	1	1	19	IP	7/24/2021	9	6.6	15.7	30	7.8	42.0	
LA-5 Ref	2	2	2	IP	7/25/2021	8	7.1	15.4	30	7.9	56.0	
LA-5 Ref	3	3	3	MK	7/26/2021	9	6.8	15.9	31	7.8	46.0	
LA-5 Ref	4	4	7	IP	7/27/2021	8	6.6	15.2	30	7.8	61.0	
LA-5 Ref	5	5	13	RE	7/28/2021	9	7.3	15.1	31	7.8	34.0	
LA-5 Ref	6	1	19	MS	7/29/2021	9	6.6	15.4	31	7.8	47.0	
LA-5 Ref	7	2	2	SH	7/30/2021	9	7.1	15.3	31	7.8	48.0	
LA-5 Ref	8	3	3	IP	7/31/2021	8	7.1	15.8	30	7.8	52.0	
LA-5 Ref	9	4	7	IP	8/1/2021	9	7.0	15.5	31	7.8	52.0	
LA-5 Ref	10	5	13	RE	8/2/2021	8	7.7	16.2	30	7.9	45.0	
LA-5 Ref	11	1	19	IP	8/3/2021	9	7.1	16.0	30	7.8	38.0	
LA-5 Ref	12	2	2	NL	8/4/2021	9	7.6	16.2	30	7.9	40.0	
LA-5 Ref	13	3	3	IP	8/5/2021	8	7.4	16.6	30	7.4	38.0	water bath temp at lowest setting-DM-8/5/21
LA-5 Ref	14	4	7	IP	8/6/2021	9	7.1	15.6	30	8.0	51.0	
LA-5 Ref	15	5	13	NL	8/7/2021	9	8.5	15.7	30	8.0	42.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
LA-5 Ref	16	1	19	DM	8/8/2021	8	7.0	15.8	30	7.9	60.0	
LA-5 Ref	17	2	2	MS	8/9/2021	9	7.4	15.6	30	8.0	36.0	
LA-5 Ref	18	3	3	IP	8/10/2021	8	7.0	15.6	30	7.9	41.0	
LA-5 Ref	19	4	7	NL	8/11/2021	9	7.3	15.6	30	7.9	46.0	
LA-5 Ref	20	5	13	IP	8/12/2021	8	7.4	15.8	31	7.9	39.0	
LA-5 Ref	21	1	19	NL	8/13/2021	9	6.9	15.2	31	7.9	46.0	
LA-5 Ref	22	2	2	SH	8/14/2021	9	7.5	15.4	31	7.9	32.0	
LA-5 Ref	23	3	3	IP	8/15/2021	9	7.4	16.1	30	7.9	46.0	
LA-5 Ref	24	4	7	IP	8/16/2021	9	7.4	16.2	30	8.0	54.0	
LA-5 Ref	25	5	13	DM	8/17/2021	8	7.6	16.0	29	8.0	50.0	
LA-5 Ref	26	1	19	SH	8/18/2021	8	7.4	15.9	29	7.9	38.0	
LA-5 Ref	27	2	2	NL	8/19/2021	8	7.6	16.3	29	7.9	32.0	
LA-5 Ref	28	1	19	NL	8/20/2021	8	7.5	16.2	29	7.9	56.0	
LA-5 Ref	28	2	2	NL	8/20/2021	8	7.4	16.1	29	7.9	45.0	
LA-5 Ref	28	3	3	NL	8/20/2021	8	7.5	16.1	29	7.9	33.0	
LA-5 Ref	28	4	7	NL	8/20/2021	8	7.5	16.1	30	7.9	44.0	
LA-5 Ref	28	5	13	NL	8/20/2021	8	7.6	16.2	29	7.9	39.0	
LA-5 Ref	29	1	19	MS	8/21/2021	9	7.3	15.2	30	7.9	>32	
LA-5 Ref	29	2	2	MS	8/21/2021	9	7.2	15.0	30	7.9	>32	
LA-5 Ref	29	3	3	MS	8/21/2021	9	7.6	15.3	30	7.9	>32	
LA-5 Ref	29	4	7	MS	8/21/2021	9	7.3	14.9	30	7.9	>32	
LA-5 Ref	29	5	13	MS	8/21/2021	9	7.6	15.1	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite A	0	1	14	MS	7/23/2021	8	7.5	15.4	30	8.0	35.0	
Composite A	0	2	15	MS	7/23/2021	8	7.0	15.3	30	7.9	33.0	
Composite A	0	3	24	MS	7/23/2021	8	7.5	15.5	30	8.0	33.0	
Composite A	0	4	5	JL	7/23/2021	8	7.6	15.4	30	7.9	60.0	
Composite A	0	5	16	MS	7/23/2021	8	7.1	15.3	30	8.0	52.0	
Composite A	1	1	14	IP	7/24/2021	9	6.6	15.5	30	7.8	64.0	
Composite A	2	2	15	IP	7/25/2021	8	6.2	15.4	30	7.8	38.0	
Composite A	3	3	24	MK	7/26/2021	9	6.6	16.0	31	7.8	64.0	
Composite A	4	4	5	IP	7/27/2021	8	7.1	15.2	30	7.9	38.0	
Composite A	5	5	16	RE	7/28/2021	9	6.9	14.9	31	7.8	32.0	
Composite A	6	1	14	MS	7/29/2021	9	6.5	15.6	31	7.8	46.0	
Composite A	7	2	15	SH	7/30/2021	9	6.6	15.5	31	7.8	32.0	
Composite A	8	3	24	IP	7/31/2021	8	6.9	16.4	30	7.9	40.0	
Composite A	9	4	5	IP	8/1/2021	9	7.1	15.4	31	7.9	36.0	
Composite A	10	5	16	RE	8/2/2021	8	7.6	16.1	30	7.8	61.0	
Composite A	11	1	14	IP	8/3/2021	9	7.0	15.9	30	7.8	50.0	
Composite A	12	2	15	NL	8/4/2021	9	7.1	16.4	30	7.9	33.0	
Composite A	13	3	24	IP	8/5/2021	8	7.3	16.5	30	8.0	44.0	water bath temp at lowest setting-DM-8/5/21
Composite A	14	4	5	IP	8/6/2021	9	7.4	15.7	30	8.0	39.0	
Composite A	15	5	16	NL	8/7/2021	9	8.1	15.6	30	7.9	43.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite A	16	1	14	DM	8/8/2021	8	7.1	15.9	30	8.0	41.0	
Composite A	17	2	15	MS	8/9/2021	9	7.2	15.6	30	7.9	32.0	
Composite A	18	3	24	IP	8/10/2021	8	7.4	16.0	30	7.9	48.0	
Composite A	19	4	5	NL	8/11/2021	9	7.4	15.4	30	7.9	34.0	
Composite A	20	5	16	IP	8/12/2021	8	7.2	15.8	30	7.8	40.0	
Composite A	21	1	14	NL	8/13/2021	9	6.9	15.3	31	7.9	33.0	
Composite A	22	2	15	SH	8/14/2021	9	7.0	15.5	31	7.9	64.0	
Composite A	23	3	24	IP	8/15/2021	9	7.3	16.1	30	7.9	49.0	
Composite A	24	4	5	IP	8/16/2021	9	7.5	16.3	30	7.9	36.0	
Composite A	25	5	16	DM	8/17/2021	8	7.3	15.8	29	8.0	43.0	
Composite A	26	1	14	SH	8/18/2021	8	7.5	16.3	29	7.8	46.0	
Composite A	27	2	15	NL	8/19/2021	8	7.5	16.4	29	7.9	32.0	
Composite A	28	1	14	NL	8/20/2021	8	7.1	16.2	29	7.9	54.0	
Composite A	28	2	15	NL	8/20/2021	8	7.1	16.1	29	7.9	46.0	
Composite A	28	3	24	NL	8/20/2021	8	7.5	16.5	30	7.9	39.0	Lowest achievable temp. -NL 8/20/2021
Composite A	28	4	5	NL	8/20/2021	8	7.6	16.1	29	7.9	32.0	
Composite A	28	5	16	NL	8/20/2021	8	7.3	16.1	29	7.9	32.0	
Composite A	29	1	14	MS	8/21/2021	9	7.3	15.0	30	7.9	>32	
Composite A	29	2	15	MS	8/21/2021	9	7.0	14.9	30	7.9	>32	
Composite A	29	3	24	MS	8/21/2021	9	7.4	15.2	30	7.9	>32	
Composite A	29	4	5	MS	8/21/2021	9	7.4	15.0	30	7.9	>32	
Composite A	29	5	16	MS	8/21/2021	9	7.0	14.9	30	7.9	>32	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite B	0	1	20	MS	7/23/2021	8	7.6	15.3	30	8.0	48.0	
Composite B	0	2	23	MS	7/23/2021	8	7.5	15.3	30	8.0	32.0	
Composite B	0	3	18	MS	7/23/2021	8	7.4	15.3	30	8.0	44.0	
Composite B	0	4	9	MS	7/23/2021	8	7.7	15.3	30	8.0	50.0	
Composite B	0	5	25	MS	7/23/2021	8	7.3	15.6	30	7.9	49.0	
Composite B	1	1	20	IP	7/24/2021	9	6.6	15.4	30	7.9	50.0	
Composite B	2	2	23	IP	7/25/2021	8	6.7	15.4	30	7.8	43.0	
Composite B	3	3	18	MK	7/26/2019	9	6.5	15.8	31	7.8	51.0	
Composite B	4	4	9	IP	7/27/2021	8	6.8	15.4	30	7.9	48.0	
Composite B	5	5	25	RE	7/28/2021	9	7.2	14.7	31	7.8	52.0	
Composite B	6	1	20	MS	7/29/2021	9	6.8	15.3	31	7.8	35.0	
Composite B	7	2	23	SH	7/30/2021	9	6.8	15.3	31	7.8	38.0	
Composite B	8	3	18	IP	7/31/2021	8	6.7	16.0	30	7.8	51.0	
Composite B	9	4	9	IP	8/1/2021	9	6.9	15.3	31	7.8	40.0	
Composite B	10	5	25	RE	8/2/2021	8	7.5	15.7	30	7.9	48.0	
Composite B	11	1	20	IP	8/3/2021	9	7.4	15.9	30	7.9	35.0	
Composite B	12	2	23	NL	8/4/2021	9	7.4	16.3	30	7.9	44.0	
Composite B	13	3	18	IP	8/5/2021	8	7.0	16.4	30	7.9	35.0	water bath temp at lowest setting-DM-8/5/21
Composite B	14	4	9	IP	8/6/2021	9	7.2	15.6	30	8.0	36.0	
Composite B	15	5	25	NL	8/7/2021	9	8.1	15.4	30	7.9	46.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite B	16	1	20	DM	8/8/2021	8	7.2	15.7	30	7.9	54.0	
Composite B	17	2	23	MS	8/9/2021	9	7.3	15.6	30	8.0	32.0	
Composite B	18	3	18	IP	8/10/2021	8	6.8	15.5	30	8.0	49.0	
Composite B	19	4	9	NL	8/11/2021	9	7.2	15.4	30	7.9	42.0	
Composite B	20	5	25	IP	8/12/2021	8	7.2	15.7	31	7.9	61.0	
Composite B	21	1	20	NL	8/13/2021	9	7.2	15.2	31	7.9	32.0	
Composite B	22	2	23	SH	8/14/2021	9	7.2	15.4	31	7.9	44.0	
Composite B	23	3	18	IP	8/15/2021	9	7.3	16.2	30	7.9	48.0	
Composite B	24	4	9	IP	8/16/2021	9	7.4	16.2	30	8.0	42.0	
Composite B	25	5	25	DM	8/17/2021	8	7.2	15.9	29	8.0	64.0	
Composite B	26	1	20	SH	8/18/2021	8	7.5	16.1	29	7.8	54.0	
Composite B	27	2	23	NL	8/19/2021	8	7.5	16.3	29	7.9	32.0	
Composite B	28	1	20	NL	8/20/2021	8	7.4	16.1	29	7.9	34.0	
Composite B	28	2	23	NL	8/20/2021	8	7.6	16.3	29	7.9	32.0	
Composite B	28	3	18	NL	8/20/2021	8	7.3	16.0	29	7.9	34.0	
Composite B	28	4	9	NL	8/20/2021	8	7.4	16.0	29	7.9	32.0	
Composite B	28	5	25	NL	8/20/2021	8	7.5	16.4	29	7.9	40.0	
Composite B	29	1	20	MS	8/21/2021	9	7.3	15.1	30	7.9	>32	
Composite B	29	2	23	MS	8/21/2021	9	7.4	15.0	30	7.9	>32	
Composite B	29	3	18	MS	8/21/2021	9	7.1	15.0	30	7.9	>32	
Composite B	29	4	9	MS	8/21/2021	9	7.1	14.7	30	7.9	>32	
Composite B	29	5	25	MS	8/21/2021	9	7.4	14.9	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite D	0	1	21	MS	7/23/2021	8	7.9	15.4	30	8.0	45.0	
Composite D	0	2	4	JL	7/23/2021	8	7.7	15.5	30	8.0	40.0	
Composite D	0	3	8	MS	7/23/2021	8	7.8	15.2	30	8.0	46.0	
Composite D	0	4	22	MS	7/23/2021	8	7.7	15.4	30	8.0	35.0	
Composite D	0	5	10	MS	7/23/2021	8	7.7	15.4	30	8.0	37.0	
Composite D	1	1	21	IP	7/24/2021	9	7.2	15.5	30	7.8	42.0	
Composite D	2	2	4	IP	7/25/2021	8	7.3	15.4	30	7.8	55.0	
Composite D	3	3	8	MK	7/26/2021	9	7.3	15.7	31	7.8	64.0	
Composite D	4	4	22	IP	7/27/2021	8	7.4	15.5	30	7.9	40.0	
Composite D	5	5	10	RE	7/28/2021	9	7.4	14.9	31	7.8	45.0	
Composite D	6	1	21	MS	7/29/2021	9	7.3	15.7	31	7.8	51.0	
Composite D	7	2	4	SH	7/30/2021	9	7.3	15.3	31	7.8	41.0	
Composite D	8	3	8	IP	7/31/2021	8	7.6	15.8	30	7.9	50.0	
Composite D	9	4	22	IP	8/1/2021	9	7.2	15.2	31	7.7	44.0	
Composite D	10	5	10	RE	8/2/2021	8	7.5	16.0	30	7.8	36.0	
Composite D	11	1	21	IP	8/3/2021	9	7.6	16.0	30	7.9	34.0	
Composite D	12	2	4	NL	8/4/2021	9	7.6	16.3	30	7.9	32.0	
Composite D	13	3	8	IP	8/5/2021	8	7.8	16.3	30	8.0	42.0	water bath temp at lowest setting-DM-8/5/21
Composite D	14	4	22	IP	8/6/2021	9	7.7	15.7	30	8.1	40.0	
Composite D	15	5	10	NL	8/7/2021	9	8.5	15.4	30	8.0	39.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Alitta virens ,*	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite D	16	1	21	DM	8/8/2021	8	7.4	15.9	30	7.9	51.0	
Composite D	17	2	4	MS	8/9/2021	9	7.7	15.6	30	8.0	32.0	
Composite D	18	3	8	IP	8/10/2021	8	7.7	15.6	30	8.0	38.0	
Composite D	19	4	22	NL	8/11/2021	9	7.6	15.2	30	7.9	58.0	
Composite D	20	5	10	IP	8/12/2021	8	7.6	15.6	31	7.9	48.0	
Composite D	21	1	21	NL	8/13/2021	9	7.4	15.3	31	7.9	40.0	
Composite D	22	2	4	SH	8/14/2021	9	7.6	15.5	31	7.9	32.0	
Composite D	23	3	8	IP	8/15/2021	9	7.7	16.1	30	8.0	49.0	
Composite D	24	4	22	IP	8/16/2021	9	7.6	16.1	30	8.0	49.0	
Composite D	25	5	10	DM	8/17/2021	8	7.8	16.0	29	8.0	33.0	
Composite D	26	1	21	SH	8/18/2021	8	7.5	16.0	29	7.9	54.0	
Composite D	27	2	4	NL	8/19/2021	8	7.6	16.3	29	7.9	34.0	
Composite D	28	1	21	NL	8/20/2021	8	7.6	16.2	29	7.9	52.0	
Composite D	28	2	4	NL	8/20/2021	8	7.6	16.1	29	7.9	32.0	
Composite D	28	3	8	NL	8/20/2021	8	7.6	16.1	29	7.9	34.0	
Composite D	28	4	22	NL	8/20/2021	8	7.6	16.0	29	7.9	39.0	
Composite D	28	5	10	NL	8/20/2021	8	7.6	16.0	29	7.9	32.0	
Composite D	29	1	21	MS	8/21/2021	9	7.4	15.1	30	7.9	>32	
Composite D	29	2	4	MS	8/21/2021	9	7.4	15.1	30	7.9	>32	
Composite D	29	3	8	MS	8/21/2021	9	7.3	14.9	30	7.9	>32	
Composite D	29	4	22	MS	8/21/2021	9	7.4	15.0	30	7.9	>32	
Composite D	29	5	10	MS	8/21/2021	9	7.2	14.9	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Observation Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LABORATORY	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble	ITM/OTM	*Alitta virens ,*

Observation Key
#E = Number on the Surface
#M = Number of Mortality
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

			Tech	IP	IP	MK	IP	RE	MS	SH	IP	IP	RE	IP	NL	IP	IP	NL	DM	MS	IP	NL	IP	NL	SH	IP	IP	DM	SH	NL	NL	
			Date	07/24/21	07/25/21	01/26/21	07/27/21	07/28/21	07/29/21	07/30/21	07/31/21	08/01/21	08/02/21	08/03/21	08/04/21	08/05/21	08/06/21	08/07/21	08/08/21	08/09/21	08/10/21	08/11/21	08/12/21	08/13/21	08/14/21	08/15/21	08/16/21	08/17/21	08/18/21	08/19/21	08/20/21	
CLIENT ID	REP	Jar #	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Comments
Control	1	1		N	N	N	N	N	N	N	N	1E	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	
Control	2	11		N	N	N	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Control	3	12		N	N	N	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Control	4	6		N	N	N	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Control	5	17		N	N	N	2E	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	7/27/21 - 2 severed polychete tails that are still responsive
LA-5 Ref	1	19		N	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	G	N	N	N	G	G	G	G	G	G	G	G	G	
LA-5 Ref	2	2		3E	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
LA-5 Ref	3	3		1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
LA-5 Ref	4	7		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
LA-5 Ref	5	13		1E	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite A	1	14		TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite A	2	15		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite A	3	24		TC	TC	N	N	N	N	N	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite A	4	5		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite A	5	16		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

EcoANALYSTS, INC.

28 Day Bioaccumulation Observation Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LABORATORY	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble	ITM/OTM	*Alitta virens ,*

Observation Key
#E = Number on the Surface
#M = Number of Mortality
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

CLIENT ID	REP	Jar #	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Comments
			Tech	IP	IP	MK	IP	RE	MS	SH	IP	IP	RE	IP	NL	IP	IP	NL	DM	MS	IP	NL	IP	NL	SH	IP	IP	DM	SH	NL	NL	
			Date	07/24/21	07/25/21	01/26/21	07/27/21	07/28/21	07/29/21	07/30/21	07/31/21	08/01/21	08/02/21	08/03/21	08/04/21	08/05/21	08/06/21	08/07/21	08/08/21	08/09/21	08/10/21	08/11/21	08/12/21	08/13/21	08/14/21	08/15/21	08/16/21	08/17/21	08/18/21	08/19/21	08/20/21	
Composite B	1	20		TC	TC	N	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	2	23		TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	3	18		TC	TC	N	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	4	9		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	5	25		2E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite D	1	21		TC	TC	2E	3E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite D	2	4		TC	TC	1E	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite D	3	8		TC	2E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite D	4	22		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite D	5	10		TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	

EcoAnalysts, Inc.

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA			SPECIES 1 *Alitta virens*					
PROJECT Mole Pier			Date Recovered [Initials]: 8/20/2021 JW, MS		Date Preserved [Initials]: 8/21/2021 MS		Remove Mucus/Fecal Matter [Initials]: NL MS	
Sample ID	**Rep**	**Jar #**	**# Alive**	**# Dead**	**Recovery Time**	**Preservation Time**	**Event 1 (date/time)**	**Event 2 (date/time)**
Control	1	1	20	0	818	845	8/20/2021 1510	8/21/21 0842
Control	2	11	20	0	926	934	8/20/2021 1510	8/21/21 0853
Control	3	12	20	0	938	936	8/20/2021 1510	8/21/21 0853
Control	4	6	20	0	853	919	8/20/2021 1510	8/21/21 0853
Control	5	17	20	0	1006	955	8/20/2021 1510	8/21/21 0853
LA-5 Ref	1	19	20	0	1020	1002	8/20/2021 1510	8/21/21 0853
LA-5 Ref	2	2	20	0	822	847	8/20/2021 1510	8/21/21 0842
LA-5 Ref	3	3	20	0	831	911	8/20/2021 1510	8/21/21 0853
LA-5 Ref	4	7	20	0	900	923	8/20/2021 1510	8/21/21 0853
LA-5 Ref	5	13	20	0	942	944	8/20/2021 1510	8/21/21 0853
Composite A	1	14	20	0	949	946	8/20/2021 1510	8/21/21 0853
Composite A	2	15	21	0	957	951	8/20/2021 1510	8/21/21 0853
Composite A	3	24	20	0	1109	1019	8/20/2021 1510	8/21/21 0853
Composite A	4	5	20	0	845	917	8/20/2021 1510	8/21/21 0853
Composite A	5	16	20	0	1001	953	8/20/2021 1510	8/21/21 0853

EcoAnalysts, Inc.

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA			SPECIES 1 *Alitta virens*					
PROJECT Mole Pier			Date Recovered [Initials]: 8/20/2021 JW, MS		Date Preserved [Initials]: 8/21/2021 MS		Remove Mucus/Fecal Matter [Initials]: NL MS	
Sample ID	**Rep**	**Jar #**	**# Alive**	**# Dead**	**Recovery Time**	**Preservation Time**	**Event 1 (date/time)**	**Event 2 (date/time)**
Composite B	1	20	20	0	1025	1004	8/20/2021 1510	8/21/21 0853
Composite B	2	23	20	0	1100	1014	8/20/2021 1510	8/21/21 0853
Composite B	3	18	20	0	1018	1000	8/20/2021 1510	8/21/21 0853
Composite B	4	9	20	0	912	929	8/20/2021 1510	8/21/21 0853
Composite B	5	25	20	0	1117	1021	8/20/2021 1510	8/21/21 0853
Composite D	1	21	19	0	1038	1010	8/20/2021 1510	8/21/21 0853
Composite D	2	4	20	0	838	913	8/20/2021 1510	8/21/21 0853
Composite D	3	8	20	0	912	925	8/20/2021 1510	8/21/21 0853
Composite D	4	22	20	0	1048	1012	8/20/2021 1510	8/21/21 0853
Composite D	5	10	20	0	925	931	8/20/2021 1510	8/21/21 0853

28 Day Bioaccumulation Test Weights

EcoAnalysts, Inc.

CLIENT			SPECIES 1	
Wood / KMEA			*Alitta virens*	
PROJECT			Preservation Jar Tare Weight (g)	Total Wet Weight (g)
Mole Pier		Initials:	MS	MS
		Balance ID:	#1	#1
Sample ID	**Rep**	**Jar #**	[Jar + Lid]	[Jar, Lid, Tissue]
Control	1	1	185.2	296.6
Control	2	11	185.1	271.9
Control	3	12	185.3	285.8
Control	4	6	185.4	277.6
Control	5	17	185.2	278.6
LA-5 Ref	1	19	184.7	283.5
LA-5 Ref	2	2	185.4	268.5
LA-5 Ref	3	3	184.9	279.7
LA-5 Ref	4	7	184.7	274.2
LA-5 Ref	5	13	185.3	282.9
Composite A	1	14	184.7	264
Composite A	2	15	185	273.7
Composite A	3	24	185.7	263.9
Composite A	4	5	185.4	284.2
Composite A	5	16	186.4	272.8
Composite B	1	20	185.6	279.6
Composite B	2	23	185.8	259.2
Composite B	3	18	185.3	298.8
Composite B	4	9	185.8	272.3
Composite B	5	25	185.7	264.3
Composite D	1	21	185.4	271
Composite D	2	4	185.1	267.9
Composite D	3	8	185.5	265.3
Composite D	4	22	185.8	262.3
Composite D	5	10	185.2	268.7

EcoAnalysts, Inc.

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA		SPECIES 1 *Alitta virens*						
PROJECT Mole Pier		Survival Summary					Tissue Wet Weight (g)	Average Tissue Weight (g)
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	[Total - Tare]	
Control	1	20	20	100			111.4	
Control	2	20	20	100			86.8	
Control	3	20	20	100			100.5	
Control	4	20	20	100			92.2	
Control	5	20	20	100	100.0	0.0	93.4	96.86
LA-5 Ref	1	20	20	100			98.8	
LA-5 Ref	2	20	20	100			83.1	
LA-5 Ref	3	20	20	100			94.8	
LA-5 Ref	4	20	20	100			89.5	
LA-5 Ref	5	20	20	100	100.0	0.0	97.6	92.76
Composite A	1	20	20	100			79.3	
Composite A	2	21	21	100			88.7	
Composite A	3	20	20	100			78.2	
Composite A	4	20	20	100			98.8	
Composite A	5	20	20	100	100.0	0.0	86.4	86.28

EcoAnalysts, Inc.

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA		SPECIES 1 *Alitta virens*						
PROJECT Mole Pier		Survival Summary					Tissue Wet Weight (g)	Average Tissue Weight (g)
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	[Total - Tare]	
Composite B	1	20	20	100			94	
Composite B	2	20	20	100			73.4	
Composite B	3	20	20	100			113.5	
Composite B	4	20	20	100			86.5	
Composite B	5	20	20	100	100.0	0.0	78.6	89.2
Composite D	1	20	19	95			85.6	
Composite D	2	20	20	100			82.8	
Composite D	3	20	20	100			79.8	
Composite D	4	20	20	100			76.5	
Composite D	5	20	20	100	99.0	2.2	83.5	81.64

Version T.2

GENERAL

Client	Wood / KMEA
Project	Mole Pier
Project Number	PG1217
Project Manager	**M. Knowlen**
Date Oldest Sample Collected	**5/31/2021**
Sample Holding Time	**53**
Test Start Date	**07/23/21**
Test Species 1	**Macoma nasuta**
Test Species 2	
Organism 1 Supplier	**Reed Gunstone**
Organism 1 Acquired	**7/23/2021**
Organism 1 Acclimation	0
Organism 1 Age	**Adult**
Organism 2 Supplier	
Organism 2 Acquired	
Organism 2 Acclimation	**44400**
Organism 2 Age	
Test Protocol	**ITM/OTM**
Regional Protocol	
Laboratory Location	**Port Gamble**
Test Location	**Bath 2**
Sample Treatment	**none**
Control Sediment Source	**Discovery Bay, WA**
Water Description	**10 um filtered Hood Canal Seawater**
Test Lighting	**16hr L : 8hr D**
Test Chamber	**10 gallon aquaria**
Organisms 1 per Replicate	25
Organisms 2 per Replicate	
Exposure Volume	5cm / 18.5 L
Feeding Information	None
Test Dissolved Oxygen	> 5.1
Test Temperature	14 ± 2
Test Salinity	30 ± 2
Test pH	7.8 ± 0.5
Water Flow Rate	32 - 64

Note: input lowest and highest decimal for temp

Note: if running two species, worm = Test Species 1

Test Parameters		
	Min	**Max**
DO	5.1	
Temp	11.5	16.4
Salinity	28	32
pH	7.3	8.3
Flow	32	64

TEST START TIME:	13:35
TEST END TIME:	906

	CLIENT SAMPLE ID	LAB ID
1	Control	P210723.01
2	LA-5 Ref	P210707.01
3	Composite A	P210707.02
4	Composite B	P210707.03
5	Composite D	P210707.04
6	.	.
7	.	.
8	.	.
9	.	.
10	.	.
11	.	.
12	.	.
13	.	.
14	.	.
15	.	.
16	.	.
17	.	.
18	.	.
19	.	.
20	.	.
21	.	.

EcoAnalysts, Inc.

28 Day Bioaccumulation Test Pretest Info

CLIENT	PROJECT	PROJECT NUMBER	PROJECT MANAGER
Wood / KMEA	Mole Pier	PG1217	M. Knowlen

SPECIES 1 *Macoma nasuta*

PRETEST TISSUE SUMMARY

Treatment	Rep	Depuration Begin		Remove Mucus/Fecal Matter [Init.]		Depuration End		Balance ID:			Tisue Wet Weight (g) [Total - Tare]	Init.
		Date	Time	Event 1	Event 2	Date	Time	Number Preserved	Tare Weight (g) [Jar + Lid]	Total Wet Weight (g) [Jar, Lid, Tissue]		
Pretest	1	7/26/2021	1500	--	--	7/27/2021	1630	25	191.1	320.2	129.1	MK
Pretest	2										0.0	
Pretest	3										0.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Control	0	1	1	SH	7/26/2021	9	6.9	14.2	31	7.9	44.0	
Control	0	2	11	SH	7/26/2021	9	7.5	14.5	31	7.9	43.0	
Control	0	3	12	SH	7/26/2021	9	7.4	14.5	31	7.9	53.0	
Control	0	4	6	SH	7/26/2021	9	7.4	14.4	31	7.9	43.0	
Control	0	5	17	SH	7/26/2021	9	7.0	14.1	31	7.9	44.0	
Control	1	1	1	IP	7/27/2021	8	6.7	14.5	30	7.8	40.0	
Control	2	2	11	RE	7/28/2021	9	6.9	14.6	31	7.8	54.0	
Control	3	3	12	MS	7/29/2021	9	7.0	15.2	31	7.8	42.0	
Control	4	4	6	SH	7/30/2021	9	7.4	15.1	31	7.8	52.0	
Control	5	5	17	IP	7/31/2021	8	7.0	15.3	30	7.8	60.0	
Control	6	1	1	IP	8/1/2021	9	6.6	14.7	31	7.8	40.0	
Control	7	2	11	RE	8/2/2021	8	7.6	15.7	30	7.9	35.0	
Control	8	3	12	IP	8/3/2021	9	7.3	15.7	30	7.9	48.0	
Control	9	4	6	NL	8/4/2021	9	7.6	16.0	30	7.9	50.0	
Control	10	5	17	IP	8/5/2021	8	7.3	15.8	30	8.0	59.0	
Control	11	1	1	IP	8/6/2021	9	7.4	15.5	30	8.0	43.0	
Control	12	2	11	NL	8/7/2021	9	8.4	15.5	30	7.9	40.0	
Control	13	3	12	DM	8/8/2021	8	7.2	16.1	30	7.9	40.0	
Control	14	4	6	MS	8/9/2021	9	7.8	15.4	30	8.0	36.0	
Control	15	5	17	IP	8/10/2021	8	7.5	15.6	30	7.9	42.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Control	16	1	1	NL	8/11/2021	9	7.7	15.3	30	7.9	34.0	
Control	17	2	11	IP	8/12/2021	8	7.4	16.1	30	7.9	52.0	
Control	18	3	12	NL	8/13/2021	9	7.4	15.3	31	7.9	34.0	
Control	19	4	6	SH	8/14/2021	9	7.8	15.3	31	8.0	46.0	
Control	20	5	17	IP	8/15/2021	9	7.4	16.2	30	8.0	40.0	
Control	21	1	1	IP	8/16/2021	9	7.7	16.1	30	8.0	36.0	
Control	22	2	11	DM	8/17/2021	8	7.6	16.0	29	8.0	38.0	
Control	23	3	12	SH	8/18/2021	8	7.6	16.1	29	7.9	50.0	
Control	24	4	6	NL	8/19/2021	8	7.9	16.2	29	7.9	46.0	
Control	25	5	17	IP	8/20/2021	9	7.2	15.6	30	7.9	38.0	
Control	26	1	1	NL	8/21/2021	9	7.5	15.3	30	7.8	50.0	
Control	27	2	11	DM	8/22/2021	9	7.4	15.3	30	7.9	56.0	
Control	28	1	1	SH	8/23/2021	9	7.7	14.2	30	7.9	42.0	
Control	28	2	11	SH	8/23/2021	9	7.4	14.4	30	7.9	52.0	
Control	28	3	12	SH	8/23/2021	9	7.0	14.2	30	7.9	56.0	
Control	28	4	6	SH	8/23/2021	9	7.9	14.3	30	7.9	50.0	
Control	28	5	17	SH	8/23/2021	9	7.4	14.4	30	7.9	49.0	
Control	29	1	1	DM	8/24/2021	8	7.8	14.6	30	7.8	>32	
Control	29	2	11	DM	8/24/2021	8	7.5	14.4	30	7.9	>32	
Control	29	3	12	DM	8/24/2021	8	7.0	14.2	30	7.9	>32	
Control	29	4	6	DM	8/24/2021	8	7.8	14.3	30	7.9	>32	
Control	29	5	17	DM	8/24/2021	8	7.6	14.3	30	7.9	>32	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
LA-5 Ref	0	1	19	SH	7/26/2021	9	7.0	14.4	31	7.9	49.0	
LA-5 Ref	0	2	2	SH	7/26/2021	9	7.2	14.3	31	7.9	47.0	
LA-5 Ref	0	3	3	SH	7/26/2021	9	7.1	14.3	31	7.9	48.0	
LA-5 Ref	0	4	7	SH	7/26/2021	9	7.2	14.2	31	7.9	44.0	
LA-5 Ref	0	5	13	SH	7/26/2021	9	6.9	14.3	31	7.9	44.0	
LA-5 Ref	1	1	19	IP	7/27/2021	8	7.2	14.7	30	7.8	42.0	
LA-5 Ref	2	2	2	RE	7/28/2021	9	7.2	14.5	31	7.8	47.0	
LA-5 Ref	3	3	3	MS	7/29/2021	9	7.4	15.0	31	7.8	49.0	
LA-5 Ref	4	4	7	SH	7/30/2021	9	7.2	14.9	31	7.9	44.0	
LA-5 Ref	5	5	13	IP	7/31/2021	8	7.0	15.3	30	7.8	52.0	
LA-5 Ref	6	1	19	IP	8/1/2021	9	7.0	14.8	31	7.9	44.0	
LA-5 Ref	7	2	2	RE	8/2/2021	8	7.6	15.5	30	7.8	42.0	
LA-5 Ref	8	3	3	IP	8/3/2021	9	7.5	15.5	30	7.9	60.0	
LA-5 Ref	9	4	7	NL	8/4/2021	9	7.6	16.1	30	7.9	40.0	
LA-5 Ref	10	5	13	IP	8/5/2021	8	7.3	16.0	30	7.9	53.0	
LA-5 Ref	11	1	19	IP	8/6/2021	9	7.3	15.6	30	8.0	42.0	
LA-5 Ref	12	2	2	NL	8/7/2021	9	8.3	15.4	30	7.9	32.0	
LA-5 Ref	13	3	3	DM	8/8/2021	8	7.4	15.7	30	7.9	42.0	
LA-5 Ref	14	4	7	MS	8/9/2021	9	7.6	15.3	30	8.0	33.0	
LA-5 Ref	15	5	13	IP	8/10/2021	8	7.3	15.7	30	8.0	51.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
LA-5 Ref	16	1	19	NL	8/11/2021	9	7.3	15.3	30	7.9	37.0	
LA-5 Ref	17	2	2	IP	8/12/2021	8	7.4	15.7	30	7.8	42.0	
LA-5 Ref	18	3	3	NL	8/13/2021	9	7.5	15.0	31	7.9	33.0	
LA-5 Ref	19	4	7	SH	8/14/2021	9	7.7	15.3	31	7.9	48.0	
LA-5 Ref	20	5	13	IP	8/15/2021	9	7.2	16.2	30	7.9	44.0	
LA-5 Ref	21	1	19	IP	8/16/2021	9	7.3	16.1	30	7.9	43.0	
LA-5 Ref	22	2	2	DM	8/17/2021	8	7.5	15.8	29	8.0	60.0	
LA-5 Ref	23	3	3	SH	8/18/2021	8	7.7	15.9	29	7.9	54.0	
LA-5 Ref	24	4	7	NL	8/19/2021	8	7.6	16.3	29	7.9	52.0	
LA-5 Ref	25	5	13	IP	8/20/2021	9	6.8	15.8	30	7.8	35.0	
LA-5 Ref	26	1	19	NL	8/21/2021	9	7.2	15.4	30	7.8	54.0	
LA-5 Ref	27	2	2	DM	8/22/2021	9	7.3	15.1	30	7.8	46.0	
LA-5 Ref	28	1	19	SH	8/23/2021	9	6.9	14.1	30	7.9	64.0	
LA-5 Ref	28	2	2	SH	8/23/2021	9	7.7	14.5	30	7.9	46.0	
LA-5 Ref	28	3	3	SH	8/23/2021	9	7.3	14.2	30	7.9	60.0	
LA-5 Ref	28	4	7	SH	8/23/2021	9	7.5	14.2	30	7.9	54.0	
LA-5 Ref	28	5	13	SH	8/23/2021	9	6.3	14.0	30	7.8	44.0	
LA-5 Ref	29	1	19	DM	8/24/2021	8	7.3	14.1	30	7.9	>32	
LA-5 Ref	29	2	2	DM	8/24/2021	8	7.9	14.7	30	7.9	>32	
LA-5 Ref	29	3	3	DM	8/24/2021	8	7.9	14.4	30	7.9	>32	
LA-5 Ref	29	4	7	DM	8/24/2021	8	7.8	14.2	30	7.9	>32	
LA-5 Ref	29	5	13	DM	8/24/2021	8	7.0	14.1	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite A	0	1	14	SH	7/26/2021	9	7.2	14.2	31	7.9	40.0	
Composite A	0	2	15	SH	7/26/2021	9	6.8	14.2	31	7.9	39.0	
Composite A	0	3	24	SH	7/26/2021	9	7.3	14.4	31	7.9	48.0	
Composite A	0	4	5	SH	7/26/2021	9	7.3	14.2	31	7.9	49.0	
Composite A	0	5	16	SH	7/26/2021	9	7.7	14.3	31	7.9	50.0	
Composite A	1	1	14	IP	7/27/2021	8	7.5	14.6	30	7.9	57.0	
Composite A	2	2	15	RE	7/28/2021	9	7.1	14.4	31	7.8	50.0	
Composite A	3	3	24	MS	7/29/2021	9	7.7	15.5	31	7.9	53.0	
Composite A	4	4	5	SH	7/30/2021	9	7.6	15.0	31	7.9	44.0	
Composite A	5	5	16	IP	7/31/2021	8	7.5	15.6	30	7.9	44.0	
Composite A	6	1	14	IP	8/1/2021	9	7.6	14.8	31	8.0	61.0	
Composite A	7	2	15	RE	8/2/2021	8	7.5	15.8	30	7.9	40.0	
Composite A	8	3	24	IP	8/3/2021	9	7.8	15.9	30	7.9	62.0	
Composite A	9	4	5	NL	8/4/2021	9	7.6	16.0	30	7.9	42.0	
Composite A	10	5	16	IP	8/5/2021	8	7.3	15.7	30	7.9	60.0	
Composite A	11	1	14	IP	8/6/2021	9	7.6	15.6	30	8.1	46.0	
Composite A	12	2	15	NL	8/7/2021	9	8.3	15.3	30	7.9	42.0	
Composite A	13	3	24	DM	8/8/2021	8	7.6	16.0	30	8.0	32.0	
Composite A	14	4	5	MS	8/9/2021	9	7.6	15.3	30	8.0	34.0	
Composite A	15	5	16	IP	8/10/2021	8	7.4	15.5	30	8.0	60.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite A	16	1	14	NL	8/11/2021	9	7.6	15.3	30	7.9	42.0	
Composite A	17	2	15	IP	8/12/2021	8	7.4	15.7	30	7.8	50.0	
Composite A	18	3	24	NL	8/13/2021	9	7.6	15.3	31	7.9	40.0	
Composite A	19	4	5	SH	8/14/2021	9	7.6	15.1	31	7.9	63.0	
Composite A	20	5	16	IP	8/15/2021	9	7.5	16.0	30	8.0	41.0	
Composite A	21	1	14	IP	8/16/2021	9	7.4	16.4	30	8.0	48.0	
Composite A	22	2	15	DM	8/17/2021	8	7.4	15.7	29	8.0	48.0	
Composite A	23	3	24	SH	8/18/2021	8	7.8	16.1	29	7.9	47.0	
Composite A	24	4	5	NL	8/19/2021	8	7.8	16.2	29	7.9	42.0	
Composite A	25	5	16	IP	8/20/2021	9	7.4	15.8	30	7.9	54.0	
Composite A	26	1	14	NL	8/21/2021	9	7.6	15.4	30	7.8	52.0	
Composite A	27	2	15	DM	8/22/2021	9	7.2	15.2	30	7.9	60.0	
Composite A	28	1	14	SH	8/23/2021	9	7.5	14.3	30	7.9	48.0	
Composite A	28	2	15	SH	8/23/2021	9	7.3	14.3	30	7.9	36.0	
Composite A	28	3	24	SH	8/23/2021	9	7.7	14.8	30	7.9	44.0	
Composite A	28	4	5	SH	8/23/2021	9	7.4	14.2	30	7.9	50.0	
Composite A	28	5	16	SH	8/23/2021	9	7.5	14.3	30	7.9	58.0	
Composite A	29	1	14	DM	8/24/2021	8	7.1	14.1	30	7.9	>32	
Composite A	29	2	15	DM	8/24/2021	8	6.3	14.2	30	7.9	>32	
Composite A	29	3	24	DM	8/24/2021	8	7.7	14.4	30	7.9	>32	
Composite A	29	4	5	DM	8/24/2021	8	7.7	14.2	30	7.9	>32	
Composite A	29	5	16	DM	8/24/2021	8	7.5	14.3	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite B	0	1	20	SH	7/26/2021	9	7.1	14.4	31	7.9	58.0	
Composite B	0	2	23	SH	7/26/2021	9	7.3	14.3	31	7.9	40.0	
Composite B	0	3	18	SH	7/26/2021	9	7.2	14.4	31	7.9	43.0	
Composite B	0	4	9	SH	7/26/2021	9	7.2	14.4	31	7.9	42.0	
Composite B	0	5	25	SH	7/26/2021	9	7.0	14.3	31	7.9	47.0	
Composite B	1	1	20	IP	7/27/2021	8	7.4	14.3	30	7.9	41.0	
Composite B	2	2	23	RE	7/28/2021	9	7.8	14.8	31	7.9	55.0	
Composite B	3	3	18	MS	7/29/2021	9	7.4	15.1	31	7.8	52.0	
Composite B	4	4	9	SH	7/30/2021	9	7.3	15.1	31	7.9	43.0	
Composite B	5	5	25	IP	7/31/2021	8	7.8	15.4	30	7.9	59.0	
Composite B	6	1	20	IP	8/1/2021	9	7.3	14.6	31	7.9	58.0	
Composite B	7	2	23	RE	8/2/2021	8	7.7	15.8	30	7.9	60.0	
Composite B	8	3	18	IP	8/3/2021	9	7.6	15.6	30	7.9	59.0	
Composite B	9	4	9	NL	8/4/2021	9	7.5	16.1	30	7.9	32.0	
Composite B	10	5	25	IP	8/5/2021	8	7.9	15.9	30	8.0	48.0	
Composite B	11	1	20	IP	8/6/2021	9	7.6	15.5	30	8.1	61.0	
Composite B	12	2	23	NL	8/7/2021	9	8.4	15.7	30	8.0	37.0	
Composite B	13	3	18	DM	8/8/2021	8	7.3	16.1	30	7.9	49.0	
Composite B	14	4	9	MS	8/9/2021	9	7.6	15.6	30	8.0	46.0	
Composite B	15	5	25	IP	8/10/2021	8	7.7	15.7	30	8.0	52.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite B	16	1	20	NL	8/11/2021	9	7.5	15.2	30	7.9	41.0	
Composite B	17	2	23	IP	8/12/2021	8	7.6	15.7	30	7.9	57.0	
Composite B	18	3	18	NL	8/13/2021	9	7.3	15.2	31	7.9	39.0	
Composite B	19	4	9	SH	8/14/2021	9	7.6	15.4	31	7.9	46.0	
Composite B	20	5	25	IP	8/15/2021	9	7.7	16.1	30	8.1	59.0	
Composite B	21	1	20	IP	8/16/2021	9	7.5	16.0	30	8.0	61.0	
Composite B	22	2	23	DM	8/17/2021	8	7.8	15.9	29	8.0	46.0	
Composite B	23	3	18	SH	8/18/2021	8	7.7	16.1	29	7.9	38.0	
Composite B	24	4	9	NL	8/19/2021	8	7.7	16.3	29	7.9	34.0	
Composite B	25	5	25	IP	8/20/2021	9	7.7	15.8	30	8.0	51.0	
Composite B	26	1	20	NL	8/21/2021	9	7.4	15.4	30	7.8	54.0	
Composite B	27	2	23	DM	8/22/2021	9	7.7	15.4	30	7.9	60.0	
Composite B	28	1	20	SH	8/23/2021	9	7.2	14.0	30	7.9	52.0	
Composite B	28	2	23	SH	8/23/2021	9	7.7	14.7	30	7.9	52.0	
Composite B	28	3	18	SH	8/23/2021	9	7.4	14.3	30	7.9	44.0	
Composite B	28	4	9	SH	8/23/2021	9	7.5	14.4	30	7.9	49.0	
Composite B	28	5	25	SH	8/23/2021	9	7.9	14.6	30	8.0	40.0	
Composite B	29	1	20	DM	8/24/2021	8	7.2	14.0	30	7.9	>32	
Composite B	29	2	23	DM	8/24/2021	8	7.7	14.4	30	7.9	>32	
Composite B	29	3	18	DM	8/24/2021	8	7.7	14.3	30	7.9	>32	
Composite B	29	4	9	DM	8/24/2021	8	7.3	14.2	30	7.9	>32	
Composite B	29	5	25	DM	8/24/2021	8	7.8	14.3	30	8.0	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite D	0	1	21	SH	7/26/2021	9	7.7	14.4	31	8.0	56.0	
Composite D	0	2	4	SH	7/26/2021	9	7.1	14.2	31	7.9	44.0	
Composite D	0	3	8	SH	7/26/2021	9	7.1	14.3	31	7.9	48.0	
Composite D	0	4	22	SH	7/26/2021	9	7.5	14.3	31	7.9	60.0	
Composite D	0	5	10	SH	7/26/2021	9	7.3	14.3	31	7.9	44.0	
Composite D	1	1	21	IP	7/27/2021	8	6.6	14.5	30	7.8	62.0	
Composite D	2	2	4	RE	7/28/2021	9	7.3	14.4	31	7.8	53.0	
Composite D	3	3	8	MS	7/29/2021	9	7.6	14.9	31	7.8	32.0	
Composite D	4	4	22	SH	7/30/2021	9	7.4	15.1	31	7.8	63.0	
Composite D	5	5	10	IP	7/31/2021	8	7.3	15.3	30	7.8	54.0	
Composite D	6	1	21	IP	8/1/2021	9	7.4	14.8	31	7.4	44.0	
Composite D	7	2	4	RE	8/2/2021	8	7.7	15.5	30	7.9	54.0	
Composite D	8	3	8	IP	8/3/2021	9	7.6	15.4	30	7.9	63.0	
Composite D	9	4	22	NL	8/4/2021	9	7.1	16.0	30	7.9	34.0	
Composite D	10	5	10	IP	8/5/2021	8	7.4	15.9	30	7.9	44.0	
Composite D	11	1	21	IP	8/6/2021	9	7.5	15.7	30	8.0	54.0	
Composite D	12	2	4	NL	8/7/2021	9	8.4	15.3	30	7.9	42.0	
Composite D	13	3	8	DM	8/8/2021	8	7.6	15.7	30	7.9	44.0	
Composite D	14	4	22	MS	8/9/2021	9	7.6	15.5	30	7.9	32.0	
Composite D	15	5	10	IP	8/10/2021	8	7.6	15.6	30	8.0	58.0	

28 Day Bioaccumulation Test WQ Data Sheet

CLIENT	PROJECT	SPECIES 1	LABORATORY	PROTOCOL
Wood / KMEA	Mole Pier	*Macoma nasuta* ,	Port Gamble	ITM/OTM ,
PROJECT NUMBER	**PROJECT MANAGER**	**WATER DESCRIPTION**	**TEST START DATE**	**TEST END DATE**
PG1217	M. Knowlen	10 um filtered Hood Canal Seawater	23-Jul-2021	20-Aug-2021

WATER QUALITY DATA

SAMPLE ID	DAY	REP	JAR #	TECHNICIAN	Date	Meter	DO (mg/L) > 5.1	TEMP (°C) 12 - 16	SALINITY (ppt) 28 - 32	pH 7.3 - 8.3	FLOW (mL/30 sec) 32 - 64	Select Notes
Composite D	16	1	21	NL	8/11/2021	9	7.5	15.3	30	7.9	44.0	
Composite D	17	2	4	IP	8/12/2021	8	7.5	15.5	30	7.9	50.0	
Composite D	18	3	8	NL	8/13/2021	9	7.5	15.0	31	7.9	39.0	
Composite D	19	4	22	SH	8/14/2021	9	7.5	15.3	31	7.9	46.0	
Composite D	20	5	10	IP	8/15/2021	9	7.4	16.2	30	7.9	43.0	
Composite D	21	1	21	IP	8/16/2021	9	7.4	16.1	30	7.9	45.0	
Composite D	22	2	4	DM	8/17/2021	8	7.6	15.9	29	8.0	61.0	
Composite D	23	3	8	SH	8/18/2021	8	7.7	15.9	29	7.9	36.0	
Composite D	24	4	22	NL	8/19/2021	8	7.4	16.1	29	7.9	57.0	
Composite D	25	5	10	IP	8/20/2021	9	7.3	15.8	30	7.8	53.0	
Composite D	26	1	21	NL	8/21/2021	9	7.3	15.3	30	7.8	56.0	
Composite D	27	2	4	DM	8/22/2021	9	7.4	15.1	30	7.9	48.0	
Composite D	28	1	21	SH	8/23/2021	9	7.1	14.1	30	7.9	51.0	
Composite D	28	2	4	SH	8/23/2021	9	7.3	14.1	30	7.9	56.0	
Composite D	28	3	8	SH	8/23/2021	9	7.6	14.4	30	7.9	48.0	
Composite D	28	4	22	SH	8/23/2021	9	7.0	14.1	30	7.8	44.0	
Composite D	28	5	10	SH	8/23/2021	9	7.1	14.2	30	7.9	62.0	
Composite D	29	1	21	DM	8/24/2021	8	7.3	14.5	30	7.9	>32	
Composite D	29	2	4	DM	8/24/2021	8	7.9	14.4	30	7.9	>32	
Composite D	29	3	8	DM	8/24/2021	8	7.1	14.3	30	7.9	>32	
Composite D	29	4	22	DM	8/24/2021	8	7.4	14.4	30	7.9	>32	
Composite D	29	5	10	DM	8/24/2021	8	7.3	14.1	30	7.9	>32	

EcoAnalysts, Inc.

28 Day Bioaccumulation Observation Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LABORATORY	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble	ITM/OTM	*Macoma nasuta* ,

Observation Key
#E = Number on the Surface
#M = Number of Mortality
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

			Tech	IP	RE	MS	SH	IP	IP	RE	IP	NL	IP	IP	NL	DM	MS	IP	NL	IP	NL	SH	IP	IP	DM	SH	NL	IP	NL	DM	SH		
			Date	07/27/21	07/28/21	07/29/21	07/30/21	07/31/21	08/01/21	08/02/21	08/03/21	08/04/21	08/05/21	08/06/21	08/07/21	08/08/21	08/09/21	08/10/21	08/11/21	08/12/21	08/13/21	08/14/21	08/15/21	08/16/21	08/17/21	08/18/21	08/19/21	08/20/21	08/21/21	08/22/21	08/23/21		
CLIENT ID	REP	Jar #	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Comments	
Control	1	1		1E	1E	2E	1E	N	1E	N	2E	2E	2E	1E	2E	2E	2E	1E	2E	2E	1E	N	2E	3E	3E	1M,1E	N	2E	3E	4E, 1M	2E		
Control	2	11		N	N	1E	1E	1E	1E	N	N	N	1E	1E	1E	1E	N	1E	1E	1E	1E	1E	2E	N	1E	1E	1E	1M	1E	1E	1M		
Control	3	12		N	N	N	1E	N	N	N	N	1E	1E	1E	N	N	N	N	1E	1E	3E	2E	2E	1E	1E	3E	3E	3E	3E	3E	3E		
Control	4	6		3E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1E	1E		
Control	5	17		N	N	N	N	N	1E	N	N	1E	N	1E	1E	1E	1E	N	N	N	1E	2E	N	N	N	N	N	N	N	N	N		
LA-5 Ref	1	19		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
LA-5 Ref	2	2		N	N	N	N	N	N	N	N	N	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
LA-5 Ref	3	3		4E	3E	3E	3E	1E	1E,1M	N	1E	1E	TC	1E	N	1M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
LA-5 Ref	4	7		2E	1E	1E	1E	1E	1E	N	N	1E	1E	1E	2E	N	1E	N	1E	1E	N	N	N	N	1M	N	N	N	N	N	N		
LA-5 Ref	5	13		4E	1E	1E	1E	1E	1E	N	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
Composite A	1	14		5E	3E	3E	1E	1E	1E	1E	2E	2E	TC	TC	TC	TC	1E	4E	TC	1E	2E	1E	2E	1E	1E	1E	2E	1E	1E	2E	3E		
Composite A	2	15		5E	N	2E	3E	2E	2E	2E	1E	N	TC	TC	3E	TC	3E	1E	N	N	N	2E	2E	3E	2E	2E	3E	3E,2M	2E	3E	2E		
Composite A	3	24		TC	TC	TC	1E	3E	TC	N	2E	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	N	TC	TC	1E	TC	TC	1M,1E		
Composite A	4	5		3E	3E	4E	3E	2E	TC	N	N	TC	TC	TC	TC	TC	TC	2E	TC	2E	1E	1E	1E	TC	TC	TC	1M	TC	N	1M	N		
Composite A	5	16		3E	N	1E	1E	1E	1E	N	N	N	TC	TC	N	TC	N	TC	N	N	1E	2E	N	1M	N	N	N	N	N	N	N		

EcoAnalysts, Inc.

28 Day Bioaccumulation Observation Data Sheet

CLIENT	PROJECT	PROJECT NO.	PROJECT MANAGER	LABORATORY	PROTOCOL	SPECIES
Wood / KMEA	Mole Pier	PG1217	M. Knowlen	Port Gamble	ITM/OTM	*Macoma nasuta* ,

Observation Key
#E = Number on the Surface
#M = Number of Mortality
L = Anoxic Surface
G = Growth
D = No Air Flow
N = Normal
TC = Too Cloudy to Observe

ENDPOINT DATA & OBSERVATIONS

			Tech	IP	RE	MS	SH	IP	IP	RE	IP	NL	IP	IP	NL	DM	MS	IP	NL	IP	NL	SH	IP	IP	DM	SH	NL	IP	NL	DM	SH	
			Date	07/27/21	07/28/21	07/29/21	07/30/21	07/31/21	08/01/21	08/02/21	08/03/21	08/04/21	08/05/21	08/06/21	08/07/21	08/08/21	08/09/21	08/10/21	08/11/21	08/12/21	08/13/21	08/14/21	08/15/21	08/16/21	08/17/21	08/18/21	08/19/21	08/20/21	08/21/21	08/22/21	08/23/21	
CLIENT ID	**REP**	**Jar #**	**Day**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**Comments**
Composite B	1	20		2E	N	N	N	N	N	N	N	N	TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	2	23		4E	1E	1E	1E	TC	1E	N	TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	N	N	N	N	N	N	N	TC	N	N	N	
Composite B	3	18		N	N	N	N	N	N	N	N	TC	TC	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	4	9		1E	1E	1E	1E	1E	1E	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Composite B	5	25		4E	2E	2E	3E	2E	2E	2E	2E	TC	1E	TC	TC	TC	1E	TC	TC	TC	TC	TC	TC	TC	1M	N	N	N	TC	TC	N	
Composite D	1	21		3E	TC	5E	4E	5E	5E	4E	3E	TC	TC	TC	6E	3E	6E	TC	TC	4E	3E	2E	3E,1M	TC	3E	4E	3E	3E	1M,2E	2E	3E	
Composite D	2	4		TC	3E	3E	4E	3E	2E	1E	TC	TC	TC	TC	TC	TC	3E	3E	TC	4E	4E	4E	3E	3E	TC	TC	1E	4E	N	5E	3E	
Composite D	3	8		TC	1E	TC	2E	TC	N	N	N	N	1E	TC	TC	2E	TC	TC	N	TC	TC	TC	TC	2E	TC	TC	1E	TC	N	TC	N	
Composite D	4	22		9E	5E	5E	4E	2E	3E	2E	2E	TC	TC	TC	TC	TC	1E	TC	TC	N	1E	1E	1E	1E	2E	1E	N	1E	1E	1E	1E	
Composite D	5	10		6E	4E	5E	5E	4E	3E	4E	3E	4E	4E	2E	1E	1E	2E	2E	2E	2E	1E	2E	1E	2E	TC	2E	1E	1M	N	N	N	

EcoAnalysts, Inc.

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA			SPECIES 1 *Macoma nasuta*					
PROJECT Mole Pier			Date Recovered [Initials]: 8/23/2021 MS/SH		Date Preserved [Initials]: 8/24/2021 NL/DM/IP		Remove Mucus/Fecal Matter [Initials]:	
Sample ID	**Rep**	**Jar #**	**# Alive**	**# Dead**	**Recovery Time**	**Preservation Time**	**Event 1 (date/time)**	**Event 2 (date/time)**
Control	1	1	23	0	906	806		
Control	2	11	24	0	944	922		
Control	3	12	24	1	950	936		
Control	4	6	25	0	923	851		
Control	5	17	25	0	1007	1003		
LA-5 Ref	1	19	25	0	1017	1036		
LA-5 Ref	2	2	25	0	907	815		
LA-5 Ref	3	3	23	0	912	829		
LA-5 Ref	4	7	24	0	929	850		
LA-5 Ref	5	13	25	0	955	937		
Composite A	1	14	25	0	1000	943		
Composite A	2	15	21	2	1001	1000		
Composite A	3	24	24	0	1042	1140		
Composite A	4	5	23	0	922	838		
Composite A	5	16	24	0	1010	1015		

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA			SPECIES 1 *Macoma nasuta*					
PROJECT Mole Pier			Date Recovered [Initials]: 8/23/2021 MS/SH		Date Preserved [Initials]: 8/24/2021 NL/DM/IP		Remove Mucus/Fecal Matter [Initials]:	
Sample ID	**Rep**	**Jar #**	**# Alive**	**# Dead**	**Recovery Time**	**Preservation Time**	**Event 1 (date/time)**	**Event 2 (date/time)**
Composite B	1	20	23	2	1029	1052		
Composite B	2	23	25	0	1038	1106		
Composite B	3	18	25	0	1015	1031		
Composite B	4	9	24	1	943	907		
Composite B	5	25	24	0	1046	1125		
Composite D	1	21	22	1	1027	1100		
Composite D	2	4	25	0	913	824		
Composite D	3	8	25	0	930	906		
Composite D	4	22	24	0	1034	1123		
Composite D	5	10	24	0	940	919		

28 Day Bioaccumulation Test Weights

EcoAnalysts, Inc.

CLIENT			SPECIES 1	
Wood / KMEA			*Macoma nasuta*	
PROJECT			Preservation Jar Tare Weight (g)	Total Wet Weight (g)
Mole Pier	Initials:		MS	DM
	Balance ID:		#1	#1
Sample ID	**Rep**	**Jar #**	[Jar + Lid]	[Jar, Lid, Tissue]
Control	1	1	122.1	215.8
Control	2	11	122.5	231.6
Control	3	12	122.4	210.2
Control	4	6	122.9	221.8
Control	5	17	121.5	221.2
LA-5 Ref	1	19	121.2	210.8
LA-5 Ref	2	2	121.8	228.4
LA-5 Ref	3	3	120.2	222.4
LA-5 Ref	4	7	120.7	213.5
LA-5 Ref	5	13	123.8	228.7
Composite A	1	14	122.2	222.4
Composite A	2	15	123	198
Composite A	3	24	122.3	206.2
Composite A	4	5	122.5	207.8
Composite A	5	16	121.4	208.3
Composite B	1	20	121.8	205.8
Composite B	2	23	122.3	225.3
Composite B	3	18	122.6	219.2
Composite B	4	9	121.4	224.1
Composite B	5	25	122.8	207.5
Composite D	1	21	121	206.3
Composite D	2	4	123.5	218.2
Composite D	3	8	120.3	224.1
Composite D	4	22	122.2	203
Composite D	5	10	121.4	202.6

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA		SPECIES 1 *Macoma nasuta*						
PROJECT Mole Pier		Survival Summary					Tissue Wet Weight (g)	Average Tissue Weight (g)
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	[Total - Tare]	
Control	1	25	23	92			93.7	
Control	2	25	24	96			109.1	
Control	3	25	24	96			87.8	
Control	4	25	25	100			98.9	
Control	5	25	25	100	96.8	3.3	99.7	97.84
LA-5 Ref	1	25	25	100			89.6	
LA-5 Ref	2	25	25	100			106.6	
LA-5 Ref	3	25	23	92			102.2	
LA-5 Ref	4	25	24	96			92.8	
LA-5 Ref	5	25	25	100	97.6	3.6	104.9	99.22
Composite A	1	25	25	100			100.2	
Composite A	2	25	21	84			75	
Composite A	3	25	24	96			83.9	
Composite A	4	25	23	92			85.3	
Composite A	5	25	24	96	93.6	6.1	86.9	86.26

28 Day Bioaccumulation Survival Summary

CLIENT Wood / KMEA		SPECIES 1 *Macoma nasuta*						
PROJECT Mole Pier		Survival Summary					Tissue Wet Weight (g)	Average Tissue Weight (g)
Sample ID	Rep	# Initiated	# Alive	% Survival	Mean Survival (%)	SD	[Total - Tare]	
Composite B	1	25	23	92			84	
Composite B	2	25	25	100			103	
Composite B	3	25	25	100			96.6	
Composite B	4	25	24	96			102.7	
Composite B	5	25	24	96	96.8	3.3	84.7	94.2
Composite D	1	25	22	88			85.3	
Composite D	2	25	25	100			94.7	
Composite D	3	25	25	100			103.8	
Composite D	4	25	24	96			80.8	
Composite D	5	25	24	96	96.0	4.9	81.2	89.16

APPENDIX B. CHAIN-OF-CUSTODY FORMS, LOGS, AND PRE-TEST DOCUMENTS

CHAIN OF CUSTODY

EcoAnalysts
LIFE IN WATER

EcoAnalysts, Inc
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 461-5784

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/9/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Phone: 858-300-4300		
	Fax: 858-300-4301		
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Analyses:

Invoicing To:

Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP w/ worm, eohaus and ampelisca	SPP	BP	Preservation	Sample Temp Upon Receipt	LAB ID
1	FDD-A-C1	sediment	2x bag	6/8/21	1115	X				None	1.0 ; 0.4	P210610.02
2	FDD-D-C3	Sed	2x bag	6/7/21	1550	X				None	1.4 ; 1.5	P210610.03
3	FDD-B-C1	Sed	2x bag	6/8/21	0730	X				None	3.2 ; 0.7	P210610.04
4	FDD-A-C1-Top	Sed	1x bag	6/8/21	1240	X				None	0.4	P210610.05
5	FDD-C-C6	Sed	5x bag	6/8/21	0845	X				None	2.2	P210610.06
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Stephen Campbell	Print Name: Samantha Heinicke	Print Name:	Print Name:
Signature: Stephen Campbell	Signature: S Heinicke	Signature:	Signature:
Affiliation: Wood	Affiliation: EcoAnalysts	Affiliation:	Affiliation:
Date/Time: 5-9-21 1600	Date/Time: 6/10/21 1230	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Water
SS = Soil & Sediment

CHAIN OF CUSTODY

EcoANALYSTS
LIFE IN WATER

EcoAnalysts, Inc
4770 NE View Dr., Gamble, WA. 9836
Tel: (360) 461-5784

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/8/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Phone: 858-300-4300		
	Fax: 858-300-4301		
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Analyses:

Invoicing To:

Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP w/ worm, eohaus and ampeliosa	SPP	BP	Preservation	Sample Temp Upon Receipt	LAB ID
1	FDD-A-C4	sediment	2x bag	6/7/21	1000	X				① None	4.0/0.3	P210609.02
2	FDD-B-C12	sed	2 x bag	6/7/21	1345	X				② None	0.7/0.0 ①	P210609.03
3	FDD-A-C4-Top	sed	1x bag	6/7/21	1140	X				② None	0.3	P210609.04
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Marisa Swiderski	Print Name: Nicole Lundgren	Print Name:	Print Name:
Signature: Marisa Swiderski	Signature: Nicole M Lundgren	Signature:	Signature:
Affiliation: Wood	Affiliation: ECOA.	Affiliation:	Affiliation:
Date/Time: 6/8/2021 1600	Date/Time: 6/9/21 1240	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Water
SS = Soil & Sediment

① Two seperate coolers, same sample - NL 6/9/21
② ICE WATER mix present - NL 6/9/21

CHAIN OF CUSTODY

EcoAnalysts
LIFE IN WATER

EcoAnalysts
4770 NE View Dr., Port Gamble, WA.
Tel: (360) 461-

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/7/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard	Phone: 858-300-4300	Invoicing To:	
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Fax: 858-300-4301	Comments or Special Instructions: : Please hold until compositing scheme is veri See attached sheet for additional information on sample compositing and sub-sampling.	
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Analyses:

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP w/ worm, eohaus and ampelisca	SPP	BP	Preservation	Sample Temp Upon Receipt	LAB ID
1	FDD-A-C2	sediment	2x bag	6/4/21	0925	X				None	0.8;0.5	P210608.04
2	FDD-A-C3	sed	2x bag	6/4/21	0730	X				None	0.8;1.0	P210608.05
3	FDD-A-C2-Top	sed	1x bag	6/4/21	1025	X				None	1.5;	P210608.06
4	FDD-A-C3-Top	sed	1x bag	6/4/21	0835	X				None	0.6	P210608.07
5	FDD-B-C11	Sed	2x bags	6/4/21	1145	X				None	0.7;0.9	P210608.08
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Name: Stephen Campbell	Print Name: Samantha Heinicke	Print Name:	Print Name:
Signature: Stephen Campbell	Signature: Heinicke	Signature:	Signature:
Affiliation: Wood	Affiliation: EcoAnalysts	Affiliation:	Affiliation:
Date/Time: 6-7-2021 1600	Date/Time: 06/08/21 1211	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Wat
SS = Soil & Sediment

Effective 7/1/14

CHAIN OF CUSTODY

EcoANALYSTS
LIFE IN WATER

4770 NE View Dr., Port Gamble, WA. 98364
EcoAnalysts, Inc
Tel: (360) 461-5784

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/4/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Phone: 858-300-4300		
	Fax: 858-300-4301		
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Analyses:

Invoicing To:

Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time		HOLD	SP w/ worm. eohaus and ampelisca	SPP	BP		Preservation	Sample Temp Upon Receipt	LAB ID
1	FDD-B-C2	sediment	2xbag	6/3/21	1115		X					None	0.0; 1.1	P210605.01
2	FDD-B-C5	sed	2xbag	6/3/21	0935		X					None	1.6; 0.5	P210605.02
3	FDD-B-C6	sed	2xbag	6/3/21	0745		X					None	0.3; 0.0	P210605.03
4	FDD-C-C3	sed	2xbag	6/3/21	1115		X					None	0.0; 1.3	P210605.04
5	FDD-C-C5	sed	2xbag	6/3/21	0935		X					None	4.4; 4.7	P210605.05
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Stephen Campbell	Print Name: Samantha Heinicke	Print Name:	Print Name:
Signature: Stephen Campbell	Signature: Heinicke	Signature:	Signature:
Affiliation: Wood	Affiliation: EcoAnalysts	Affiliation:	Affiliation:
Date/Time: 6/4/21 4:00pm	Date/Time: 6/5/21 1227	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Water
SS = Soil & Sediment

CHAIN OF CUSTODY

EcoAnalysts
LIFE IN WATER

EcoAnalysts, Inc
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 461-5784

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/3/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floatng Dry Dock Maintenance Dredging 151197955.04	Phone: 858-300-4300		
	Fax: 858-300-4301		
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Analyses: HOLD; SP w/ worm, eohaus and ampelisca; SPP; BP

Invoicing To:

Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP	SPP	BP	Preservation	Sample Temp Upon Receipt °C	LAB ID
1	FDD-B-C4	sediment	2x bag	6/2/21	0915	X				None	0.0, 0.0	P210604.03
2	FDD-B-C9	Sed	2x bag	6/2/21	1345	X				None	0.0, 0.0	P210604.04
3	FDD-B-C10	Sed	2x bag	6/2/21	1035	X				None	0.7, 0.0	P210604.05
4	FDD-D-C4	Sed	2x bag	6/2/21	0745	X				None	0.0, 0.0	P210604.06
5	FDD-D-C6	Sed	2x bag	6/2/21	1035	X				None	0.0, 0.0	P210604.07
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Stephen Campbell	Print Name: Marisa Seibert	Print Name:	Print Name:
Signature: Stephen Campbell	Signature: [signature]	Signature:	Signature:
Affiliation: Wood	Affiliation: EcoAnalysts	Affiliation:	Affiliation:
Date/Time: 6-3-21 4:00pm	Date/Time: 6/4/2021 0930	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Water
SS = Soil & Sediment

CHAIN OF CUSTODY

EcoAnalysts
LIFE IN WATER

EcoAnalysts, Inc
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 461-5784

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/2/2021	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Phone: 858-300-4300		
	Fax: 858-300-4301		
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

Invoicing To:

Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP w/ worm, eohsus and ampelisca	SPP	BP	Preservation	Sample Temp Upon Receipt	LAB ID
1	FDD-B-C3	sediment	2x bag	6/1/21	0800	X				None	0.2c/0.0	P210603.01/P210604.0.2 (1)
2	FDD-B-C7	sed	2x bag	6/1/21	1105	X				None	0.3/0.0	P210603.02, .03
3	FDD-B-C8	sed	2x bag	6/1/21	1400	X				None	0.2, 0.0	P210603.04, .05
4	FDD-D-C1	sed	2x bag	6/1/21	0800	X				None	0.1, 0.1	P210603.06, .07
5	FDD-D-C2	sed	2x bag	6/1/21	1105	X				None	0.0, 0.2	P210603.08, .09
(2) 6	FDD-D-C3	sed	2x bag	6/1/21	1400	X				None	0.2/	P210603.10/
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Caitlin Harvey	Print Name: Marisa Seibert	Print Name:	Print Name: Marisa Seibert
Signature: [signature]	Signature: [signature]	Signature:	Signature: [signature]
Affiliation: KMEA	Affiliation: EcoAnalysts	Affiliation:	Affiliation: EcoAnalysts
Date/Time: 6/2/21 1600	Date/Time: 6/3/21 1230	Date/Time:	Date/Time: (1) 6/4/21 0930

Matrix Codes
FW = Fresh Water
SB = Salt & Brackish Water
SS = Soil & Sediment

(1) Received bag 2 of FDD-B-C3 on 6/4/21

(2) only 1 bag of FDD-D-C3 arrived that had been collected on 6/1/21. Other bag MIA. KMEA / wood to resample. MK 6/9.

Version 1.0, Effective 7/1/14

CHAIN OF CUSTODY

EcoAnalysts
LIFE IN WATER

EcoAnalysts, I
4770 NE View Dr., Port Gamble, WA. 983
Tel: (360) 461-57

Destination: EcoAnalysts	Sample Originator (Organization): Wood Environment & Infrastructure Solutions, Inc.	Report Results To: Wood	Phone: (D) 858-300-4326; (C) 443-852-4637
Destination Contact: Brian Hester	PERSON WHO COLLECTED SAMPLE: Kimbrie Gobbi	Contact Name: Kimbrie Gobbi	Fax: 858-300-4301
Date: 6/1/21	Address: 9177 Sky Park Ct., San Diego, CA 92123	Address: 9177 Sky Park Ct., San Diego, CA 92123	Email: kimbrie.gobbi@woodplc.com
Turn-Around-Time: Standard			
Project Name: Naval Base San Diego Mole Pier Floating Dry Dock Maintenance Dredging 3151197955.04	Phone: 858-300-4300	Analyses:	Invoicing To:
	Fax: 858-300-4301		Comments or Special Instructions: : Please hold until compositing scheme is verified. See attached sheet for additional information on sample compositing and sub-sampling.
Contract/PO: Quote No:	E-mail: kimbrie.gobbi@woodplc.com		

No.	Sample ID	Matrix	Volume & Type of Container	Date	Time	HOLD	SP w/ worm, ochaus and ampelisca	SPP	BP	Preservation	Sample Temp Upon Receipt	LAB ID
1	LA-5	sediment	4x bag	5/31/21	~~1205~~ KS 6/1/21 ~~1200~~ 6/1/21 1205	X				None	0.2-0.4°C	P210602.01
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Kellyn Baker	Print Name: Michelle Knowlen	Print Name:	Print Name:
Signature: Kellyn B	Signature: M. K	Signature:	Signature:
Affiliation: KMEA	Affiliation: EcoAnalysts	Affiliation:	Affiliation:
Date/Time: 6/1/21 1315	Date/Time: 6/2/21 1220	Date/Time:	Date/Time:

Matrix Codes

FW = Fresh Water

SB = Salt & Brackish Water

SS = Soil & Sediment

EcoAnalysts, Inc.

(4)

Compositing Record

Client	~~ANAMAR~~ / WOOD
Project	Mole Pier
Composite Method (Hand, Augur, Drum)	Drum

Date	Technician(s)	Composite Name	Composite Lab ID	Estimated Final Volume	Samples Included in Composite	
7/7/21	NL/KG	LA-5 REF- ~~Comp~~ (3)	P210707.01	~47L	P210602.01 (4 bags total)	
7/7/21	NL/KG	Composite A ~~FDD A-C~~ (3) ~~Comp~~	P210707.02	~68L	P210609.02 P210608.04 P210608.05 P210610.02	
7/7/21	NL/KG	Composite B ~~FDD B-C~~ (3) ~~Comp~~	P210707.03	~152L	P210609.03 ~~P210608.08~~ (2) ~~P210610.04~~ (2) ~~P210604.03~~ (3) ~~P210604.04~~ (2)	P210604.05 ~~P210605~~ (1) P210603.01 P210603 -02 P210603 -03
7/7/21	NL/KG	Composite D ~~FDD D-C~~ (3) ~~Comp~~	P210707.04	~95L	P210603.06 P210603 .07 P210603 .08 P210603 .09 P210610.03	P210604.06 P210604.07

P210605.01
P210605.02
P210603.04
P210604.02
P210605.03
P210603.05

Notes:

(3) wrong name. NL 7/12.
(4) IC 8.12.21 MAPH

(1) I.E. - NL 7/7/21
(2) Not being used - NL 7/7/21

EcoAnalysts, Inc.

Compositing Record

Client	WOOD
Project	Mole Pier
Composite Method (Hand, Augur, Drum)	Hand

Date	Technician(s)	Composite Name	Composite Lab ID	Estimated Final Volume	Samples Included in Composite
7/16/21	SH	C-Comp	P210716.01	~10L	FDD-C-C3 FDD-C-C5 FDD-C-C6

Notes:

T.1

CLIENT	PROJECT	SPECIES
Wood	Mole Pier	*Bulk*
Calibration Standards Temperature: 19.4	Date: 7/8/2021 Tech: SH	

NH_3 sample temperature should be within +/- 1°C of standard temp at time and date of analysis

Sample	Material	Overlying/ Porewater	*Total NH_3 (mg/L)*	*NH_3 sample temp*	*WQ/Temp Meter*	*Measured Total Dissolved Sulfide (µg/L as S)*	*Sulfide Sample Volume (ml)*	*Sulfide Multiplier*	*Calculated Total Dissolved Sulfide (µg/L as S)*	*Porewater salinity (ppt)*	*Porewater pH*	*Projected test temp (C)*	*Temp (K)*	*NH_3 pKa[5]*	*Unionized NH_3 (mg/L)*	*H_2S pKa**	*Undissociated Sulfide (µg/L as H_2S)*	Notes
Record			Record	Record	Record	Record	Record	Record	Calculated	Record	Record	Record	Calculated	Calculated	Calculated	Calculated	Calculated	
Ref Comp	Bulk	Porewater	5.35	18.6	M8/T17	--	--	--	#VALUE!	33	7.7	20.0	293.15	9.26	0.101	#VALUE!	#VALUE!	
A Comp	Bulk	Porewater	6.42	18.7	M8/T17	--	--	--	#VALUE!	33	7.6	20.0	293.15	9.26	0.097	#VALUE!	#VALUE!	
B Comp	Bulk	Porewater	8.4	18.4	M8/T17	--	--	--	#VALUE!	33	7.8	20.0	293.15	9.26	0.200	#VALUE!	#VALUE!	
D Comp	Bulk	Porewater	7.88	18.7	M8/T17	--	--	--	#VALUE!	34	7.8	20.0	293.15	9.26	0.187	#VALUE!	#VALUE!	

ORGANISM RECEIPT LOG

Date:	Time:	Batch No.
7/7/21 8	1235	NWA070821.01

Organism: Eohaustorius estuarius

Source / Supplier: NWA

No. Ordered:	No. Received:	Source Batch: Collection date, hatch date, etc.):
890	890+10%	3-5mm

Condition of Organisms:	Approximate Size or Age: (Days from hatch, life stage, size class, etc.):
Good	35 mm

Shipper:	B of L (Tracking No.)
Fedex	815291691484

Condition of Container:	Received By:
Good	NL

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1	(2)	9.3	(2)		—	—	NL

**if >10% contact lab manager*

Notes: (1) W.D- NL 7/8/21 (2) Animals in soil. - NL 7/8/21

Northwest Amphipod, LLC
3101 SE Ferry Slip Rd #803, P.O. Box 542, Newport, OR 97365
Tel: 541-867-7225, nwamphipod@gmail.com

SUBJECT: Animal Collection Data Sheet (shipping)

SOLD TO:

EcoAnalysts
4770 NE View Dr.
P.O. Box 216
Port Gamble WA 98364

Brian Hester/Collin Ray/Hillary Eicholer,
Michelle Knowlen, Lauren Brandkamp, Julia Levengood
360.297.6040
Julia Levengood
360.509.4141

FedEx# 1817-5747-7

P.O. # 2063

DATE OF SHIPMENT: 7-07-21

ANIMAL HISTORY

Species	Age/Size	Number Shipped
Eohaustorius estuarius	3-5mm	890 + 10%

WATER QUALITY AT TIME OF SHIPMENT

Temperature (°C): 15-2	pH: 8-3	Salinity (ppt): 31.0	D.O. (mg/L): 8-4
Other:			

PACKAGED BY: GB

DATE: 07/07/2021

FIELD COLLECTION/CULTURE NOTES

Collected 7-06-21 from Yaquina Bay, OR
Interstitial WQ: Temp 11.0°C, Salinity 35.0 ppt; salinity adjusted ~5 ppt up or down as needed.
Held at ~15°C in aerated water.

ADDITIONAL COMMENTS

4-liters of 0.5 mm sieved home sediment included.

PLEASE RETURN ALL SHIPPING MATERIALS
If you have any questions, please call Yves Nakahama, Gary Buhler or Gerald Irissarri at (541) 867-7225.
Thank You.

ORGANISM RECEIPT LOG

Date: 7/9/21	Time: 1210	Batch No. JB070921.01
Organism: Ampelisca		
Source / Supplier: John Brezina		
No. Ordered: 700	No. Received: 1000	Source Batch: Collection date, hatch date, etc.): collected 7/08/21
Condition of Organisms: Good	Approximate Size or Age: (Days from hatch, life stage, size class, etc.): 3-5 mm	
Shipper: FedEx	B of L (Tracking No.) 2812 4275 3450	
Condition of Container: Good	Received By: SH	

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1	29.8	18.1	29 ppt	7.4	—	—	SH

*if >10% contact lab manager

Notes:

ORGANISM SUPPLY LOG

SPECIES:	Ampelisca abdita
BATCH ORIGINATION:	Dillon Beach Ca
ORGANISM SOURCE:	Northern San Francisco Bay Ca
ORGANISM COLLECTION DATE(S):	7/8/21
NUMBER OF ORGANISMS ORDERED:	700
SIZE REQUESTED:	3-5mm
NUMBER OF ORGANISMS PROVIDED:	1000

ORGANISM RECEIPT LOG

Date: 7/13/21	Time: 1055	Batch No. ATS071321

Organism: Neanthes arenaceodentata

Source / Supplier: Aquatic Toxicology Support

No. Ordered: 500	No. Received: 550	Source Batch: Collection date, hatch date, etc.): emerge ~ 6/21/21

Condition of Organisms: good	Approximate Size or Age: (Days from hatch, life stage, size class, etc.): 22 days post-emergence
Shipper: courier	B of L (Tracking No.) NA
Condition of Container: good	Received By: MK

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units) ppt	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1-6 (2)	11.2	20.3	30	7.2	—	—	MK

*if >10% contact lab manager

Notes: (1) IE. MK 7/13. (2) composite. MK 7/13

Aquatic Toxicology Support
1849 Charleston Beach Road West
Bremerton, Washington 98312
(360) 813-1202

Order Summary

Species: *Neanthes arenaceodentata**	Emerge Date: 21 June '21
Number Ordered: 500	Number Shipped: 500 + 10%
Date Shipped: 12 July '21	Salinity (ppt): 29

*Smith 1964. CSU Long Beach strain. Feed upon arrival.

ORGANISM RECEIPT LOG

Date:	Time:	Batch No.
7/20/21	1200	ABS 072021.02

Organism: Americamysis bahia

Source / Supplier: Aquatic Biosystems

No. Ordered:	No. Received:	Source Batch: Collection date, hatch date, etc.):
1185	1185+	Hatch: 7/16/21

Condition of Organisms:	Approximate Size or Age: (Days from hatch, life stage, size class, etc.):
Good	4 days

Shipper:	B of L (Tracking No.)
FedEx	137495991560

Condition of Container:	Received By:
Good	SH/DM/MS

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1	17.6	22.9	30ppt	7.0	2	—	MS/DM
2	14.5	22.7	31 ppt	6.8	3	—	MS/DM

*if >10% contact lab manager

Notes:

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 7/19/2021

SPECIES: *Americamysis bahia* (formerly Mysidopsis)

AGE: 3 day

LIFE STAGE: Juvenile

HATCH DATE: 7/16/2021

BEGAN FEEDING: Immediately

FOOD: *Artemia* sp.

Water Chemistry Record:	Current	**Range**
TEMPERATURE:	26 °C	23-26 °C
SALINITY/CONDUCTIVITY:	25 ppt**	21-31 ppt
TOTAL HARDNESS (as $CaCO_3$):	--	--
TOTAL ALKALINITY (as $CaCO_3$):	115 mg/l	115-145 mg/l
pH:	7.82	7.61-7.86

Comments: ** Acclimated to 28 ppt on 7/19/21.

Facility Supervisor

ORGANISM RECEIPT LOG

Date: 7/20/21	Time: 1200	Batch No. ABS072021.01

Organism: Menidia beryllina

Source / Supplier: Aquatic Biosystems

No. Ordered: 1290	No. Received: 1290+	Source Batch: Collection date, hatch date, etc.): Hatch: 7/9/20

Condition of Organisms: Good	Approximate Size or Age: (Days from hatch, life stage, size class, etc.): 11 days
Shipper: FedEx	B of L (Tracking No.) 1374959915 60
Condition of Container: Good	Received By: SH / DM / MS

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1	15.6	22.9	26ppt	7.1	4	—	MS/DM
2	14.7	22.9	26ppt	7.0	10	—	MS/DM

*if >10% contact lab manager

Notes:

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 7/19/2021

SPECIES: *Menidia beryllina*

AGE: 10 day

LIFE STAGE: Juvenile

HATCH DATE: 7/9/2021

BEGAN FEEDING: Immediately

FOOD: Rotifers, *Artemia* sp.

Water Chemistry Record:

	Current	Range
TEMPERATURE:	26°C	23-26 °C
SALINITY/CONDUCTIVITY:	25 ppt**	24-27 ppt
TOTAL HARDNESS (as $CaCO_3$):	--	--
TOTAL ALKALINITY (as $CaCO_3$):	135 mg/l	135-180 mg/l
pH:	7.60	7.60-8.20

Comments: ** Acclimated to 28 ppt on 7/19/21.

Facility Supervisor

ORGANISM RECEIPT LOG

Date: 7/20/21	Time: 1615	Batch No. TS 072021

Organism: mytilus gallo.

Source / Supplier: Taylor Shellfish

No. Ordered: 1 batch	No. Received: 1 batch	Source Batch: Collection date, hatch date, etc.): Collected 7/20/21

Condition of Organisms: Good	Approximate Size or Age: (Days from hatch, life stage, size class, etc.): Adult
Shipper: Courier	**B of L (Tracking No.)** NA
Condition of Container: Good	**Received By:** JL

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
*							JL

*if >10% contact lab manager

Notes: * Received Dry

ORGANISM RECEIPT LOG

Date: 7/23/21	Time: 1550	Batch No. R6072321

Organism: Macoma nasuta

Source / Supplier: Reed Gunstone

No. Ordered: 1660	No. Received: 1660+	Source Batch: Collection date, hatch date, etc.): Collected 7/20-23

Condition of Organisms: Good	Approximate Size or Age: (Days from hatch, life stage, size class, etc.): Adult
Shipper: Courier	B of L (Tracking No.) NA
Condition of Container: Good	Received By: JL

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
X							JL

*if >10% contact lab manager

Notes: * Received Dry

Johnson & Gunstone Shellfish
3503 Old Gardiner Road
Sequim, WA 98382

ORGANISM SUPPLY LOG

SPECIES:	Bent Nose Clam (*Macoma nasuta*)		
BATCH ORIGINATION:	Discovery Bay, Washington		
ORGANISM SOURCE:	Natural Harvest X	Reserve Trays_____	
ORGANISM COLLECTION DATE(S):	7-20 through 7-23		
NUMBER OF ORGANISMS ORDERED:	1,660		
SIZE REQUESTED:	Adult: Varied X	>_____ in Length	Other: _____
NUMBER OF ORGANISMS PROVIDED:	1,660 +		
NATIVE/CONTROL SEDIMENT PROVIDED:	Yes X	No_____	
SEDIMENT SOURCE:	Discovery Bay, Washington		
SEDIMENT COLLECTION DATE(S):	7-23		
SEDIMENT VOLUME PROVIDED (Liters):	70L		

ORGANISM RECEIPT LOG

Date:	Time:	Batch No.
7/22/21	1240	ARO072221.01 ① ~~ABS072221.01~~

Organism: Alitta Virens

Source / Supplier: Aquatic Research Organisms

No. Ordered:	No. Received:	Source Batch: Collection date, hatch date, etc.):
—	800+	collection: 07/20/21

Condition of Organisms:	Approximate Size or Age: (Days from hatch, life stage, size class, etc.):
Good	Mixed age adults

Shipper:	B of L (Tracking No.)
FedEx	9929 1200 6241, 9929 1200 6230

Condition of Container:	Received By:
Good	DM

Container	D.O. (mg/L)	Temp. (°C)	Cond. or Sal. (Include Units)	pH (Units)	# Dead	% Dead*	Tech. (Initials)
1	—	12.2	—	—	0	—	DM
2	—	11.0	—	—	0	—	DM
3	—	11.0	—	—	0	—	DM
4	—	13.5	—	—	0	—	DM
5	—	12.7	—	—	0	—	DM
6	—	11.8	—	—	0	—	DM
7	—	11.0	—	—	0	—	DM

*if >10% contact lab manager

Notes:

① IE-DM-7/22/21

Aquatic Research Organisms

DATA SHEET/ CUSTODY CHAIN

I. Organism History

Species Alitta virens formerly (Neanthes) and (Neries) virens

Source: Lab reared____ Hatchery reared____ Field collected X

Hatch date Mixed aged adults Collection date 07/20/21

Lot number 07/21/21NV Strain Wild

Brood origination: Damariscotta River, Boothbay Harbor, Maine

II. Water Quality

Temperature 16 °C Salinity 28-32 ppt D.O. Saturated ppm

pH 8.0-8.4 su Hardness N.A. ppm Alkalinity N.A. ppm

III. Culture Conditions

Freshwater____ Saltwater X Other____

Recirculating____ Flow through____ Static____

DIET: Flake food____ Phytoplankton____ Trout chow____

Artemia____ Rotifers____ YCT____ Other Not fed

Prophylactic treatments:____

Comments: Held at 4C on moist seaweed. Shipped with gel ice packs to keep cool

IV. Shipping Information

Client: ECO ANALYSTS PG # of Organisms 800+

Carrier: FED EX Date shipped 07/21/21

Tracking #____ # of boxes 2

Released by: [signature] Date: 07/21/21 Time: 16:30

Received by:____ Date:____ Time:____

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

MAINTENANCE LOG FOR CULTURES

ORGANISM: Amps
LOCATION: Bath 4

Batch Number: JB070921	Date Received: 7/9/21	Initial # of Organisms:

Date	Feed AM	Feed PM	Tub No.	D.O.	Temp (°C)	Cond/ Sal	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/10/21	–	✓	1	7.8	18.5	29	7.9	Y	Y	—	—	NL	
7/11/21	✓	–	1	7.8	18.5	29	8.0	Y	Y	–	–	MS	
7/12/21	✓	–	1	7.5	18.5	29	7.9	Y	Y	–	–	MS	
7/13/21	✓	—	1	7.5	18.5	29	7.9	N	Y	—	—	JL	
7/14/21	✓	①	1	7.4	18.5	30	7.9	Y	Y	—	—	SH	
7/15/21	—		1	8.1	18.5	30	7.9	Y	Y	—	—	SH	
7/16/21	–	✓	1	7.8	18.2	30	7.8	Y	Y	—	—	NL	
7/17/21	—		1	7.4	18.7	30	7.9	Y	Y	—	—	NL	
7/18/21	✓	–	1	7.7	18.6	31	8.0	Y	Y	—	—	NL	

FT = Flow-through
*if >10% notify lab manager

① I.E. – SH 7/14

MAINTENANCE LOG FOR CULTURES

ORGANISM: Eoh
LOCATION: Bath 3

Batch Number: AI070821.	Date Received: 7/8/21	Initial # of Organisms:

Date	Feed AM/PM	Tub No.	D.O.	Temp (°C)	Cond/ Sal	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/9/21	✓	1	8.3	15.1	28ppt	7.8	Y	Y	—	—	MS	
7/10/21	—	1	7.4	16.4	27	7.9	Y	Y	—	—	NL	
7/11/21	—	1	8.0	15.3	28ppt	7.9	Y	Y	—	—	MS	
7/12/21	—	1	8.1	15.6	28	7.9	Y	Y	—	—	MS	
7/13/21	—	1	7.9	15.4	29	8.0	N	Y	2	—	JL	
7/14/21	①✓ ~~①~~	1	7.8	15.2	29	7.9	Y ~~N~~ ①	Y	1	—	SH	
7/15/21	—	1	8.6	15.3	29	8.0	Y	Y	0	—	SH	
7/16/21	—	1	8.1	15.7	29	7.7	Y	Y	0	—	NL	
7/17/21	—	1	8.0	15.6	29	7.8	Y	Y	—	—	NL	
7/18/21	—	1	8.2	14.8	30	8.0	Y	Y	—	—	NL	

FT = Flow-through
*if >10% notify lab manager ① I.E. - SH 7/14

MAINTENANCE LOG FOR CULTURES

ORGANISM: Mussels
LOCATION: Culture tub #2

Batch Number: TS072021.01	Date Received: 7/20/21	Initial # of Organisms:

Date	Feed AM/PM		Tub No.	D.O.	Temp (°C)	Cond/ Sal	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/21		✓	1	7.3	14.0	30	7.8	FT	Y	0	—	SH	
7/23/21		✓	1	7.3	13.5	31	7.7	FT	Y	0	—	SH	
7/26/21		✓	1	7.3	14.9	30	7.9	FT	Y	0	—	SH	
7/28		✓	1	7.2	15.0	29	7.6	FT	Y	0	—	SH	
7/30		✓	1	7.9	14.5	31	7.9	FT	Y	0	—	SH	
8/9		✓	1	7.8	17.1	30	8.0	FT	Y	0	—	SH	
8/16		✓	1	7.5	14.8	30	7.9	FT	Y	0	—	DM	
8/17		✓	1	6.8	14.0	30	7.9	FT	Y	0	—	SH	
8/20		✓	1	7.3	16.4	30	7.9	FT	Y	0	—	SH	
8/23		✓	1	7.7	14.9	30	7.9	FT	Y	0	—	SH	
8/30		✓	1	7.3	14.6	30	7.8	FT	Y	0	—	SH	
9/1/21		—	1	7.6	17.1	31	7.9	FT	Y	0	—	SH	

FT = Flow-through
*if >10% notify lab manager

MAINTENANCE LOG FOR CULTURES

ORGANISM: Ulva virens
LOCATION: Rack 3

Batch Number: AR0072221	Date Received: 7/22/21	Initial # of Organisms: 800

Date	Feed AM/PM	Tub No.	D.O.	Temp (°C)	Cond/ Sal ppt	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/23	—	1	6.6	15.4	30	7.7	FT	Y	0	—	JL	
7/23	—	2	6.8	15.2	30	7.8	FT	Y	0	—	JL	
7/23	—	3	6.3	15.2	30	7.6	FT	Y	0	—	JL	
7/23	—	4	7.0	15.2	30	7.8	FT	Y	0	—	JL	
7/23	—	5	7.7	15.1	30	7.9	FT	Y	0	—	JL	
7/24	—	1	6.6	14.6	30	7.8	FT	Y	3	0.3%	SH	
7/24	—	2	6.7	14.7	30	7.8	FT	Y	1	0.1%	SH	
7/25	—	1	6.7	14.6	30	7.8	FT	Y	0	—	DM	
7/25	—	2	6.7	14.7	30	7.8	FT	Y	0	—	DM	
7/26	—	1	① 6.7	15.3	30	7.8	FT	Y	2	0.3%	SH	
7/26	—	2	6.6	15.4	30	7.7	FT	Y	3	0.3%	SH	
7/27	—	1	7.0	14.3	31	7.7	FT	Y	2	0.3%	SH	
7/27	—	2	7.0	14.4	31	7.7	FT	Y	2	0.3%	SH	
7/28	—	1	7.1	14.6	30	7.7	FT	Y	0	—	NL	
7/28	—	2	7.2	14.6	30	7.7	FT	Y	0	—	NL	

FT = Flow-through
*if >10% notify lab manager

① W.C. – SH 7/26
② IE-NL 7/28

APPENDIX C. AMPHIPOD RESULTS DISCUSSION MEMORANDUM PREPARED 7/1/21 (UPDATED 7/23/21)

MEMORANDUM

SUBJECT: Species selection and recent test performance of field collected *Eohaustorius estuarius* and *Ampelisca abdita*

REGARDING: NBSD Mole Pier Floating Dry Dock Project

PREPARED BY: Brian Hester, Michelle Knowlen; EcoAnalysts, Inc.

DATE: July 1, 2021 (Updated 7/23/21)

Species Selection

While availability is an important factor in selecting the appropriate species for testing (See attached addendum), amphipod species have differing preferred grain size tolerances. The grain size tolerance ranges summarized in the guidance may be summarized as the following:

Ampelisca abdita: Native habitat is fine-grained silt. Recommended for evaluating sediment when the % fines (sum of silt/clay) is >60% (PSEP 1995).

Eohaustorius estuarius: Native habitat is 100% sand. Recommended for evaluating sediment when the % fines (sum of silt/clay) is <60% (PSEP 1995).

If there is concern of potential grain-size effects on the test organisms, the inclusion of treatments targeted at evaluating the non-contaminant related effects of sediments with varying grain sizes, or grain sizes in the extremes (predominantly sand or fines), should be evaluated concurrently with the project samples.

A summary of the grain size results for the NBSD Mole Pier project sediments are summarized in Table 1.

Table 1. Project Sediment Grain Size

Sample	% Fines (Sum of Silt/Clay)[1]	*Eohaustorius estuarius:* <60% Fines	*Ampelisca Abdita:* >60% Fines
LA-5 ODMDS	56.1	X	
Composite A	33.3	X	
Composite B	72.6		X
Composite C [2]	5.5	X	
Composite D	10.0	X	

[1]Mean of individual core particle size analysis as reported by Wood plc

[2]Sample unlikely to be tested for bioassay due to analytical results.

Recommendation: Three of the four composites are well below the 60% fines threshold between the two amphipod species while one composite is above. Due to this split, it would be best to utilize the amphipod *Eohaustorius estuarius* for the determination of potential solid-phase toxicity with Composite A and D while utilizing the amphipod *Ampelisca abdita* with Composite B. The reference (LA-5) would be tested with both *E. estuarius* (to compare survival response with Composite A and D) and *A. abdita* (to compare survival response with Composite B). Two negative controls containing the home sediment of each species would also be tested.

Eohaustorius estuarius is readily available from a single supplier and has met control acceptability criterion in recent testing. Table 2 below summarizes the test performance of recent bioassay programs utilizing the amphipod *E. estuarius.*

Table 2. Recent Test Performance with Eohaustorius estuarius

Test Date	Negative Control Result Objective = ≥90%	Positive Control Result Objective = ≥90%; dose response within limits
November 13, 2020	98% Survival	100% Survival Dose Response within Limit
October 23, 2020	99% Survival	97% Survival Dose Response within Limit
October 2, 2020	98% Survival	100% Survival Dose Response within Limit
July 31, 2020	100% Survival	97% Survival Dose Response within Limit

Ampelisca abdita s is available from both West Coast and East Coast suppliers. Due to species seasonality, we propose to employ the West Coast supplier (see addendum for details). The most recent tests with West Coast *Ampelisca* have met control acceptability criteria and are summarized in Table 3 below.

Table 3. Recent Test Performance with Ampelisca abdita

Test Date	Negative Control Result Objective = ≥90%	Positive Control Result Objective = ≥90%; dose response within limits
June 18, 2021	90% Survival	Results pending
February 2, 2021	91% Survival	90% Survival Dose Response within Limit
January 27, 2021	95% Survival	90% Survival Dose Response within Limit
December 1, 2020	92% Survival	90% Survival Dose Response within Limit

Update 7/23/21: Daily water quality and monitoring of the amphipod culture test batches used for this program are attached to this memo. Both were deemed healthy prior to test initiation.

ADDENDUM: The Availability of the Marine Amphipods *Ampelisca abdita* and *Eohaustorius estuarius* for the Purposes of the Aquatic Toxicity Testing of Marine Sediments

General synopsis regarding the availability of the two field collected test organisms:

Ampelisca abdita: Field collected organisms. Reproductive cycle makes availability of test-size organisms during the spring challenging. EPA preferred test species.

Eohaustorius estuarius: Field collected organisms. Available year-round (weather dependent) of the appropriate test size. *E. estuarius* are late winter breeders and there are a higher percentage of larger and sexually mature animals in winter months (peaking in February and March; Bosworth 1976). Larger sexually mature individuals are usually excluded by the organism supplier and do not interfere with testing.

Table 4. Summary of Amphipod Species Availability: Calendar View

Species	J	F	M	A	M	J	J	A	S	O	N	D
A. abdita (West Coast)												
A. abdita (East Coast)												
E. estuarius												

Green = available; orange = not available; Gold = fringe months (Mature adults reproducing or offspring coming into size)

Discussion

The marine benthic-dwelling amphipods *Ampelisca abdita* and *Eohaustorius estuarius* are widely utilized test organisms for the evaluation of potential toxicity of sediments. Toxicity testing conducted with these species are one of many tools for assessing the biological effects of sediment for informing dredged material disposal options or aquatic site characterizations. The most common application is a 10-day survival assay. Methods for conducting testing with this species are formalized in a variety of promulgated guidance documents including:

- Biological Test Method: Acute Test for Sediment Toxicity Using Marine or Estuarine Amphipods. Environment Canada (EC 1992)
- Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods. United States Environmental Protection Agency (USEPA 1994)
- Recommended Guidelines for Conducting Laboratory Bioassay on Puget Sound Sediments. Puget Sound Estuary Protocols (PSEP 1995)
- Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual. United States Army Corps of Engineers (USACE 1998)

- Standard Guide for Conducting 10-Day Static Sediment Toxicity Tests with Marine and Estuarine Amphipods. American Society for Testing and Materials (ASTM 2016)

***Ampelisca abdita* Sources**

A. abdita is obtained as a field collected organism from two suppliers: Aquatic Research Organisms, Inc. (ARO) and Brezina & Associates (Brezina). ARO is located in Hampton, New Hampshire and Brezina is located in Dillon Beach, California.

This species transitions through a reproductive cycle in the Spring when the overwintering mature animals brood new young and the population is dominated by small, immature individuals. During this period it is prudent to avoid using these organisms as the ideal age and size of amphipod would not be found in sufficient quantity for testing. The mature animals are likely not present or would express an elevated level of mortality if tested. Additionally, the new broods are too small and likely of a greater sensitivity at this early life stage. While this phenomenon occurs with the both the East and West Coast populations of *A. abdita*, the timing is often staggered such that amphipods of appropriate size may be obtained at any given time, or within a larger window. Both suppliers will provide updates on the status of their populations (to the best of their knowledge and experience) and will work with the laboratories to provide the best option for successful testing.

Native control sediment should be requested from the supplier at the time of ordering. The sediment is collected from the same location as the test organisms. Sediment from both suppliers tends to fine grained and organically rich. This makes for an ideal habitat for the organisms in the field under well flushed natural waterways, but can produce confounding factors that affect the test performance under storage and static laboratory testing conditions.

***Eohaustorius estuarius* Sources**

E. estuarius is obtained as a field collected organism from one primary supplier: Northwest Amphipod, LLC. (formerly Northwestern Aquatic Sciences, Inc.) located in Newport, Oregon.

Generally, organisms of varying sizes and age classes are available at any given time during the year (weather dependent) and obtaining test organisms of the appropriate size has not limited the ability to test with this organism. *E. estuarius* are late winter breeders and there are a higher percentage of larger and sexually mature animals in winter months (peaking in February and March; Bosworth 1976). Consequently, more small offspring are present in mid to late spring, but the population does not go through a dramatic shift as it does with *A. abdita*.

Organism Receipt and Culture Maintenance

Organisms arrive from the suppliers via an overnight courier service (Fedex/UPS) packaged in an Igloo™ style cooler or insulated Styrofoam fish box. *Ampelisca* are contained in a polyethylene bag or an LDPE cubitainer with water and a small amount of sediment and have developed tubes. *Eohaustorius* are supplied in small square plastic containers with lids containing hydrated sand and approximately 110 animals per container. Organisms are inspected upon arrival and water quality of the overlying water (parameters of dissolved oxygen, temperature, salinity, and pH) is measured and recorded. *Ampelisca* are shipped with pure oxygen in the headspace of the container and will likely have a dissolved oxygen at or above saturation in the water. *Ampelisca* are tube-dwelling amphipods and will create mats of conjoined tubes made of sediment fines and mucus. *Eohaustorius* are free-burrowing amphipods and will remain buried in the sand. If a large amount the animals are floating, emerged from the holding sediment, or and have come out of their tubes, this may be a sign of significant shipping stress or poor

water quality. A batch exhibiting these signs should be rejected and a replacement requested. Animals are held and monitored prior to test initiation in order to evaluate organism health.

References and Bibliography

Anderson, B., Phillips, B., and Voorhess, J. 2015. The Effects of Kaolin Clay on the Amphipod *Eohaustorius estuarius*. Funded by the Regional Monitoring Program for Water Quality in the San Francisco Bay. San Francisco Estuary Institute. Richmond, CA. Contribution # 755.

Anderson, B., Phillips, B., and Voorhess, J. 2017. The Effects of Kaolin Clay on the Amphipod *Eohaustorius estuarius*: Part Two. Funded by the Regional Monitoring Program for Water Quality in the San Francisco Bay. San Francisco Estuary Institute. Richmond, CA. Contribution # 822.

ASTM 2016. American Society for Testing and Materials. Standard guide for conducting 10-day static sediment toxicity tests with marine and estuarine amphipods. E1367 − 03 (Reapproved 2014). In Annual Book of ASTM Standards, Environmental; Biological Effects and Environmental Fate. Vol 11.06. Philadelphia, PA. August 2016.

DeWitt, T.H., R.C. Swartz, and J.O. Lamberson. 1989. Measuring the acute toxicity of estuarine sediments. Environ. Toxicol. Chem. 8:1035-1048.

Bosworth, W.J., 1976. The biology of the genus *Eohaustorius* (Amphipoda: Haustoriidae) on the Oregon Coast. Doctoral dissertation, Oregon State University. 209 p.

EC 1992. Environment Canada. Biological test method: Acute test for sediment toxicity using marine or estuarine amphipods. EPS 1/RM/26. Technical Report. Environment Canada, Ottawa, ON. 1992

Long, Edward R., MacDonald, Donald D., Smith, Sherri L., Calder, Fred D., 1995. "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments," Environmental Management Volume 19, No. 1, pp. 81-97.

Mills, E.L. 1967. The biology of an amphipod crustacean sibling species pair. J. Fisheries Res. Board Canada, 24: 305-355.

USEPA 1994. U.S. Environmental Protection Agency. Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods. EPA/600/R-94/025. Office of Research and Development, Washington, DC. 1994

USEPA/USACE 1998. Evaluation of Dredged Material for Proposed for Discharge in Waters of the U.S. - Testing Manual, Inland Testing Manual. U.S. Environmental Protection Agency, Office of Water, Washington D.C.

PSEP 1995. Puget Sound Protocols and Guidelines. Puget Sound Estuary Program. Recommended Guidelines for Conducting Laboratory Bioassay on Puget Sound Sediments. Puget Sound Water Quality Action Team, Olympia, Washington.

MAINTENANCE LOG FOR CULTURES

ORGANISM: Amps
LOCATION: Bath 4

Batch Number: JB070921	Date Received: 7/9/21	Initial # of Organisms:

Date	Feed AM	Feed PM	Tub No.	D.O.	Temp (°C)	Cond/ Sal	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/10/21	–	✓	1	7.8	18.5	29	7.9	Y	Y	—	—	NL	
7/11/21	✓	–	1	7.8	18.5	29	8.0	Y	Y	–	–	MS	
7/12/21	✓	–	1	7.5	18.5	29	7.9	Y	Y	–	–	MS	
7/13/21	✓	—	1	7.5	18.5	29	7.9	N	Y	—	—	JL	
7/14/21	✓	①	1	7.4	18.5	30	7.9	Y	Y	—	—	SH	
7/15/21	—		1	8.1	18.5	30	7.9	Y	Y	—	—	SH	
7/16/21	–	✓	1	7.8	18.2	30	7.8	Y	Y	—	—	NL	
7/17/21	—		1	7.4	18.7	30	7.9	Y	Y	—	—	NL	
7/18/21	✓	–	1	7.7	18.6	31	8.0	Y	Y	—	—	NL	

FT = Flow-through
*if >10% notify lab manager

① I.E. – SH 7/14

MAINTENANCE LOG FOR CULTURES

ORGANISM: Eoh
LOCATION: Bath 3

Batch Number: AI070821.	Date Received: 7/8/21	Initial # of Organisms:

Date	Feed AM/PM	Tub No.	D.O.	Temp (°C)	Cond/ Sal	pH	H_2O Change	Organisms appear healthy (Y/N)	# Mort	% Mort*	Init.	Comments
7/9/21	✓	1	8.3	15.1	28ppt	7.8	Y	Y	—	—	MS	
7/10/21	—	1	7.4	16.4	27	7.9	Y	Y	—	—	NL	
7/11/21	—	1	8.0	15.3	28ppt	7.9	Y	Y	—	—	MS	
7/12/21	—	1	8.1	15.6	28	7.9	Y	Y	—	—	MS	
7/13/21	—	1	7.9	15.4	29	8.0	N	Y	2	—	JL	
7/14/21	①✓ ~~①~~	1	7.8	15.2	29	7.9	Y ~~N~~ ①	Y	1	—	SH	
7/15/21	—	1	8.6	15.3	29	8.0	Y	Y	0	—	SH	
7/16/21	—	1	8.1	15.7	29	7.7	Y	Y	0	—	NL	
7/17/21	—	1	8.0	15.6	29	7.8	Y	Y	—	—	NL	
7/18/21	—	1	8.2	14.8	30	8.0	Y	Y	—	—	NL	

FT = Flow-through
*if >10% notify lab manager ① I.E. - SH 7/14

APPENDIX C2A

ADDAMS STFATE MODEL RESULTS

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

MODEL: SHORT-TERM FATE OF DREDGED MATERIAL FROM SPLIT HULL BARGE OR HOPPER DREDGE
(PC Version 5.01 MAY, 1993)

TITLE: BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

FILE: FDDC3_25.DUE

AREA: THE PROJECT AREA IS DESCRIBED BY A 45 X 45 GRID.

THERE ARE 45 GRID POINTS (NMAX) IN THE Z-DIRECTION (FROM LEFT TO RIGHT)
AND 45 GRID POINTS (MMAX) IN THE X-DIRECTION (FROM TOP TO BOTTOM).

ZONE: THE MIXING ZONE IS REPRESENTED AS A RECTANGLE ON THE SITE GRID.

THE TOPMOST BOUNDARY IS LOCATED AT POINT #21 (MDS1) FROM THE TOP OF THE GRID.

THE BOTTOMMOST BOUNDARY IS LOCATED AT POINT #36 (MDS2) FROM THE TOP OF THE GRID.

THE LEFTMOST BOUNDARY IS LOCATED AT POINT #34 (NDS1) FROM THE LEFT OF THE GRID.

THE RIGHTMOST BOUNDARY IS LOCATED AT POINT #39 (NDS2) FROM THE LEFT OF THE GRID.

EXECUTION PARAMETERS:

MODEL COEFFICIENTS SPECIFIED IN INPUT DATA (KEY1 = 1).

PERFORM COMPLETE ANALYSIS INCLUDING DESCENT, COLLAPSE, AND TRANSPORT-DIFFUSION (KEY2 = 0).

PERFORM TIER II INLAND DUMPING INITIAL MIXING EVALUATION
TO DETERMINE NEED FOR FURTHER TESTING (KEY3 = 7).

MIXING ZONE HAS BEEN DESIGNATED -- NO MIXING ZONE WILL BE COMPUTED.

NO ANALYSIS OF A ZONE OF INITIAL DILUTION REQUESTED.

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF DYNAMIC COLLAPSE RESULTS REQUESTED (IPCL = 1).

QUARTERLY PRINTING OF LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED (IPLT = 0).

LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED AT THE FOLLOWING 2 DEPTH(S):
0.00 FT
30.00 FT

GRID: NUMBER OF LONG TERM GRID POINTS IN Z-DIRECTION (NMAX) = 45

NUMBER OF LONG TERM GRID POINTS IN X-DIRECTION (MMAX) = 45

GRID SPACING IN Z-DIRECTION (DZ) = 200.00000 FT

GRID SPACING IN X-DIRECTION (DX) = 200.00000 FT

CONSTANT DEPTH GRID SPECIFIED HAVING A DEPTH (DEPC) OF 30.00000 FT.

DEPTH GRID, FEET:

M N = 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M	N =18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M N =35	36	37	38	39	40	41	42	43	44	45
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

CODED GRID:

RANGE OF N IS 1 TO 45

X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X
X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W D W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B B
B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B B
B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O X
X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X

LEGEND FOR CODED GRID: W = WATER POINT
L = LAND POINT
O = OPEN BOUNDARY
B = MIXING ZONE BOUNDARY
Z = ZID BOUNDARY
D = DUMP LOCATION
X = DUMMY POINT

NUMBER OF GRID POINTS WITHIN ESTUARY = 1681

DISPOSAL LOCATION:

THE DUMP LOCATION IS 2000. FT (XBARGE) OR ABOUT GRID POINT #11 FROM THE TOP OF THE GRID
AND 3500. FT (ZBARGE) OR ABOUT GRID POINT #19 FROM THE LEFT EDGE OF THE GRID.

THE BOTTOM SLOPE IN THE X-DIRECTION AT THE DUMP SITE (SLOPEX, POSITIVE IF DEPTH INCREASES
FROM TOP OF GRID TO BOTTOM OF GRID) IS 0.00 DEGREES.

THE BOTTOM SLOPE IN THE Z-DIRECTION AT THE DUMP SITE (SLOPEZ, POSITIVE IF DEPTH INCREASES
FROM LEFT SIDE OF GRID TO RIGHT SIDE OF GRID) IS 0.00 DEGREES.

THE DISPOSAL LOCATION IS NOT AT A HOLE OR DEPRESSION. (DHOLE = 0.0)

AMBIENT DENSITY PROFILE:

DEPTH (FT)	DENSITY (G/CC)
0.0000E+00	1.0241
30.00	1.0248

COMPUTED DEPTH:

THE DEPTH AT THE DUMP LOCATION WAS INTERPOLATED TO BE 30.00 FT.

VELOCITY DISTRIBUTION:

TWO-VELOCITY PROFILES ARE SPECIFIED IN BOTH X AND Z DIRECTIONS FOR USE AT ALL GRID POINTS PROVIDING "QUICK LOOKS".

DEPTH IN FT IS ASSUMED CONSTANT AND VELOCITIES IN FPS ARE CONSIDERED STEADY IN TIME.

VELOCITY PROFILE PARAMETERS FOLLOW...

FROM TOP TO BOTTOM ON GRID FROM LEFT TO RIGHT ON GRID

UPPER: DEPTH, DU1 = 5.00 X-VELOCITY, UU1 = 0.650 DEPTH, DW1 = 5.00 Z-VELOCITY, WW1 = 0.000E+00

LOWER: DEPTH, DU2 = 25.0 X-VELOCITY, UU2 = 0.650 DEPTH, DW2 = 25.0 Z-VELOCITY, WW2 = 0.000E+00

BOTTOM SHEAR STRESS, LBS/SQ FT:

M N=	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

13 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
14 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
15 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
16 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
17 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
18 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
19 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
20 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
21 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
22 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
23 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
24 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
25 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
26 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
34 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
35 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
36 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

37 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
38 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
39 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
40 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
41 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
42 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
43 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
44 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
45 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M N= 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
1 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
2 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
3 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
4 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
5 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
6 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
7 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
8 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
9 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
10 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
11 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
12 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
13 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

14 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
15 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
16 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
17 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
18 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
19 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
20 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
21 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
22 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
23 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
24 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
25 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
26 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
34 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
35 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
36 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
37 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

38 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
39 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
40 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
41 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
42 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
43 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
44 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
45 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M	N= 35	36	37	38	39	40	41	42	43	44	45
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
13	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
14	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
15	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
16	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
17	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
18	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
19	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
20	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
21	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
22	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
23	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
24	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
25	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
26	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
27	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
28	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
29	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

30	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
31	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
32	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
33	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
34	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
35	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
36	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
37	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
38	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
39	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
40	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
41	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
42	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
43	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
44	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
45	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

TIME PARAMETERS:

DURATION OF THE DISPOSAL, TREL = 20.00 SECONDS

DURATION OF THE SIMULATION, TSTOP = 3600.00 SECONDS

LONG-TERM TIME STEP USED IN THE SIMULATION, DTL = 100.00 SECONDS

BARGE DESCRIPTION:

LENGTH OF BARGE, BARGL = 0.19E+03 FT

WIDTH OF BARGE, BARGW = 35. FT

DRAFT OF LOADED BARGE, DREL1 = 14.0 FT

DRAFT OF UNLOADED BARGE, DREL2 = 4.00 FT

MODEL COEFFICIENTS READ FROM INPUT:

TURBULENT THERMAL ENTRAINMENT ALPHA0 = 0.2350

SETTLING COEFFICIENT BETA = 0.0000

APPARENT MASS COEFFICIENT CM = 1.0000

DRAG COEFFICIENT FOR A SPHERE CD = 0.5000

RATIO--CLOUD/AMBIENT DENSITY GRADIENTS GAMA = 0.2500

FORM DRAG FOR COLLAPSING CLOUD CDRAG = 1.0000

SKIN FRICTION FOR COLLAPSING CLOUD CFRIC = 0.0100

DRAG FOR AN ELLIPSOIDAL WEDGE CD3 = 0.1000

DRAG FOR A PLATE CD4 = 1.0000

ENTRAINMENT IN COLLAPSE ALPHAC = 0.1000

FRICTION BETWEEN CLOUD AND BOTTOM FRICTN = 0.0100

4/3 LAW HORIZ. DIFF. DISSIPATION FACTOR ALAMDA = 0.0010

UNSTRATIFIED WATER VERT. DIFF. COEF. AKY0 = 0.0250

STRIPPING COEF. OF FINES DURING CONVERTIVE DESCENT= 0.0030

MATERIAL DESCRIPTION: 4 SOLIDS FRACTIONS

L A Y E R 1

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)	FALL VELOCITY (FPS)	DEPOSITIONAL VOID RATIO	CHARACTER
GRAVEL	2.700	0.6345E-01	1.00000	0.5000	NONCOHESIVE
SAND	2.700	0.4969	1.00000	0.5000	NONCOHESIVE
SILT	2.650	0.3718E-01	0.01000	5.000	COHESIVE
CLAY	2.650	0.6390E-02	0.00200	5.000	COHESIVE

GRAVEL
CRITICAL SHEAR STRESS FOR DEPOSITION = 99.00 LBS/SQ. FT.
SEDIMENT FRACTION WILL NOT BE STRIPPED DURING CONVECTIVE DESCENT.

SAND
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-01 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

SILT
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.1000E-01 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

CLAY
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-02 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

BULK SEDIMENT ANALYSIS DATA:

CONCENTRATIONS OF COPPER FOLLOWING INITIAL MIXING OF THE DREDGED MATERIAL ARE COMPUTED FOR WATER QUALITY EVALUATIONS.

THE CONCENTRATION OF COPPER IN THE BULK SEDIMENT IS 4.7300 MG/KG.

THE INITIAL CONCENTRATION OF COPPER IN THE DREDGED MATERIAL IS 7.70272 MG/L
AND ITS BACKGROUND CONCENTRATION IS 1.000000 MG/L.

THE WATER QUALITY STANDARD FOR COPPER IS 3.100000 MG/L.

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)
FLUID	1.024	0.3961

DISCHARGE PARAMETERS:

VOLUME OF LAYER 1 = 2500. CU YD

DEPTH IS TOO SHALLOW FOR CONVECTIVE DESCENT SO DESCENT IS BYPASSED.

CLOUD COLLAPSE PHASE:

IN TRIAL #1 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.10000000 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 80.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

IN TRIAL #2 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.26333334E-01 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 298.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

COLLAPSE PHASE RESULTS:

TIME FROM TRACER	CLOUD CENTROID (DISTANCE FROM BARGE)	VELOCITY OF CLOUD CENTROID	DIFFERENCE OF CLOUD & WATER	ELLIPSOIDAL CLOUD VOLUME OF SOLIDS VOL.	CLOUD AXIS LENGTHS SOLID CONC. BY

DISPOSAL X-DIR DEPTH Z-DIR X-DIR DOWN Z-DIR DENSITIES THICKNESS MINOR MAJOR CONC. FRACTIONS FRACTION
(SEC) (FT) (FT) (FT) (FPS) (FPS) (FPS) (G/CC) (FT) (FT) (FT) (MG/L) (CU FT) (VOL/VOL)

20.00 0.00 20.25 0.00 -2.00 0.50 0.00 0.1009E+01 26.00 70.42 70.42 0.7703E+01 0.4283E+04 0.6345E-01
0.3354E+05 0.4969E+00
0.2510E+04 0.3718E-01
0.4313E+03 0.6390E-02
20.11 -0.21 19.91 0.00 -1.79 2.26 0.00 0.9851E+00 26.90 68.42 68.42 0.7863E+01 0.4270E+04 0.6478E-01
0.3176E+05 0.4817E+00
0.2376E+04 0.3604E-01
0.4084E+03 0.6195E-02
20.21 -0.39 20.30 0.00 -1.73 4.45 0.00 0.9736E+00 25.86 70.14 70.14 0.7792E+01 0.4245E+04 0.6373E-01
0.3173E+05 0.4764E+00
0.2374E+04 0.3564E-01
0.4080E+03 0.6125E-02
20.32 -0.57 20.87 0.00 -1.68 5.87 0.00 0.9568E+00 24.35 72.85 72.85 0.7688E+01 0.4219E+04 0.6237E-01
0.3169E+05 0.4684E+00
0.2371E+04 0.3505E-01
0.4074E+03 0.6023E-02
20.42 -0.75 21.54 0.00 -1.63 6.49 0.00 0.9360E+00 22.57 76.40 76.40 0.7559E+01 0.4191E+04 0.6075E-01
0.3163E+05 0.4585E+00
0.2366E+04 0.3430E-01
0.4067E+03 0.5895E-02
20.53 -0.92 22.22 0.00 -1.58 6.50 0.00 0.9122E+00 20.74 80.64 80.64 0.7409E+01 0.4160E+04 0.5893E-01
0.3156E+05 0.4470E+00
0.2361E+04 0.3344E-01
0.4058E+03 0.5748E-02
20.63 -1.08 22.89 0.00 -1.54 6.12 0.00 0.8862E+00 18.97 85.41 85.41 0.7244E+01 0.4128E+04 0.5696E-01
0.3149E+05 0.4345E+00
0.2356E+04 0.3251E-01
0.4049E+03 0.5588E-02
20.74 -1.24 23.49 0.00 -1.49 5.56 0.00 0.8587E+00 17.35 90.59 90.59 0.7068E+01 0.4092E+04 0.5489E-01
0.3141E+05 0.4213E+00
0.2350E+04 0.3153E-01
0.4039E+03 0.5418E-02
20.84 -1.40 24.04 0.00 -1.44 4.93 0.00 0.8303E+00 15.90 96.10 96.10 0.6886E+01 0.4054E+04 0.5274E-01
0.3134E+05 0.4077E+00

0.2345E+04 0.3051E-01
0.4030E+03 0.5243E-02
20.95 -1.55 24.52 0.00 -1.40 4.32 0.00 0.8015E+00 14.62 101.84 101.84 0.6699E+01 0.4012E+04 0.5054E-01
0.3127E+05 0.3939E+00
0.2340E+04 0.2947E-01
0.4021E+03 0.5065E-02
21.05 -1.69 24.94 0.00 -1.35 3.77 0.00 0.7726E+00 13.50 107.77 107.77 0.6510E+01 0.3968E+04 0.4832E-01
0.3121E+05 0.3801E+00
0.2335E+04 0.2844E-01
0.4013E+03 0.4887E-02
21.16 -1.83 25.30 0.00 -1.29 3.27 0.00 0.7439E+00 12.53 113.83 113.83 0.6321E+01 0.3920E+04 0.4610E-01
0.3115E+05 0.3663E+00
0.2330E+04 0.2741E-01
0.4005E+03 0.4710E-02
21.26 -1.97 25.62 0.00 -1.24 2.85 0.00 0.7156E+00 11.69 119.99 119.99 0.6134E+01 0.3870E+04 0.4391E-01
0.3109E+05 0.3528E+00
0.2326E+04 0.2640E-01
0.3998E+03 0.4537E-02
21.37 -2.10 25.89 0.00 -1.19 2.48 0.00 0.6881E+00 10.96 126.20 126.20 0.5951E+01 0.3816E+04 0.4177E-01
0.3104E+05 0.3397E+00
0.2322E+04 0.2541E-01
0.3991E+03 0.4368E-02
21.47 -2.22 26.13 0.00 -1.14 2.16 0.00 0.6616E+00 10.32 132.45 132.45 0.5774E+01 0.3760E+04 0.3968E-01
0.3099E+05 0.3270E+00
0.2319E+04 0.2446E-01
0.3985E+03 0.4205E-02
21.58 -2.34 26.34 0.00 -1.09 1.89 0.00 0.6361E+00 9.76 138.69 138.69 0.5603E+01 0.3702E+04 0.3767E-01
0.3094E+05 0.3148E+00
0.2315E+04 0.2356E-01
0.3979E+03 0.4048E-02
21.69 -2.45 26.52 0.00 -1.04 1.66 0.00 0.6118E+00 9.27 144.91 144.91 0.5440E+01 0.3641E+04 0.3574E-01
0.3090E+05 0.3033E+00
0.2312E+04 0.2269E-01
0.3974E+03 0.3900E-02
21.79 -2.56 26.69 0.00 -0.99 1.47 0.00 0.5889E+00 8.84 151.06 151.06 0.5286E+01 0.3578E+04 0.3390E-01
0.3086E+05 0.2924E+00
0.2309E+04 0.2187E-01
0.3969E+03 0.3759E-02

21.90 -2.66 26.83 0.00 -0.94 1.30 0.00 0.5673E+00 8.45 157.12 157.12 0.5140E+01 0.3514E+04 0.3215E-01
0.3083E+05 0.2821E+00
0.2307E+04 0.2111E-01
0.3964E+03 0.3627E-02
22.00 -2.76 26.96 0.00 -0.90 1.15 0.00 0.5470E+00 8.12 163.07 163.07 0.5003E+01 0.3448E+04 0.3051E-01
0.3079E+05 0.2725E+00
0.2304E+04 0.2039E-01
0.3960E+03 0.3504E-02
22.11 -2.85 27.07 0.00 -0.85 1.02 0.00 0.5282E+00 7.82 168.89 168.89 0.4876E+01 0.3380E+04 0.2895E-01
0.3076E+05 0.2635E+00
0.2302E+04 0.1972E-01
0.3956E+03 0.3389E-02
22.21 -2.94 27.17 0.00 -0.81 0.91 0.00 0.5106E+00 7.55 174.55 174.55 0.4757E+01 0.3311E+04 0.2750E-01
0.3074E+05 0.2552E+00
0.2300E+04 0.1910E-01
0.3952E+03 0.3282E-02
22.32 -3.02 27.26 0.00 -0.77 0.82 0.00 0.4943E+00 7.31 180.04 180.04 0.4647E+01 0.3242E+04 0.2613E-01
0.3071E+05 0.2475E+00
0.2298E+04 0.1852E-01
0.3949E+03 0.3183E-02
22.42 -3.10 27.34 0.00 -0.73 0.73 0.00 0.4792E+00 7.10 185.34 185.34 0.4545E+01 0.3171E+04 0.2485E-01
0.3069E+05 0.2404E+00
0.2296E+04 0.1799E-01
0.3946E+03 0.3092E-02
22.53 -3.18 27.41 0.00 -0.70 0.66 0.00 0.4653E+00 6.90 190.46 190.46 0.4450E+01 0.3101E+04 0.2365E-01
0.3066E+05 0.2339E+00
0.2294E+04 0.1750E-01
0.3943E+03 0.3007E-02
22.63 -3.25 27.48 0.00 -0.66 0.59 0.00 0.4524E+00 6.73 195.37 195.37 0.4363E+01 0.3030E+04 0.2252E-01
0.3064E+05 0.2278E+00
0.2293E+04 0.1705E-01
0.3941E+03 0.2929E-02
22.74 -3.32 27.53 0.00 -0.63 0.54 0.00 0.4405E+00 6.57 200.09 200.09 0.4283E+01 0.2958E+04 0.2147E-01
0.3063E+05 0.2222E+00
0.2291E+04 0.1663E-01
0.3938E+03 0.2858E-02
22.84 -3.38 27.59 0.00 -0.60 0.49 0.00 0.4295E+00 6.43 204.61 204.61 0.4209E+01 0.2887E+04 0.2048E-01
0.3061E+05 0.2171E+00

0.2290E+04 0.1624E-01
0.3936E+03 0.2792E-02
22.95 -3.44 27.64 0.00 -0.57 0.44 0.00 0.4193E+00 6.30 208.94 208.94 0.4140E+01 0.2817E+04 0.1955E-01
0.3059E+05 0.2123E+00
0.2289E+04 0.1589E-01
0.3934E+03 0.2731E-02
23.05 -3.50 27.68 0.00 -0.54 0.41 0.00 0.4098E+00 6.18 213.08 213.08 0.4077E+01 0.2746E+04 0.1868E-01
0.3058E+05 0.2080E+00
0.2288E+04 0.1556E-01
0.3932E+03 0.2674E-02
23.16 -3.56 27.72 0.00 -0.52 0.37 0.00 0.4011E+00 6.08 217.04 217.04 0.4018E+01 0.2676E+04 0.1785E-01
0.3056E+05 0.2039E+00
0.2287E+04 0.1526E-01
0.3930E+03 0.2622E-02
23.27 -3.61 27.76 0.00 -0.49 0.34 0.00 0.3929E+00 5.98 220.84 220.84 0.3964E+01 0.2607E+04 0.1708E-01
0.3055E+05 0.2001E+00
0.2286E+04 0.1497E-01
0.3928E+03 0.2573E-02
23.37 -3.66 27.79 0.00 -0.47 0.31 0.00 0.3853E+00 5.89 224.47 224.47 0.3913E+01 0.2538E+04 0.1634E-01
0.3054E+05 0.1966E+00
0.2285E+04 0.1471E-01
0.3927E+03 0.2528E-02
23.48 -3.71 27.82 0.00 -0.45 0.29 0.00 0.3782E+00 5.80 227.95 227.95 0.3866E+01 0.2470E+04 0.1565E-01
0.3053E+05 0.1934E+00
0.2284E+04 0.1447E-01
0.3925E+03 0.2486E-02
23.58 -3.76 27.85 0.00 -0.42 0.27 0.00 0.3716E+00 5.72 231.28 231.28 0.3822E+01 0.2404E+04 0.1499E-01
0.3052E+05 0.1903E+00
0.2283E+04 0.1424E-01
0.3924E+03 0.2447E-02
23.69 -3.80 27.88 0.00 -0.40 0.25 0.00 0.3654E+00 5.65 234.48 234.48 0.3780E+01 0.2338E+04 0.1437E-01
0.3051E+05 0.1875E+00
0.2282E+04 0.1403E-01
0.3923E+03 0.2411E-02
23.79 -3.84 27.91 0.00 -0.38 0.23 0.00 0.3595E+00 5.58 237.56 237.56 0.3742E+01 0.2273E+04 0.1377E-01
0.3050E+05 0.1848E+00
0.2282E+04 0.1383E-01
0.3921E+03 0.2376E-02

23.90 -3.88 27.93 0.00 -0.36 0.22 0.00 0.3540E+00 5.52 240.52 240.52 0.3705E+01 0.2209E+04 0.1321E-01
0.3049E+05 0.1823E+00
0.2281E+04 0.1364E-01
0.3920E+03 0.2344E-02
24.00 -3.92 27.95 0.00 -0.35 0.21 0.00 0.3488E+00 5.46 243.37 243.37 0.3671E+01 0.2146E+04 0.1267E-01
0.3048E+05 0.1799E+00
0.2280E+04 0.1346E-01
0.3919E+03 0.2314E-02
24.11 -3.96 27.97 0.00 -0.33 0.19 0.00 0.3439E+00 5.41 246.12 246.12 0.3639E+01 0.2084E+04 0.1216E-01
0.3047E+05 0.1777E+00
0.2280E+04 0.1330E-01
0.3918E+03 0.2285E-02
24.21 -3.99 27.99 0.00 -0.31 0.18 0.00 0.3392E+00 5.35 248.78 248.78 0.3608E+01 0.2024E+04 0.1167E-01
0.3046E+05 0.1756E+00
0.2279E+04 0.1314E-01
0.3917E+03 0.2258E-02
24.32 -4.02 28.01 0.00 -0.29 0.17 0.00 0.3348E+00 5.30 251.35 251.35 0.3579E+01 0.1965E+04 0.1120E-01
0.3046E+05 0.1736E+00
0.2279E+04 0.1299E-01
0.3916E+03 0.2232E-02
24.42 -4.05 28.03 0.00 -0.28 0.16 0.00 0.3306E+00 5.26 253.83 253.83 0.3551E+01 0.1906E+04 0.1075E-01
0.3045E+05 0.1717E+00
0.2278E+04 0.1285E-01
0.3915E+03 0.2208E-02
24.53 -4.08 28.05 0.00 -0.26 0.16 0.00 0.3266E+00 5.21 256.25 256.25 0.3525E+01 0.1850E+04 0.1032E-01
0.3044E+05 0.1699E+00
0.2278E+04 0.1271E-01
0.3914E+03 0.2185E-02
24.63 -4.11 28.06 0.00 -0.25 0.15 0.00 0.3228E+00 5.17 258.59 258.59 0.3500E+01 0.1794E+04 0.9913E-02
0.3043E+05 0.1682E+00
0.2277E+04 0.1258E-01
0.3914E+03 0.2163E-02
24.74 -4.13 28.08 0.00 -0.23 0.14 0.00 0.3191E+00 5.13 260.86 260.86 0.3476E+01 0.1740E+04 0.9520E-02
0.3043E+05 0.1665E+00
0.2277E+04 0.1246E-01
0.3913E+03 0.2141E-02
24.85 -4.16 28.09 0.00 -0.22 0.14 0.00 0.3156E+00 5.09 263.08 263.08 0.3453E+01 0.1686E+04 0.9144E-02
0.3042E+05 0.1650E+00

0.2276E+04 0.1234E-01
0.3912E+03 0.2121E-02
24.95 -4.18 28.11 0.00 -0.20 0.13 0.00 0.3123E+00 5.05 265.23 265.23 0.3431E+01 0.1635E+04 0.8784E-02
0.3042E+05 0.1634E+00
0.2276E+04 0.1223E-01
0.3911E+03 0.2102E-02
25.06 -4.20 28.12 0.00 -0.19 0.13 0.00 0.3091E+00 5.02 267.33 267.33 0.3410E+01 0.1584E+04 0.8438E-02
0.3041E+05 0.1620E+00
0.2275E+04 0.1212E-01
0.3911E+03 0.2083E-02
25.16 -4.22 28.13 0.00 -0.18 0.12 0.00 0.3060E+00 4.98 269.38 269.38 0.3390E+01 0.1535E+04 0.8106E-02
0.3041E+05 0.1606E+00
0.2275E+04 0.1202E-01
0.3910E+03 0.2065E-02
25.27 -4.24 28.14 0.00 -0.16 0.12 0.00 0.3030E+00 4.95 271.39 271.39 0.3370E+01 0.1486E+04 0.7787E-02
0.3040E+05 0.1593E+00
0.2275E+04 0.1192E-01
0.3909E+03 0.2048E-02
25.37 -4.25 28.16 0.00 -0.15 0.11 0.00 0.3002E+00 4.92 273.35 273.35 0.3352E+01 0.1439E+04 0.7481E-02
0.3040E+05 0.1580E+00
0.2274E+04 0.1182E-01
0.3909E+03 0.2032E-02
25.48 -4.27 28.17 0.00 -0.14 0.11 0.00 0.2974E+00 4.89 275.27 275.27 0.3334E+01 0.1394E+04 0.7187E-02
0.3039E+05 0.1567E+00
0.2274E+04 0.1173E-01
0.3908E+03 0.2016E-02
25.58 -4.28 28.18 0.00 -0.13 0.10 0.00 0.2948E+00 4.86 277.14 277.14 0.3316E+01 0.1349E+04 0.6905E-02
0.3039E+05 0.1556E+00
0.2273E+04 0.1164E-01
0.3907E+03 0.2000E-02
25.69 -4.30 28.19 0.00 -0.11 0.10 0.00 0.2922E+00 4.83 278.99 278.99 0.3299E+01 0.1305E+04 0.6634E-02
0.3038E+05 0.1544E+00
0.2273E+04 0.1155E-01
0.3907E+03 0.1985E-02
25.79 -4.31 28.20 0.00 -0.10 0.10 0.00 0.2897E+00 4.80 280.79 280.79 0.3283E+01 0.1263E+04 0.6373E-02
0.3038E+05 0.1533E+00
0.2273E+04 0.1147E-01
0.3906E+03 0.1971E-02

25.90 -4.32 28.21 0.00 -0.09 0.09 0.00 0.2873E+00 4.77 282.56 282.56 0.3267E+01 0.1222E+04 0.6123E-02
0.3037E+05 0.1522E+00
0.2272E+04 0.1139E-01
0.3906E+03 0.1957E-02
26.00 -4.33 28.22 0.00 -0.08 0.09 0.00 0.2850E+00 4.75 284.30 284.30 0.3252E+01 0.1182E+04 0.5882E-02
0.3037E+05 0.1511E+00
0.2272E+04 0.1131E-01
0.3905E+03 0.1943E-02
26.11 -4.33 28.23 0.00 -0.07 0.09 0.00 0.2828E+00 4.72 286.02 286.02 0.3237E+01 0.1143E+04 0.5651E-02
0.3036E+05 0.1501E+00
0.2272E+04 0.1123E-01
0.3905E+03 0.1930E-02
26.21 -4.34 28.24 0.00 -0.06 0.09 0.00 0.2806E+00 4.70 287.70 287.70 0.3222E+01 0.1105E+04 0.5428E-02
0.3036E+05 0.1491E+00
0.2272E+04 0.1116E-01
0.3904E+03 0.1917E-02
26.32 -4.35 28.25 0.00 -0.05 0.08 0.00 0.2785E+00 4.67 289.35 289.35 0.3208E+01 0.1068E+04 0.5215E-02
0.3036E+05 0.1482E+00
0.2271E+04 0.1108E-01
0.3903E+03 0.1905E-02
26.43 -4.35 28.26 0.00 -0.03 0.08 0.00 0.2764E+00 4.65 290.98 290.98 0.3194E+01 0.1033E+04 0.5009E-02
0.3035E+05 0.1472E+00
0.2271E+04 0.1101E-01
0.3903E+03 0.1893E-02
26.53 -4.35 28.26 0.00 -0.02 0.08 0.00 0.2744E+00 4.63 292.59 292.59 0.3181E+01 0.9980E+03 0.4811E-02
0.3035E+05 0.1463E+00
0.2271E+04 0.1095E-01
0.3902E+03 0.1881E-02
26.64 -4.36 28.27 0.00 -0.01 0.08 0.00 0.2725E+00 4.61 294.17 294.17 0.3168E+01 0.9643E+03 0.4621E-02
0.3034E+05 0.1454E+00
0.2270E+04 0.1088E-01
0.3902E+03 0.1870E-02
26.74 -4.36 28.28 0.00 0.00 0.08 0.00 0.2706E+00 4.58 295.73 295.73 0.3155E+01 0.9316E+03 0.4438E-02
0.3034E+05 0.1445E+00
0.2270E+04 0.1081E-01
0.3902E+03 0.1859E-02
26.85 -4.36 28.29 0.00 0.00 0.07 0.00 0.2688E+00 4.56 297.27 297.27 0.3143E+01 0.8999E+03 0.4262E-02
0.3034E+05 0.1437E+00

0.2270E+04 0.1075E-01
0.3901E+03 0.1848E-02
26.95 -4.36 28.30 0.00 0.00 0.07 0.00 0.2670E+00 4.54 298.78 298.78 0.3131E+01 0.8691E+03 0.4093E-02
0.3033E+05 0.1429E+00
0.2270E+04 0.1069E-01
0.3901E+03 0.1837E-02
27.06 -4.36 28.30 0.00 0.00 0.07 0.00 0.2653E+00 4.52 300.28 300.28 0.3119E+01 0.8392E+03 0.3931E-02
0.3033E+05 0.1421E+00
0.2269E+04 0.1063E-01
0.3900E+03 0.1827E-02
27.16 -4.36 28.31 0.00 0.00 0.07 0.00 0.2636E+00 4.50 301.76 301.76 0.3108E+01 0.8102E+03 0.3774E-02
0.3033E+05 0.1413E+00
0.2269E+04 0.1057E-01
0.3900E+03 0.1817E-02
27.27 -4.36 28.32 0.00 0.00 0.07 0.00 0.2619E+00 4.48 303.21 303.21 0.3097E+01 0.7821E+03 0.3624E-02
0.3032E+05 0.1405E+00
0.2269E+04 0.1051E-01
0.3899E+03 0.1807E-02
27.37 -4.36 28.33 0.00 0.00 0.07 0.00 0.2603E+00 4.46 304.66 304.66 0.3086E+01 0.7548E+03 0.3480E-02
0.3032E+05 0.1398E+00
0.2269E+04 0.1046E-01
0.3899E+03 0.1797E-02
27.48 -4.36 28.33 0.00 0.00 0.07 0.00 0.2588E+00 4.45 306.08 306.08 0.3075E+01 0.7284E+03 0.3341E-02
0.3032E+05 0.1390E+00
0.2268E+04 0.1040E-01
0.3898E+03 0.1788E-02
27.58 -4.36 28.34 0.00 0.00 0.06 0.00 0.2572E+00 4.43 307.49 307.49 0.3064E+01 0.7028E+03 0.3207E-02
0.3031E+05 0.1383E+00
0.2268E+04 0.1035E-01
0.3898E+03 0.1779E-02
27.69 -4.36 28.35 0.00 0.00 0.06 0.00 0.2557E+00 4.41 308.88 308.88 0.3054E+01 0.6780E+03 0.3078E-02
0.3031E+05 0.1376E+00
0.2268E+04 0.1030E-01
0.3898E+03 0.1770E-02
27.79 -4.36 28.35 0.00 0.00 0.06 0.00 0.2543E+00 4.39 310.25 310.25 0.3044E+01 0.6540E+03 0.2955E-02
0.3031E+05 0.1369E+00
0.2268E+04 0.1024E-01
0.3897E+03 0.1761E-02

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR SILT

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR CLAY

TIME FROM DISPOSAL (SEC)	CLOUD CENTROID X-LOCATION (FT)	CLOUD CENTROID Z-LOCATION (FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	T O T A L M A S S (CU FT)	ENTRAINED MASS (CU FT)	TIME STEP WHEN THIS CLOUD WAS CREATED	TIME STEP WHEN PREVIOUS CLOUD WAS CREATED
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 1									
20.76	1959.	3500.	81.48	30.00	0.1000E-02	200.0	0.0000E+00	30	1
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 2									
21.53	1958.	3500.	120.1	30.00	0.1000E-02	351.4	0.0000E+00	59	30
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 3									
22.29	1957.	3500.	158.4	30.00	0.1000E-02	472.4	0.0000E+00	88	59
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 4									
23.05	1956.	3500.	188.8	30.00	0.1000E-02	513.0	0.0000E+00	117	88
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 5									
23.82	1956.	3500.	211.2	30.00	0.1000E-02	489.6	0.0000E+00	146	117
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 6									
24.58	1956.	3500.	228.1	30.00	0.1000E-02	434.9	0.0000E+00	175	146
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 7									
25.35	1956.	3500.	241.8	30.00	0.1000E-02	370.7	0.0000E+00	204	175
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 8									
26.11	1956.	3500.	253.5	30.00	0.1000E-02	307.9	0.0000E+00	233	204
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 9									
26.87	1956.	3500.	263.8	30.00	0.1000E-02	251.0	0.0000E+00	262	233
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 10									
27.64	1956.	3500.	273.1	30.00	0.1000E-02	201.7	0.0000E+00	291	262
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 11									
27.82	1956.	3500.	275.3	25.61	4.387	690.3	0.0000E+00	298	291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and

the remaining clouds for this solids type are renumbered.

TIME FROM DISPOSAL (SEC)	CLOUD CENTROID X-LOCATION (FT)	CLOUD CENTROID Z-LOCATION (FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	T O T A L M A S S (CU FT)	ENTRAINED MASS (CU FT)	TIME STEP WHEN THIS CLOUD WAS CREATED	TIME STEP WHEN PREVIOUS CLOUD WAS CREATED
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 1									
20.76	1959.	3500.	81.48	10.50	9.031	2147.	0.0000E+00	30	1
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 2									
21.53	1958.	3500.	120.1	19.53	6.941	429.3	0.0000E+00	59	30
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 3									
22.29	1957.	3500.	158.4	26.47	2.662	249.1	0.0000E+00	88	59
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 4									
23.05	1956.	3500.	188.8	28.82	1.182	140.0	0.0000E+00	117	88
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 5									
23.82	1956.	3500.	211.2	29.38	0.6167	83.38	0.0000E+00	146	117
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 6									
24.58	1956.	3500.	228.1	29.62	0.3783	55.46	0.0000E+00	175	146
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 7									
25.35	1956.	3500.	241.8	29.74	0.2647	41.06	0.0000E+00	204	175
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 8									
26.11	1956.	3500.	253.5	29.80	0.2028	32.87	0.0000E+00	233	204
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 9									
26.87	1956.	3500.	263.8	29.84	0.1650	27.72	0.0000E+00	262	233
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 10									
27.64	1956.	3500.	273.1	29.86	0.1395	24.18	0.0000E+00	291	262
NEW CLOUD CREATED, NTCLD(K) (K = 2) = 11									
27.82	1956.	3500.	275.3	25.61	4.387	0.3031E+05	0.0000E+00	298	291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 1
20.76 1959. 3500. 81.48 10.50 9.031 160.7 0.0000E+00 30 1

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 2
21.53 1958. 3500. 120.1 19.53 6.941 32.12 0.0000E+00 59 30

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 3
22.29 1957. 3500. 158.4 26.47 2.662 18.64 0.0000E+00 88 59

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 4
23.05 1956. 3500. 188.8 28.82 1.182 10.48 0.0000E+00 117 88

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 5
23.82 1956. 3500. 211.2 29.38 0.6167 6.238 0.0000E+00 146 117

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 6
24.58 1956. 3500. 228.1 29.62 0.3783 4.150 0.0000E+00 175 146

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 7
25.35 1956. 3500. 241.8 29.74 0.2647 3.071 0.0000E+00 204 175

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 8
26.11 1956. 3500. 253.5 29.80 0.2028 2.459 0.0000E+00 233 204

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 9
26.87 1956. 3500. 263.8 29.84 0.1650 2.074 0.0000E+00 262 233

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 10
27.64 1956. 3500. 273.1 29.86 0.1395 1.809 0.0000E+00 291 262

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 11
27.82 1956. 3500. 275.3 25.61 4.387 2268. 0.0000E+00 298 291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN

DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 1
20.76 1959. 3500. 81.48 10.50 9.031 27.61 0.0000E+00 30 1

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 2
21.53 1958. 3500. 120.1 19.53 6.941 5.520 0.0000E+00 59 30

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 3
22.29 1957. 3500. 158.4 26.47 2.662 3.204 0.0000E+00 88 59

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 4
23.05 1956. 3500. 188.8 28.82 1.182 1.800 0.0000E+00 117 88

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 5
23.82 1956. 3500. 211.2 29.38 0.6167 1.072 0.0000E+00 146 117

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 6
24.58 1956. 3500. 228.1 29.62 0.3783 0.7132 0.0000E+00 175 146

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 7
25.35 1956. 3500. 241.8 29.74 0.2647 0.5279 0.0000E+00 204 175

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 8
26.11 1956. 3500. 253.5 29.80 0.2028 0.4227 0.0000E+00 233 204

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 9
26.87 1956. 3500. 263.8 29.84 0.1650 0.3565 0.0000E+00 262 233

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 10
27.64 1956. 3500. 273.1 29.86 0.1395 0.3109 0.0000E+00 291 262

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 11
27.82 1956. 3500. 275.3 25.61 4.387 389.8 0.0000E+00 298 291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD

(SEC) (FT) (FT) (FT) (FT) (FT) (MG) (MG) WAS CREATED WAS
CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 5) = 1
27.82 1956. 3500. 275.3 25.61 4.387 0.1909E+08 0.4364E+07 298 1

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

LONG TERM DIFFUSION RESULTS:

BEGIN LONG TERM SIMULATION OF FATE OF GRAVEL

SUMMARY OF GRAVEL DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 0.00000E+00
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 4282.9

COMPUTATIONS FOR GRAVEL TERMINATED AT 100.00 SEC. ELAPSED TIME...MATERIAL SETTLED
TO BOTTOM

BOTTOM ACCUMULATION OF GRAVEL (CU FT/GRID SQUARE) , 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 10.00 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1.8 1.8 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . 212 212 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO

17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF GRAVEL ACCUMULATED ON BOTTOM, 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .06 .06 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7.9 7.9 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF SAND

SUMMARY OF SAND DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 0.00000E+00
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 33543.

COMPUTATIONS FOR SAND TERMINATED AT 100.00 SEC. ELAPSED TIME...MATERIAL SETTLED TO BOTTOM

BOTTOM ACCUMULATION OF SAND (CU FT/GRID SQUARE) , 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 100.0 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .34 .34 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . 167 167 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .01 .01 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF SAND     ACCUMULATED ON BOTTOM,      100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
```

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .62 .62 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF SILT

SUMMARY OF SILT DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2300.6
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 209.09

SUMMARY OF SILT DISTRIBUTIONS AFTER 200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2046.1
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 463.57

SUMMARY OF SILT DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1825.1
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 684.58

SUMMARY OF SILT DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1632.4
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 877.21

SUMMARY OF SILT DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1464.1
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1045.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1316.7
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1193.0

SUMMARY OF SILT DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1187.4
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1322.3

SUMMARY OF SILT DISTRIBUTIONS AFTER 800.00 SEC.

```
    TOTAL SUSPENDED MATERIAL (CU FT) =     1073.7
    TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =     1435.9


 SUMMARY OF SILT     DISTRIBUTIONS AFTER     900.00 SEC.

    TOTAL SUSPENDED MATERIAL (CU FT) =     973.72
    TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =     1535.9

 CONCENTRATIONS ABOVE BACKGROUND OF SILT     (MG/L) IN THE CLOUD    900.00 SECONDS AFTER
DUMP

              0.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   .   .   0   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   + .20 .20   +   0   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .06  16  16 .06   0   0   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .01 8.1 8.1 .01   0   0   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   .   0   0   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 22 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 23 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 24 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 26 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 27 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 28 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 29 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 30 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO

31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .59 27 27 .59 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 13 600 600 13 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 6.3 299 299 6.3 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .07 12 12 .07 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,    900.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0 .03  15  15 .03  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.7 414 414 1.7  +  0  0  0  0  0  0  0  0  0  0
 12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + 3.3 297 297 3.3  +  0  0  0  0  0  0  0  0  0  0
 13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .58  35  35 .58  +  0  0  0  0  0  0  0  0  0  0
 14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .89 .89  +  .  0  0  0  0  0  0  0  0  0  0
 15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO

24   0 0 0 0 0 0 0 0 0 0 0 0OOOO
25   0 0 0 0 0 0 0 0 0 0 0 0OOOO
26   0 0 0 0 0 0 0 0 0 0 0 0OOOO
27   0 0 0 0 0 0 0 0 0 0 0 0OOOO
28   0 0 0 0 0 0 0 0 0 0 0 0OOOO
29   0 0 0 0 0 0 0 0 0 0 0 0OOOO
30   0 0 0 0 0 0 0 0 0 0 0 0OOOO
31   0 0 0 0 0 0 0 0 0 0 0 0OOOO
32   0 0 0 0 0 0 0 0 0 0 0 0OOOO
33   0 0 0 0 0 0 0 0 0 0 0 0OOOO
34   0 0 0 0 0 0 0 0 0 0 0 0OOOO
35   0 0 0 0 0 0 0 0 0 0 0 0OOOO
36   0 0 0 0 0 0 0 0 0 0 0 0OOOO
37   0 0 0 0 0 0 0 0 0 0 0 0OOOO
38   0 0 0 0 0 0 0 0 0 0 0 0OOOO
39   0 0 0 0 0 0 0 0 0 0 0 0OOOO
40   0 0 0 0 0 0 0 0 0 0 0 0OOOO
41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	2530.	3500.	135.3	0.0000E+00	143.1	12.08	17.92	0.184522E-02
2	2529.	3500.	31.20	0.0000E+00	188.9	0.0000E+00	30.00	0.882482E-04
3	2459.	3500.	18.31	0.0000E+00	232.8	0.0000E+00	30.00	0.389466E-04
4	2456.	3500.	10.31	0.0000E+00	267.2	0.0000E+00	30.00	0.340000E-04
5	2449.	3500.	6.147	0.0000E+00	292.2	0.0000E+00	30.00	0.340000E-04
6	2447.	3500.	4.092	0.0000E+00	311.0	0.0000E+00	30.00	0.340000E-04
7	2452.	3500.	3.032	0.0000E+00	326.1	0.0000E+00	30.00	0.340000E-04
8	2452.	3500.	2.430	0.0000E+00	338.9	0.0000E+00	30.00	0.340000E-04
9	2451.	3500.	2.053	0.0000E+00	350.1	0.0000E+00	30.00	0.340000E-04
10	2442.	3500.	1.790	0.0000E+00	360.3	0.0000E+00	30.00	0.340000E-04
11	2262.	3500.	759.1	0.0000E+00	362.7	24.31	5.686	0.690000E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 896.18
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1613.5

SUMMARY OF SILT DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 839.73
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1669.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 796.24
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1713.4

SUMMARY OF SILT DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 761.74
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1747.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 733.72
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1775.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 710.48
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1799.2

SUMMARY OF SILT DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 690.97
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1818.7

SUMMARY OF SILT DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 674.44
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1835.2

SUMMARY OF SILT DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 660.29
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1849.3

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .05 1.2 1.2 .05  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .42  20  20 .42  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .16  12  12 .16  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .06 .06  +  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO

40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .28 2.9 2.9 .28 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .08 9.3 99 99 9.3 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .25 29 311 311 29 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .07 8.5 92 92 8.5 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .44 20 20 .44 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .08 23 23 .08 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .03 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 35    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 36    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 37    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 38    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 39    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 40    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 41    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 42    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 43    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,   1800.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   .   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0 .03  15  15 .03   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   + 1.7 415 415 1.7   +   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   + 4.5 332 332 4.5   +   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + 4.0 115 115 4.0   +   .   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + 1.8  29  29 1.8   +   .   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .22 3.8 3.8 .22   +   .   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .76 .76   +   .   0   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .13 .13   .   0   0   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
 19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 22 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 23 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 24 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 26 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 27 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 28 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 29 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 30 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 31 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 32 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

33   0 0 0 0 0 0 0 0 0 0 0 0OOOO
34   0 0 0 0 0 0 0 0 0 0 0 0OOOO
35   0 0 0 0 0 0 0 0 0 0 0 0OOOO
36   0 0 0 0 0 0 0 0 0 0 0 0OOOO
37   0 0 0 0 0 0 0 0 0 0 0 0OOOO
38   0 0 0 0 0 0 0 0 0 0 0 0OOOO
39   0 0 0 0 0 0 0 0 0 0 0 0OOOO
40   0 0 0 0 0 0 0 0 0 0 0 0OOOO
41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	3115.	3500.	129.1	0.0000E+00	217.3	10.92	19.08	0.520970E-03
2	3114.	3500.	31.15	0.0000E+00	269.5	0.0000E+00	30.00	0.448882E-04
3	3044.	3500.	18.29	0.0000E+00	318.6	0.0000E+00	30.00	0.340000E-04
4	3041.	3500.	10.30	0.0000E+00	356.7	0.0000E+00	30.00	0.340000E-04
5	3034.	3500.	6.140	0.0000E+00	384.2	0.0000E+00	30.00	0.340000E-04
6	3032.	3500.	4.088	0.0000E+00	404.7	0.0000E+00	30.00	0.340000E-04
7	3037.	3500.	3.028	0.0000E+00	421.2	0.0000E+00	30.00	0.340000E-04
8	3037.	3500.	2.428	0.0000E+00	435.1	0.0000E+00	30.00	0.340000E-04
9	3036.	3500.	2.051	0.0000E+00	447.4	0.0000E+00	30.00	0.340000E-04
10	3027.	3500.	1.788	0.0000E+00	458.4	0.0000E+00	30.00	0.340000E-04
11	2596.	3500.	451.9	0.0000E+00	461.0	24.17	5.829	0.174323E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 648.16
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1861.5

SUMMARY OF SILT DISTRIBUTIONS AFTER 2000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 637.74
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1871.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 628.80
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1880.8

SUMMARY OF SILT DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 621.13
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1888.5

SUMMARY OF SILT DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 614.51
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1895.1

SUMMARY OF SILT DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 608.76
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1900.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 603.76
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1905.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 599.39
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1910.3

SUMMARY OF SILT DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 595.56
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1914.1

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .09 .09 .01 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .31 3.0 3.0 .31 + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 1.4 46 46 1.4 .01 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .75 39 39 .75 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .46 .46 .03 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .07 .35 .35 .07  +  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .11 2.6  13  13 2.6 .11  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .90  21  99  99  21 .90  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  . .01 1.4  33 160 160  33 1.4  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .49  11  54  54  11 .49  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .03 .95 5.3 5.3 .95 .03  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 .72  23  23 .72 .01  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .37  19  19 .37  +  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .23 .23 .01  +  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO

43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 2700.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .03 15 15 .03 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.7 415 415 1.7 + 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 4.5 332 332 4.5 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 4.2 117 117 4.2 .01 . 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .03 3.0 39 39 3.0 .03 . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .04 1.9 15 15 1.9 .04 + 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .77 5.2 5.2 .77 .02 + 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .12 1.1 1.1 .12 + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .23 .23 + + . 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .10 .10 + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + . 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO

41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT   2700.00 SECONDS ELAPSED TIME FOR SILT

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(CU FT)	(CU FT)	(FT)	(FT)	(FT)	(FPS)
1	3700.	3500.	127.9	0.0000E+00	301.4	0.0000E+00	30.00	0.131026E-03
2	3699.	3500.	31.11	0.0000E+00	359.2	0.0000E+00	30.00	0.340000E-04
3	3629.	3500.	18.27	0.0000E+00	413.1	0.0000E+00	30.00	0.340000E-04
4	3626.	3500.	10.29	0.0000E+00	454.5	0.0000E+00	30.00	0.340000E-04
5	3619.	3500.	6.134	0.0000E+00	484.3	0.0000E+00	30.00	0.340000E-04
6	3617.	3500.	4.084	0.0000E+00	506.4	0.0000E+00	30.00	0.340000E-04
7	3622.	3500.	3.025	0.0000E+00	524.2	0.0000E+00	30.00	0.340000E-04
8	3622.	3500.	2.425	0.0000E+00	539.2	0.0000E+00	30.00	0.340000E-04
9	3621.	3500.	2.049	0.0000E+00	552.3	0.0000E+00	30.00	0.340000E-04
10	3612.	3500.	1.786	0.0000E+00	564.2	0.0000E+00	30.00	0.340000E-04
11	2961.	3500.	388.5	0.0000E+00	566.9	23.09	6.906	0.658458E-03

SUMMARY OF SILT   DISTRIBUTIONS AFTER   2800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   592.19
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1917.4

SUMMARY OF SILT   DISTRIBUTIONS AFTER   2900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   589.23
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1920.4

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   586.60
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1923.0

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   584.27

TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1925.4

SUMMARY OF SILT DISTRIBUTIONS AFTER 3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 582.26
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1927.4

SUMMARY OF SILT DISTRIBUTIONS AFTER 3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 580.83
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1928.8

SUMMARY OF SILT DISTRIBUTIONS AFTER 3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 580.08
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1929.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 579.71
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1929.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 579.50
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1930.1

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 . . + .01 .05 .05 .01 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .04 .37 1.1 1.1 .37 .04 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .28 2.4 7.3 7.3 2.4 .28 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .61 5.4 16 16 5.4 .61 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .45 4.0 12 12 4.0 .45 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .12 1.1 3.3 3.3 1.1 .12 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 1.0 6.4 6.4 1.0 .05 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 3.7 47 47 3.7 .10 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 2.4 35 35 2.4 .05 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .17 1.6 1.6 .17 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO

9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
 4 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 5 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 6 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 7 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 8 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 9 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
14 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
15 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
16 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .07 .70 2.0 2.0 .70 .07 0 0 0 0 0 0 0 0 0 0
17 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .01 .51 4.5 14 14 4.5 .51 0 0 0 0 0 0 0 0 0 0
18 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .04 1.1 10 30 30 10 1.1 0 0 0 0 0 0 0 0 0 0
19 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .03 .84 7.4 22 22 7.4 .84 0 0 0 0 0 0 0 0 0 0
20 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 + + .21 1.9 5.7 5.7 1.9 .21 0 0 0 0 0 0 0 0 0 0
21 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .04 .64 3.5 3.5 .64 .04 0 0 0 0 0 0 0 0 0 0
22 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .05 1.8 24 24 1.8 .05 0 0 0 0 0 0 0 0 0 0
23 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .02 1.2 17 17 1.2 .02 0 0 0 0 0 0 0 0 0 0
24 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 . + .08 .82 .82 .08 + 0 0 0 0 0 0 0 0 0 0
25 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0 0 0 0 0 0 0 0 0 0 0 0OOOO
```

4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .03 15 15 .03 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.7 415 415 1.7 + 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 4.5 332 332 4.5 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 4.2 117 117 4.2 .01 . 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .03 3.0 39 39 3.0 .03 . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .05 2.0 16 16 2.0 .05 + 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 1.3 7.3 7.3 1.3 .05 + . 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .04 .69 3.3 3.3 .69 .04 + . 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .24 1.0 1.0 .24 .01 + . 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .05 .27 .27 .05 + + . 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .10 .10 + + . 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + .07 .07 + . . 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .05 .05 + . 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + . 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT    3600.00 SECONDS ELAPSED TIME FOR SILT
```

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (CU FT)	MASS (CU FT)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	4285.	3500.	127.5	0.0000E+00	394.2	0.0000E+00	30.00	0.745541E-04
2	4284.	3500.	31.08	0.0000E+00	457.2	0.0000E+00	30.00	0.340000E-04
3	4214.	3500.	18.26	0.0000E+00	515.5	0.0000E+00	30.00	0.340000E-04
4	4211.	3500.	10.28	0.0000E+00	560.0	0.0000E+00	30.00	0.340000E-04
5	4204.	3500.	6.128	0.0000E+00	591.8	0.0000E+00	30.00	0.340000E-04
6	4202.	3500.	4.080	0.0000E+00	615.6	0.0000E+00	30.00	0.340000E-04
7	4207.	3500.	3.022	0.0000E+00	634.5	0.0000E+00	30.00	0.340000E-04
8	4207.	3500.	2.423	0.0000E+00	650.4	0.0000E+00	30.00	0.340000E-04
9	4206.	3500.	2.047	0.0000E+00	664.4	0.0000E+00	30.00	0.340000E-04
10	4197.	3500.	1.784	0.0000E+00	677.1	0.0000E+00	30.00	0.340000E-04
11	3445.	3500.	372.9	0.0000E+00	679.9	3.760	26.24	0.105981E-03

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .03  15  15 .03  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.7 415 415 1.7  +  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 4.5 332 332 4.5  +  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 4.2 117 117 4.2 .01  .  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .03 3.0  39  39 3.0 .03  .  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .05 2.0  16  16 2.0 .05  +  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .05 1.3 7.3 7.3 1.3 .05  +  .  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .04 .69 3.3 3.3 .69 .04  +  .  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .24 1.0 1.0 .24 .01  +  .  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  +  + .05 .27 .27 .05  +  +  .  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .10 .10  +  +  .  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  + .07 .07  +  .  .  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .05 .05  +  .  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .01  +  .  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0
```

25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 25    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 26    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 27    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 28    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 29    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 30    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 31    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 32    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 33    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 34    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 35    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 36    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 37    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 38    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 39    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 40    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 41    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 42    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 43    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 THICKNESS (FT) OF SILT     ACCUMULATED ON BOTTOM,     3600.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   + .22 .22   +   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .02 6.2 6.2 .02   .   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .06 4.9 4.9 .06   .   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   + .06 1.7 1.7 .06   +   0   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .04 .58 .58 .04   +   .   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .03 .24 .24 .03   +   .   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .01 .11 .11 .01   +   .   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .01 .04 .04 .01   +   .   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   +   + .01 .01   +   +   .   0   0   0   0   0   0   0   0   0
 19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   .   +   +   +   +   .   .   0   0   0   0   0   0   0   0   0
 20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   +   +   .   0   0   0   0   0   0   0   0   0   0
 21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   +   +   .   .   0   0   0   0   0   0   0   0   0   0
```

```
22 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
23 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
24 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 4   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 5   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 6   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 7   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 8   0 0 0 0 0 0 0 0 0 0 0  0OOOO
 9   0 0 0 0 0 0 0 0 0 0 0  0OOOO
10   0 0 0 0 0 0 0 0 0 0 0  0OOOO
11   0 0 0 0 0 0 0 0 0 0 0  0OOOO
12   0 0 0 0 0 0 0 0 0 0 0  0OOOO
13   0 0 0 0 0 0 0 0 0 0 0  0OOOO
14   0 0 0 0 0 0 0 0 0 0 0  0OOOO
15   0 0 0 0 0 0 0 0 0 0 0  0OOOO
16   0 0 0 0 0 0 0 0 0 0 0  0OOOO
17   0 0 0 0 0 0 0 0 0 0 0  0OOOO
18   0 0 0 0 0 0 0 0 0 0 0  0OOOO
19   0 0 0 0 0 0 0 0 0 0 0  0OOOO
20   0 0 0 0 0 0 0 0 0 0 0  0OOOO
21   0 0 0 0 0 0 0 0 0 0 0  0OOOO
```

```
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

BEGIN LONG TERM SIMULATION OF FATE OF CLAY

SUMMARY OF CLAY   DISTRIBUTIONS AFTER   100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   397.90
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   33.423

SUMMARY OF CLAY   DISTRIBUTIONS AFTER   200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   371.78
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   59.546

SUMMARY OF CLAY DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 351.84
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 79.488

SUMMARY OF CLAY DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 335.99
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 95.335

SUMMARY OF CLAY DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 323.13
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 108.19

SUMMARY OF CLAY DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 312.44
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 118.88

SUMMARY OF CLAY DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 303.45
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 127.88

SUMMARY OF CLAY DISTRIBUTIONS AFTER 800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 295.86

TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 135.46

SUMMARY OF CLAY DISTRIBUTIONS AFTER 900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 289.44
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 141.88

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .03 .03  +  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 2.6 2.6 .01  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 2.6 2.6  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO

30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + + + + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .13 6.3 6.3 .13 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + 3.8 176 176 3.8 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + 2.3 108 108 2.3 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .03 2.7 2.7 .03 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO

25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 900.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.9 1.9 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .15 43 43 .15 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .24 23 23 .24 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .04 2.5 2.5 .04 . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO

23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	2530.	3500.	27.27	0.0000E+00	143.1	0.0000E+00	30.00	0.129172E-03
2	2529.	3500.	5.511	0.0000E+00	188.9	0.0000E+00	30.00	0.340000E-04
3	2474.	3500.	3.196	0.0000E+00	232.8	0.0000E+00	30.00	0.340000E-04
4	2459.	3500.	1.795	0.0000E+00	267.2	0.0000E+00	30.00	0.340000E-04
5	2455.	3500.	1.069	0.0000E+00	292.2	0.0000E+00	30.00	0.340000E-04
6	2453.	3500.	0.7109	0.0000E+00	311.0	0.0000E+00	30.00	0.340000E-04
7	2453.	3500.	0.5263	0.0000E+00	326.1	0.0000E+00	30.00	0.340000E-04
8	2452.	3500.	0.4214	0.0000E+00	338.9	0.0000E+00	30.00	0.340000E-04
9	2451.	3500.	0.3556	0.0000E+00	350.1	0.0000E+00	30.00	0.340000E-04
10	2449.	3500.	0.3099	0.0000E+00	360.3	0.0000E+00	30.00	0.340000E-04
11	2274.	3500.	248.3	0.0000E+00	362.7	24.12	5.884	0.148849E-02

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 284.00

TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 147.33

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 279.37
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 151.96

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 275.42
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 155.91

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 272.03
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 159.29

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 269.12
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 162.20

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 266.62
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 164.71

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 264.45
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 166.88

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 262.56
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 168.76

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 260.92

TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 170.40

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .18 .18 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .07 5.4 5.4 .07 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .02 6.7 6.7 .02 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY   (MG/L) IN THE CLOUD   1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY   1.000   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2   3   4   5   6   7   8   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   .   0   0   0   0   0   0   0   0   0   0   0
12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   + .03 .34 .34 .03   0   0   0   0   0   0   0   0   0   0   0
13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   . .01 1.9 20 20 1.9   0   0   0   0   0   0   0   0   0   0   0
14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   . .09 11 116 116 11   0   0   0   0   0   0   0   0   0   0   0
15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   . .05 5.7 62 62 5.7   0   0   0   0   0   0   0   0   0   0   0
16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .32 5.7 5.7 .32   0   0   0   0   0   0   0   0   0   0   0
17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .01 3.3 3.3 .01   0   0   0   0   0   0   0   0   0   0   0
18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   +   +   0   0   0   0   0   0   0   0   0   0   0
19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
22 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
23 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
24 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
26 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
27 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
28 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
29 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
30 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
31 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
32 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
33 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 BOTTOM ACCUMULATION OF CLAY     (CU FT/GRID SQUARE) ,   1800.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.9 1.9  +  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  . .15  43  43 .15  .  0  0  0  0  0  0  0  0  0  0
 12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .31  25  25 .31  +  0  0  0  0  0  0  0  0  0  0
 13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .35  10  10 .35  +  0  0  0  0  0  0  0  0  0  0
 14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .22 3.5 3.5 .22  +  0  0  0  0  0  0  0  0  0  0
 15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .04 .56 .56 .04  +  0  0  0  0  0  0  0  0  0  0
 16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .02  +  .  0  0  0  0  0  0  0  0  0  0
 17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO

32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR CLAY

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(CU FT)	(CU FT)	(FT)	(FT)	(FT)	(FPS)
1	3115.	3500.	27.20	0.0000E+00	217.3	0.0000E+00	30.00	0.561637E-04
2	3114.	3500.	5.505	0.0000E+00	269.5	0.0000E+00	30.00	0.340000E-04
3	3059.	3500.	3.192	0.0000E+00	318.6	0.0000E+00	30.00	0.340000E-04
4	3044.	3500.	1.793	0.0000E+00	356.7	0.0000E+00	30.00	0.340000E-04
5	3040.	3500.	1.068	0.0000E+00	384.2	0.0000E+00	30.00	0.340000E-04
6	3038.	3500.	0.7102	0.0000E+00	404.7	0.0000E+00	30.00	0.340000E-04
7	3038.	3500.	0.5257	0.0000E+00	421.2	0.0000E+00	30.00	0.340000E-04
8	3037.	3500.	0.4210	0.0000E+00	435.1	0.0000E+00	30.00	0.340000E-04
9	3036.	3500.	0.3552	0.0000E+00	447.4	0.0000E+00	30.00	0.340000E-04
10	3034.	3500.	0.3096	0.0000E+00	458.4	0.0000E+00	30.00	0.340000E-04
11	2647.	3500.	219.8	0.0000E+00	461.0	22.87	7.128	0.521434E-03

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 259.49
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 171.84

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 258.23
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 173.09

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 257.22
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 174.10

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.68
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 174.64

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.44
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 174.89

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.32
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.01

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.25
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.08

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.20
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.13

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.15
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.18

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .06 .06 .01 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .56 2.7 2.7 .56 .02 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .21 4.8 23 23 4.8 .21 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .38 8.6 41 41 8.6 .38 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .14 3.3 16 16 3.3 .14 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .50 10 10 .50 .01 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .14 7.9 7.9 .14 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + + .09 .09 + + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N=	32	33	34	35	36	37	38	39	40	41	42	43	44
2	OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO												
3	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
4	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
5	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
6	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
7	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
8	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
9	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
10	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
11	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
12	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
13	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
14	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
15	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
16	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
17	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
18	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
19	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
20	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
21	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
22	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
23	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
24	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
25	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
26	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
27	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
28	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
29	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
30	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
31	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
32	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
33	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
34	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
35	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
36	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
37	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
38	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
39	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
40	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
41	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
42	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
43	0	0	0	0	0	0	0	0	0	0	0	0OOOO	

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .03 + + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .28 1.3 1.3 .28 .01 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 2.4 12 12 2.4 .10 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .19 4.3 21 21 4.3 .19 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .07 1.6 8.0 8.0 1.6 .07 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .25 5.1 5.1 .25 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .07 3.9 3.9 .07 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .04 .04 + . 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 2700.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.9 1.9 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .15 43 43 .15 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .31 25 25 .31 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .35 10 10 .35 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .30 4.1 4.1 .30 + . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .16 1.5 1.5 .16 + . 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .04 .36 .36 .04 + . 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .06 .06 + + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + . 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO

37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	3700.	3500.	27.17	0.0000E+00	301.4	0.0000E+00	30.00	0.362514E-04
2	3699.	3500.	5.500	0.0000E+00	359.2	0.0000E+00	30.00	0.340000E-04
3	3644.	3500.	3.189	0.0000E+00	413.1	0.0000E+00	30.00	0.340000E-04
4	3629.	3500.	1.791	0.0000E+00	454.5	0.0000E+00	30.00	0.340000E-04
5	3625.	3500.	1.067	0.0000E+00	484.3	0.0000E+00	30.00	0.340000E-04
6	3623.	3500.	0.7095	0.0000E+00	506.4	0.0000E+00	30.00	0.340000E-04
7	3623.	3500.	0.5252	0.0000E+00	524.2	0.0000E+00	30.00	0.340000E-04
8	3622.	3500.	0.4205	0.0000E+00	539.2	0.0000E+00	30.00	0.340000E-04
9	3621.	3500.	0.3548	0.0000E+00	552.3	0.0000E+00	30.00	0.340000E-04
10	3619.	3500.	0.3093	0.0000E+00	564.2	0.0000E+00	30.00	0.340000E-04
11	3175.	3500.	215.1	0.0000E+00	566.9	0.0000E+00	30.00	0.615574E-04

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.10
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.22

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.27

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 256.01
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.31

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.97
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.36

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.92
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.40

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.88
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.44

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.84
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.48

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.81
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.52

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.77
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 175.56

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .14 .43 .43 .14 .01 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 + + .20 1.8 5.3 5.3 1.8 .20 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 . + .03 .83 7.3 22 22 7.3 .83 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 . + .04 1.1 10 30 30 10 1.1 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .54 4.9 15 15 4.9 .54 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 1.4 12 12 1.4 .10 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .51 7.1 7.1 .51 .01 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .33 .33 .03 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO

5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . . . 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .07 .21 .21 .07 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 .90 2.6 2.6 .90 .10 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .41 3.6 11 11 3.6 .41 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .58 5.1 15 15 5.1 .58 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .27 2.4 7.6 7.6 2.4 .27 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .72 5.8 5.8 .72 .05 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .25 3.5 3.5 .25 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .16 .16 .01 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY     (CU FT/GRID SQUARE) ,   3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
```

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.9 1.9  +  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .15  43  43 .15  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .31  25  25 .31  +  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .35  10  10 .35  +  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .30 4.1 4.1 .30  +  .  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .16 1.5 1.5 .16  +  .  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .04 .36 .36 .04  +  .  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .08 .08 .01  +  .  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .05 .05 .01  +  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .04 .04 .01  +  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .02 .02  +  +  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  .  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 3600.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	4285.	3500.	27.14	0.0000E+00	394.2	0.0000E+00	30.00	0.340000E-04
2	4284.	3500.	5.494	0.0000E+00	457.2	0.0000E+00	30.00	0.340000E-04
3	4229.	3500.	3.186	0.0000E+00	515.5	0.0000E+00	30.00	0.340000E-04
4	4214.	3500.	1.789	0.0000E+00	560.0	0.0000E+00	30.00	0.340000E-04
5	4210.	3500.	1.066	0.0000E+00	591.8	0.0000E+00	30.00	0.340000E-04
6	4208.	3500.	0.7087	0.0000E+00	615.6	0.0000E+00	30.00	0.340000E-04
7	4208.	3500.	0.5247	0.0000E+00	634.5	0.0000E+00	30.00	0.340000E-04
8	4207.	3500.	0.4201	0.0000E+00	650.4	0.0000E+00	30.00	0.340000E-04
9	4206.	3500.	0.3545	0.0000E+00	664.4	0.0000E+00	30.00	0.340000E-04
10	4204.	3500.	0.3090	0.0000E+00	677.1	0.0000E+00	30.00	0.340000E-04
11	3760.	3500.	214.8	0.0000E+00	679.9	0.0000E+00	30.00	0.463402E-04

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.9 1.9 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .15 43 43 .15 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .31 25 25 .31 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .35 10 10 .35 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .30 4.1 4.1 .30 + . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .16 1.5 1.5 .16 + . 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .04 .36 .36 .04 + . 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .08 .08 .01 + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .05 .05 .01 + . 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .04 .04 .01 + . 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .02 + + . 0 0 0 0 0 0 0 0 0
```

21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + . 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF CLAY     ACCUMULATED ON BOTTOM,     3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY  0.1000E-02     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  + .29 .29  +  0  0  0  0  0  0  0  0  0  0  0
11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  . .02 6.4 6.4 .02  .  0  0  0  0  0  0  0  0  0  0
12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  . .04 3.7 3.7 .04  .  0  0  0  0  0  0  0  0  0  0
13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .05 1.4 1.4 .05  +  0  0  0  0  0  0  0  0  0  0
14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .04 .62 .62 .04  +  0  0  0  0  0  0  0  0  0  0
15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .02 .23 .23 .02  +  0  0  0  0  0  0  0  0  0  0
16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  +  + .05 .05  +  +  0  0  0  0  0  0  0  0  0  0
17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  .  0  0  0  0  0  0  0  0  0
```

```
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  +  +  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  +  +  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  +  +  .  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 4   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 5   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 6   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
```

18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF COPPER

SUMMARY OF COPPER DISTRIBUTIONS AFTER 100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT.
SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 1976. 3500. 0.2730E+08 0.1258E+08 282.2 22.18 7.818 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2027.	3500.	0.4570E+08	0.3098E+08	291.9	15.07	14.93	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2092.	3500.	0.6649E+08	0.5176E+08	301.7	7.953	22.05	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)

1 2157. 3500. 0.8982E+08 0.7509E+08 311.6 0.8430 29.16 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2222. 3500. 0.9793E+08 0.8321E+08 321.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2287. 3500. 0.1036E+09 0.8885E+08 331.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2352. 3500. 0.1094E+09 0.9472E+08 341.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2417. 3500. 0.1156E+09 0.1008E+09 352.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .15 .15  +  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .11 5.1 5.1 .11  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .07 3.6 3.6 .07  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + .05 .05  +  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 4   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 5   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 6   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
```

11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2   3   4   5   6   7   8   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .07 .07 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .05 2.5 2.5 .05 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 1.8 1.8 .03 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO

5	0	0	0	0	0	0	0	0	0	0	0	0OOOO
6	0	0	0	0	0	0	0	0	0	0	0	0OOOO
7	0	0	0	0	0	0	0	0	0	0	0	0OOOO
8	0	0	0	0	0	0	0	0	0	0	0	0OOOO
9	0	0	0	0	0	0	0	0	0	0	0	0OOOO
10	0	0	0	0	0	0	0	0	0	0	0	0OOOO
11	0	0	0	0	0	0	0	0	0	0	0	0OOOO
12	0	0	0	0	0	0	0	0	0	0	0	0OOOO
13	0	0	0	0	0	0	0	0	0	0	0	0OOOO
14	0	0	0	0	0	0	0	0	0	0	0	0OOOO
15	0	0	0	0	0	0	0	0	0	0	0	0OOOO
16	0	0	0	0	0	0	0	0	0	0	0	0OOOO
17	0	0	0	0	0	0	0	0	0	0	0	0OOOO
18	0	0	0	0	0	0	0	0	0	0	0	0OOOO
19	0	0	0	0	0	0	0	0	0	0	0	0OOOO
20	0	0	0	0	0	0	0	0	0	0	0	0OOOO
21	0	0	0	0	0	0	0	0	0	0	0	0OOOO
22	0	0	0	0	0	0	0	0	0	0	0	0OOOO
23	0	0	0	0	0	0	0	0	0	0	0	0OOOO
24	0	0	0	0	0	0	0	0	0	0	0	0OOOO
25	0	0	0	0	0	0	0	0	0	0	0	0OOOO
26	0	0	0	0	0	0	0	0	0	0	0	0OOOO
27	0	0	0	0	0	0	0	0	0	0	0	0OOOO
28	0	0	0	0	0	0	0	0	0	0	0	0OOOO
29	0	0	0	0	0	0	0	0	0	0	0	0OOOO
30	0	0	0	0	0	0	0	0	0	0	0	0OOOO
31	0	0	0	0	0	0	0	0	0	0	0	0OOOO
32	0	0	0	0	0	0	0	0	0	0	0	0OOOO
33	0	0	0	0	0	0	0	0	0	0	0	0OOOO
34	0	0	0	0	0	0	0	0	0	0	0	0OOOO
35	0	0	0	0	0	0	0	0	0	0	0	0OOOO
36	0	0	0	0	0	0	0	0	0	0	0	0OOOO
37	0	0	0	0	0	0	0	0	0	0	0	0OOOO
38	0	0	0	0	0	0	0	0	0	0	0	0OOOO
39	0	0	0	0	0	0	0	0	0	0	0	0OOOO
40	0	0	0	0	0	0	0	0	0	0	0	0OOOO
41	0	0	0	0	0	0	0	0	0	0	0	0OOOO
42	0	0	0	0	0	0	0	0	0	0	0	0OOOO
43	0	0	0	0	0	0	0	0	0	0	0	0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + + + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .18 .18 + 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .13 .13 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2482. 3500. 0.1219E+09 0.1072E+09 362.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2547. 3500. 0.1285E+09 0.1138E+09 373.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2612. 3500. 0.1354E+09 0.1207E+09 383.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2677. 3500. 0.1425E+09 0.1278E+09 394.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2742. 3500. 0.1499E+09 0.1352E+09 405.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2807. 3500. 0.1576E+09 0.1429E+09 416.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2872. 3500. 0.1655E+09 0.1508E+09 427.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2937. 3500. 0.1737E+09 0.1590E+09 438.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
\# TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3002. 3500. 0.1822E+09 0.1675E+09 449.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER
DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT.
.000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .05 .63 .63 .05  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .43 4.5 4.5 .43  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .29 3.1 3.1 .29  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .01 .19 .19 .01  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   1800.00 SECONDS AFTER
DUMP

           30.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + .02 .31 .31 .02  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  + .21 2.2 2.2 .21  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  + .14 1.5 1.5 .14  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .09 .09  +  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO

22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0

16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .16 .16 .01 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .11 .11 .01 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO

16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT.
SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3067. 3500. 0.1910E+09 0.1763E+09 461.0 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 1900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3132. 3500. 0.2001E+09 0.1854E+09 472.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3197. 3500. 0.2095E+09 0.1948E+09 483.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3262. 3500. 0.2192E+09 0.2045E+09 495.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT.
SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3327. 3500. 0.2292E+09 0.2145E+09 507.1 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT.
SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3392. 3500. 0.2395E+09 0.2248E+09 518.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT.
SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3457. 3500. 0.2501E+09 0.2354E+09 530.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3522. 3500. 0.2611E+09 0.2463E+09 542.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3587. 3500. 0.2723E+09 0.2576E+09 554.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .07 .07 .01 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .23 1.1 1.1 .23 .01 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .76 3.6 3.6 .76 .03 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .52 2.4 2.4 .52 .02 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .07 .35 .35 .07 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .03 + + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .11 .55 .55 .11 + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .38 1.8 1.8 .38 .01 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .26 1.2 1.2 .26 .01 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .17 .17 .03 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO

42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .04 .04 + + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .13 .13 .02 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .09 .09 .01 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO

36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3652. 3500. 0.2840E+09 0.2692E+09 566.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3717. 3500. 0.2959E+09 0.2812E+09 579.1 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 2900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3782. 3500. 0.3082E+09 0.2935E+09 591.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3847. 3500. 0.3208E+09 0.3061E+09 603.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3912. 3500. 0.3338E+09 0.3191E+09 616.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3977. 3500. 0.3472E+09 0.3325E+09 628.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4042. 3500. 0.3609E+09 0.3462E+09 641.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4107. 3500. 0.3750E+09 0.3602E+09 654.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

SMALL CLOUDS AT 3500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1	4172.	3500.	0.3894E+09	0.3747E+09	667.0	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14722E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  0  0  0  0  0  0  0  0  0  0
```

20 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .07 .21 .21 .07 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .44 1.3 1.3 .44 .05 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 .93 2.7 2.7 .93 .10 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .07 .66 1.9 1.9 .66 .07 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .15 .47 .47 .15 .01 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .03 .03 .01 + 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   3600.00 SECONDS AFTER
DUMP

            30.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .02 .22 .65 .65 .22 .02 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .46 1.3 1.3 .46 .05 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .03 .33 .98 .98 .33 .03 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .07 .23 .23 .07 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .04 .04 .01 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .07 .07 .02 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO

8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   3600.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM THAT EVER OCCURRED IN THE WATER COLUMN DURING THE SIMULATION

...MULTIPLY DISPLAYED VALUES BY   1.000   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2   3   4   5   6   7   8   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .10 .10 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.1 1.1 + 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .28 .28 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .26 .26 + 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .24 .24 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .22 .22 .01 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .20 .20 .01 . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .18 .18 .02 . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .16 .16 .02 + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .14 .14 .02 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .13 .13 .03 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .11 .11 .03 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .07 .07 .02 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT    3600.00 SECONDS ELAPSED TIME FOR COPPER
```

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	4237.	3500.	0.4043E+09	0.3895E+09	679.9	0.0000E+00	30.00	0.000000E+00

FINAL DISTRIBUTIONS OF TOTAL SETTLED MATERIAL FOLLOW.....

TOTAL ACCUMULATED SOLID VOLUME ON BOTTOM (CU FT/GRID SQR), 3600.00 SECONDS AFTER DUMP

...MULTIPLY DISPLAYED VALUES BY 100.0 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + .69 .69  +  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .01 193 193 .01  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .04 3.5 3.5 .04  .  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .04 1.2 1.2 .04  +  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .03 .43 .43 .03  +  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .17 .17 .02  +  .  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .07 .07 .01  +  .  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .03 .03  +  +  .  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  +  +  .  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO

32   0 0 0 0 0 0 0 0 0 0 0 0OOOO
33   0 0 0 0 0 0 0 0 0 0 0 0OOOO
34   0 0 0 0 0 0 0 0 0 0 0 0OOOO
35   0 0 0 0 0 0 0 0 0 0 0 0OOOO
36   0 0 0 0 0 0 0 0 0 0 0 0OOOO
37   0 0 0 0 0 0 0 0 0 0 0 0OOOO
38   0 0 0 0 0 0 0 0 0 0 0 0OOOO
39   0 0 0 0 0 0 0 0 0 0 0 0OOOO
40   0 0 0 0 0 0 0 0 0 0 0 0OOOO
41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

TOTAL THICKNESS (FT) OF NEW MATERIAL ON BOTTOM,   3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2   3   4   5   6   7   8   9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . .88 .88 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + + + 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO

30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

INITIAL MIXING COMPUTATIONS RESULTS FOR GRAVEL :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.000E+00	0.	0.	0.000E+00
0.50	0.0	0.000E+00	0.	0.	0.000E+00
0.75	0.0	0.000E+00	0.	0.	0.000E+00
1.00	0.0	0.000E+00	0.	0.	0.000E+00

0.25	30.0	0.000E+00	0.	0.	0.000E+00
0.50	30.0	0.000E+00	0.	0.	0.000E+00
0.75	30.0	0.000E+00	0.	0.	0.000E+00
1.00	30.0	0.000E+00	0.	0.	0.000E+00

INITIAL MIXING COMPUTATIONS RESULTS FOR SAND :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.000E+00	0.	0.	0.000E+00
0.50	0.0	0.000E+00	0.	0.	0.000E+00
0.75	0.0	0.000E+00	0.	0.	0.000E+00

1.00	0.0	0.000E+00	0.	0.	0.000E+00

0.25	30.0	0.000E+00	0.	0.	0.000E+00
0.50	30.0	0.000E+00	0.	0.	0.000E+00
0.75	30.0	0.000E+00	0.	0.	0.000E+00
1.00	30.0	0.000E+00	0.	0.	0.000E+00

INITIAL MIXING COMPUTATIONS RESULTS FOR SILT :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.162E+02	2400.	3400.	0.162E+02
0.50	0.0	0.203E+02	3000.	3400.	0.203E+02
0.75	0.0	0.465E+02	3600.	3400.	0.465E+02
1.00	0.0	0.474E+02	4200.	3400.	0.474E+02

0.25	30.0	0.600E+03	2200.	3400.	0.600E+03
0.50	30.0	0.311E+03	2600.	3400.	0.311E+03
0.75	30.0	0.160E+03	3000.	3400.	0.160E+03
1.00	30.0	0.299E+02	3400.	3400.	0.299E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR CLAY :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.262E+01	2400.	3400.	0.262E+01
0.50	0.0	0.671E+01	3200.	3400.	0.671E+01
0.75	0.0	0.415E+02	3200.	3400.	0.415E+02
1.00	0.0	0.303E+02	3800.	3400.	0.303E+02

0.25	30.0	0.176E+03	2200.	3400.	0.176E+03
0.50	30.0	0.116E+03	2600.	3400.	0.116E+03
0.75	30.0	0.207E+02	3200.	3400.	0.207E+02
1.00	30.0	0.152E+02	3800.	3400.	0.152E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR COPPER :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	MAX CONC ON GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)	MAX CONC OUTSIDE MIXING ZONE (MG/L)
0.03	0.0	0.484E-37	0.100E+01	1200.	2600.	0.484E-37	0.100E+01
0.06	0.0	0.146E-07	0.100E+01	2000.	3400.	0.146E-07	0.100E+01
0.08	0.0	0.123E-02	0.100E+01	2000.	3400.	0.123E-02	0.100E+01
0.11	0.0	0.581E-01	0.106E+01	2200.	3400.	0.581E-01	0.106E+01
0.14	0.0	0.766E-01	0.108E+01	2200.	3400.	0.766E-01	0.108E+01
0.17	0.0	0.499E-01	0.105E+01	2200.	3400.	0.499E-01	0.105E+01
0.19	0.0	0.661E-01	0.107E+01	2400.	3400.	0.661E-01	0.107E+01
0.22	0.0	0.717E-01	0.107E+01	2400.	3400.	0.717E-01	0.107E+01
0.25	0.0	0.512E-01	0.105E+01	2400.	3400.	0.512E-01	0.105E+01
0.28	0.0	0.603E-01	0.106E+01	2600.	3400.	0.603E-01	0.106E+01
0.31	0.0	0.659E-01	0.107E+01	2600.	3400.	0.659E-01	0.107E+01
0.33	0.0	0.506E-01	0.105E+01	2600.	3400.	0.506E-01	0.105E+01
0.36	0.0	0.547E-01	0.105E+01	2800.	3400.	0.547E-01	0.105E+01
0.39	0.0	0.600E-01	0.106E+01	2800.	3400.	0.600E-01	0.106E+01
0.42	0.0	0.486E-01	0.105E+01	2800.	3400.	0.486E-01	0.105E+01
0.44	0.0	0.493E-01	0.105E+01	3000.	3400.	0.493E-01	0.105E+01
0.47	0.0	0.543E-01	0.105E+01	3000.	3400.	0.543E-01	0.105E+01
0.50	0.0	0.459E-01	0.105E+01	3000.	3400.	0.459E-01	0.105E+01
0.53	0.0	0.445E-01	0.104E+01	3200.	3400.	0.445E-01	0.104E+01
0.56	0.0	0.489E-01	0.105E+01	3200.	3400.	0.489E-01	0.105E+01
0.58	0.0	0.428E-01	0.104E+01	3200.	3400.	0.428E-01	0.104E+01
0.61	0.0	0.400E-01	0.104E+01	3400.	3400.	0.400E-01	0.104E+01
0.64	0.0	0.440E-01	0.104E+01	3400.	3400.	0.440E-01	0.104E+01
0.67	0.0	0.395E-01	0.104E+01	3400.	3400.	0.395E-01	0.104E+01
0.69	0.0	0.361E-01	0.104E+01	3600.	3400.	0.361E-01	0.104E+01
0.72	0.0	0.395E-01	0.104E+01	3600.	3400.	0.395E-01	0.104E+01
0.75	0.0	0.363E-01	0.104E+01	3600.	3400.	0.363E-01	0.104E+01
0.78	0.0	0.325E-01	0.103E+01	3800.	3400.	0.325E-01	0.103E+01
0.81	0.0	0.356E-01	0.104E+01	3800.	3400.	0.356E-01	0.104E+01
0.83	0.0	0.333E-01	0.103E+01	3800.	3400.	0.333E-01	0.103E+01
0.86	0.0	0.294E-01	0.103E+01	4000.	3400.	0.294E-01	0.103E+01
0.89	0.0	0.320E-01	0.103E+01	4000.	3400.	0.320E-01	0.103E+01
0.92	0.0	0.304E-01	0.103E+01	4000.	3400.	0.304E-01	0.103E+01
0.94	0.0	0.266E-01	0.103E+01	4200.	3400.	0.266E-01	0.103E+01

0.97	0.0	0.289E-01	0.103E+01	4200.	3400.	0.289E-01	0.103E+01
1.00	0.0	0.277E-01	0.103E+01	4200.	3400.	0.277E-01	0.103E+01

0.03	30.0	0.157E+00	0.116E+01	2000.	3400.	0.157E+00	0.116E+01
0.06	30.0	0.800E-01	0.108E+01	2000.	3400.	0.800E-01	0.108E+01
0.08	30.0	0.313E-01	0.103E+01	2000.	3400.	0.313E-01	0.103E+01
0.11	30.0	0.369E-01	0.104E+01	2200.	3400.	0.369E-01	0.104E+01
0.14	30.0	0.383E-01	0.104E+01	2200.	3400.	0.383E-01	0.104E+01
0.17	30.0	0.249E-01	0.102E+01	2200.	3400.	0.249E-01	0.102E+01
0.19	30.0	0.331E-01	0.103E+01	2400.	3400.	0.331E-01	0.103E+01
0.22	30.0	0.358E-01	0.104E+01	2400.	3400.	0.358E-01	0.104E+01
0.25	30.0	0.256E-01	0.103E+01	2400.	3400.	0.256E-01	0.103E+01
0.28	30.0	0.302E-01	0.103E+01	2600.	3400.	0.302E-01	0.103E+01
0.31	30.0	0.330E-01	0.103E+01	2600.	3400.	0.330E-01	0.103E+01
0.33	30.0	0.253E-01	0.103E+01	2600.	3400.	0.253E-01	0.103E+01
0.36	30.0	0.273E-01	0.103E+01	2800.	3400.	0.273E-01	0.103E+01
0.39	30.0	0.300E-01	0.103E+01	2800.	3400.	0.300E-01	0.103E+01
0.42	30.0	0.243E-01	0.102E+01	2800.	3400.	0.243E-01	0.102E+01
0.44	30.0	0.247E-01	0.102E+01	3000.	3400.	0.247E-01	0.102E+01
0.47	30.0	0.271E-01	0.103E+01	3000.	3400.	0.271E-01	0.103E+01
0.50	30.0	0.229E-01	0.102E+01	3000.	3400.	0.229E-01	0.102E+01
0.53	30.0	0.222E-01	0.102E+01	3200.	3400.	0.222E-01	0.102E+01
0.56	30.0	0.244E-01	0.102E+01	3200.	3400.	0.244E-01	0.102E+01
0.58	30.0	0.214E-01	0.102E+01	3200.	3400.	0.214E-01	0.102E+01
0.61	30.0	0.200E-01	0.102E+01	3400.	3400.	0.200E-01	0.102E+01
0.64	30.0	0.220E-01	0.102E+01	3400.	3400.	0.220E-01	0.102E+01
0.67	30.0	0.198E-01	0.102E+01	3400.	3400.	0.198E-01	0.102E+01
0.69	30.0	0.180E-01	0.102E+01	3600.	3400.	0.180E-01	0.102E+01
0.72	30.0	0.198E-01	0.102E+01	3600.	3400.	0.198E-01	0.102E+01
0.75	30.0	0.182E-01	0.102E+01	3600.	3400.	0.182E-01	0.102E+01
0.78	30.0	0.163E-01	0.102E+01	3800.	3400.	0.163E-01	0.102E+01
0.81	30.0	0.178E-01	0.102E+01	3800.	3400.	0.178E-01	0.102E+01
0.83	30.0	0.166E-01	0.102E+01	3800.	3400.	0.166E-01	0.102E+01
0.86	30.0	0.147E-01	0.101E+01	4000.	3400.	0.147E-01	0.101E+01
0.89	30.0	0.160E-01	0.102E+01	4000.	3400.	0.160E-01	0.102E+01
0.92	30.0	0.152E-01	0.102E+01	4000.	3400.	0.152E-01	0.102E+01
0.94	30.0	0.133E-01	0.101E+01	4200.	3400.	0.133E-01	0.101E+01
0.97	30.0	0.144E-01	0.101E+01	4200.	3400.	0.144E-01	0.101E+01
1.00	30.0	0.139E-01	0.101E+01	4200.	3400.	0.139E-01	0.101E+01

0.03	15.0	0.116E+01	0.216E+01	2000.	3400.	0.116E+01	0.216E+01
0.06	15.0	0.591E+00	0.159E+01	2000.	3400.	0.591E+00	0.159E+01

0.08	15.0	0.231E+00	0.123E+01	2000.	3400.	0.231E+00	0.123E+01
0.11	15.0	0.272E+00	0.127E+01	2200.	3400.	0.272E+00	0.127E+01
0.14	15.0	0.283E+00	0.128E+01	2200.	3400.	0.283E+00	0.128E+01
0.17	15.0	0.184E+00	0.118E+01	2200.	3400.	0.184E+00	0.118E+01
0.19	15.0	0.244E+00	0.124E+01	2400.	3400.	0.244E+00	0.124E+01
0.22	15.0	0.265E+00	0.126E+01	2400.	3400.	0.265E+00	0.126E+01
0.25	15.0	0.189E+00	0.119E+01	2400.	3400.	0.189E+00	0.119E+01
0.28	15.0	0.223E+00	0.122E+01	2600.	3400.	0.223E+00	0.122E+01
0.31	15.0	0.244E+00	0.124E+01	2600.	3400.	0.244E+00	0.124E+01
0.33	15.0	0.187E+00	0.119E+01	2600.	3400.	0.187E+00	0.119E+01
0.36	15.0	0.202E+00	0.120E+01	2800.	3400.	0.202E+00	0.120E+01
0.39	15.0	0.222E+00	0.122E+01	2800.	3400.	0.222E+00	0.122E+01
0.42	15.0	0.180E+00	0.118E+01	2800.	3400.	0.180E+00	0.118E+01
0.44	15.0	0.182E+00	0.118E+01	3000.	3400.	0.182E+00	0.118E+01
0.47	15.0	0.201E+00	0.120E+01	3000.	3400.	0.201E+00	0.120E+01
0.50	15.0	0.170E+00	0.117E+01	3000.	3400.	0.170E+00	0.117E+01
0.53	15.0	0.164E+00	0.116E+01	3200.	3400.	0.164E+00	0.116E+01
0.56	15.0	0.181E+00	0.118E+01	3200.	3400.	0.181E+00	0.118E+01
0.58	15.0	0.158E+00	0.116E+01	3200.	3400.	0.158E+00	0.116E+01
0.61	15.0	0.148E+00	0.115E+01	3400.	3400.	0.148E+00	0.115E+01
0.64	15.0	0.162E+00	0.116E+01	3400.	3400.	0.162E+00	0.116E+01
0.67	15.0	0.146E+00	0.115E+01	3400.	3400.	0.146E+00	0.115E+01
0.69	15.0	0.133E+00	0.113E+01	3600.	3400.	0.133E+00	0.113E+01
0.72	15.0	0.146E+00	0.115E+01	3600.	3400.	0.146E+00	0.115E+01
0.75	15.0	0.134E+00	0.113E+01	3600.	3400.	0.134E+00	0.113E+01
0.78	15.0	0.120E+00	0.112E+01	3800.	3400.	0.120E+00	0.112E+01
0.81	15.0	0.131E+00	0.113E+01	3800.	3400.	0.131E+00	0.113E+01
0.83	15.0	0.123E+00	0.112E+01	3800.	3400.	0.123E+00	0.112E+01
0.86	15.0	0.109E+00	0.111E+01	4000.	3400.	0.109E+00	0.111E+01
0.89	15.0	0.118E+00	0.112E+01	4000.	3400.	0.118E+00	0.112E+01
0.92	15.0	0.112E+00	0.111E+01	4000.	3400.	0.112E+00	0.111E+01
0.94	15.0	0.983E-01	0.110E+01	4200.	3400.	0.983E-01	0.110E+01
0.97	15.0	0.107E+00	0.111E+01	4200.	3400.	0.107E+00	0.111E+01
1.00	15.0	0.103E+00	0.110E+01	4200.	3400.	0.103E+00	0.110E+01

RESULT: THE WATER QUALITY STANDARD FOR THE MIXING ZONE WAS NOT VIOLATED.

*** RUN COMPLETED ***

ADDAMS STFATE MODEL RESULTS
2,500 CUBIC YARD BARGE
FDD-C-C5

BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

MODEL: SHORT-TERM FATE OF DREDGED MATERIAL FROM SPLIT HULL BARGE OR HOPPER DREDGE (PC Version 5.01 MAY, 1993)

TITLE: BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

FILE: FDDC5_25.DUE

AREA: THE PROJECT AREA IS DESCRIBED BY A 45 X 45 GRID.

THERE ARE 45 GRID POINTS (NMAX) IN THE Z-DIRECTION (FROM LEFT TO RIGHT) AND 45 GRID POINTS (MMAX) IN THE X-DIRECTION (FROM TOP TO BOTTOM).

ZONE: THE MIXING ZONE IS REPRESENTED AS A RECTANGLE ON THE SITE GRID.

THE TOPMOST BOUNDARY IS LOCATED AT POINT #21 (MDS1) FROM THE TOP OF THE GRID.

THE BOTTOMMOST BOUNDARY IS LOCATED AT POINT #36 (MDS2) FROM THE TOP OF THE GRID.

THE LEFTMOST BOUNDARY IS LOCATED AT POINT #34 (NDS1) FROM THE LEFT OF THE GRID.

THE RIGHTMOST BOUNDARY IS LOCATED AT POINT #39 (NDS2) FROM THE LEFT OF THE GRID.

EXECUTION PARAMETERS:

MODEL COEFFICIENTS SPECIFIED IN INPUT DATA (KEY1 = 1).

PERFORM COMPLETE ANALYSIS INCLUDING DESCENT, COLLAPSE, AND TRANSPORT-DIFFUSION (KEY2 = 0).

PERFORM TIER II INLAND DUMPING INITIAL MIXING EVALUATION TO DETERMINE NEED FOR FURTHER TESTING (KEY3 = 7).

MIXING ZONE HAS BEEN DESIGNATED -- NO MIXING ZONE WILL BE COMPUTED.

NO ANALYSIS OF A ZONE OF INITIAL DILUTION REQUESTED.

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF DYNAMIC COLLAPSE RESULTS REQUESTED (IPCL = 1).

QUARTERLY PRINTING OF LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED (IPLT = 0).

LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED AT THE FOLLOWING 2 DEPTH(S):
0.00 FT
30.00 FT

GRID: NUMBER OF LONG TERM GRID POINTS IN Z-DIRECTION (NMAX) = 45

NUMBER OF LONG TERM GRID POINTS IN X-DIRECTION (MMAX) = 45

GRID SPACING IN Z-DIRECTION (DZ) = 200.00000 FT

GRID SPACING IN X-DIRECTION (DX) = 200.00000 FT

CONSTANT DEPTH GRID SPECIFIED HAVING A DEPTH (DEPC) OF 30.00000 FT.

DEPTH GRID, FEET:

M N =	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M N =18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M N =35	36	37	38	39	40	41	42	43	44	45
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

CODED GRID:

RANGE OF N IS 1 TO 45

X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X
X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O
X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W D W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B
B B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W
W W B W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B
B B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O
X
X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X

LEGEND FOR CODED GRID: W = WATER POINT
L = LAND POINT
O = OPEN BOUNDARY
B = MIXING ZONE BOUNDARY
Z = ZID BOUNDARY
D = DUMP LOCATION
X = DUMMY POINT

NUMBER OF GRID POINTS WITHIN ESTUARY = 1681

DISPOSAL LOCATION:

THE DUMP LOCATION IS 2000. FT (XBARGE) OR ABOUT GRID POINT #11 FROM THE TOP OF THE GRID
AND 3500. FT (ZBARGE) OR ABOUT GRID POINT #19 FROM THE LEFT EDGE OF THE GRID.

THE BOTTOM SLOPE IN THE X-DIRECTION AT THE DUMP SITE (SLOPEX, POSITIVE IF DEPTH INCREASES
FROM TOP OF GRID TO BOTTOM OF GRID) IS 0.00 DEGREES.

THE BOTTOM SLOPE IN THE Z-DIRECTION AT THE DUMP SITE (SLOPEZ, POSITIVE IF DEPTH INCREASES
FROM LEFT SIDE OF GRID TO RIGHT SIDE OF GRID) IS 0.00 DEGREES.

THE DISPOSAL LOCATION IS NOT AT A HOLE OR DEPRESSION. (DHOLE = 0.0)

AMBIENT DENSITY PROFILE:

DEPTH (FT)	DENSITY (G/CC)
0.0000E+00	1.0241
30.00	1.0248

COMPUTED DEPTH:

THE DEPTH AT THE DUMP LOCATION WAS INTERPOLATED TO BE 30.00 FT.

VELOCITY DISTRIBUTION:

TWO-VELOCITY PROFILES ARE SPECIFIED IN BOTH X AND Z DIRECTIONS FOR USE AT ALL GRID POINTS PROVIDING "QUICK LOOKS".

DEPTH IN FT IS ASSUMED CONSTANT AND VELOCITIES IN FPS ARE CONSIDERED STEADY IN TIME.

VELOCITY PROFILE PARAMETERS FOLLOW...

FROM TOP TO BOTTOM ON GRID FROM LEFT TO RIGHT ON GRID

UPPER: DEPTH, DU1 = 5.00 X-VELOCITY, UU1 = 0.650 DEPTH, DW1 = 5.00 Z-VELOCITY, WW1 = 0.000E+00

LOWER: DEPTH, DU2 = 25.0 X-VELOCITY, UU2 = 0.650 DEPTH, DW2 = 25.0 Z-VELOCITY, WW2 = 0.000E+00

BOTTOM SHEAR STRESS, LBS/SQ FT:

M N=	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

9 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

10 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

11 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

12 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

13 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

14 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

15 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

16 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

17 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

18 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

19 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

20 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

21 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

22 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

23 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

24 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

25 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

26 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

27 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

28 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

29 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

30 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

31 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

32 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

33 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

34 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

35 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

36 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

37 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

38 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

39 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

40 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

41 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

42 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

43 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

44 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

45 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M N= 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

1 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

2 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

3 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

4 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

5 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

6 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

7 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

8 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

9 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

10 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
11 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
12 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
13 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
14 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
15 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
16 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
17 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
18 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
19 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
20 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
21 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
22 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
23 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
24 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
25 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
26 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

34 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

35 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

36 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

37 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

38 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

39 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

40 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

41 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

42 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

43 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

44 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

45 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M N=	35	36	37	38	39	40	41	42	43	44	45
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
13	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
14	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
15	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
16	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
17	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
18	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
19	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
20	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
21	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

22	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
23	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
24	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
25	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
26	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
27	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
28	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
29	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
30	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
31	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
32	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
33	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
34	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
35	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
36	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
37	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
38	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
39	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
40	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
41	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
42	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
43	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
44	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**
45	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**	**0.0002**

TIME PARAMETERS:

DURATION OF THE DISPOSAL, TREL = 20.00 SECONDS

DURATION OF THE SIMULATION, TSTOP = 3600.00 SECONDS

LONG-TERM TIME STEP USED IN THE SIMULATION, DTL = 100.00 SECONDS

BARGE DESCRIPTION:

LENGTH OF BARGE, BARGL = 0.19E+03 FT

WIDTH OF BARGE, BARGW = 35. FT

DRAFT OF LOADED BARGE, DREL1 = 14.0 FT

DRAFT OF UNLOADED BARGE, DREL2 = 4.00 FT

MODEL COEFFICIENTS READ FROM INPUT:

TURBULENT THERMAL ENTRAINMENT ALPHA0 = 0.2350

SETTLING COEFFICIENT BETA = 0.0000

APPARENT MASS COEFFICIENT CM = 1.0000

DRAG COEFFICIENT FOR A SPHERE CD = 0.5000

RATIO--CLOUD/AMBIENT DENSITY GRADIENTS GAMA = 0.2500

FORM DRAG FOR COLLAPSING CLOUD CDRAG = 1.0000

SKIN FRICTION FOR COLLAPSING CLOUD CFRIC = 0.0100

DRAG FOR AN ELLIPSOIDAL WEDGE CD3 = 0.1000

DRAG FOR A PLATE CD4 = 1.0000

ENTRAINMENT IN COLLAPSE ALPHAC = 0.1000

FRICTION BETWEEN CLOUD AND BOTTOM FRICTN = 0.0100

4/3 LAW HORIZ. DIFF. DISSIPATION FACTOR ALAMDA = 0.0010

UNSTRATIFIED WATER VERT. DIFF. COEF. AKY0 = 0.0250

STRIPPING COEF. OF FINES DURING CONVERTIVE DESCENT= 0.0030

MATERIAL DESCRIPTION: 4 SOLIDS FRACTIONS

L A Y E R 1

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)	FALL VELOCITY (FPS)	DEPOSITIONAL VOID RATIO	CHARACTER
GRAVEL	2.700	0.6350E-01	1.00000	0.5000	NONCOHESIVE
CRITICAL SHEAR STRESS FOR DEPOSITION = 99.00 LBS/SQ. FT.					
SEDIMENT FRACTION WILL NOT BE STRIPPED DURING CONVECTIVE DESCENT.					
SAND	2.700	0.5041	1.00000	0.5000	NONCOHESIVE
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-01 LBS/SQ. FT.					
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.					
SILT	2.650	0.2467E-01	0.01000	5.000	COHESIVE
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.1000E-01 LBS/SQ. FT.					
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.					
CLAY	2.650	0.5100E-02	0.00200	5.000	COHESIVE
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-02 LBS/SQ. FT.					
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.					

BULK SEDIMENT ANALYSIS DATA:

CONCENTRATIONS OF COPPER FOLLOWING INITIAL MIXING OF THE DREDGED MATERIAL ARE COMPUTED FOR WATER QUALITY EVALUATIONS.

THE CONCENTRATION OF COPPER IN THE BULK SEDIMENT IS 4.7300 MG/KG.

THE INITIAL CONCENTRATION OF COPPER IN THE DREDGED MATERIAL IS 7.62210 MG/L AND ITS BACKGROUND CONCENTRATION IS 1.000000 MG/L.

THE WATER QUALITY STANDARD FOR COPPER IS 3.100000 MG/L.

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)
FLUID	1.024	0.4026

DISCHARGE PARAMETERS:

VOLUME OF LAYER 1 = 2500. CU YD

DEPTH IS TOO SHALLOW FOR CONVECTIVE DESCENT SO DESCENT IS BYPASSED.

CLOUD COLLAPSE PHASE:

IN TRIAL #1 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.10000000 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 80.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

IN TRIAL #2 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.26333334E-01 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 299.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

COLLAPSE PHASE RESULTS:

TIME FROM DISPOSAL (SEC)	CLOUD CENTROID (DISTANCE FROM BARGE) X-DIR (FT)	DEPTH (FT)	Z-DIR (FT)	VELOCITY OF CLOUD CENTROID X-DIR (FPS)	DOWN (FPS)	Z-DIR (FPS)	DIFFERENCE OF CLOUD & WATER DENSITIES (G/CC)	ELLIPSOIDAL CLOUD THICKNESS (FT)	AXIS LENGTHS MINOR (FT)	MAJOR (FT)	VOLUME OF SOLIDS VOL. TRACER CONC. (MG/L)	SOLID CONC. BY (CU FT)	FRACTIONS FRACTION (VOL/VOL)
20.00	0.00	20.25	0.00	-2.00	0.50	0.00	0.9991E+00	26.00	70.42	70.42	0.7622E+01	0.4286E+04	0.6350E-01
												0.3403E+05	0.5041E+00
												0.1665E+04	0.2467E-01
												0.3443E+03	0.5100E-02
20.11	-0.21	19.92	0.00	-1.79	2.25	0.00	0.9748E+00	26.89	68.43	68.43	0.7778E+01	0.4274E+04	0.6481E-01
												0.3222E+05	0.4885E+00
												0.1577E+04	0.2391E-01
												0.3259E+03	0.4942E-02
20.21	-0.39	20.30	0.00	-1.74	4.43	0.00	0.9634E+00	25.86	70.14	70.14	0.7709E+01	0.4248E+04	0.6376E-01

0.3219E+05 0.4831E+00
0.1575E+04 0.2364E-01
0.3257E+03 0.4887E-02
20.32 -0.57 20.87 0.00 -1.68 5.84 0.00 0.9469E+00 24.35 72.84 72.84 0.7607E+01 0.4222E+04 0.6240E-01
0.3214E+05 0.4751E+00
0.1573E+04 0.2325E-01
0.3252E+03 0.4806E-02
20.42 -0.75 21.53 0.00 -1.63 6.47 0.00 0.9264E+00 22.59 76.38 76.38 0.7479E+01 0.4194E+04 0.6079E-01
0.3208E+05 0.4650E+00
0.1570E+04 0.2276E-01
0.3246E+03 0.4705E-02
20.53 -0.92 22.22 0.00 -1.58 6.48 0.00 0.9029E+00 20.76 80.60 80.60 0.7331E+01 0.4164E+04 0.5898E-01
0.3202E+05 0.4535E+00
0.1567E+04 0.2219E-01
0.3239E+03 0.4588E-02
20.63 -1.08 22.88 0.00 -1.54 6.11 0.00 0.8772E+00 18.99 85.35 85.35 0.7169E+01 0.4131E+04 0.5702E-01
0.3194E+05 0.4409E+00
0.1563E+04 0.2158E-01
0.3232E+03 0.4460E-02
20.74 -1.24 23.49 0.00 -1.49 5.55 0.00 0.8502E+00 17.37 90.52 90.52 0.6997E+01 0.4096E+04 0.5495E-01
0.3187E+05 0.4276E+00
0.1560E+04 0.2092E-01
0.3224E+03 0.4326E-02
20.84 -1.40 24.03 0.00 -1.45 4.93 0.00 0.8222E+00 15.92 96.00 96.00 0.6817E+01 0.4057E+04 0.5280E-01
0.3180E+05 0.4138E+00
0.1556E+04 0.2025E-01
0.3217E+03 0.4187E-02
20.95 -1.55 24.51 0.00 -1.40 4.33 0.00 0.7938E+00 14.64 101.72 101.72 0.6633E+01 0.4016E+04 0.5061E-01
0.3173E+05 0.3999E+00
0.1553E+04 0.1957E-01
0.3210E+03 0.4045E-02
21.05 -1.69 24.93 0.00 -1.35 3.77 0.00 0.7653E+00 13.53 107.63 107.63 0.6447E+01 0.3971E+04 0.4840E-01
0.3166E+05 0.3859E+00
0.1549E+04 0.1888E-01
0.3203E+03 0.3904E-02
21.16 -1.83 25.29 0.00 -1.30 3.28 0.00 0.7370E+00 12.56 113.67 113.67 0.6262E+01 0.3924E+04 0.4619E-01
0.3160E+05 0.3720E+00
0.1546E+04 0.1820E-01
0.3197E+03 0.3763E-02

21.26 -1.97 25.61 0.00 -1.24 2.85 0.00 0.7091E+00 11.71 119.81 119.81 0.6078E+01 0.3873E+04 0.4400E-01
0.3154E+05 0.3583E+00
0.1544E+04 0.1754E-01
0.3191E+03 0.3625E-02
21.37 -2.10 25.88 0.00 -1.19 2.48 0.00 0.6820E+00 10.98 126.00 126.00 0.5898E+01 0.3820E+04 0.4186E-01
0.3149E+05 0.3450E+00
0.1541E+04 0.1689E-01
0.3186E+03 0.3491E-02
21.47 -2.22 26.12 0.00 -1.14 2.17 0.00 0.6558E+00 10.34 132.23 132.23 0.5723E+01 0.3764E+04 0.3978E-01
0.3144E+05 0.3322E+00
0.1539E+04 0.1626E-01
0.3181E+03 0.3361E-02
21.58 -2.34 26.33 0.00 -1.09 1.90 0.00 0.6306E+00 9.78 138.45 138.45 0.5555E+01 0.3706E+04 0.3777E-01
0.3139E+05 0.3199E+00
0.1536E+04 0.1566E-01
0.3176E+03 0.3237E-02
21.69 -2.45 26.52 0.00 -1.04 1.67 0.00 0.6067E+00 9.28 144.65 144.65 0.5395E+01 0.3645E+04 0.3584E-01
0.3135E+05 0.3082E+00
0.1534E+04 0.1508E-01
0.3172E+03 0.3118E-02
21.79 -2.56 26.68 0.00 -0.99 1.47 0.00 0.5840E+00 8.85 150.78 150.78 0.5242E+01 0.3582E+04 0.3400E-01
0.3131E+05 0.2972E+00
0.1532E+04 0.1454E-01
0.3168E+03 0.3007E-02
21.90 -2.66 26.82 0.00 -0.94 1.30 0.00 0.5626E+00 8.47 156.83 156.83 0.5099E+01 0.3518E+04 0.3226E-01
0.3127E+05 0.2868E+00
0.1531E+04 0.1403E-01
0.3164E+03 0.2901E-02
22.00 -2.76 26.95 0.00 -0.90 1.15 0.00 0.5426E+00 8.13 162.77 162.77 0.4964E+01 0.3451E+04 0.3061E-01
0.3124E+05 0.2770E+00
0.1529E+04 0.1356E-01
0.3161E+03 0.2803E-02
22.11 -2.85 27.06 0.00 -0.85 1.03 0.00 0.5239E+00 7.83 168.57 168.57 0.4838E+01 0.3384E+04 0.2905E-01
0.3121E+05 0.2680E+00
0.1527E+04 0.1311E-01
0.3158E+03 0.2711E-02
22.21 -2.94 27.17 0.00 -0.81 0.92 0.00 0.5066E+00 7.56 174.22 174.22 0.4721E+01 0.3315E+04 0.2759E-01
0.3118E+05 0.2596E+00

0.1526E+04 0.1270E-01
0.3155E+03 0.2626E-02
22.32 -3.02 27.26 0.00 -0.77 0.82 0.00 0.4904E+00 7.32 179.69 179.69 0.4612E+01 0.3246E+04 0.2623E-01
0.3116E+05 0.2517E+00
0.1525E+04 0.1232E-01
0.3152E+03 0.2547E-02
22.42 -3.10 27.34 0.00 -0.73 0.73 0.00 0.4755E+00 7.10 184.99 184.99 0.4511E+01 0.3175E+04 0.2494E-01
0.3113E+05 0.2445E+00
0.1524E+04 0.1197E-01
0.3150E+03 0.2474E-02
22.53 -3.18 27.41 0.00 -0.70 0.66 0.00 0.4617E+00 6.91 190.09 190.09 0.4418E+01 0.3105E+04 0.2374E-01
0.3111E+05 0.2379E+00
0.1522E+04 0.1164E-01
0.3147E+03 0.2407E-02
22.63 -3.25 27.47 0.00 -0.66 0.60 0.00 0.4489E+00 6.74 195.00 195.00 0.4332E+01 0.3033E+04 0.2261E-01
0.3109E+05 0.2317E+00
0.1521E+04 0.1134E-01
0.3145E+03 0.2344E-02
22.74 -3.32 27.53 0.00 -0.63 0.54 0.00 0.4371E+00 6.58 199.71 199.71 0.4253E+01 0.2962E+04 0.2156E-01
0.3107E+05 0.2261E+00
0.1520E+04 0.1106E-01
0.3143E+03 0.2287E-02
22.84 -3.39 27.59 0.00 -0.60 0.49 0.00 0.4262E+00 6.44 204.23 204.23 0.4179E+01 0.2891E+04 0.2056E-01
0.3105E+05 0.2208E+00
0.1520E+04 0.1081E-01
0.3141E+03 0.2234E-02
22.95 -3.45 27.63 0.00 -0.57 0.45 0.00 0.4161E+00 6.31 208.55 208.55 0.4111E+01 0.2820E+04 0.1963E-01
0.3103E+05 0.2160E+00
0.1519E+04 0.1057E-01
0.3140E+03 0.2185E-02
23.05 -3.51 27.68 0.00 -0.54 0.41 0.00 0.4067E+00 6.19 212.69 212.69 0.4049E+01 0.2750E+04 0.1876E-01
0.3102E+05 0.2116E+00
0.1518E+04 0.1035E-01
0.3138E+03 0.2140E-02
23.16 -3.56 27.72 0.00 -0.52 0.37 0.00 0.3980E+00 6.08 216.65 216.65 0.3991E+01 0.2680E+04 0.1793E-01
0.3101E+05 0.2074E+00
0.1517E+04 0.1015E-01
0.3137E+03 0.2099E-02

23.27 -3.62 27.76 0.00 -0.49 0.34 0.00 0.3899E+00 5.98 220.44 220.44 0.3937E+01 0.2611E+04 0.1715E-01
0.3099E+05 0.2036E+00
0.1517E+04 0.9964E-02
0.3135E+03 0.2060E-02
23.37 -3.67 27.79 0.00 -0.47 0.32 0.00 0.3823E+00 5.89 224.07 224.07 0.3886E+01 0.2542E+04 0.1641E-01
0.3098E+05 0.2000E+00
0.1516E+04 0.9790E-02
0.3134E+03 0.2024E-02
23.48 -3.72 27.82 0.00 -0.45 0.29 0.00 0.3753E+00 5.81 227.55 227.55 0.3840E+01 0.2474E+04 0.1572E-01
0.3097E+05 0.1967E+00
0.1516E+04 0.9628E-02
0.3133E+03 0.1990E-02
23.58 -3.76 27.85 0.00 -0.43 0.27 0.00 0.3687E+00 5.73 230.88 230.88 0.3796E+01 0.2407E+04 0.1506E-01
0.3096E+05 0.1936E+00
0.1515E+04 0.9476E-02
0.3132E+03 0.1959E-02
23.69 -3.81 27.88 0.00 -0.41 0.25 0.00 0.3625E+00 5.66 234.08 234.08 0.3755E+01 0.2341E+04 0.1443E-01
0.3095E+05 0.1907E+00
0.1514E+04 0.9334E-02
0.3131E+03 0.1930E-02
23.79 -3.85 27.90 0.00 -0.39 0.24 0.00 0.3567E+00 5.59 237.16 237.16 0.3717E+01 0.2276E+04 0.1383E-01
0.3094E+05 0.1880E+00
0.1514E+04 0.9202E-02
0.3130E+03 0.1902E-02
23.90 -3.89 27.93 0.00 -0.37 0.22 0.00 0.3512E+00 5.52 240.11 240.11 0.3681E+01 0.2212E+04 0.1327E-01
0.3093E+05 0.1855E+00
0.1514E+04 0.9077E-02
0.3129E+03 0.1876E-02
24.00 -3.93 27.95 0.00 -0.35 0.21 0.00 0.3461E+00 5.46 242.96 242.96 0.3647E+01 0.2149E+04 0.1273E-01
0.3092E+05 0.1831E+00
0.1513E+04 0.8959E-02
0.3128E+03 0.1852E-02
24.11 -3.96 27.97 0.00 -0.33 0.20 0.00 0.3412E+00 5.41 245.71 245.71 0.3615E+01 0.2087E+04 0.1221E-01
0.3091E+05 0.1808E+00
0.1513E+04 0.8849E-02
0.3127E+03 0.1829E-02
24.21 -4.00 27.99 0.00 -0.31 0.18 0.00 0.3366E+00 5.36 248.37 248.37 0.3584E+01 0.2027E+04 0.1172E-01
0.3090E+05 0.1787E+00

0.1512E+04 0.8744E-02
0.3126E+03 0.1808E-02
24.32 -4.03 28.01 0.00 -0.30 0.17 0.00 0.3322E+00 5.31 250.93 250.93 0.3556E+01 0.1968E+04 0.1125E-01
0.3090E+05 0.1766E+00
0.1512E+04 0.8644E-02
0.3126E+03 0.1787E-02
24.42 -4.06 28.03 0.00 -0.28 0.17 0.00 0.3280E+00 5.26 253.42 253.42 0.3528E+01 0.1909E+04 0.1080E-01
0.3089E+05 0.1747E+00
0.1512E+04 0.8550E-02
0.3125E+03 0.1767E-02
24.53 -4.09 28.05 0.00 -0.26 0.16 0.00 0.3240E+00 5.21 255.83 255.83 0.3502E+01 0.1853E+04 0.1037E-01
0.3088E+05 0.1729E+00
0.1511E+04 0.8460E-02
0.3124E+03 0.1749E-02
24.63 -4.12 28.06 0.00 -0.25 0.15 0.00 0.3203E+00 5.17 258.17 258.17 0.3477E+01 0.1797E+04 0.9959E-02
0.3088E+05 0.1711E+00
0.1511E+04 0.8374E-02
0.3124E+03 0.1731E-02
24.74 -4.14 28.08 0.00 -0.23 0.14 0.00 0.3166E+00 5.13 260.44 260.44 0.3454E+01 0.1742E+04 0.9565E-02
0.3087E+05 0.1695E+00
0.1511E+04 0.8293E-02
0.3123E+03 0.1714E-02
24.85 -4.17 28.09 0.00 -0.22 0.14 0.00 0.3132E+00 5.09 262.65 262.65 0.3431E+01 0.1689E+04 0.9187E-02
0.3086E+05 0.1679E+00
0.1510E+04 0.8214E-02
0.3122E+03 0.1698E-02
24.95 -4.19 28.11 0.00 -0.21 0.13 0.00 0.3098E+00 5.05 264.80 264.80 0.3409E+01 0.1637E+04 0.8825E-02
0.3086E+05 0.1663E+00
0.1510E+04 0.8139E-02
0.3122E+03 0.1683E-02
25.06 -4.21 28.12 0.00 -0.19 0.13 0.00 0.3067E+00 5.02 266.90 266.90 0.3388E+01 0.1586E+04 0.8477E-02
0.3085E+05 0.1649E+00
0.1510E+04 0.8067E-02
0.3121E+03 0.1668E-02
25.16 -4.23 28.13 0.00 -0.18 0.12 0.00 0.3036E+00 4.98 268.95 268.95 0.3368E+01 0.1537E+04 0.8144E-02
0.3085E+05 0.1634E+00
0.1510E+04 0.7998E-02
0.3121E+03 0.1653E-02

25.27 -4.25 28.14 0.00 -0.17 0.12 0.00 0.3007E+00 4.95 270.95 270.95 0.3349E+01 0.1489E+04 0.7824E-02
0.3084E+05 0.1621E+00
0.1509E+04 0.7932E-02
0.3120E+03 0.1640E-02
25.37 -4.27 28.16 0.00 -0.15 0.11 0.00 0.2978E+00 4.92 272.91 272.91 0.3331E+01 0.1442E+04 0.7517E-02
0.3084E+05 0.1608E+00
0.1509E+04 0.7868E-02
0.3120E+03 0.1627E-02
25.48 -4.28 28.17 0.00 -0.14 0.11 0.00 0.2951E+00 4.89 274.83 274.83 0.3313E+01 0.1396E+04 0.7221E-02
0.3083E+05 0.1595E+00
0.1509E+04 0.7806E-02
0.3119E+03 0.1614E-02
25.58 -4.30 28.18 0.00 -0.13 0.10 0.00 0.2925E+00 4.86 276.70 276.70 0.3295E+01 0.1351E+04 0.6938E-02
0.3083E+05 0.1583E+00
0.1509E+04 0.7746E-02
0.3119E+03 0.1601E-02
25.69 -4.31 28.19 0.00 -0.12 0.10 0.00 0.2899E+00 4.83 278.54 278.54 0.3279E+01 0.1308E+04 0.6666E-02
0.3082E+05 0.1571E+00
0.1508E+04 0.7689E-02
0.3118E+03 0.1589E-02
25.79 -4.32 28.20 0.00 -0.10 0.10 0.00 0.2875E+00 4.80 280.34 280.34 0.3262E+01 0.1265E+04 0.6404E-02
0.3082E+05 0.1560E+00
0.1508E+04 0.7633E-02
0.3118E+03 0.1578E-02
25.90 -4.33 28.21 0.00 -0.09 0.09 0.00 0.2851E+00 4.77 282.11 282.11 0.3247E+01 0.1224E+04 0.6152E-02
0.3081E+05 0.1549E+00
0.1508E+04 0.7579E-02
0.3117E+03 0.1567E-02
26.00 -4.34 28.22 0.00 -0.08 0.09 0.00 0.2828E+00 4.75 283.85 283.85 0.3232E+01 0.1184E+04 0.5911E-02
0.3081E+05 0.1538E+00
0.1508E+04 0.7527E-02
0.3117E+03 0.1556E-02
26.11 -4.35 28.23 0.00 -0.07 0.09 0.00 0.2805E+00 4.72 285.56 285.56 0.3217E+01 0.1145E+04 0.5678E-02
0.3080E+05 0.1528E+00
0.1507E+04 0.7476E-02
0.3116E+03 0.1545E-02
26.21 -4.35 28.24 0.00 -0.06 0.09 0.00 0.2784E+00 4.70 287.24 287.24 0.3202E+01 0.1107E+04 0.5455E-02
0.3080E+05 0.1518E+00

0.1507E+04 0.7426E-02
0.3116E+03 0.1535E-02
26.32 -4.36 28.25 0.00 -0.05 0.08 0.00 0.2763E+00 4.67 288.89 288.89 0.3188E+01 0.1070E+04 0.5240E-02
0.3079E+05 0.1508E+00
0.1507E+04 0.7378E-02
0.3115E+03 0.1525E-02
26.43 -4.37 28.26 0.00 -0.04 0.08 0.00 0.2742E+00 4.65 290.52 290.52 0.3175E+01 0.1034E+04 0.5033E-02
0.3079E+05 0.1498E+00
0.1507E+04 0.7332E-02
0.3115E+03 0.1516E-02
26.53 -4.37 28.26 0.00 -0.03 0.08 0.00 0.2723E+00 4.63 292.12 292.12 0.3162E+01 0.9997E+03 0.4835E-02
0.3079E+05 0.1489E+00
0.1507E+04 0.7286E-02
0.3115E+03 0.1506E-02
26.64 -4.37 28.27 0.00 -0.02 0.08 0.00 0.2703E+00 4.61 293.70 293.70 0.3149E+01 0.9659E+03 0.4643E-02
0.3078E+05 0.1480E+00
0.1506E+04 0.7242E-02
0.3114E+03 0.1497E-02
26.74 -4.37 28.28 0.00 -0.01 0.08 0.00 0.2685E+00 4.58 295.26 295.26 0.3136E+01 0.9331E+03 0.4460E-02
0.3078E+05 0.1471E+00
0.1506E+04 0.7199E-02
0.3114E+03 0.1488E-02
26.85 -4.37 28.29 0.00 0.00 0.07 0.00 0.2667E+00 4.56 296.79 296.79 0.3124E+01 0.9013E+03 0.4283E-02
0.3078E+05 0.1462E+00
0.1506E+04 0.7157E-02
0.3114E+03 0.1480E-02
26.95 -4.37 28.30 0.00 0.00 0.07 0.00 0.2649E+00 4.54 298.30 298.30 0.3112E+01 0.8705E+03 0.4113E-02
0.3077E+05 0.1454E+00
0.1506E+04 0.7116E-02
0.3113E+03 0.1471E-02
27.06 -4.37 28.30 0.00 0.00 0.07 0.00 0.2632E+00 4.52 299.80 299.80 0.3101E+01 0.8405E+03 0.3950E-02
0.3077E+05 0.1446E+00
0.1506E+04 0.7076E-02
0.3113E+03 0.1463E-02
27.16 -4.37 28.31 0.00 0.00 0.07 0.00 0.2615E+00 4.50 301.27 301.27 0.3089E+01 0.8115E+03 0.3793E-02
0.3077E+05 0.1438E+00
0.1506E+04 0.7037E-02
0.3112E+03 0.1455E-02

27.27 -4.37 28.32 0.00 0.00 0.07 0.00 0.2599E+00 4.48 302.73 302.73 0.3078E+01 0.7833E+03 0.3642E-02
0.3076E+05 0.1430E+00
0.1505E+04 0.6999E-02
0.3112E+03 0.1447E-02
27.37 -4.37 28.33 0.00 0.00 0.07 0.00 0.2583E+00 4.46 304.17 304.17 0.3067E+01 0.7560E+03 0.3497E-02
0.3076E+05 0.1423E+00
0.1505E+04 0.6962E-02
0.3112E+03 0.1439E-02
27.48 -4.37 28.33 0.00 0.00 0.07 0.00 0.2567E+00 4.44 305.59 305.59 0.3057E+01 0.7296E+03 0.3357E-02
0.3076E+05 0.1415E+00
0.1505E+04 0.6925E-02
0.3111E+03 0.1432E-02
27.58 -4.37 28.34 0.00 0.00 0.06 0.00 0.2552E+00 4.43 306.99 306.99 0.3046E+01 0.7040E+03 0.3223E-02
0.3075E+05 0.1408E+00
0.1505E+04 0.6889E-02
0.3111E+03 0.1424E-02
27.69 -4.37 28.35 0.00 0.00 0.06 0.00 0.2537E+00 4.41 308.38 308.38 0.3036E+01 0.6791E+03 0.3094E-02
0.3075E+05 0.1401E+00
0.1505E+04 0.6854E-02
0.3111E+03 0.1417E-02
27.79 -4.37 28.35 0.00 0.00 0.06 0.00 0.2523E+00 4.39 309.75 309.75 0.3026E+01 0.6551E+03 0.2969E-02
0.3075E+05 0.1394E+00
0.1505E+04 0.6820E-02
0.3110E+03 0.1410E-02

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR SILT

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR CLAY

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 1) = 1
20.76 1959. 3500. 81.41 30.00 0.1000E-02 200.0 0.0000E+00 30 1

NEW CLOUD CREATED, NTCLD(K) (K = 1) = 2

```
 21.53     1958.     3500.     119.9     30.00     0.1000E-02  351.1     0.0000E+00      59          30

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   3
 22.29     1957.     3500.     158.1     30.00     0.1000E-02  472.1     0.0000E+00      88          59

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   4
 23.05     1956.     3500.     188.5     30.00     0.1000E-02  513.1     0.0000E+00     117          88

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   5
 23.82     1956.     3500.     210.8     30.00     0.1000E-02  490.0     0.0000E+00     146         117

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   6
 24.58     1956.     3500.     227.8     30.00     0.1000E-02  435.4     0.0000E+00     175         146

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   7
 25.35     1956.     3500.     241.4     30.00     0.1000E-02  371.2     0.0000E+00     204         175

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   8
 26.11     1956.     3500.     253.1     30.00     0.1000E-02  308.3     0.0000E+00     233         204

NEW CLOUD CREATED, NTCLD(K) (K =    1) =   9
 26.87     1956.     3500.     263.4     30.00     0.1000E-02  251.4     0.0000E+00     262         233

NEW CLOUD CREATED, NTCLD(K) (K =    1) =  10
 27.64     1956.     3500.     272.7     30.00     0.1000E-02  202.1     0.0000E+00     291         262

NEW CLOUD CREATED, NTCLD(K) (K =    1) =  11
 27.85     1956.     3500.     275.1     25.62      4.383      691.5     0.0000E+00     299         291


NOTE -- When all solid material has settled from a cloud, the cloud is erased and
        the remaining clouds for this solids type are renumbered.


TIME FROM      CLOUD CENTROID     CLOUD X-Z   DEPTH OF   CLOUD VERT.  T O T A L  ENTRAINED
TIME STEP WHEN   TIME STEP WHEN
 DISPOSAL   X-LOCATION  Z-LOCATION   DIAMETER  TOP OF CLOUD THICKNESS     M A S S     MASS
THIS CLOUD     PREVIOUS CLOUD
 (SEC)      (FT)      (FT)      (FT)      (FT)      (FT)     (CU FT)    (CU FT)    WAS CREATED     WAS
CREATED

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   1
 20.76     1959.     3500.     81.41     10.50      9.006     2177.     0.0000E+00      30           1

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   2
 21.53     1958.     3500.     119.9     19.51      6.947     435.1     0.0000E+00      59          30

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   3
```

```
 22.29     1957.     3500.     158.1     26.45     2.670     253.1     0.0000E+00     88          59

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   4
 23.05     1956.     3500.     188.5     28.81     1.187     142.5     0.0000E+00     117         88

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   5
 23.82     1956.     3500.     210.8     29.38     0.6191    84.87     0.0000E+00     146         117

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   6
 24.58     1956.     3500.     227.8     29.62     0.3796    56.44     0.0000E+00     175         146

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   7
 25.35     1956.     3500.     241.4     29.73     0.2654    41.75     0.0000E+00     204         175

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   8
 26.11     1956.     3500.     253.1     29.80     0.2033    33.41     0.0000E+00     233         204

NEW CLOUD CREATED, NTCLD(K) (K =    2) =   9
 26.87     1956.     3500.     263.4     29.83     0.1653    28.18     0.0000E+00     262         233

NEW CLOUD CREATED, NTCLD(K) (K =    2) =  10
 27.64     1956.     3500.     272.7     29.86     0.1397    24.57     0.0000E+00     291         262

NEW CLOUD CREATED, NTCLD(K) (K =    2) =  11
 27.85     1956.     3500.     275.1     25.62     4.383     0.3075E+05  0.0000E+00     299         291


NOTE -- When all solid material has settled from a cloud, the cloud is erased and
        the remaining clouds for this solids type are renumbered.


   TIME FROM      CLOUD CENTROID     CLOUD X-Z   DEPTH OF   CLOUD VERT.  T O T A L  ENTRAINED
TIME STEP WHEN   TIME STEP WHEN
    DISPOSAL   X-LOCATION  Z-LOCATION   DIAMETER  TOP OF CLOUD THICKNESS     M A S S      MASS
THIS CLOUD     PREVIOUS CLOUD
     (SEC)      (FT)       (FT)       (FT)       (FT)       (FT)     (CU FT)    (CU FT)     WAS CREATED      WAS
CREATED

NEW CLOUD CREATED, NTCLD(K) (K =    3) =   1
 20.76     1959.     3500.     81.41     10.50     9.006     106.5     0.0000E+00     30          1

NEW CLOUD CREATED, NTCLD(K) (K =    3) =   2
 21.53     1958.     3500.     119.9     19.51     6.947     21.30     0.0000E+00     59          30

NEW CLOUD CREATED, NTCLD(K) (K =    3) =   3
 22.29     1957.     3500.     158.1     26.45     2.670     12.39     0.0000E+00     88          59
```

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 4
23.05 1956. 3500. 188.5 28.81 1.187 6.972 0.0000E+00 117 88

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 5
23.82 1956. 3500. 210.8 29.38 0.6191 4.153 0.0000E+00 146 117

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 6
24.58 1956. 3500. 227.8 29.62 0.3796 2.762 0.0000E+00 175 146

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 7
25.35 1956. 3500. 241.4 29.73 0.2654 2.043 0.0000E+00 204 175

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 8
26.11 1956. 3500. 253.1 29.80 0.2033 1.635 0.0000E+00 233 204

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 9
26.87 1956. 3500. 263.4 29.83 0.1653 1.379 0.0000E+00 262 233

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 10
27.64 1956. 3500. 272.7 29.86 0.1397 1.202 0.0000E+00 291 262

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 11
27.85 1956. 3500. 275.1 25.62 4.383 1505. 0.0000E+00 299 291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 1
20.76 1959. 3500. 81.41 10.50 9.006 22.02 0.0000E+00 30 1

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 2
21.53 1958. 3500. 119.9 19.51 6.947 4.402 0.0000E+00 59 30

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 3
22.29 1957. 3500. 158.1 26.45 2.670 2.561 0.0000E+00 88 59

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 4
23.05 1956. 3500. 188.5 28.81 1.187 1.441 0.0000E+00 117 88

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 5
23.82 1956. 3500. 210.8 29.38 0.6191 0.8586 0.0000E+00 146 117

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 6
24.58 1956. 3500. 227.8 29.62 0.3796 0.5711 0.0000E+00 175 146

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 7
25.35 1956. 3500. 241.4 29.73 0.2654 0.4223 0.0000E+00 204 175

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 8
26.11 1956. 3500. 253.1 29.80 0.2033 0.3380 0.0000E+00 233 204

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 9
26.87 1956. 3500. 263.4 29.83 0.1653 0.2851 0.0000E+00 262 233

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 10
27.64 1956. 3500. 272.7 29.86 0.1397 0.2485 0.0000E+00 291 262

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 11
27.85 1956. 3500. 275.1 25.62 4.383 311.1 0.0000E+00 299 291

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (MG) (MG) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 5) = 1
27.85 1956. 3500. 275.1 25.62 4.383 0.1892E+08 0.4351E+07 299 1

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

LONG TERM DIFFUSION RESULTS:

BEGIN LONG TERM SIMULATION OF FATE OF GRAVEL

SUMMARY OF GRAVEL   DISTRIBUTIONS AFTER   100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   0.00000E+00
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   4286.3

COMPUTATIONS FOR GRAVEL   TERMINATED AT   100.00 SEC. ELAPSED TIME...MATERIAL SETTLED TO BOTTOM

BOTTOM ACCUMULATION OF GRAVEL   (CU FT/GRID SQUARE) ,   100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   10.00   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 1.8 1.8  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  . 212 212  .  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +   +   0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF GRAVEL ACCUMULATED ON BOTTOM, 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT.
.000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .06 .06 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7.9 7.9 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO

30   0 0 0 0 0 0 0 0 0 0 0 0OOOO
31   0 0 0 0 0 0 0 0 0 0 0 0OOOO
32   0 0 0 0 0 0 0 0 0 0 0 0OOOO
33   0 0 0 0 0 0 0 0 0 0 0 0OOOO
34   0 0 0 0 0 0 0 0 0 0 0 0OOOO
35   0 0 0 0 0 0 0 0 0 0 0 0OOOO
36   0 0 0 0 0 0 0 0 0 0 0 0OOOO
37   0 0 0 0 0 0 0 0 0 0 0 0OOOO
38   0 0 0 0 0 0 0 0 0 0 0 0OOOO
39   0 0 0 0 0 0 0 0 0 0 0 0OOOO
40   0 0 0 0 0 0 0 0 0 0 0 0OOOO
41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF SAND

SUMMARY OF SAND   DISTRIBUTIONS AFTER   100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   0.00000E+00
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   34027.

COMPUTATIONS FOR SAND   TERMINATED AT   100.00 SEC. ELAPSED TIME...MATERIAL SETTLED TO BOTTOM

BOTTOM ACCUMULATION OF SAND   (CU FT/GRID SQUARE) ,   100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   100.0   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .34 .34 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . 170 170 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .01 .01 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF SAND     ACCUMULATED ON BOTTOM,      100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .63 .63  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
14  0  0  0  0  0  0  0  0  0  0  0  0OOOO
15  0  0  0  0  0  0  0  0  0  0  0  0OOOO
16  0  0  0  0  0  0  0  0  0  0  0  0OOOO
17  0  0  0  0  0  0  0  0  0  0  0  0OOOO
18  0  0  0  0  0  0  0  0  0  0  0  0OOOO
19  0  0  0  0  0  0  0  0  0  0  0  0OOOO
20  0  0  0  0  0  0  0  0  0  0  0  0OOOO
21  0  0  0  0  0  0  0  0  0  0  0  0OOOO
22  0  0  0  0  0  0  0  0  0  0  0  0OOOO
23  0  0  0  0  0  0  0  0  0  0  0  0OOOO
24  0  0  0  0  0  0  0  0  0  0  0  0OOOO
25  0  0  0  0  0  0  0  0  0  0  0  0OOOO
26  0  0  0  0  0  0  0  0  0  0  0  0OOOO
27  0  0  0  0  0  0  0  0  0  0  0  0OOOO
28  0  0  0  0  0  0  0  0  0  0  0  0OOOO
29  0  0  0  0  0  0  0  0  0  0  0  0OOOO
30  0  0  0  0  0  0  0  0  0  0  0  0OOOO
31  0  0  0  0  0  0  0  0  0  0  0  0OOOO
32  0  0  0  0  0  0  0  0  0  0  0  0OOOO
33  0  0  0  0  0  0  0  0  0  0  0  0OOOO
34  0  0  0  0  0  0  0  0  0  0  0  0OOOO
35  0  0  0  0  0  0  0  0  0  0  0  0OOOO
36  0  0  0  0  0  0  0  0  0  0  0  0OOOO
37  0  0  0  0  0  0  0  0  0  0  0  0OOOO
38  0  0  0  0  0  0  0  0  0  0  0  0OOOO
39  0  0  0  0  0  0  0  0  0  0  0  0OOOO
40  0  0  0  0  0  0  0  0  0  0  0  0OOOO
41  0  0  0  0  0  0  0  0  0  0  0  0OOOO
42  0  0  0  0  0  0  0  0  0  0  0  0OOOO
43  0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

BEGIN LONG TERM SIMULATION OF FATE OF SILT

SUMMARY OF SILT DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1529.6
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 135.60

SUMMARY OF SILT DISTRIBUTIONS AFTER 200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1365.3
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 299.96

SUMMARY OF SILT DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1221.7
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 443.52

SUMMARY OF SILT DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1095.9
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 569.33

SUMMARY OF SILT DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 985.49
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 679.74

SUMMARY OF SILT DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 888.47
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 776.75

SUMMARY OF SILT DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 803.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 862.17

SUMMARY OF SILT DISTRIBUTIONS AFTER 800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 739.34
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 925.88

SUMMARY OF SILT DISTRIBUTIONS AFTER 900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 692.44
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 972.78

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .12 .12 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 10 10 .03 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 5.8 5.8 .01 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .37 17 17 .37 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 9.1 418 418 9.1 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 4.7 224 224 4.7 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .06 8.3 8.3 .06 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
43    0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,    900.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .02  10  10 .02  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . 1.1 267 267 1.1  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 2.0 187 187 2.0  +  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .32  20  20 .32  +  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .38 .38  +  .  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44

2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

3 0 0 0 0 0 0 0 0 0 0 0 0OOOO

4 0 0 0 0 0 0 0 0 0 0 0 0OOOO

5 0 0 0 0 0 0 0 0 0 0 0 0OOOO

6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

7 0 0 0 0 0 0 0 0 0 0 0 0OOOO

8 0 0 0 0 0 0 0 0 0 0 0 0OOOO

9 0 0 0 0 0 0 0 0 0 0 0 0OOOO

10 0 0 0 0 0 0 0 0 0 0 0 0OOOO

11 0 0 0 0 0 0 0 0 0 0 0 0OOOO

12 0 0 0 0 0 0 0 0 0 0 0 0OOOO

13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

14 0 0 0 0 0 0 0 0 0 0 0 0OOOO

15 0 0 0 0 0 0 0 0 0 0 0 0OOOO

16 0 0 0 0 0 0 0 0 0 0 0 0OOOO

17 0 0 0 0 0 0 0 0 0 0 0 0OOOO

18 0 0 0 0 0 0 0 0 0 0 0 0OOOO

19 0 0 0 0 0 0 0 0 0 0 0 0OOOO

20 0 0 0 0 0 0 0 0 0 0 0 0OOOO

21 0 0 0 0 0 0 0 0 0 0 0 0OOOO

22 0 0 0 0 0 0 0 0 0 0 0 0OOOO

23 0 0 0 0 0 0 0 0 0 0 0 0OOOO

24 0 0 0 0 0 0 0 0 0 0 0 0OOOO

25 0 0 0 0 0 0 0 0 0 0 0 0OOOO

26 0 0 0 0 0 0 0 0 0 0 0 0OOOO

27 0 0 0 0 0 0 0 0 0 0 0 0OOOO

28 0 0 0 0 0 0 0 0 0 0 0 0OOOO

29 0 0 0 0 0 0 0 0 0 0 0 0OOOO

30 0 0 0 0 0 0 0 0 0 0 0 0OOOO

31 0 0 0 0 0 0 0 0 0 0 0 0OOOO

32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

33 0 0 0 0 0 0 0 0 0 0 0 0OOOO

34 0 0 0 0 0 0 0 0 0 0 0 0OOOO

35 0 0 0 0 0 0 0 0 0 0 0 0OOOO

36 0 0 0 0 0 0 0 0 0 0 0 0OOOO

37 0 0 0 0 0 0 0 0 0 0 0 0OOOO

38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

39 0 0 0 0 0 0 0 0 0 0 0 0OOOO

40 0 0 0 0 0 0 0 0 0 0 0 0OOOO

41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	2530.	3500.	96.40	0.0000E+00	143.0	10.82	19.18	0.108295E-02
2	2529.	3500.	21.06	0.0000E+00	188.7	0.0000E+00	30.00	0.577895E-04
3	2473.	3500.	12.27	0.0000E+00	232.5	0.0000E+00	30.00	0.340000E-04
4	2458.	3500.	6.903	0.0000E+00	266.9	0.0000E+00	30.00	0.340000E-04
5	2454.	3500.	4.115	0.0000E+00	291.8	0.0000E+00	30.00	0.340000E-04
6	2451.	3500.	2.737	0.0000E+00	310.6	0.0000E+00	30.00	0.340000E-04
7	2452.	3500.	2.026	0.0000E+00	325.6	0.0000E+00	30.00	0.340000E-04
8	2452.	3500.	1.622	0.0000E+00	338.4	0.0000E+00	30.00	0.340000E-04
9	2451.	3500.	1.369	0.0000E+00	349.7	0.0000E+00	30.00	0.340000E-04
10	2446.	3500.	1.193	0.0000E+00	359.8	0.0000E+00	30.00	0.340000E-04
11	2266.	3500.	542.7	0.0000E+00	362.5	24.31	5.685	0.465791E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 656.47
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1008.8

SUMMARY OF SILT DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 627.91
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1037.3

SUMMARY OF SILT DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 604.67
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1060.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 585.42

TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1079.8

SUMMARY OF SILT DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 569.22
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1096.0

SUMMARY OF SILT DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 555.42
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1109.8

SUMMARY OF SILT DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 543.64
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1121.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 533.60
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1131.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 525.02
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1140.2

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .72 .72 .03 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .27 19 19 .27 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .11 22 22 .11 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .05 .05 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO

8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .19 2.0 2.0 .19 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .06 6.9 75 75 6.9 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .20 24 252 252 24 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .06 7.5 80 80 7.5 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .36 12 12 .36 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .05 12 12 .05 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 1800.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .02 10 10 .02 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . 1.1 267 267 1.1 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 2.5 203 203 2.5 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + 2.2 63 63 2.2 + . 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + 1.1 18 18 1.1 + . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .14 2.2 2.2 .14 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .29 .29 + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 .03 . 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT    1800.00 SECONDS ELAPSED TIME FOR SILT
```

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD DIAMETER (FT)	X-Z DEPTH OF CLOUD (FT)	DEPTH OF CLOUD TOP OF CLOUD (FT)	VERT. SOLIDS FALL THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	3115.	3500.	94.06	0.0000E+00	217.2	0.4588	29.54		0.244059E-03
2	3114.	3500.	21.04	0.0000E+00	269.2	0.0000E+00	30.00		0.358034E-04
3	3058.	3500.	12.26	0.0000E+00	318.3	0.0000E+00	30.00		0.340000E-04
4	3043.	3500.	6.896	0.0000E+00	356.3	0.0000E+00	30.00		0.340000E-04
5	3039.	3500.	4.110	0.0000E+00	383.7	0.0000E+00	30.00		0.340000E-04
6	3036.	3500.	2.734	0.0000E+00	404.3	0.0000E+00	30.00		0.340000E-04
7	3037.	3500.	2.024	0.0000E+00	420.7	0.0000E+00	30.00		0.340000E-04
8	3037.	3500.	1.620	0.0000E+00	434.6	0.0000E+00	30.00		0.340000E-04
9	3036.	3500.	1.368	0.0000E+00	446.9	0.0000E+00	30.00		0.340000E-04
10	3031.	3500.	1.192	0.0000E+00	457.9	0.0000E+00	30.00		0.340000E-04
11	2603.	3500.	377.7	0.0000E+00	460.8	24.00	6.003		0.132472E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 517.65
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1147.6

SUMMARY OF SILT DISTRIBUTIONS AFTER 2000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 511.30
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1153.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 505.82
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1159.4

SUMMARY OF SILT DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 501.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1164.2

SUMMARY OF SILT DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 496.91
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1168.3

SUMMARY OF SILT DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 493.29
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1171.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 490.13
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1175.1

SUMMARY OF SILT DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 487.35
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1177.9

SUMMARY OF SILT DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 484.90
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1180.3

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .05 .05 + + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .19 1.9 1.9 .19 + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .95 33 33 .95 .01 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .52 28 28 .52 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .33 .33 .02 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .16 .16 .03 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .06 1.5 7.5 7.5 1.5 .06 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .63 15 70 70 15 .63 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . .01 1.2 28 135 135 28 1.2 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .50 11 55 55 11 .50 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .04 1.0 5.5 5.5 1.0 .04 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .49 16 16 .49 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .26 14 14 .26 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .16 .16 .01 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,   2700.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
```

M N=	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO																													
3	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	+	+	.	0	0	0	0	0	0	0	0	0	0	0
10	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.02	10	10	.02	0	0	0	0	0	0	0	0	0	0	0
11	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	.	1.1	267	267	1.1	.	0	0	0	0	0	0	0	0	0	0
12	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	+	2.5	203	203	2.5	+	0	0	0	0	0	0	0	0	0	0
13	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	.	+	2.3	63	63	2.3	+	.	0	0	0	0	0	0	0	0	0
14	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	.	.01	1.8	23	23	1.8	.01	.	0	0	0	0	0	0	0	0	0
15	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	+	.02	1.2	10	10	1.2	.02	+	0	0	0	0	0	0	0	0	0
16	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	+	.01	.53	3.3	3.3	.53	.01	+	0	0	0	0	0	0	0	0	0
17	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	.	+	.10	.63	.63	.10	+	.	0	0	0	0	0	0	0	0	0
18	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	.	+	+	.10	.10	+	+	.	0	0	0	0	0	0	0	0	0
19	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	.	+	.05	.05	+	.	0	0	0	0	0	0	0	0	0	0
20	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	.	+	.01	.01	+	.	0	0	0	0	0	0	0	0	0	0
21	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0
22	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	OOOO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF CLOUD TOP OF CLOUD (FT)	CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	3700.	3500.	93.69	0.0000E+00	301.3	0.0000E+00	30.00	0.942430E-04
2	3699.	3500.	21.02	0.0000E+00	358.9	0.0000E+00	30.00	0.340000E-04
3	3643.	3500.	12.25	0.0000E+00	412.7	0.0000E+00	30.00	0.340000E-04
4	3628.	3500.	6.889	0.0000E+00	454.1	0.0000E+00	30.00	0.340000E-04
5	3624.	3500.	4.106	0.0000E+00	483.8	0.0000E+00	30.00	0.340000E-04
6	3621.	3500.	2.731	0.0000E+00	506.0	0.0000E+00	30.00	0.340000E-04
7	3622.	3500.	2.022	0.0000E+00	523.7	0.0000E+00	30.00	0.340000E-04
8	3622.	3500.	1.619	0.0000E+00	538.6	0.0000E+00	30.00	0.340000E-04
9	3621.	3500.	1.367	0.0000E+00	551.8	0.0000E+00	30.00	0.340000E-04
10	3616.	3500.	1.191	0.0000E+00	563.6	0.0000E+00	30.00	0.340000E-04
11	2985.	3500.	338.0	0.0000E+00	566.7	22.70	7.297	0.512577E-03

SUMMARY OF SILT DISTRIBUTIONS AFTER 2800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 482.74
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1182.5

SUMMARY OF SILT DISTRIBUTIONS AFTER 2900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 480.83
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1184.4

SUMMARY OF SILT DISTRIBUTIONS AFTER 3000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 479.26
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1186.0

SUMMARY OF SILT DISTRIBUTIONS AFTER 3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 478.36
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1186.9

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   477.93
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1187.3

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   477.71
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1187.5

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   477.57
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1187.6

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   477.47
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1187.7

SUMMARY OF SILT   DISTRIBUTIONS AFTER   3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   477.38
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   1187.8

CONCENTRATIONS ABOVE BACKGROUND OF SILT   (MG/L) IN THE CLOUD   3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

```
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

```
12 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
15 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .04 .04 .01 + 0 0 0 0 0 0 0 0 0 0
16 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .04 .43 1.2 1.2 .43 .04 0 0 0 0 0 0 0 0 0 0
17 OOOO  0 0 0 0 0 0 0 0 0 0 . + .01 .46 4.1 12 12 4.1 .46 0 0 0 0 0 0 0 0 0 0
18 OOOO  0 0 0 0 0 0 0 0 0 0 . + .05 1.5 13 40 40 13 1.5 0 0 0 0 0 0 0 0 0 0
19 OOOO  0 0 0 0 0 0 0 0 0 0 . + .06 1.6 15 43 43 15 1.6 0 0 0 0 0 0 0 0 0 0
20 OOOO  0 0 0 0 0 0 0 0 0 0 . + .02 .61 5.4 16 16 5.4 .61 0 0 0 0 0 0 0 0 0 0
21 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .10 1.2 6.0 6.0 1.2 .10 0 0 0 0 0 0 0 0 0 0
22 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .07 2.6 34 34 2.6 .07 0 0 0 0 0 0 0 0 0 0
23 OOOO  0 0 0 0 0 0 0 0 0 0 0 . + .03 1.7 25 25 1.7 .03 0 0 0 0 0 0 0 0 0 0
24 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 + + .12 1.1 1.1 .12 + 0 0 0 0 0 0 0 0 0 0
25 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 4   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 5   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 6   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 7   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 8   0 0 0 0 0 0 0 0 0 0 0 0OOOO
 9   0 0 0 0 0 0 0 0 0 0 0 0OOOO
10   0 0 0 0 0 0 0 0 0 0 0 0OOOO
11   0 0 0 0 0 0 0 0 0 0 0 0OOOO
```

12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .02 + + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .02 .21 .63 .63 .21 .02 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 + + .23 2.0 6.1 6.1 2.0 .23 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .75 6.6 20 20 6.6 .75 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 . + .03 .82 7.2 22 22 7.2 .82 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .30 2.7 8.0 8.0 2.7 .30 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .64 3.0 3.0 .64 .05 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .03 1.3 17 17 1.3 .03 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .85 13 13 .85 .01 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .06 .59 .59 .06 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,   3600.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .02 10 10 .02 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . 1.1 267 267 1.1 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 2.5 203 203 2.5 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + 2.3 63 63 2.3 + . 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 1.8 23 23 1.8 .01 . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 1.2 10 10 1.2 .02 + 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .78 4.4 4.4 .78 .03 + 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .02 .36 1.6 1.6 .36 .02 + . 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .10 .46 .46 .10 + + . 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .12 .12 .02 + . 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .05 .05 + + . 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + .04 .04 + . . 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + . 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO

5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 3600.00 SECONDS ELAPSED TIME FOR SILT

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY

#	TOP OF GRID	LEFT OF GRID	(CU FT)	(CU FT)	(FT)	(FT)	(FT)	(FPS)
1	4285.	3500.	93.49	0.0000E+00	394.1	0.0000E+00	30.00	0.569424E-04
2	4284.	3500.	20.99	0.0000E+00	456.9	0.0000E+00	30.00	0.340000E-04
3	4228.	3500.	12.23	0.0000E+00	515.0	0.0000E+00	30.00	0.340000E-04
4	4213.	3500.	6.882	0.0000E+00	559.5	0.0000E+00	30.00	0.340000E-04
5	4209.	3500.	4.102	0.0000E+00	591.3	0.0000E+00	30.00	0.340000E-04
6	4206.	3500.	2.729	0.0000E+00	615.0	0.0000E+00	30.00	0.340000E-04
7	4207.	3500.	2.020	0.0000E+00	633.9	0.0000E+00	30.00	0.340000E-04
8	4207.	3500.	1.617	0.0000E+00	649.9	0.0000E+00	30.00	0.340000E-04
9	4206.	3500.	1.365	0.0000E+00	663.9	0.0000E+00	30.00	0.340000E-04
10	4201.	3500.	1.190	0.0000E+00	676.5	0.0000E+00	30.00	0.340000E-04
11	3516.	3500.	330.8	0.0000E+00	679.7	0.0000E+00	30.00	0.649334E-04

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .02  10  10 .02  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . 1.1 267 267 1.1  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 2.5 203 203 2.5  +  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + 2.3  63  63 2.3  +  .  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 1.8  23  23 1.8 .01  .  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .02 1.2  10  10 1.2 .02  +  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .03 .78 4.4 4.4 .78 .03  +  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .36 1.6 1.6 .36 .02  +  .  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  +  + .10 .46 .46 .10  +  +  .  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .12 .12 .02  +  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .05 .05  +  +  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  + .04 .04  +  .  .  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .02  +  .  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO

30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF SILT ACCUMULATED ON BOTTOM, 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .14 .14 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 4.0 4.0 .01 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 3.0 3.0 .03 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 .95 .95 .03 . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .34 .34 .02 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .14 .14 .01 + . 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .06 .06 .01 + . 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .02 + + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + . 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO

27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF CLAY

SUMMARY OF CLAY DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 323.22
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 21.030

SUMMARY OF CLAY DISTRIBUTIONS AFTER 200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 307.04
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 37.207

SUMMARY OF CLAY DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 294.12
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 50.135

SUMMARY OF CLAY DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 283.50
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 60.746

SUMMARY OF CLAY DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 274.68
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 69.572

SUMMARY OF CLAY DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 267.28
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 76.968

SUMMARY OF CLAY DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 261.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 83.202

SUMMARY OF CLAY DISTRIBUTIONS AFTER 800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 255.78
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 88.470

SUMMARY OF CLAY DISTRIBUTIONS AFTER 900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 251.31
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 92.936

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + 2.0 2.0 + 0 0 0 0 0 0 0 0 0 0 0

```
14 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 2.0 2.0 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 4   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 5   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 6   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
```

14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .11 5.0 5.0 .11  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 3.2 147 147 3.2  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 2.0  95  95 2.0  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .02 2.3 2.3 .02  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 4   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 5   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 6   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
```

9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 900.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.2 1.2 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .09 27 27 .09 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .16 16 16 .16 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 1.8 1.8 .03 . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO

43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF CLOUD TOP OF CLOUD (FT)	CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	2530.	3500.	21.83	0.0000E+00	143.0	0.0000E+00	30.00	0.101922E-03
2	2529.	3500.	4.396	0.0000E+00	188.7	0.0000E+00	30.00	0.340000E-04
3	2476.	3500.	2.555	0.0000E+00	232.5	0.0000E+00	30.00	0.340000E-04
4	2459.	3500.	1.437	0.0000E+00	266.9	0.0000E+00	30.00	0.340000E-04
5	2455.	3500.	0.8562	0.0000E+00	291.8	0.0000E+00	30.00	0.340000E-04
6	2453.	3500.	0.5694	0.0000E+00	310.6	0.0000E+00	30.00	0.340000E-04
7	2453.	3500.	0.4211	0.0000E+00	325.6	0.0000E+00	30.00	0.340000E-04
8	2452.	3500.	0.3370	0.0000E+00	338.4	0.0000E+00	30.00	0.340000E-04
9	2451.	3500.	0.2843	0.0000E+00	349.7	0.0000E+00	30.00	0.340000E-04
10	2450.	3500.	0.2478	0.0000E+00	359.8	0.0000E+00	30.00	0.340000E-04
11	2276.	3500.	218.4	0.0000E+00	362.5	23.95	6.051	0.121241E-02

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 247.51
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 96.736

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 244.27
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 99.979

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 241.49
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 102.76

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 239.10
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 105.15

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 237.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 107.20

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 235.27
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 108.98

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 233.72
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 110.53

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 232.37
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 111.88

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 231.19
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 113.06

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .14 .14 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .05 4.3 4.3 .05 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .02 5.3 5.3 .02 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO

11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .18 .18 .01 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 1.2 14 14 1.2 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .07 8.9 95 95 8.9 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .05 5.7 62 62 5.7 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .37 5.8 5.8 .37 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 2.7 2.7 .01 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO

6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 1800.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.2 1.2 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .10 28 28 .10 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .21 17 17 .21 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .24 6.7 6.7 .24 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .16 2.6 2.6 .16 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .48 .48 .03 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO

4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR CLAY

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD
VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (CU FT)	MASS (CU FT)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	3115.	3500.	21.79	0.0000E+00	217.2	0.0000E+00	30.00	0.475705E-04
2	3114.	3500.	4.391	0.0000E+00	269.2	0.0000E+00	30.00	0.340000E-04
3	3061.	3500.	2.553	0.0000E+00	318.3	0.0000E+00	30.00	0.340000E-04
4	3044.	3500.	1.436	0.0000E+00	356.3	0.0000E+00	30.00	0.340000E-04
5	3040.	3500.	0.8553	0.0000E+00	383.7	0.0000E+00	30.00	0.340000E-04
6	3038.	3500.	0.5688	0.0000E+00	404.3	0.0000E+00	30.00	0.340000E-04
7	3038.	3500.	0.4207	0.0000E+00	420.7	0.0000E+00	30.00	0.340000E-04
8	3037.	3500.	0.3367	0.0000E+00	434.6	0.0000E+00	30.00	0.340000E-04
9	3036.	3500.	0.2840	0.0000E+00	446.9	0.0000E+00	30.00	0.340000E-04
10	3035.	3500.	0.2476	0.0000E+00	457.9	0.0000E+00	30.00	0.340000E-04
11	2663.	3500.	198.3	0.0000E+00	460.8	22.57	7.432	0.433499E-03

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 230.24
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 114.01

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.72
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 114.53

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.48
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 114.77

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.36
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 114.89

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.30
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 114.95

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.25
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.00

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.21
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.04

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.16
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.08

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.12
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.13

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

```
          0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY   1.000       (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   .   .   0   0   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   +   + .01 .01   +   +   0   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   . .01 .23 1.1 1.1 .23 .01   0   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .12 2.9  14  14 2.9 .12   0   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .34 7.9  38  38 7.9 .34   0   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .19 4.4  22  22 4.4 .19   0   0   0   0   0   0   0   0   0   0
```

19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .71 10 10 .71 .02 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .12 6.4 6.4 .12 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + + .07 .07 + + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO

19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .11 .55 .55 .11 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .06 1.4 7.0 7.0 1.4 .06 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .17 3.9 19 19 3.9 .17 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .09 2.2 11 11 2.2 .09 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .35 4.8 4.8 .35 .01 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .06 3.2 3.2 .06 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .03 + . 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 2700.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.2 1.2 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . .10 28 28 .10 . 0 0 0 0 0 0 0 0 0 0

12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .21 17 17 .21 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .24 6.8 6.8 .24 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .19 2.8 2.8 .19 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .08 .91 .91 .08 + . 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .17 .17 .02 + . 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .04 .04 + + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + . 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO

12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	3700.	3500.	21.76	0.0000E+00	301.3	0.0000E+00	30.00	0.340000E-04
2	3699.	3500.	4.387	0.0000E+00	358.9	0.0000E+00	30.00	0.340000E-04
3	3646.	3500.	2.550	0.0000E+00	412.7	0.0000E+00	30.00	0.340000E-04
4	3629.	3500.	1.435	0.0000E+00	454.1	0.0000E+00	30.00	0.340000E-04
5	3625.	3500.	0.8544	0.0000E+00	483.8	0.0000E+00	30.00	0.340000E-04

6	3623.	3500.	0.5682	0.0000E+00	506.0	0.0000E+00	30.00	0.340000E-04
7	3623.	3500.	0.4203	0.0000E+00	523.7	0.0000E+00	30.00	0.340000E-04
8	3622.	3500.	0.3363	0.0000E+00	538.6	0.0000E+00	30.00	0.340000E-04
9	3621.	3500.	0.2837	0.0000E+00	551.8	0.0000E+00	30.00	0.340000E-04
10	3620.	3500.	0.2473	0.0000E+00	563.6	0.0000E+00	30.00	0.340000E-04
11	3226.	3500.	196.3	0.0000E+00	566.7	0.0000E+00	30.00	0.570952E-04

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.08
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.17

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.05
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.20

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 229.01
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.24

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.97
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.28

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.94
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.31

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.90
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.35

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.87
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.38

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.84
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.41

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 228.80
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 115.45

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . . . 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .05 .17 .17 .05 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .10 .96 2.8 2.8 .96 .10 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .59 5.2 15 15 5.2 .59 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 . + .04 1.0 10 28 28 10 1.0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .67 5.9 18 18 5.9 .67 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .15 1.7 11 11 1.7 .15 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .01 .46 5.9 5.9 .46 .01 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .26 .26 .02 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO

28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .08 .08 .02 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .48 1.4 1.4 .48 .05 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .29 2.6 7.7 7.7 2.6 .29 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 . + .02 .53 4.7 14 14 4.7 .53 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 + .01 .33 2.9 9.1 9.1 2.9 .33 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .07 .88 5.5 5.5 .88 .07 0 0 0 0 0 0 0 0 0 0

23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .23 2.9 2.9 .23 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .13 .13 .01 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO

23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.2 1.2 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .10 28 28 .10 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .21 17 17 .21 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .24 6.8 6.8 .24 + 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .19 2.8 2.8 .19 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .08 .91 .91 .08 + . 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .17 .17 .02 + . 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .06 .06 .01 + . 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .04 .04 .01 + . 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .03 + + . 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .02 + + . 0 0 0 0 0 0 0 0 0

21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + +.01 .01 + + . 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . . 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO

21	0	0	0	0	0	0	0	0	0	0	0OOOO
22	0	0	0	0	0	0	0	0	0	0	0OOOO
23	0	0	0	0	0	0	0	0	0	0	0OOOO
24	0	0	0	0	0	0	0	0	0	0	0OOOO
25	0	0	0	0	0	0	0	0	0	0	0OOOO
26	0	0	0	0	0	0	0	0	0	0	0OOOO
27	0	0	0	0	0	0	0	0	0	0	0OOOO
28	0	0	0	0	0	0	0	0	0	0	0OOOO
29	0	0	0	0	0	0	0	0	0	0	0OOOO
30	0	0	0	0	0	0	0	0	0	0	0OOOO
31	0	0	0	0	0	0	0	0	0	0	0OOOO
32	0	0	0	0	0	0	0	0	0	0	0OOOO
33	0	0	0	0	0	0	0	0	0	0	0OOOO
34	0	0	0	0	0	0	0	0	0	0	0OOOO
35	0	0	0	0	0	0	0	0	0	0	0OOOO
36	0	0	0	0	0	0	0	0	0	0	0OOOO
37	0	0	0	0	0	0	0	0	0	0	0OOOO
38	0	0	0	0	0	0	0	0	0	0	0OOOO
39	0	0	0	0	0	0	0	0	0	0	0OOOO
40	0	0	0	0	0	0	0	0	0	0	0OOOO
41	0	0	0	0	0	0	0	0	0	0	0OOOO
42	0	0	0	0	0	0	0	0	0	0	0OOOO
43	0	0	0	0	0	0	0	0	0	0	0OOOO

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 3600.00 SECONDS ELAPSED TIME FOR CLAY

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	4285.	3500.	21.74	0.0000E+00	394.1	0.0000E+00	30.00	0.340000E-04
2	4284.	3500.	4.382	0.0000E+00	456.9	0.0000E+00	30.00	0.340000E-04
3	4231.	3500.	2.548	0.0000E+00	515.0	0.0000E+00	30.00	0.340000E-04
4	4214.	3500.	1.433	0.0000E+00	559.5	0.0000E+00	30.00	0.340000E-04
5	4210.	3500.	0.8536	0.0000E+00	591.3	0.0000E+00	30.00	0.340000E-04
6	4208.	3500.	0.5676	0.0000E+00	615.0	0.0000E+00	30.00	0.340000E-04
7	4208.	3500.	0.4199	0.0000E+00	633.9	0.0000E+00	30.00	0.340000E-04
8	4207.	3500.	0.3360	0.0000E+00	649.9	0.0000E+00	30.00	0.340000E-04
9	4206.	3500.	0.2834	0.0000E+00	663.9	0.0000E+00	30.00	0.340000E-04
10	4205.	3500.	0.2471	0.0000E+00	676.5	0.0000E+00	30.00	0.340000E-04
11	3811.	3500.	196.0	0.0000E+00	679.7	0.0000E+00	30.00	0.436176E-04

BOTTOM ACCUMULATION OF CLAY (CU FT/GRID SQUARE) , 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.2 1.2  +  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .10  28  28 .10  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .21  17  17 .21  .  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .24 6.8 6.8 .24  +  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .19 2.8 2.8 .19  +  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .08 .91 .91 .08  +  .  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .17 .17 .02  +  .  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .06 .06 .01  +  .  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .04 .04 .01  +  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .03 .03  +  +  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .02 .02  +  +  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  .  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  +  +  .  .  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M	N= 32	33	34	35	36	37	38	39	40	41	42	43	44
2	OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO												
3	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
4	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
5	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
6	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
7	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
8	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
9	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
10	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
11	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
12	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
13	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
14	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
15	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
16	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
17	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
18	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
19	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
20	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
21	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
22	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
23	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
24	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
25	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
26	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
27	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
28	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
29	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
30	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
31	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
32	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
33	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
34	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
35	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
36	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
37	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
38	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
39	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
40	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
41	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
42	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
43	0	0	0	0	0	0	0	0	0	0	0	0OOOO	

44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF CLAY ACCUMULATED ON BOTTOM, 3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 0.1000E-02 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT.
.000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .18 .18 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .01 4.1 4.1 .01 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 2.5 2.5 .03 . 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 1.0 1.0 .03 . 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .43 .43 .02 + 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .13 .13 .01 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . . 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + . 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . . 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . . 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO

41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BEGIN LONG TERM SIMULATION OF FATE OF COPPER

SUMMARY OF COPPER DISTRIBUTIONS AFTER 100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(MG)	(MG)	(FT)	(FT)	(FT)	(FPS)
1	1976.	3500.	0.2686E+08	0.1229E+08	282.0	22.30	7.697	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(MG)	(MG)	(FT)	(FT)	(FT)	(FPS)
1	2026.	3500.	0.4522E+08	0.3066E+08	291.7	15.19	14.81	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2091. 3500. 0.6597E+08 0.5140E+08 301.5 8.074 21.93 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2156. 3500. 0.8926E+08 0.7469E+08 311.4 0.9642 29.04 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2221. 3500. 0.9770E+08 0.8313E+08 321.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2286. 3500. 0.1033E+09 0.8877E+08 331.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2351. 3500. 0.1092E+09 0.9464E+08 341.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2416. 3500. 0.1153E+09 0.1008E+09 352.1 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .15 .15 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .11 5.0 5.0 .11 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .07 3.5 3.5 .07 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .05 .05 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

39   0 0 0 0 0 0 0 0 0 0 0 0OOOO
40   0 0 0 0 0 0 0 0 0 0 0 0OOOO
41   0 0 0 0 0 0 0 0 0 0 0 0OOOO
42   0 0 0 0 0 0 0 0 0 0 0 0OOOO
43   0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01   (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .07 .07 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .05 2.5 2.5 .05 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .03 1.7 1.7 .03 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

```
...MULTIPLY DISPLAYED VALUES BY   1.000      (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .18 .18  +  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .13 .13  +  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO

27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
\# TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2481. 3500. 0.1217E+09 0.1071E+09 362.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
\# TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2546. 3500. 0.1283E+09 0.1137E+09 373.0 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2611.	3500.	0.1351E+09	0.1206E+09	383.6	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2676.	3500.	0.1423E+09	0.1277E+09	394.4	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2741.	3500.	0.1497E+09	0.1351E+09	405.2	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1400.00 SECONDS ELAPSED TIME FOR COPPER

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (MG)	ENTRAINED MASS (MG)	CLOUD DIAMETER (FT)	X-Z DEPTH OF TOP OF CLOUD (FT)	DEPTH OF CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	2806.	3500.	0.1573E+09	0.1427E+09	416.1	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1500.00 SECONDS ELAPSED TIME FOR COPPER

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (MG)	ENTRAINED MASS (MG)	CLOUD DIAMETER (FT)	X-Z DEPTH OF TOP OF CLOUD (FT)	DEPTH OF CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	2871.	3500.	0.1652E+09	0.1507E+09	427.1	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1600.00 SECONDS ELAPSED TIME FOR COPPER

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LOCATION OF CLOUD CENTROID DISTANCE FROM LEFT OF GRID	MASS FROM DISPOSAL (MG)	ENTRAINED MASS (MG)	CLOUD DIAMETER (FT)	X-Z DEPTH OF TOP OF CLOUD (FT)	DEPTH OF CLOUD THICKNESS (FT)	VERT. SOLIDS FALL VELOCITY (FPS)
1	2936.	3500.	0.1735E+09	0.1589E+09	438.3	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(MG)	(MG)	(FT)	(FT)	(FT)	(FPS)
1	3001.	3500.	0.1820E+09	0.1674E+09	449.5	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .05 .63 .63 .05  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .42 4.5 4.5 .42  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .28 3.0 3.0 .28  0  0  0  0  0  0  0  0  0  0  0
```

18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .19 .19 .01 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO

18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0

15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .31 .31 .02 0 0 0 0 0 0 0 0 0 0 0

16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .21 2.2 2.2 .21 0 0 0 0 0 0 0 0 0 0 0

17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .14 1.5 1.5 .14 0 0 0 0 0 0 0 0 0 0 0

18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .09 .09 + 0 0 0 0 0 0 0 0 0 0 0

19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44

2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

3 0 0 0 0 0 0 0 0 0 0 0 0OOOO

4 0 0 0 0 0 0 0 0 0 0 0 0OOOO

5 0 0 0 0 0 0 0 0 0 0 0 0OOOO

6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

7 0 0 0 0 0 0 0 0 0 0 0 0OOOO

8 0 0 0 0 0 0 0 0 0 0 0 0OOOO

9 0 0 0 0 0 0 0 0 0 0 0 0OOOO

10 0 0 0 0 0 0 0 0 0 0 0 0OOOO

11 0 0 0 0 0 0 0 0 0 0 0 0OOOO

12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .02 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .16 .16 .01 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .11 .11 .01 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO

6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD
VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3066. 3500. 0.1907E+09 0.1762E+09 460.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 1900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3131. 3500. 0.1998E+09 0.1853E+09 472.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3196. 3500. 0.2092E+09 0.1946E+09 483.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY

#	TOP OF GRID	LEFT OF GRID	(MG)	(MG)	(FT)	(FT)	(FT)	(FPS)
1	3261.	3500.	0.2189E+09	0.2043E+09	495.3	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	3326.	3500.	0.2289E+09	0.2143E+09	506.9	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	3391.	3500.	0.2392E+09	0.2246E+09	518.7	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY

#	TOP OF GRID	LEFT OF GRID	(MG)	(MG)	(FT)	(FT)	(FT)	(FPS)
1	3456.	3500.	0.2498E+09	0.2352E+09	530.6	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISPOSAL LEFT OF GRID	MASS (MG)	DIAMETER (MG)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	3521.	3500.	0.2607E+09	0.2462E+09	542.5	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISPOSAL LEFT OF GRID	MASS (MG)	DIAMETER (MG)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	3586.	3500.	0.2720E+09	0.2575E+09	554.6	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .07 .07 .01 + 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .23 1.1 1.1 .23 .01 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .75 3.6 3.6 .75 .03 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .51 2.4 2.4 .51 .02 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .07 .35 .35 .07 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N=	32	33	34	35	36	37	38	39	40	41	42	43	44
2	OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO												
3	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
4	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
5	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
6	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
7	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
8	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
9	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
10	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
11	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
12	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
13	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
14	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
15	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
16	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
17	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
18	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
19	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
20	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
21	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
22	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
23	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
24	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
25	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
26	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
27	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
28	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
29	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
30	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
31	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
32	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
33	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
34	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
35	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
36	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
37	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
38	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
39	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
40	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
41	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
42	0	0	0	0	0	0	0	0	0	0	0	0OOOO	
43	0	0	0	0	0	0	0	0	0	0	0	0OOOO	

```
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  4 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  5 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  6 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  7 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  8 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  9 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 10 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 11 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 12 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 13 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 14 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 15 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
 16 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
 17 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .03 + + 0 0 0 0 0 0 0 0 0 0
 18 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .11 .55 .55 .11 + 0 0 0 0 0 0 0 0 0 0
 19 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 + .01 .37 1.8 1.8 .37 .01 0 0 0 0 0 0 0 0 0 0
 20 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 + .01 .25 1.2 1.2 .25 .01 0 0 0 0 0 0 0 0 0 0
 21 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .17 .17 .03 + 0 0 0 0 0 0 0 0 0 0
 22 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 23 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 24 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 25 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 26 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 27 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 28 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 29 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 30 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 31 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 32 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 33 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 34 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 35 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 36 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 37 OOOO  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO

38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .04 .04 + + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .13 .13 .02 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .09 .09 .01 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO

32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD
VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3651. 3500. 0.2836E+09 0.2691E+09 566.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD
VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS
VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3716. 3500. 0.2956E+09 0.2810E+09 578.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 2900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3781. 3500. 0.3079E+09 0.2933E+09 591.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3846. 3500. 0.3205E+09 0.3059E+09 603.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3911. 3500. 0.3335E+09 0.3189E+09 616.1 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3976. 3500. 0.3468E+09 0.3323E+09 628.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4041. 3500. 0.3605E+09 0.3460E+09 641.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4106. 3500. 0.3746E+09 0.3600E+09 654.0 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

SMALL CLOUDS AT 3500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4171. 3500. 0.3891E+09 0.3745E+09 666.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.14568E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   +   +   .   .   0   0   0   0   0   0   0   0   0   0
19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   +   + .01 .01   +   +   0   0   0   0   0   0   0   0   0   0
20 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   +   + .07 .21 .21 .07   +   0   0   0   0   0   0   0   0   0   0
21 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .05 .44 1.3 1.3 .44 .05   0   0   0   0   0   0   0   0   0   0
22 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .10 .92 2.7 2.7 .92 .10   0   0   0   0   0   0   0   0   0   0
23 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .07 .65 1.9 1.9 .65 .07   0   0   0   0   0   0   0   0   0   0
24 OOOO   0   0   0   0   0   0   0   0   0   0   0   .   + .01 .15 .46 .46 .15 .01   0   0   0   0   0   0   0   0   0   0
25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .01 .03 .03 .01   +   0   0   0   0   0   0   0   0   0   0
```

26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO

26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . . + + . . 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0

20 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .02 .22 .65 .65 .22 .02 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .05 .46 1.3 1.3 .46 .05 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + .03 .32 .97 .97 .32 .03 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .07 .23 .23 .07 + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   3600.00 SECONDS AFTER DUMP

THESE CONCENTRATIONS ARE THE MAXIMUM OCCURING IN THE WATER COLUMN AT THIS TIME

```
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + . 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + + + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .04 .04 .01 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .07 .07 .02 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   3600.00 SECONDS
AFTER DUMP

 THESE CONCENTRATIONS ARE THE MAXIMUM THAT EVER OCCURRED IN THE WATER COLUMN
DURING THE SIMULATION

 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .10 .10 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.1 1.1 + 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .28 .28 + 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .26 .26 + 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .24 .24 + 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .21 .21 .01 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .19 .19 .01 . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .02 .17 .17 .02 . 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .16 .16 .02 + 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .02 .14 .14 .02 + 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .13 .13 .03 + 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .03 .11 .11 .03 + 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .03 .10 .10 .03 + 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 . + + .02 .07 .07 .02 + 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + + .01 .01 + + 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . . + + + + . 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 3600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
 # TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

```
 1       4236.        3500.     0.4039E+09  0.3893E+09   679.7     0.0000E+00   30.00     0.000000E+00

   FINAL DISTRIBUTIONS OF TOTAL SETTLED MATERIAL FOLLOW.....

 TOTAL ACCUMULATED SOLID VOLUME ON BOTTOM (CU FT/GRID SQR),    3600.00 SECONDS AFTER
DUMP
 ...MULTIPLY DISPLAYED VALUES BY   100.0        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   + .64 .64   +   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0 .01 194 194 .01   0   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .02 2.2 2.2 .02   .   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .02 .70 .70 .02   .   0   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   + .02 .25 .25 .02   +   0   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   + .01 .10 .10 .01   +   .   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   +   + .04 .04   +   +   .   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   +   + .01 .01   +   +   .   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   .   .   +   +   +   +   .   .   0   0   0   0   0   0   0   0   0
 19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   +   +   .   0   0   0   0   0   0   0   0   0   0
 20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   +   +   .   0   0   0   0   0   0   0   0   0   0
 21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   +   +   .   .   0   0   0   0   0   0   0   0   0   0
 22 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   .   0   0   0   0   0   0   0   0   0   0   0
 23 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   .   .   0   0   0   0   0   0   0   0   0   0   0
 24 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
 25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 26 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 27 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 28 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 29 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 30 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 31 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 32 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 33 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 34 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 35 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 36 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 37 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 38 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

TOTAL THICKNESS (FT) OF NEW MATERIAL ON BOTTOM,   3600.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000       (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  . .83 .83  .  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO

37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

INITIAL MIXING COMPUTATIONS RESULTS FOR GRAVEL :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.000E+00	0.	0.	0.000E+00
0.50	0.0	0.000E+00	0.	0.	0.000E+00
0.75	0.0	0.000E+00	0.	0.	0.000E+00
1.00	0.0	0.000E+00	0.	0.	0.000E+00
0.25	30.0	0.000E+00	0.	0.	0.000E+00
0.50	30.0	0.000E+00	0.	0.	0.000E+00
0.75	30.0	0.000E+00	0.	0.	0.000E+00
1.00	30.0	0.000E+00	0.	0.	0.000E+00

INITIAL MIXING COMPUTATIONS RESULTS FOR SAND :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.000E+00	0.	0.	0.000E+00
0.50	0.0	0.000E+00	0.	0.	0.000E+00
0.75	0.0	0.000E+00	0.	0.	0.000E+00
1.00	0.0	0.000E+00	0.	0.	0.000E+00
0.25	30.0	0.000E+00	0.	0.	0.000E+00
0.50	30.0	0.000E+00	0.	0.	0.000E+00
0.75	30.0	0.000E+00	0.	0.	0.000E+00
1.00	30.0	0.000E+00	0.	0.	0.000E+00

INITIAL MIXING COMPUTATIONS RESULTS FOR SILT :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.100E+02	2400.	3400.	0.100E+02
0.50	0.0	0.224E+02	3200.	3400.	0.224E+02
0.75	0.0	0.327E+02	3600.	3400.	0.327E+02
1.00	0.0	0.433E+02	3600.	3400.	0.433E+02
0.25	30.0	0.418E+03	2200.	3400.	0.418E+03
0.50	30.0	0.252E+03	2600.	3400.	0.252E+03
0.75	30.0	0.135E+03	3000.	3400.	0.135E+03
1.00	30.0	0.217E+02	3600.	3400.	0.217E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR CLAY :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.209E+01	2600.	3400.	0.209E+01
0.50	0.0	0.538E+01	3200.	3400.	0.538E+01
0.75	0.0	0.379E+02	3200.	3400.	0.379E+02
1.00	0.0	0.283E+02	3800.	3400.	0.283E+02
0.25	30.0	0.147E+03	2200.	3400.	0.147E+03
0.50	30.0	0.951E+02	2600.	3400.	0.951E+02
0.75	30.0	0.189E+02	3200.	3400.	0.189E+02
1.00	30.0	0.141E+02	3800.	3400.	0.141E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR COPPER :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	MAX CONC ON GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)	MAX CONC OUTSIDE MIXING ZONE (MG/L)
0.03	0.0	0.487E-37	0.100E+01	1200.	2600.	0.487E-37	0.100E+01

0.06	0.0	0.980E-08	0.100E+01	2000.	3400.	0.980E-08	0.100E+01
0.08	0.0	0.112E-02	0.100E+01	2000.	3400.	0.112E-02	0.100E+01
0.11	0.0	0.554E-01	0.106E+01	2200.	3400.	0.554E-01	0.106E+01
0.14	0.0	0.760E-01	0.108E+01	2200.	3400.	0.760E-01	0.108E+01
0.17	0.0	0.498E-01	0.105E+01	2200.	3400.	0.498E-01	0.105E+01
0.19	0.0	0.652E-01	0.107E+01	2400.	3400.	0.652E-01	0.107E+01
0.22	0.0	0.710E-01	0.107E+01	2400.	3400.	0.710E-01	0.107E+01
0.25	0.0	0.510E-01	0.105E+01	2400.	3400.	0.510E-01	0.105E+01
0.28	0.0	0.595E-01	0.106E+01	2600.	3400.	0.595E-01	0.106E+01
0.31	0.0	0.653E-01	0.107E+01	2600.	3400.	0.653E-01	0.107E+01
0.33	0.0	0.503E-01	0.105E+01	2600.	3400.	0.503E-01	0.105E+01
0.36	0.0	0.539E-01	0.105E+01	2800.	3400.	0.539E-01	0.105E+01
0.39	0.0	0.594E-01	0.106E+01	2800.	3400.	0.594E-01	0.106E+01
0.42	0.0	0.483E-01	0.105E+01	2800.	3400.	0.483E-01	0.105E+01
0.44	0.0	0.487E-01	0.105E+01	3000.	3400.	0.487E-01	0.105E+01
0.47	0.0	0.537E-01	0.105E+01	3000.	3400.	0.537E-01	0.105E+01
0.50	0.0	0.456E-01	0.105E+01	3000.	3400.	0.456E-01	0.105E+01
0.53	0.0	0.439E-01	0.104E+01	3200.	3400.	0.439E-01	0.104E+01
0.56	0.0	0.484E-01	0.105E+01	3200.	3400.	0.484E-01	0.105E+01
0.58	0.0	0.425E-01	0.104E+01	3200.	3400.	0.425E-01	0.104E+01
0.61	0.0	0.395E-01	0.104E+01	3400.	3400.	0.395E-01	0.104E+01
0.64	0.0	0.435E-01	0.104E+01	3400.	3400.	0.435E-01	0.104E+01
0.67	0.0	0.392E-01	0.104E+01	3400.	3400.	0.392E-01	0.104E+01
0.69	0.0	0.356E-01	0.104E+01	3600.	3400.	0.356E-01	0.104E+01
0.72	0.0	0.391E-01	0.104E+01	3600.	3400.	0.391E-01	0.104E+01
0.75	0.0	0.360E-01	0.104E+01	3600.	3400.	0.360E-01	0.104E+01
0.78	0.0	0.321E-01	0.103E+01	3800.	3400.	0.321E-01	0.103E+01
0.81	0.0	0.352E-01	0.104E+01	3800.	3400.	0.352E-01	0.104E+01
0.83	0.0	0.330E-01	0.103E+01	3800.	3400.	0.330E-01	0.103E+01
0.86	0.0	0.290E-01	0.103E+01	4000.	3400.	0.290E-01	0.103E+01
0.89	0.0	0.317E-01	0.103E+01	4000.	3400.	0.317E-01	0.103E+01
0.92	0.0	0.301E-01	0.103E+01	4000.	3400.	0.301E-01	0.103E+01
0.94	0.0	0.263E-01	0.103E+01	4200.	3400.	0.263E-01	0.103E+01
0.97	0.0	0.286E-01	0.103E+01	4200.	3400.	0.286E-01	0.103E+01
1.00	0.0	0.275E-01	0.103E+01	4200.	3400.	0.275E-01	0.103E+01

0.03	30.0	0.158E+00	0.116E+01	2000.	3400.	0.158E+00	0.116E+01
0.06	30.0	0.801E-01	0.108E+01	2000.	3400.	0.801E-01	0.108E+01
0.08	30.0	0.314E-01	0.103E+01	2000.	3400.	0.314E-01	0.103E+01
0.11	30.0	0.365E-01	0.104E+01	2200.	3400.	0.365E-01	0.104E+01
0.14	30.0	0.380E-01	0.104E+01	2200.	3400.	0.380E-01	0.104E+01
0.17	30.0	0.249E-01	0.102E+01	2200.	3400.	0.249E-01	0.102E+01
0.19	30.0	0.326E-01	0.103E+01	2400.	3400.	0.326E-01	0.103E+01
0.22	30.0	0.355E-01	0.104E+01	2400.	3400.	0.355E-01	0.104E+01
0.25	30.0	0.255E-01	0.103E+01	2400.	3400.	0.255E-01	0.103E+01
0.28	30.0	0.297E-01	0.103E+01	2600.	3400.	0.297E-01	0.103E+01
0.31	30.0	0.327E-01	0.103E+01	2600.	3400.	0.327E-01	0.103E+01

0.33	30.0	0.251E-01	0.103E+01	2600.	3400.	0.251E-01	0.103E+01
0.36	30.0	0.270E-01	0.103E+01	2800.	3400.	0.270E-01	0.103E+01
0.39	30.0	0.297E-01	0.103E+01	2800.	3400.	0.297E-01	0.103E+01
0.42	30.0	0.242E-01	0.102E+01	2800.	3400.	0.242E-01	0.102E+01
0.44	30.0	0.243E-01	0.102E+01	3000.	3400.	0.243E-01	0.102E+01
0.47	30.0	0.269E-01	0.103E+01	3000.	3400.	0.269E-01	0.103E+01
0.50	30.0	0.228E-01	0.102E+01	3000.	3400.	0.228E-01	0.102E+01
0.53	30.0	0.219E-01	0.102E+01	3200.	3400.	0.219E-01	0.102E+01
0.56	30.0	0.242E-01	0.102E+01	3200.	3400.	0.242E-01	0.102E+01
0.58	30.0	0.212E-01	0.102E+01	3200.	3400.	0.212E-01	0.102E+01
0.61	30.0	0.198E-01	0.102E+01	3400.	3400.	0.198E-01	0.102E+01
0.64	30.0	0.218E-01	0.102E+01	3400.	3400.	0.218E-01	0.102E+01
0.67	30.0	0.196E-01	0.102E+01	3400.	3400.	0.196E-01	0.102E+01
0.69	30.0	0.178E-01	0.102E+01	3600.	3400.	0.178E-01	0.102E+01
0.72	30.0	0.196E-01	0.102E+01	3600.	3400.	0.196E-01	0.102E+01
0.75	30.0	0.180E-01	0.102E+01	3600.	3400.	0.180E-01	0.102E+01
0.78	30.0	0.161E-01	0.102E+01	3800.	3400.	0.161E-01	0.102E+01
0.81	30.0	0.176E-01	0.102E+01	3800.	3400.	0.176E-01	0.102E+01
0.83	30.0	0.165E-01	0.102E+01	3800.	3400.	0.165E-01	0.102E+01
0.86	30.0	0.145E-01	0.101E+01	4000.	3400.	0.145E-01	0.101E+01
0.89	30.0	0.158E-01	0.102E+01	4000.	3400.	0.158E-01	0.102E+01
0.92	30.0	0.151E-01	0.102E+01	4000.	3400.	0.151E-01	0.102E+01
0.94	30.0	0.131E-01	0.101E+01	4200.	3400.	0.131E-01	0.101E+01
0.97	30.0	0.143E-01	0.101E+01	4200.	3400.	0.143E-01	0.101E+01
1.00	30.0	0.137E-01	0.101E+01	4200.	3400.	0.137E-01	0.101E+01

0.03	15.0	0.116E+01	0.216E+01	2000.	3400.	0.116E+01	0.216E+01
0.06	15.0	0.592E+00	0.159E+01	2000.	3400.	0.592E+00	0.159E+01
0.08	15.0	0.232E+00	0.123E+01	2000.	3400.	0.232E+00	0.123E+01
0.11	15.0	0.269E+00	0.127E+01	2200.	3400.	0.269E+00	0.127E+01
0.14	15.0	0.281E+00	0.128E+01	2200.	3400.	0.281E+00	0.128E+01
0.17	15.0	0.184E+00	0.118E+01	2200.	3400.	0.184E+00	0.118E+01
0.19	15.0	0.241E+00	0.124E+01	2400.	3400.	0.241E+00	0.124E+01
0.22	15.0	0.263E+00	0.126E+01	2400.	3400.	0.263E+00	0.126E+01
0.25	15.0	0.188E+00	0.119E+01	2400.	3400.	0.188E+00	0.119E+01
0.28	15.0	0.220E+00	0.122E+01	2600.	3400.	0.220E+00	0.122E+01
0.31	15.0	0.241E+00	0.124E+01	2600.	3400.	0.241E+00	0.124E+01
0.33	15.0	0.186E+00	0.119E+01	2600.	3400.	0.186E+00	0.119E+01
0.36	15.0	0.199E+00	0.120E+01	2800.	3400.	0.199E+00	0.120E+01
0.39	15.0	0.220E+00	0.122E+01	2800.	3400.	0.220E+00	0.122E+01
0.42	15.0	0.179E+00	0.118E+01	2800.	3400.	0.179E+00	0.118E+01
0.44	15.0	0.180E+00	0.118E+01	3000.	3400.	0.180E+00	0.118E+01
0.47	15.0	0.199E+00	0.120E+01	3000.	3400.	0.199E+00	0.120E+01
0.50	15.0	0.168E+00	0.117E+01	3000.	3400.	0.168E+00	0.117E+01
0.53	15.0	0.162E+00	0.116E+01	3200.	3400.	0.162E+00	0.116E+01
0.56	15.0	0.179E+00	0.118E+01	3200.	3400.	0.179E+00	0.118E+01
0.58	15.0	0.157E+00	0.116E+01	3200.	3400.	0.157E+00	0.116E+01

0.61	15.0	0.146E+00	0.115E+01	3400.	3400.	0.146E+00	0.115E+01
0.64	15.0	0.161E+00	0.116E+01	3400.	3400.	0.161E+00	0.116E+01
0.67	15.0	0.145E+00	0.114E+01	3400.	3400.	0.145E+00	0.114E+01
0.69	15.0	0.132E+00	0.113E+01	3600.	3400.	0.132E+00	0.113E+01
0.72	15.0	0.145E+00	0.114E+01	3600.	3400.	0.145E+00	0.114E+01
0.75	15.0	0.133E+00	0.113E+01	3600.	3400.	0.133E+00	0.113E+01
0.78	15.0	0.119E+00	0.112E+01	3800.	3400.	0.119E+00	0.112E+01
0.81	15.0	0.130E+00	0.113E+01	3800.	3400.	0.130E+00	0.113E+01
0.83	15.0	0.122E+00	0.112E+01	3800.	3400.	0.122E+00	0.112E+01
0.86	15.0	0.107E+00	0.111E+01	4000.	3400.	0.107E+00	0.111E+01
0.89	15.0	0.117E+00	0.112E+01	4000.	3400.	0.117E+00	0.112E+01
0.92	15.0	0.111E+00	0.111E+01	4000.	3400.	0.111E+00	0.111E+01
0.94	15.0	0.971E-01	0.110E+01	4200.	3400.	0.971E-01	0.110E+01
0.97	15.0	0.106E+00	0.111E+01	4200.	3400.	0.106E+00	0.111E+01
1.00	15.0	0.102E+00	0.110E+01	4200.	3400.	0.102E+00	0.110E+01

RESULT: THE WATER QUALITY STANDARD FOR THE MIXING ZONE WAS NOT VIOLATED.

***** RUN COMPLETED *****

ADDAMS STMODEL RESULTS
2,500 CUBIC YARD BARGE
FDD-C-C6

BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

MODEL: SHORT-TERM FATE OF DREDGED MATERIAL FROM SPLIT HULL BARGE OR HOPPER DREDGE
(PC Version 5.01 MAY, 1993)

TITLE: BARGE DUMP WITHOUT SPECIFIED MIXING ZONE (TIER II W.Q.)

FILE: FDDC6_25.DUE

AREA: THE PROJECT AREA IS DESCRIBED BY A 45 X 45 GRID.

THERE ARE 45 GRID POINTS (NMAX) IN THE Z-DIRECTION (FROM LEFT TO RIGHT)
AND 45 GRID POINTS (MMAX) IN THE X-DIRECTION (FROM TOP TO BOTTOM).

ZONE: THE MIXING ZONE IS REPRESENTED AS A RECTANGLE ON THE SITE GRID.

THE TOPMOST BOUNDARY IS LOCATED AT POINT #21 (MDS1) FROM THE TOP OF THE GRID.

THE BOTTOMMOST BOUNDARY IS LOCATED AT POINT #36 (MDS2) FROM THE TOP OF THE GRID.

THE LEFTMOST BOUNDARY IS LOCATED AT POINT #34 (NDS1) FROM THE LEFT OF THE GRID.

THE RIGHTMOST BOUNDARY IS LOCATED AT POINT #39 (NDS2) FROM THE LEFT OF THE GRID.

EXECUTION PARAMETERS:

MODEL COEFFICIENTS SPECIFIED IN INPUT DATA (KEY1 = 1).

PERFORM COMPLETE ANALYSIS INCLUDING DESCENT, COLLAPSE, AND TRANSPORT-DIFFUSION (KEY2 = 0).

PERFORM TIER II INLAND DUMPING INITIAL MIXING EVALUATION
TO DETERMINE NEED FOR FURTHER TESTING (KEY3 = 7).

MIXING ZONE HAS BEEN DESIGNATED -- NO MIXING ZONE WILL BE COMPUTED.

NO ANALYSIS OF A ZONE OF INITIAL DILUTION REQUESTED.

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF CONVECTIVE DESCENT RESULTS REQUESTED (IPCN = 1).

PRINTING OF DYNAMIC COLLAPSE RESULTS REQUESTED (IPCL = 1).

QUARTERLY PRINTING OF LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED (IPLT = 0).

LONG-TERM TRANSPORT DIFFUSION RESULTS REQUESTED AT THE FOLLOWING 2 DEPTH(S):
0.00 FT
30.00 FT

GRID: NUMBER OF LONG TERM GRID POINTS IN Z-DIRECTION (NMAX) = 45

NUMBER OF LONG TERM GRID POINTS IN X-DIRECTION (MMAX) = 45

GRID SPACING IN Z-DIRECTION (DZ) = 200.00000 FT

GRID SPACING IN X-DIRECTION (DX) = 200.00000 FT

CONSTANT DEPTH GRID SPECIFIED HAVING A DEPTH (DEPC) OF 30.00000 FT.

DEPTH GRID, FEET:

M N = 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26 30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M N =18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

M N =35	36	37	38	39	40	41	42	43	44	45
1	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
2	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
3	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
4	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
5	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
6	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
7	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
8	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
9	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
10	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
11	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
12	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
13	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
14	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
15	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
16	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
17	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
18	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
19	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
20	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
21	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
22	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
23	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
24	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
25	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
26	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

27	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
28	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
29	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
30	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
31	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
32	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
33	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
34	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
35	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
36	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
37	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
38	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
39	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
40	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
41	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
42	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
43	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
44	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
45	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.

CODED GRID:

RANGE OF N IS 1 TO 45

```
       X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X
       X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W D W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
       X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
```

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B B B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B W W W W B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W B B B B B B W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W O X

X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W W
W W W W W W W O X
X O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O X
X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X

LEGEND FOR CODED GRID: W = WATER POINT
L = LAND POINT
O = OPEN BOUNDARY
B = MIXING ZONE BOUNDARY
Z = ZID BOUNDARY
D = DUMP LOCATION
X = DUMMY POINT

NUMBER OF GRID POINTS WITHIN ESTUARY = 1681

DISPOSAL LOCATION:

THE DUMP LOCATION IS 2000. FT (XBARGE) OR ABOUT GRID POINT #11 FROM THE TOP OF THE GRID
AND 3500. FT (ZBARGE) OR ABOUT GRID POINT #19 FROM THE LEFT EDGE OF THE GRID.

THE BOTTOM SLOPE IN THE X-DIRECTION AT THE DUMP SITE (SLOPEX, POSITIVE IF DEPTH INCREASES
FROM TOP OF GRID TO BOTTOM OF GRID) IS 0.00 DEGREES.

THE BOTTOM SLOPE IN THE Z-DIRECTION AT THE DUMP SITE (SLOPEZ, POSITIVE IF DEPTH INCREASES
FROM LEFT SIDE OF GRID TO RIGHT SIDE OF GRID) IS 0.00 DEGREES.

THE DISPOSAL LOCATION IS NOT AT A HOLE OR DEPRESSION. (DHOLE = 0.0)

AMBIENT DENSITY PROFILE:

DEPTH (FT)	DENSITY (G/CC)
0.0000E+00	1.0241

30.00 1.0248

COMPUTED DEPTH:

THE DEPTH AT THE DUMP LOCATION WAS INTERPOLATED TO BE 30.00 FT.

VELOCITY DISTRIBUTION:

TWO-VELOCITY PROFILES ARE SPECIFIED IN BOTH X AND Z DIRECTIONS FOR USE AT ALL GRID POINTS PROVIDING "QUICK LOOKS".

DEPTH IN FT IS ASSUMED CONSTANT AND VELOCITIES IN FPS ARE CONSIDERED STEADY IN TIME.

VELOCITY PROFILE PARAMETERS FOLLOW...

FROM TOP TO BOTTOM ON GRID FROM LEFT TO RIGHT ON GRID

UPPER: DEPTH, DU1 = 5.00 X-VELOCITY, UU1 = 0.650 DEPTH, DW1 = 5.00 Z-VELOCITY, WW1 = 0.000E+00

LOWER: DEPTH, DU2 = 25.0 X-VELOCITY, UU2 = 0.650 DEPTH, DW2 = 25.0 Z-VELOCITY, WW2 = 0.000E+00

BOTTOM SHEAR STRESS, LBS/SQ FT:

M N=	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0000	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

11 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
12 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
13 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
14 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
15 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
16 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
17 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
18 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
19 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
20 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
21 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
22 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
23 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
24 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
25 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
26 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
34 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

35 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
36 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
37 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
38 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
39 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
40 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
41 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
42 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
43 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
44 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
45 0.0000 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M N= 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
1 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
2 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
3 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
4 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
5 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
6 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
7 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
8 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
9 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
10 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
11 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

12 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
13 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
14 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
15 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
16 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
17 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
18 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
19 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
20 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
21 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
22 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
23 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
24 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
25 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
26 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
34 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
35 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

36 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
37 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
38 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
39 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
40 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
41 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
42 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
43 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
44 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
45 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

M N=	35	36	37	38	39	40	41	42	43	44	45
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
3	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
4	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
5	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
6	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
7	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
9	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
10	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
11	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
12	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
13	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
14	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
15	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
16	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
17	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
18	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
19	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
20	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
21	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
22	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
23	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
24	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
25	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

26 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
27 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
28 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
29 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
30 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
31 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
32 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
33 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
34 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
35 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
36 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
37 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
38 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
39 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
40 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
41 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
42 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
43 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
44 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002
45 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002

TIME PARAMETERS:

DURATION OF THE DISPOSAL, TREL = 20.00 SECONDS

DURATION OF THE SIMULATION, TSTOP = 3600.00 SECONDS

LONG-TERM TIME STEP USED IN THE SIMULATION, DTL = 100.00 SECONDS

BARGE DESCRIPTION:

LENGTH OF BARGE, BARGL = 0.19E+03 FT

WIDTH OF BARGE, BARGW = 35. FT

DRAFT OF LOADED BARGE, DREL1 = 14.0 FT

DRAFT OF UNLOADED BARGE, DREL2 = 4.00 FT

MODEL COEFFICIENTS READ FROM INPUT:

TURBULENT THERMAL ENTRAINMENT ALPHA0 = 0.2350

SETTLING COEFFICIENT BETA = 0.0000

APPARENT MASS COEFFICIENT CM = 1.0000

DRAG COEFFICIENT FOR A SPHERE CD = 0.5000

RATIO--CLOUD/AMBIENT DENSITY GRADIENTS GAMA = 0.2500

FORM DRAG FOR COLLAPSING CLOUD CDRAG = 1.0000

SKIN FRICTION FOR COLLAPSING CLOUD CFRIC = 0.0100

DRAG FOR AN ELLIPSOIDAL WEDGE CD3 = 0.1000

DRAG FOR A PLATE CD4 = 1.0000

ENTRAINMENT IN COLLAPSE ALPHAC = 0.1000

FRICTION BETWEEN CLOUD AND BOTTOM FRICTN = 0.0100

4/3 LAW HORIZ. DIFF. DISSIPATION FACTOR ALAMDA = 0.0010

UNSTRATIFIED WATER VERT. DIFF. COEF. AKY0 = 0.0250

STRIPPING COEF. OF FINES DURING CONVERTIVE DESCENT= 0.0030

MATERIAL DESCRIPTION: 4 SOLIDS FRACTIONS

L A Y E R 1

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)	FALL VELOCITY (FPS)	VOID RATIO	DEPOSITIONAL CHARACTER
GRAVEL	2.700	0.6350E-01	1.00000	0.5000	NONCOHESIVE
SAND	2.700	0.5177	1.00000	0.5000	NONCOHESIVE
SILT	2.650	0.1691E-01	0.01000	5.000	COHESIVE
CLAY	2.650	0.5970E-01	0.00200	5.000	COHESIVE

GRAVEL
CRITICAL SHEAR STRESS FOR DEPOSITION = 99.00 LBS/SQ. FT.
SEDIMENT FRACTION WILL NOT BE STRIPPED DURING CONVECTIVE DESCENT.

SAND
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-01 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

SILT
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.1000E-01 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

CLAY
CRITICAL SHEAR STRESS FOR DEPOSITION = 0.2000E-02 LBS/SQ. FT.
SEDIMENT FRACTION WILL BE STRIPPED DURING CONVECTIVE DESCENT.

BULK SEDIMENT ANALYSIS DATA:

CONCENTRATIONS OF COPPER FOLLOWING INITIAL MIXING OF THE DREDGED MATERIAL ARE COMPUTED FOR WATER QUALITY EVALUATIONS.

THE CONCENTRATION OF COPPER IN THE BULK SEDIMENT IS 4.7300 MG/KG.

THE INITIAL CONCENTRATION OF COPPER IN THE DREDGED MATERIAL IS 8.38323 MG/L AND ITS BACKGROUND CONCENTRATION IS 1.000000 MG/L.

THE WATER QUALITY STANDARD FOR COPPER IS 3.100000 MG/L.

DESCRIPTION	SPEC. GRAV. OR DENSITY (GM/CC)	VOLUMETRIC CONCENTRATION (VOL/VOL)
FLUID	1.024	0.3422

DISCHARGE PARAMETERS:

VOLUME OF LAYER 1 = 2500. CU YD

DEPTH IS TOO SHALLOW FOR CONVECTIVE DESCENT SO DESCENT IS BYPASSED.

CLOUD COLLAPSE PHASE:

IN TRIAL #1 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.10000000 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 78.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

IN TRIAL #2 THE COLLAPSE PHASE TIME STEP (DT) WAS 0.25666667E-01 SECONDS.
THE TOTAL NUMBER OF INTEGRATION TIME STEPS (ISTEP) FOR CONVECTIVE DESCENT AND COLAPSE WAS 300.
THE INTEGRATION TIME STEP NUMBER WHEN THE BED WAS ENCOUNTERED (IBED) WAS 1.
THE BOTTOM WAS ENCOUNTERED DURING CONVECTIVE DESCENT.
DIFFUSION OF THE DISCHARGE IS GREATER THAN DYNAMIC SPREADING FROM THE COLLAPSE.

COLLAPSE PHASE RESULTS:

TIME CLOUD CENTROID VELOCITY OF DIFFERENCE OF ELLIPSOIDAL CLOUD VOLUME OF SOLIDS VOL.
FROM (DISTANCE FROM BARGE) CLOUD CENTROID CLOUD & WATER CLOUD AXIS LENGTHS TRACER SOLID CONC. BY
DISPOSAL X-DIR DEPTH Z-DIR X-DIR DOWN Z-DIR DENSITIES THICKNESS MINOR MAJOR CONC. FRACTIONS FRACTION
(SEC) (FT) (FT) (FT) (FPS) (FPS) (FPS) (G/CC) (FT) (FT) (FT) (MG/L) (CU FT) (VOL/VOL)

20.00 0.00 20.25 0.00 -2.00 0.50 0.00 0.1098E+01 26.00 70.42 70.42 0.8383E+01 0.4286E+04 0.6350E-01
0.3495E+05 0.5177E+00
0.1141E+04 0.1691E-01
0.4030E+04 0.5970E-01
20.10 -0.20 19.90 0.00 -1.78 2.30 0.00 0.1074E+01 26.93 68.27 68.27 0.8582E+01 0.4274E+04 0.6502E-01
0.3309E+05 0.5034E+00
0.1081E+04 0.1644E-01
0.3815E+04 0.5804E-01
20.21 -0.38 20.28 0.00 -1.72 4.52 0.00 0.1062E+01 25.91 69.96 69.96 0.8504E+01 0.4249E+04 0.6399E-01
0.3306E+05 0.4978E+00
0.1080E+04 0.1626E-01
0.3812E+04 0.5740E-01
20.31 -0.56 20.85 0.00 -1.67 5.97 0.00 0.1044E+01 24.41 72.64 72.64 0.8391E+01 0.4224E+04 0.6264E-01
0.3301E+05 0.4896E+00
0.1078E+04 0.1599E-01
0.3807E+04 0.5645E-01
20.41 -0.72 21.51 0.00 -1.62 6.63 0.00 0.1021E+01 22.64 76.16 76.16 0.8248E+01 0.4196E+04 0.6103E-01
0.3295E+05 0.4792E+00
0.1076E+04 0.1565E-01
0.3800E+04 0.5526E-01
20.51 -0.89 22.19 0.00 -1.58 6.65 0.00 0.9954E+00 20.81 80.35 80.35 0.8082E+01 0.4167E+04 0.5922E-01
0.3288E+05 0.4673E+00
0.1074E+04 0.1526E-01
0.3792E+04 0.5388E-01
20.62 -1.05 22.86 0.00 -1.53 6.28 0.00 0.9672E+00 19.05 85.09 85.09 0.7901E+01 0.4135E+04 0.5726E-01
0.3281E+05 0.4543E+00
0.1072E+04 0.1484E-01
0.3783E+04 0.5238E-01
20.72 -1.21 23.46 0.00 -1.49 5.70 0.00 0.9373E+00 17.43 90.24 90.24 0.7707E+01 0.4101E+04 0.5518E-01
0.3273E+05 0.4405E+00
0.1069E+04 0.1439E-01

0.3774E+04 0.5079E-01
20.82 -1.36 24.01 0.00 -1.44 5.07 0.00 0.9063E+00 15.98 95.71 95.71 0.7504E+01 0.4063E+04 0.5303E-01
0.3266E+05 0.4262E+00
0.1067E+04 0.1392E-01
0.3766E+04 0.4915E-01
20.92 -1.50 24.49 0.00 -1.39 4.45 0.00 0.8748E+00 14.70 101.43 101.43 0.7296E+01 0.4023E+04 0.5083E-01
0.3259E+05 0.4117E+00
0.1064E+04 0.1345E-01
0.3758E+04 0.4747E-01
21.03 -1.64 24.91 0.00 -1.34 3.88 0.00 0.8431E+00 13.58 107.33 107.33 0.7086E+01 0.3980E+04 0.4860E-01
0.3252E+05 0.3971E+00
0.1062E+04 0.1297E-01
0.3750E+04 0.4579E-01
21.13 -1.78 25.27 0.00 -1.29 3.37 0.00 0.8116E+00 12.60 113.37 113.37 0.6876E+01 0.3934E+04 0.4638E-01
0.3246E+05 0.3826E+00
0.1060E+04 0.1250E-01
0.3742E+04 0.4412E-01
21.23 -1.91 25.59 0.00 -1.24 2.93 0.00 0.7807E+00 11.76 119.51 119.51 0.6667E+01 0.3884E+04 0.4417E-01
0.3240E+05 0.3684E+00
0.1058E+04 0.1203E-01
0.3736E+04 0.4248E-01
21.33 -2.04 25.87 0.00 -1.19 2.55 0.00 0.7505E+00 11.02 125.72 125.72 0.6463E+01 0.3833E+04 0.4201E-01
0.3234E+05 0.3545E+00
0.1056E+04 0.1158E-01
0.3729E+04 0.4088E-01
21.44 -2.16 26.11 0.00 -1.14 2.23 0.00 0.7213E+00 10.38 131.96 131.96 0.6265E+01 0.3778E+04 0.3992E-01
0.3229E+05 0.3412E+00
0.1055E+04 0.1114E-01
0.3723E+04 0.3934E-01
21.54 -2.27 26.32 0.00 -1.09 1.95 0.00 0.6932E+00 9.82 138.20 138.20 0.6074E+01 0.3721E+04 0.3789E-01
0.3224E+05 0.3283E+00
0.1053E+04 0.1072E-01
0.3718E+04 0.3786E-01
21.64 -2.38 26.50 0.00 -1.04 1.71 0.00 0.6665E+00 9.33 144.42 144.42 0.5892E+01 0.3662E+04 0.3595E-01
0.3220E+05 0.3161E+00
0.1052E+04 0.1032E-01
0.3713E+04 0.3645E-01
21.75 -2.49 26.66 0.00 -0.99 1.51 0.00 0.6413E+00 8.90 150.58 150.58 0.5719E+01 0.3601E+04 0.3409E-01

0.3216E+05 0.3045E+00
0.1050E+04 0.9946E-02
0.3708E+04 0.3511E-01
21.85 -2.59 26.81 0.00 -0.94 1.33 0.00 0.6175E+00 8.51 156.67 156.67 0.5555E+01 0.3538E+04 0.3234E-01
0.3212E+05 0.2936E+00
0.1049E+04 0.9590E-02
0.3704E+04 0.3386E-01
21.95 -2.68 26.93 0.00 -0.90 1.18 0.00 0.5951E+00 8.17 162.64 162.64 0.5402E+01 0.3473E+04 0.3068E-01
0.3209E+05 0.2834E+00
0.1048E+04 0.9258E-02
0.3700E+04 0.3268E-01
22.05 -2.77 27.05 0.00 -0.85 1.05 0.00 0.5743E+00 7.87 168.49 168.49 0.5259E+01 0.3407E+04 0.2912E-01
0.3206E+05 0.2740E+00
0.1047E+04 0.8948E-02
0.3697E+04 0.3159E-01
22.16 -2.86 27.15 0.00 -0.81 0.94 0.00 0.5550E+00 7.60 174.18 174.18 0.5126E+01 0.3340E+04 0.2765E-01
0.3203E+05 0.2651E+00
0.1046E+04 0.8660E-02
0.3693E+04 0.3057E-01
22.26 -2.94 27.24 0.00 -0.77 0.84 0.00 0.5370E+00 7.36 179.72 179.72 0.5002E+01 0.3272E+04 0.2628E-01
0.3200E+05 0.2570E+00
0.1045E+04 0.8393E-02
0.3690E+04 0.2963E-01
22.36 -3.02 27.32 0.00 -0.73 0.75 0.00 0.5203E+00 7.15 185.07 185.07 0.4887E+01 0.3204E+04 0.2499E-01
0.3198E+05 0.2494E+00
0.1044E+04 0.8146E-02
0.3687E+04 0.2876E-01
22.46 -3.09 27.39 0.00 -0.70 0.68 0.00 0.5050E+00 6.96 190.23 190.23 0.4781E+01 0.3135E+04 0.2378E-01
0.3195E+05 0.2424E+00
0.1044E+04 0.7919E-02
0.3685E+04 0.2796E-01
22.57 -3.16 27.46 0.00 -0.66 0.61 0.00 0.4907E+00 6.78 195.20 195.20 0.4683E+01 0.3065E+04 0.2265E-01
0.3193E+05 0.2360E+00
0.1043E+04 0.7709E-02
0.3682E+04 0.2721E-01
22.67 -3.23 27.52 0.00 -0.63 0.55 0.00 0.4776E+00 6.62 199.98 199.98 0.4593E+01 0.2995E+04 0.2160E-01
0.3191E+05 0.2301E+00
0.1042E+04 0.7515E-02
0.3680E+04 0.2653E-01

22.77 -3.29 27.57 0.00 -0.60 0.50 0.00 0.4655E+00 6.48 204.56 204.56 0.4510E+01 0.2926E+04 0.2061E-01
0.3190E+05 0.2246E+00
0.1042E+04 0.7336E-02
0.3678E+04 0.2590E-01
22.87 -3.35 27.62 0.00 -0.57 0.46 0.00 0.4542E+00 6.35 208.95 208.95 0.4433E+01 0.2856E+04 0.1967E-01
0.3188E+05 0.2196E+00
0.1041E+04 0.7172E-02
0.3676E+04 0.2532E-01
22.98 -3.41 27.66 0.00 -0.54 0.42 0.00 0.4438E+00 6.23 213.15 213.15 0.4361E+01 0.2787E+04 0.1880E-01
0.3186E+05 0.2149E+00
0.1041E+04 0.7019E-02
0.3674E+04 0.2478E-01
23.08 -3.46 27.70 0.00 -0.52 0.38 0.00 0.4342E+00 6.12 217.17 217.17 0.4295E+01 0.2719E+04 0.1798E-01
0.3185E+05 0.2106E+00
0.1040E+04 0.6878E-02
0.3672E+04 0.2428E-01
23.18 -3.52 27.74 0.00 -0.49 0.35 0.00 0.4252E+00 6.02 221.02 221.02 0.4234E+01 0.2650E+04 0.1720E-01
0.3183E+05 0.2066E+00
0.1040E+04 0.6748E-02
0.3671E+04 0.2382E-01
23.29 -3.57 27.78 0.00 -0.47 0.33 0.00 0.4168E+00 5.93 224.71 224.71 0.4177E+01 0.2583E+04 0.1647E-01
0.3182E+05 0.2029E+00
0.1039E+04 0.6626E-02
0.3669E+04 0.2339E-01
23.39 -3.61 27.81 0.00 -0.44 0.30 0.00 0.4091E+00 5.85 228.25 228.25 0.4124E+01 0.2516E+04 0.1577E-01
0.3181E+05 0.1994E+00
0.1039E+04 0.6513E-02
0.3668E+04 0.2300E-01
23.49 -3.66 27.84 0.00 -0.42 0.28 0.00 0.4018E+00 5.77 231.64 231.64 0.4075E+01 0.2450E+04 0.1512E-01
0.3180E+05 0.1962E+00
0.1039E+04 0.6408E-02
0.3667E+04 0.2262E-01
23.59 -3.70 27.86 0.00 -0.40 0.26 0.00 0.3949E+00 5.70 234.90 234.90 0.4029E+01 0.2385E+04 0.1449E-01
0.3179E+05 0.1932E+00
0.1038E+04 0.6310E-02
0.3665E+04 0.2228E-01
23.70 -3.74 27.89 0.00 -0.38 0.24 0.00 0.3885E+00 5.63 238.02 238.02 0.3985E+01 0.2321E+04 0.1390E-01
0.3178E+05 0.1904E+00

0.1038E+04 0.6217E-02
0.3664E+04 0.2195E-01
23.80 -3.78 27.91 0.00 -0.36 0.23 0.00 0.3825E+00 5.56 241.03 241.03 0.3945E+01 0.2258E+04 0.1334E-01
0.3177E+05 0.1877E+00
0.1038E+04 0.6131E-02
0.3663E+04 0.2164E-01
23.90 -3.81 27.94 0.00 -0.34 0.21 0.00 0.3768E+00 5.50 243.93 243.93 0.3906E+01 0.2196E+04 0.1280E-01
0.3176E+05 0.1852E+00
0.1037E+04 0.6049E-02
0.3662E+04 0.2136E-01
24.00 -3.85 27.96 0.00 -0.32 0.20 0.00 0.3714E+00 5.45 246.73 246.73 0.3870E+01 0.2135E+04 0.1229E-01
0.3175E+05 0.1829E+00
0.1037E+04 0.5972E-02
0.3661E+04 0.2108E-01
24.11 -3.88 27.98 0.00 -0.31 0.19 0.00 0.3664E+00 5.39 249.43 249.43 0.3836E+01 0.2075E+04 0.1181E-01
0.3174E+05 0.1806E+00
0.1037E+04 0.5899E-02
0.3660E+04 0.2083E-01
24.21 -3.91 28.00 0.00 -0.29 0.18 0.00 0.3615E+00 5.34 252.04 252.04 0.3803E+01 0.2016E+04 0.1134E-01
0.3174E+05 0.1785E+00
0.1037E+04 0.5831E-02
0.3659E+04 0.2058E-01
24.31 -3.94 28.01 0.00 -0.27 0.17 0.00 0.3570E+00 5.30 254.57 254.57 0.3773E+01 0.1958E+04 0.1089E-01
0.3173E+05 0.1765E+00
0.1036E+04 0.5765E-02
0.3659E+04 0.2035E-01
24.41 -3.97 28.03 0.00 -0.26 0.16 0.00 0.3526E+00 5.25 257.02 257.02 0.3743E+01 0.1902E+04 0.1047E-01
0.3172E+05 0.1746E+00
0.1036E+04 0.5703E-02
0.3658E+04 0.2013E-01
24.52 -3.99 28.05 0.00 -0.24 0.15 0.00 0.3484E+00 5.21 259.39 259.39 0.3715E+01 0.1847E+04 0.1006E-01
0.3171E+05 0.1728E+00
0.1036E+04 0.5644E-02
0.3657E+04 0.1993E-01
24.62 -4.02 28.06 0.00 -0.23 0.15 0.00 0.3445E+00 5.17 261.70 261.70 0.3689E+01 0.1792E+04 0.9670E-02
0.3171E+05 0.1711E+00
0.1036E+04 0.5587E-02
0.3656E+04 0.1973E-01

24.72 -4.04 28.08 0.00 -0.21 0.14 0.00 0.3407E+00 5.13 263.95 263.95 0.3663E+01 0.1739E+04 0.9296E-02
0.3170E+05 0.1694E+00
0.1035E+04 0.5533E-02
0.3656E+04 0.1954E-01
24.83 -4.06 28.09 0.00 -0.20 0.13 0.00 0.3370E+00 5.09 266.14 266.14 0.3639E+01 0.1688E+04 0.8936E-02
0.3170E+05 0.1678E+00
0.1035E+04 0.5482E-02
0.3655E+04 0.1935E-01
24.93 -4.08 28.10 0.00 -0.18 0.13 0.00 0.3335E+00 5.06 268.27 268.27 0.3615E+01 0.1637E+04 0.8591E-02
0.3169E+05 0.1663E+00
0.1035E+04 0.5432E-02
0.3654E+04 0.1918E-01
25.03 -4.10 28.12 0.00 -0.17 0.12 0.00 0.3302E+00 5.02 270.35 270.35 0.3593E+01 0.1588E+04 0.8260E-02
0.3168E+05 0.1649E+00
0.1035E+04 0.5384E-02
0.3654E+04 0.1901E-01
25.13 -4.12 28.13 0.00 -0.16 0.12 0.00 0.3270E+00 4.99 272.39 272.39 0.3571E+01 0.1539E+04 0.7943E-02
0.3168E+05 0.1635E+00
0.1035E+04 0.5339E-02
0.3653E+04 0.1885E-01
25.24 -4.13 28.14 0.00 -0.14 0.11 0.00 0.3239E+00 4.96 274.37 274.37 0.3551E+01 0.1492E+04 0.7637E-02
0.3167E+05 0.1621E+00
0.1035E+04 0.5294E-02
0.3652E+04 0.1869E-01
25.34 -4.15 28.15 0.00 -0.13 0.11 0.00 0.3209E+00 4.93 276.32 276.32 0.3530E+01 0.1446E+04 0.7344E-02
0.3167E+05 0.1608E+00
0.1034E+04 0.5252E-02
0.3652E+04 0.1854E-01
25.44 -4.16 28.16 0.00 -0.12 0.11 0.00 0.3180E+00 4.90 278.22 278.22 0.3511E+01 0.1402E+04 0.7062E-02
0.3166E+05 0.1595E+00
0.1034E+04 0.5211E-02
0.3651E+04 0.1840E-01
25.54 -4.17 28.17 0.00 -0.11 0.10 0.00 0.3152E+00 4.87 280.09 280.09 0.3492E+01 0.1358E+04 0.6791E-02
0.3166E+05 0.1583E+00
0.1034E+04 0.5171E-02
0.3651E+04 0.1826E-01
25.65 -4.18 28.18 0.00 -0.09 0.10 0.00 0.3125E+00 4.84 281.92 281.92 0.3474E+01 0.1315E+04 0.6530E-02
0.3165E+05 0.1572E+00

0.1034E+04 0.5133E-02
0.3650E+04 0.1812E-01
25.75 -4.19 28.20 0.00 -0.08 0.10 0.00 0.3099E+00 4.81 283.71 283.71 0.3457E+01 0.1274E+04 0.6280E-02
0.3165E+05 0.1560E+00
0.1034E+04 0.5096E-02
0.3650E+04 0.1799E-01
25.85 -4.20 28.20 0.00 -0.07 0.09 0.00 0.3074E+00 4.79 285.48 285.48 0.3440E+01 0.1234E+04 0.6039E-02
0.3165E+05 0.1549E+00
0.1034E+04 0.5060E-02
0.3649E+04 0.1786E-01
25.95 -4.21 28.21 0.00 -0.06 0.09 0.00 0.3050E+00 4.76 287.21 287.21 0.3423E+01 0.1194E+04 0.5807E-02
0.3164E+05 0.1538E+00
0.1033E+04 0.5025E-02
0.3649E+04 0.1774E-01
26.06 -4.21 28.22 0.00 -0.05 0.09 0.00 0.3026E+00 4.74 288.92 288.92 0.3407E+01 0.1156E+04 0.5584E-02
0.3164E+05 0.1528E+00
0.1033E+04 0.4991E-02
0.3648E+04 0.1762E-01
26.16 -4.22 28.23 0.00 -0.04 0.09 0.00 0.3003E+00 4.71 290.59 290.59 0.3392E+01 0.1119E+04 0.5369E-02
0.3163E+05 0.1518E+00
0.1033E+04 0.4958E-02
0.3648E+04 0.1750E-01
26.26 -4.22 28.24 0.00 -0.03 0.08 0.00 0.2981E+00 4.69 292.24 292.24 0.3376E+01 0.1083E+04 0.5163E-02
0.3163E+05 0.1508E+00
0.1033E+04 0.4926E-02
0.3647E+04 0.1739E-01
26.37 -4.22 28.25 0.00 -0.02 0.08 0.00 0.2959E+00 4.67 293.87 293.87 0.3362E+01 0.1048E+04 0.4964E-02
0.3163E+05 0.1499E+00
0.1033E+04 0.4895E-02
0.3647E+04 0.1728E-01
26.47 -4.22 28.26 0.00 0.00 0.08 0.00 0.2938E+00 4.64 295.47 295.47 0.3347E+01 0.1013E+04 0.4773E-02
0.3162E+05 0.1489E+00
0.1033E+04 0.4864E-02
0.3646E+04 0.1717E-01
26.57 -4.22 28.27 0.00 0.00 0.08 0.00 0.2918E+00 4.62 297.05 297.05 0.3333E+01 0.9801E+03 0.4589E-02
0.3162E+05 0.1480E+00
0.1033E+04 0.4835E-02
0.3646E+04 0.1707E-01

26.67 -4.22 28.27 0.00 0.00 0.08 0.00 0.2898E+00 4.60 298.60 298.60 0.3320E+01 0.9478E+03 0.4412E-02
0.3161E+05 0.1471E+00
0.1033E+04 0.4806E-02
0.3645E+04 0.1697E-01
26.78 -4.22 28.28 0.00 0.00 0.07 0.00 0.2879E+00 4.58 300.14 300.14 0.3306E+01 0.9164E+03 0.4241E-02
0.3161E+05 0.1463E+00
0.1032E+04 0.4778E-02
0.3645E+04 0.1687E-01
26.88 -4.22 28.29 0.00 0.00 0.07 0.00 0.2860E+00 4.56 301.65 301.65 0.3293E+01 0.8859E+03 0.4077E-02
0.3161E+05 0.1454E+00
0.1032E+04 0.4751E-02
0.3645E+04 0.1677E-01
26.98 -4.22 28.30 0.00 0.00 0.07 0.00 0.2841E+00 4.54 303.15 303.15 0.3281E+01 0.8564E+03 0.3919E-02
0.3160E+05 0.1446E+00
0.1032E+04 0.4724E-02
0.3644E+04 0.1668E-01
27.08 -4.22 28.30 0.00 0.00 0.07 0.00 0.2823E+00 4.52 304.62 304.62 0.3268E+01 0.8276E+03 0.3767E-02
0.3160E+05 0.1438E+00
0.1032E+04 0.4698E-02
0.3644E+04 0.1658E-01
27.19 -4.22 28.31 0.00 0.00 0.07 0.00 0.2806E+00 4.50 306.08 306.08 0.3256E+01 0.7998E+03 0.3621E-02
0.3160E+05 0.1430E+00
0.1032E+04 0.4672E-02
0.3643E+04 0.1649E-01
27.29 -4.22 28.32 0.00 0.00 0.07 0.00 0.2789E+00 4.48 307.52 307.52 0.3244E+01 0.7727E+03 0.3480E-02
0.3159E+05 0.1423E+00
0.1032E+04 0.4647E-02
0.3643E+04 0.1641E-01
27.39 -4.22 28.33 0.00 0.00 0.07 0.00 0.2772E+00 4.47 308.95 308.95 0.3233E+01 0.7465E+03 0.3344E-02
0.3159E+05 0.1415E+00
0.1032E+04 0.4623E-02
0.3643E+04 0.1632E-01
27.49 -4.22 28.33 0.00 0.00 0.06 0.00 0.2756E+00 4.45 310.36 310.36 0.3222E+01 0.7210E+03 0.3214E-02
0.3159E+05 0.1408E+00
0.1032E+04 0.4599E-02
0.3642E+04 0.1624E-01
27.60 -4.22 28.34 0.00 0.00 0.06 0.00 0.2740E+00 4.43 311.75 311.75 0.3210E+01 0.6964E+03 0.3089E-02
0.3158E+05 0.1401E+00

0.1032E+04 0.4575E-02
0.3642E+04 0.1615E-01

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR SILT

FALL VELOCITY OF COHESIVE MATERIAL IS 0.006900 FT/SEC COMPUTED FOR CLAY

TIME FROM DISPOSAL (SEC)	CLOUD CENTROID X-LOCATION (FT)	CLOUD CENTROID Z-LOCATION (FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	T O T A L M A S S (CU FT)	ENTRAINED MASS (CU FT)	TIME STEP WHEN THIS CLOUD WAS CREATED	TIME STEP WHEN PREVIOUS CLOUD WAS CREATED
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 1									
20.77	1959.	3500.	82.36	30.00	0.1000E-02	203.8	0.0000E+00	31	1
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 2									
21.54	1958.	3500.	122.5	30.00	0.1000E-02	361.3	0.0000E+00	61	31
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 3									
22.31	1957.	3500.	161.7	30.00	0.1000E-02	483.0	0.0000E+00	91	61
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 4									
23.08	1957.	3500.	192.5	30.00	0.1000E-02	519.5	0.0000E+00	121	91
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 5									
23.85	1956.	3500.	214.9	30.00	0.1000E-02	491.9	0.0000E+00	151	121
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 6									
24.62	1956.	3500.	231.9	30.00	0.1000E-02	434.3	0.0000E+00	181	151
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 7									
25.39	1956.	3500.	245.7	30.00	0.1000E-02	368.5	0.0000E+00	211	181
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 8									
26.16	1956.	3500.	257.5	30.00	0.1000E-02	305.0	0.0000E+00	241	211
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 9									
26.93	1956.	3500.	268.0	30.00	0.1000E-02	247.8	0.0000E+00	271	241
NEW CLOUD CREATED, NTCLD(K) (K = 1) = 10									
27.67	1956.	3500.	277.2	25.58	4.418	871.0	0.0000E+00	300	271

NOTE -- When all solid material has settled from a cloud, the cloud is erased and

the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 1
20.77 1959. 3500. 82.36 10.50 9.319 2253. 0.0000E+00 31 1

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 2
21.54 1958. 3500. 122.5 19.82 6.860 450.4 0.0000E+00 61 31

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 3
22.31 1957. 3500. 161.7 26.68 2.567 254.8 0.0000E+00 91 61

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 4
23.08 1957. 3500. 192.5 28.87 1.130 141.1 0.0000E+00 121 91

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 5
23.85 1956. 3500. 214.9 29.41 0.5904 83.76 0.0000E+00 151 121

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 6
24.62 1956. 3500. 231.9 29.64 0.3648 55.97 0.0000E+00 181 151

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 7
25.39 1956. 3500. 245.7 29.74 0.2572 41.69 0.0000E+00 211 181

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 8
26.16 1956. 3500. 257.5 29.80 0.1984 33.55 0.0000E+00 241 211

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 9
26.93 1956. 3500. 268.0 29.84 0.1621 28.40 0.0000E+00 271 241

NEW CLOUD CREATED, NTCLD(K) (K = 2) = 10
27.67 1956. 3500. 277.2 25.58 4.418 0.3160E+05 0.0000E+00 300 271

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN

DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 1
20.77 1959. 3500. 82.36 10.50 9.319 73.59 0.0000E+00 31 1

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 2
21.54 1958. 3500. 122.5 19.82 6.860 14.71 0.0000E+00 61 31

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 3
22.31 1957. 3500. 161.7 26.68 2.567 8.321 0.0000E+00 91 61

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 4
23.08 1957. 3500. 192.5 28.87 1.130 4.608 0.0000E+00 121 91

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 5
23.85 1956. 3500. 214.9 29.41 0.5904 2.736 0.0000E+00 151 121

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 6
24.62 1956. 3500. 231.9 29.64 0.3648 1.828 0.0000E+00 181 151

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 7
25.39 1956. 3500. 245.7 29.74 0.2572 1.361 0.0000E+00 211 181

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 8
26.16 1956. 3500. 257.5 29.80 0.1984 1.096 0.0000E+00 241 211

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 9
26.93 1956. 3500. 268.0 29.84 0.1621 0.9279 0.0000E+00 271 241

NEW CLOUD CREATED, NTCLD(K) (K = 3) = 10
27.67 1956. 3500. 277.2 25.58 4.418 1032. 0.0000E+00 300 271

NOTE -- When all solid material has settled from a cloud, the cloud is erased and
the remaining clouds for this solids type are renumbered.

TIME FROM CLOUD CENTROID CLOUD X-Z DEPTH OF CLOUD VERT. T O T A L ENTRAINED TIME STEP WHEN TIME STEP WHEN
DISPOSAL X-LOCATION Z-LOCATION DIAMETER TOP OF CLOUD THICKNESS M A S S MASS THIS CLOUD PREVIOUS CLOUD
(SEC) (FT) (FT) (FT) (FT) (FT) (CU FT) (CU FT) WAS CREATED WAS CREATED

NEW CLOUD CREATED, NTCLD(K) (K = 4) = 1

```
  20.77      1959.      3500.      82.36      10.50      9.319      259.8      0.0000E+00      31            1

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   2
  21.54      1958.      3500.      122.5      19.82      6.860      51.94      0.0000E+00      61            31

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   3
  22.31      1957.      3500.      161.7      26.68      2.567      29.38      0.0000E+00      91            61

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   4
  23.08      1957.      3500.      192.5      28.87      1.130      16.27      0.0000E+00      121           91

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   5
  23.85      1956.      3500.      214.9      29.41      0.5904      9.659      0.0000E+00      151           121

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   6
  24.62      1956.      3500.      231.9      29.64      0.3648      6.454      0.0000E+00      181           151

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   7
  25.39      1956.      3500.      245.7      29.74      0.2572      4.807      0.0000E+00      211           181

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   8
  26.16      1956.      3500.      257.5      29.80      0.1984      3.869      0.0000E+00      241           211

NEW CLOUD CREATED, NTCLD(K) (K =    4) =   9
  26.93      1956.      3500.      268.0      29.84      0.1621      3.277      0.0000E+00      271           241

NEW CLOUD CREATED, NTCLD(K) (K =    4) =  10
  27.67      1956.      3500.      277.2      25.58      4.418      3644.      0.0000E+00      300           271


NOTE -- When all solid material has settled from a cloud, the cloud is erased and
        the remaining clouds for this solids type are renumbered.


   TIME FROM       CLOUD CENTROID      CLOUD X-Z   DEPTH OF   CLOUD VERT.  T O T A L  ENTRAINED
TIME STEP WHEN   TIME STEP WHEN
    DISPOSAL   X-LOCATION  Z-LOCATION   DIAMETER  TOP OF CLOUD THICKNESS     M A S S      MASS
THIS CLOUD     PREVIOUS CLOUD
     (SEC)       (FT)       (FT)       (FT)       (FT)       (FT)      ( MG )     ( MG )     WAS CREATED      WAS
CREATED

NEW CLOUD CREATED, NTCLD(K) (K =    5) =   1
  27.67      1956.      3500.      277.2      25.58      4.418      0.2052E+08  0.4497E+07      300           1


NOTE -- When all solid material has settled from a cloud, the cloud is erased and
        the remaining clouds for this solids type are renumbered.
```

LONG TERM DIFFUSION RESULTS:

BEGIN LONG TERM SIMULATION OF FATE OF GRAVEL

SUMMARY OF GRAVEL DISTRIBUTIONS AFTER 100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 0.00000E+00
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 4286.3

COMPUTATIONS FOR GRAVEL TERMINATED AT 100.00 SEC. ELAPSED TIME...MATERIAL SETTLED TO BOTTOM

BOTTOM ACCUMULATION OF GRAVEL (CU FT/GRID SQUARE) , 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 10.00 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1.7 1.7 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . 213 213 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF GRAVEL   ACCUMULATED ON BOTTOM,      100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .06 .06  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 7.9 7.9  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  0  0  0  0  0  0  0  0  0  0  0  0
13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
 23    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 24    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 25    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 26    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 27    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 28    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 29    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 30    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 31    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 32    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 33    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 34    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 35    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 36    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 37    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 38    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 39    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 40    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 41    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 42    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 43    0   0   0   0   0   0   0   0   0   0   0   0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

    BEGIN LONG TERM SIMULATION OF FATE OF SAND


 SUMMARY OF SAND     DISTRIBUTIONS AFTER     100.00 SEC.

    TOTAL SUSPENDED MATERIAL (CU FT) =    0.00000E+00
    TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =     34947.


     COMPUTATIONS FOR SAND     TERMINATED AT     100.00  SEC. ELAPSED TIME...MATERIAL SETTLED
TO BOTTOM

 BOTTOM ACCUMULATION OF SAND     (CU FT/GRID SQUARE) ,    100.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   100.0        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .34 .34 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . 174 174 . 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .01 .01 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO

9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

THICKNESS (FT) OF SAND ACCUMULATED ON BOTTOM, 100.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + + 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .65 .65 0 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10  0  0  0  0  0  0  0  0  0  0  0  0OOOO
11  0  0  0  0  0  0  0  0  0  0  0  0OOOO
12  0  0  0  0  0  0  0  0  0  0  0  0OOOO
13  0  0  0  0  0  0  0  0  0  0  0  0OOOO
14  0  0  0  0  0  0  0  0  0  0  0  0OOOO
15  0  0  0  0  0  0  0  0  0  0  0  0OOOO
16  0  0  0  0  0  0  0  0  0  0  0  0OOOO
17  0  0  0  0  0  0  0  0  0  0  0  0OOOO
18  0  0  0  0  0  0  0  0  0  0  0  0OOOO
19  0  0  0  0  0  0  0  0  0  0  0  0OOOO
20  0  0  0  0  0  0  0  0  0  0  0  0OOOO
21  0  0  0  0  0  0  0  0  0  0  0  0OOOO
22  0  0  0  0  0  0  0  0  0  0  0  0OOOO
23  0  0  0  0  0  0  0  0  0  0  0  0OOOO
24  0  0  0  0  0  0  0  0  0  0  0  0OOOO
25  0  0  0  0  0  0  0  0  0  0  0  0OOOO
26  0  0  0  0  0  0  0  0  0  0  0  0OOOO
27  0  0  0  0  0  0  0  0  0  0  0  0OOOO
28  0  0  0  0  0  0  0  0  0  0  0  0OOOO
29  0  0  0  0  0  0  0  0  0  0  0  0OOOO
30  0  0  0  0  0  0  0  0  0  0  0  0OOOO
31  0  0  0  0  0  0  0  0  0  0  0  0OOOO
32  0  0  0  0  0  0  0  0  0  0  0  0OOOO
33  0  0  0  0  0  0  0  0  0  0  0  0OOOO
34  0  0  0  0  0  0  0  0  0  0  0  0OOOO
35  0  0  0  0  0  0  0  0  0  0  0  0OOOO
36  0  0  0  0  0  0  0  0  0  0  0  0OOOO
37  0  0  0  0  0  0  0  0  0  0  0  0OOOO
38  0  0  0  0  0  0  0  0  0  0  0  0OOOO
39  0  0  0  0  0  0  0  0  0  0  0  0OOOO
40  0  0  0  0  0  0  0  0  0  0  0  0OOOO
41  0  0  0  0  0  0  0  0  0  0  0  0OOOO
42  0  0  0  0  0  0  0  0  0  0  0  0OOOO
43  0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

BEGIN LONG TERM SIMULATION OF FATE OF SILT

SUMMARY OF SILT   DISTRIBUTIONS AFTER   100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) =   1049.8
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =   91.620

SUMMARY OF SILT DISTRIBUTIONS AFTER 200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 939.15
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 202.27

SUMMARY OF SILT DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 842.06
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 299.37

SUMMARY OF SILT DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 756.66
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 384.76

SUMMARY OF SILT DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 681.46
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 459.96

SUMMARY OF SILT DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 626.59
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 514.83

SUMMARY OF SILT DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 586.29
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 555.14

SUMMARY OF SILT DISTRIBUTIONS AFTER 800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 555.16
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 586.26

SUMMARY OF SILT DISTRIBUTIONS AFTER 900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 530.50

```
    TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) =     610.93

 CONCENTRATIONS ABOVE BACKGROUND OF SILT     (MG/L) IN THE CLOUD    900.00 SECONDS AFTER
DUMP

             0.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  4 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  5 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  6 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  7 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  8 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
  9 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 10 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 11 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   .   0   0   0   0   0   0   0   0   0   0   0   0
 12 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   + .07 .07   +   0   0   0   0   0   0   0   0   0   0   0
 13 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   . .02 6.5 6.5 .02   0   0   0   0   0   0   0   0   0   0   0
 14 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   .   + 4.1 4.1   +   0   0   0   0   0   0   0   0   0   0   0
 15 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   .   +   +   .   0   0   0   0   0   0   0   0   0   0   0
 16 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 17 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 18 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 19 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 20 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 21 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 22 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 23 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 24 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 25 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 26 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 27 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 28 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 29 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 30 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 31 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 32 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 33 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 34 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 35 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 36 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 37 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
 38 OOOO   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO

39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .29 13 13 .29 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + 7.2 318 318 7.2 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + 4.0 182 182 4.0 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .05 6.4 6.4 .05 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT     (CU FT/GRID SQUARE) ,    900.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .01 6.6 6.6 .01  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  . .76 176 176 .76  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.1 110 110 1.1  +  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  . .18  11  11 .18  .  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + .18 .18  +  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO

32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 900.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	2530.	3500.	69.17	0.0000E+00	144.2	10.09	19.91	0.656214E-03
2	2529.	3500.	14.63	0.0000E+00	191.6	0.0000E+00	30.00	0.432991E-04
3	2473.	3500.	8.273	0.0000E+00	236.6	0.0000E+00	30.00	0.340000E-04
4	2458.	3500.	4.578	0.0000E+00	271.3	0.0000E+00	30.00	0.340000E-04
5	2455.	3500.	2.719	0.0000E+00	296.4	0.0000E+00	30.00	0.340000E-04
6	2453.	3500.	1.818	0.0000E+00	315.2	0.0000E+00	30.00	0.340000E-04
7	2452.	3500.	1.354	0.0000E+00	330.4	0.0000E+00	30.00	0.340000E-04
8	2452.	3500.	1.090	0.0000E+00	343.3	0.0000E+00	30.00	0.340000E-04
9	2451.	3500.	0.9236	0.0000E+00	354.8	0.0000E+00	30.00	0.340000E-04
10	2269.	3500.	425.9	0.0000E+00	364.8	24.28	5.723	0.318269E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 510.46
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 630.96

SUMMARY OF SILT DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 493.75
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 647.67

SUMMARY OF SILT DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 479.72
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 661.71

SUMMARY OF SILT DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 467.89
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 673.53

SUMMARY OF SILT DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 457.84
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 683.59

SUMMARY OF SILT DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 449.26
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 692.16

SUMMARY OF SILT DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 441.93
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 699.49

SUMMARY OF SILT DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 435.63
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 705.80

SUMMARY OF SILT DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 430.20
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 711.22

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .02 .46 .46 .02  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .18  14  14 .18  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .07  17  17 .07  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .03 .03  +  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO

40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + + + 0 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .13 1.4 1.4 .13 0 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .04 5.3 55 55 5.3 0 0 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 + .18 20 206 206 20 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . .06 7.1 74 74 7.1 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .33 9.4 9.4 .33 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .03 8.6 8.6 .03 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .01 .01 + 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO


M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 4  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 5  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 6  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 7  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 8  0 0 0 0 0 0 0 0 0 0 0 0OOOO
 9  0 0 0 0 0 0 0 0 0 0 0 0OOOO
10  0 0 0 0 0 0 0 0 0 0 0 0OOOO
11  0 0 0 0 0 0 0 0 0 0 0 0OOOO
12  0 0 0 0 0 0 0 0 0 0 0 0OOOO
13  0 0 0 0 0 0 0 0 0 0 0 0OOOO
14  0 0 0 0 0 0 0 0 0 0 0 0OOOO
15  0 0 0 0 0 0 0 0 0 0 0 0OOOO
16  0 0 0 0 0 0 0 0 0 0 0 0OOOO
17  0 0 0 0 0 0 0 0 0 0 0 0OOOO
18  0 0 0 0 0 0 0 0 0 0 0 0OOOO
19  0 0 0 0 0 0 0 0 0 0 0 0OOOO
20  0 0 0 0 0 0 0 0 0 0 0 0OOOO
21  0 0 0 0 0 0 0 0 0 0 0 0OOOO
22  0 0 0 0 0 0 0 0 0 0 0 0OOOO
23  0 0 0 0 0 0 0 0 0 0 0 0OOOO
24  0 0 0 0 0 0 0 0 0 0 0 0OOOO
25  0 0 0 0 0 0 0 0 0 0 0 0OOOO
26  0 0 0 0 0 0 0 0 0 0 0 0OOOO
27  0 0 0 0 0 0 0 0 0 0 0 0OOOO
28  0 0 0 0 0 0 0 0 0 0 0 0OOOO
29  0 0 0 0 0 0 0 0 0 0 0 0OOOO
30  0 0 0 0 0 0 0 0 0 0 0 0OOOO
31  0 0 0 0 0 0 0 0 0 0 0 0OOOO
32  0 0 0 0 0 0 0 0 0 0 0 0OOOO
33  0 0 0 0 0 0 0 0 0 0 0 0OOOO
34  0 0 0 0 0 0 0 0 0 0 0 0OOOO
```

35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT (CU FT/GRID SQUARE) , 1800.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
6 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . + + . 0 0 0 0 0 0 0 0 0 0 0
10 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 .01 6.6 6.6 .01 0 0 0 0 0 0 0 0 0 0 0
11 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .76 176 176 .76 . 0 0 0 0 0 0 0 0 0 0
12 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + 1.5 119 119 1.5 + 0 0 0 0 0 0 0 0 0 0
13 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + 1.3 36 36 1.3 + . 0 0 0 0 0 0 0 0 0
14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 . + .74 11 11 .74 + . 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 + .10 1.4 1.4 .10 + 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . + .09 .09 + . 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . .01 .01 . 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 1800.00 SECONDS ELAPSED TIME FOR SILT

CLOUD #	LOCATION OF CLOUD CENTROID DISTANCE FROM TOP OF GRID	LEFT OF GRID	MASS FROM DISPOSAL (CU FT)	ENTRAINED MASS (CU FT)	CLOUD X-Z DIAMETER (FT)	DEPTH OF TOP OF CLOUD (FT)	CLOUD VERT. THICKNESS (FT)	SOLIDS FALL VELOCITY (FPS)
1	3115.	3500.	68.36	0.0000E+00	218.6	0.0000E+00	30.00	0.135794E-03
2	3114.	3500.	14.61	0.0000E+00	272.5	0.0000E+00	30.00	0.340000E-04
3	3058.	3500.	8.265	0.0000E+00	322.8	0.0000E+00	30.00	0.340000E-04
4	3043.	3500.	4.573	0.0000E+00	361.2	0.0000E+00	30.00	0.340000E-04
5	3040.	3500.	2.716	0.0000E+00	388.7	0.0000E+00	30.00	0.340000E-04
6	3038.	3500.	1.816	0.0000E+00	409.3	0.0000E+00	30.00	0.340000E-04
7	3037.	3500.	1.352	0.0000E+00	425.9	0.0000E+00	30.00	0.340000E-04
8	3037.	3500.	1.089	0.0000E+00	440.0	0.0000E+00	30.00	0.340000E-04
9	3036.	3500.	0.9226	0.0000E+00	452.4	0.0000E+00	30.00	0.340000E-04
10	2612.	3500.	326.5	0.0000E+00	463.3	23.73	6.273	0.101700E-02

SUMMARY OF SILT DISTRIBUTIONS AFTER 1900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 425.52
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 715.90

SUMMARY OF SILT DISTRIBUTIONS AFTER 2000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 421.46
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 719.96

SUMMARY OF SILT DISTRIBUTIONS AFTER 2100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 417.93
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 723.49

SUMMARY OF SILT DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 414.86
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 726.57

SUMMARY OF SILT DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 412.17
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 729.25

SUMMARY OF SILT DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 409.81
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 731.61

SUMMARY OF SILT DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 407.74
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 733.68

SUMMARY OF SILT DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 405.90
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 735.52

SUMMARY OF SILT DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 404.37
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 737.05

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  +  + .03 .03  +  +  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .12 1.2 1.2 .12  +  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .64  23  23 .64  +  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .36  20  20 .36  +  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .23 .23 .01  +  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

CONCENTRATIONS ABOVE BACKGROUND OF SILT     (MG/L) IN THE CLOUD   2700.00 SECONDS AFTER
DUMP

           30.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .06 .06 .01  +  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .03 .76 3.6 3.6 .76 .03  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .39 8.7  41  41 8.7 .39  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .96  21 101 101  21 .96  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .49  11  52  52  11 .49  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .05 1.2 6.2 6.2 1.2 .05  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .34  12  12 .34  +  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .18  10  10 .18  +  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  +  + .11 .11  +  +  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO
33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO

```
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

BOTTOM ACCUMULATION OF SILT    (CU FT/GRID SQUARE) ,   2700.00 SECONDS AFTER DUMP
...MULTIPLY DISPLAYED VALUES BY   1.000       (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 4 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 5 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
10 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0 .01 6.6 6.6 .01  0  0  0  0  0  0  0  0  0  0  0
11 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  . .76 176 176 .76  .  0  0  0  0  0  0  0  0  0  0
12 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.5 119 119 1.5  +  0  0  0  0  0  0  0  0  0  0
13 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  + 1.4  37  37 1.4  +  .  0  0  0  0  0  0  0  0  0
14 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  . .01 1.1  14  14 1.1 .01  .  0  0  0  0  0  0  0  0  0
15 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  . .01 .79 6.1 6.1 .79 .01  .  0  0  0  0  0  0  0  0  0
16 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  . .01 .39 2.3 2.3 .39 .01  .  0  0  0  0  0  0  0  0  0
17 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  + .08 .50 .50 .08  +  .  0  0  0  0  0  0  0  0  0
18 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .06 .06  +  +  .  0  0  0  0  0  0  0  0  0
19 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .03 .03  +  .  0  0  0  0  0  0  0  0  0  0
20 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
21 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
22 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO   0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

M N= 32 33 34 35 36 37 38 39 40 41 42 43 44
2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
3 0 0 0 0 0 0 0 0 0 0 0 0OOOO
4 0 0 0 0 0 0 0 0 0 0 0 0OOOO
5 0 0 0 0 0 0 0 0 0 0 0 0OOOO
6 0 0 0 0 0 0 0 0 0 0 0 0OOOO
7 0 0 0 0 0 0 0 0 0 0 0 0OOOO
8 0 0 0 0 0 0 0 0 0 0 0 0OOOO
9 0 0 0 0 0 0 0 0 0 0 0 0OOOO
10 0 0 0 0 0 0 0 0 0 0 0 0OOOO
11 0 0 0 0 0 0 0 0 0 0 0 0OOOO
12 0 0 0 0 0 0 0 0 0 0 0 0OOOO
13 0 0 0 0 0 0 0 0 0 0 0 0OOOO
14 0 0 0 0 0 0 0 0 0 0 0 0OOOO
15 0 0 0 0 0 0 0 0 0 0 0 0OOOO
16 0 0 0 0 0 0 0 0 0 0 0 0OOOO
17 0 0 0 0 0 0 0 0 0 0 0 0OOOO
18 0 0 0 0 0 0 0 0 0 0 0 0OOOO
19 0 0 0 0 0 0 0 0 0 0 0 0OOOO
20 0 0 0 0 0 0 0 0 0 0 0 0OOOO
21 0 0 0 0 0 0 0 0 0 0 0 0OOOO
22 0 0 0 0 0 0 0 0 0 0 0 0OOOO
23 0 0 0 0 0 0 0 0 0 0 0 0OOOO
24 0 0 0 0 0 0 0 0 0 0 0 0OOOO
25 0 0 0 0 0 0 0 0 0 0 0 0OOOO
26 0 0 0 0 0 0 0 0 0 0 0 0OOOO
27 0 0 0 0 0 0 0 0 0 0 0 0OOOO
28 0 0 0 0 0 0 0 0 0 0 0 0OOOO
29 0 0 0 0 0 0 0 0 0 0 0 0OOOO
30 0 0 0 0 0 0 0 0 0 0 0 0OOOO
31 0 0 0 0 0 0 0 0 0 0 0 0OOOO
32 0 0 0 0 0 0 0 0 0 0 0 0OOOO

33 0 0 0 0 0 0 0 0 0 0 0 0OOOO
34 0 0 0 0 0 0 0 0 0 0 0 0OOOO
35 0 0 0 0 0 0 0 0 0 0 0 0OOOO
36 0 0 0 0 0 0 0 0 0 0 0 0OOOO
37 0 0 0 0 0 0 0 0 0 0 0 0OOOO
38 0 0 0 0 0 0 0 0 0 0 0 0OOOO
39 0 0 0 0 0 0 0 0 0 0 0 0OOOO
40 0 0 0 0 0 0 0 0 0 0 0 0OOOO
41 0 0 0 0 0 0 0 0 0 0 0 0OOOO
42 0 0 0 0 0 0 0 0 0 0 0 0OOOO
43 0 0 0 0 0 0 0 0 0 0 0 0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

SMALL CLOUDS AT 2700.00 SECONDS ELAPSED TIME FOR SILT

LOCATION OF CLOUD CENTROID			MASS FROM	ENTRAINED	CLOUD X-Z	DEPTH OF	CLOUD VERT.	SOLIDS FALL
CLOUD	DISTANCE FROM		DISPOSAL	MASS	DIAMETER	TOP OF CLOUD	THICKNESS	VELOCITY
#	TOP OF GRID	LEFT OF GRID	(CU FT)	(CU FT)	(FT)	(FT)	(FT)	(FPS)
1	3700.	3500.	68.17	0.0000E+00	302.7	0.0000E+00	30.00	0.688204E-04
2	3699.	3500.	14.60	0.0000E+00	362.6	0.0000E+00	30.00	0.340000E-04
3	3643.	3500.	8.256	0.0000E+00	417.7	0.0000E+00	30.00	0.340000E-04
4	3628.	3500.	4.568	0.0000E+00	459.4	0.0000E+00	30.00	0.340000E-04
5	3625.	3500.	2.714	0.0000E+00	489.2	0.0000E+00	30.00	0.340000E-04
6	3623.	3500.	1.814	0.0000E+00	511.4	0.0000E+00	30.00	0.340000E-04
7	3622.	3500.	1.351	0.0000E+00	529.2	0.0000E+00	30.00	0.340000E-04
8	3622.	3500.	1.088	0.0000E+00	544.4	0.0000E+00	30.00	0.340000E-04
9	3621.	3500.	0.9217	0.0000E+00	557.7	0.0000E+00	30.00	0.340000E-04
10	3015.	3500.	300.9	0.0000E+00	569.4	21.35	8.654	0.405404E-03

SUMMARY OF SILT DISTRIBUTIONS AFTER 2800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 403.39
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 738.03

SUMMARY OF SILT DISTRIBUTIONS AFTER 2900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.92
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 738.50

SUMMARY OF SILT DISTRIBUTIONS AFTER 3000.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.69
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 738.74

SUMMARY OF SILT DISTRIBUTIONS AFTER 3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.55
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 738.87

SUMMARY OF SILT DISTRIBUTIONS AFTER 3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.46
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 738.96

SUMMARY OF SILT DISTRIBUTIONS AFTER 3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.38
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 739.04

SUMMARY OF SILT DISTRIBUTIONS AFTER 3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.31
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 739.12

SUMMARY OF SILT DISTRIBUTIONS AFTER 3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.23
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 739.19

SUMMARY OF SILT DISTRIBUTIONS AFTER 3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 402.16
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 739.26

CONCENTRATIONS ABOVE BACKGROUND OF SILT (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  .  .  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  +  +  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .13 .38 .38 .13 .01  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  +  + .21 1.8 5.4 5.4 1.8 .21  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  .  + .04 1.0 8.9  26  26 8.9 1.0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  .  + .06 1.6  15  43  43  15 1.6  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  .  + .03 .93 8.0  24  24 8.0 .93  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .19 1.9 7.2 7.2 1.9 .19  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .05 1.8  24  24 1.8 .05  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .02 1.2  18  18 1.2 .02  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .08 .85 .85 .08  +  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .76 176 176 .76  .  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + 1.5 119 119 1.5  +  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + 1.4  37  37 1.4  +  .  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 1.1  14  14 1.1 .01  .  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 .80 6.2 6.2 .80 .01  .  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .01 .45 2.6 2.6 .45 .01  +  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .16 .80 .80 .16  +  .  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .04 .19 .19 .04  +  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .07 .07 .01  +  .  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .03 .03  +  +  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  .  + .02 .02  +  .  .  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .01  +  .  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 THICKNESS (FT) OF SILT     ACCUMULATED ON BOTTOM,     3600.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOO
```

```
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  + .09 .09  +  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0 .01 2.6 2.6 .01  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .02 1.7 1.7 .02  .  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  . .02 .55 .55 .02  .  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .01 .21 .21 .01  +  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .09 .09 .01  +  .  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .03 .03  +  +  .  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  .  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

TOTAL SUSPENDED MATERIAL (CU FT) = 3261.6
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 768.17

SUMMARY OF CLAY DISTRIBUTIONS AFTER 300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2898.0
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1131.8

SUMMARY OF CLAY DISTRIBUTIONS AFTER 400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2581.5
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1448.2

SUMMARY OF CLAY DISTRIBUTIONS AFTER 500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2305.2
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1724.5

SUMMARY OF CLAY DISTRIBUTIONS AFTER 600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 2064.7
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 1965.0

SUMMARY OF CLAY DISTRIBUTIONS AFTER 700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1854.7
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2175.1

SUMMARY OF CLAY DISTRIBUTIONS AFTER 800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1671.0
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2358.8

SUMMARY OF CLAY DISTRIBUTIONS AFTER 900.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1509.9
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2519.8

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOO
```

31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1244.3
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2785.5

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1137.4
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2892.3

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1061.3
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 2968.5

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 1003.7
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3026.1

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 958.81
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3070.9

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 922.43
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3107.3

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 892.42
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3137.3

SUMMARY OF CLAY DISTRIBUTIONS AFTER 1800.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 867.23
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3162.5

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .01  +  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .08 2.8 2.8 .08  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .64  32  32 .64  0  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  + .22  17  17 .22  0  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .09 .09  +  0  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

TOTAL SUSPENDED MATERIAL (CU FT) = 812.10
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3217.6

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 798.66
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3231.1

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 787.06
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3242.7

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 777.01
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3252.7

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 768.31
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3261.4

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 760.79
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3268.9

SUMMARY OF CLAY DISTRIBUTIONS AFTER 2700.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 754.30
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3275.4

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 2700.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
  3 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  4 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
  9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
 16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
 17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .17 .17 .02  +  0  0  0  0  0  0  0  0  0  0
 18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .56 6.2 6.2 .56  +  0  0  0  0  0  0  0  0  0  0
 19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  + .02 2.0  37  37 2.0 .02  0  0  0  0  0  0  0  0  0  0
 20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  . .01 .91  24  24 .91 .01  0  0  0  0  0  0  0  0  0  0
 21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .04 .52 .52 .04  +  0  0  0  0  0  0  0  0  0  0
 22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

TOTAL SUSPENDED MATERIAL (CU FT) = 739.46
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3290.3

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3100.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 735.66
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3294.1

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3200.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 732.30
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3297.4

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3300.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 729.31
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3300.4

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3400.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 726.66
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3303.1

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3500.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 724.35
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3305.4

SUMMARY OF CLAY DISTRIBUTIONS AFTER 3600.00 SEC.

TOTAL SUSPENDED MATERIAL (CU FT) = 722.68
TOTAL MATERIAL SETTLED TO BOTTOM (CU FT) = 3307.1

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF CLAY (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 1.000 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOO
```

43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 43    0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 BOTTOM ACCUMULATION OF CLAY     (CU FT/GRID SQUARE) ,   3600.00 SECONDS AFTER DUMP
 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOO
```

41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .12 .93 .93 .12 .01  +  .  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .26 .26 .01  +  .  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .13 .13  +  +  .  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .09 .09  +  .  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .02  +  .  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  .  .  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

SUMMARY OF COPPER DISTRIBUTIONS AFTER 200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL MASS (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VERT. VELOCITY (FPS)
1	2029.	3500.	0.4802E+08	0.3200E+08	293.9	14.82	15.18	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL MASS (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VERT. VELOCITY (FPS)
1	2094.	3500.	0.6912E+08	0.5310E+08	303.7	7.708	22.29	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL MASS (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VERT. VELOCITY (FPS)
1	2159.	3500.	0.9278E+08	0.7676E+08	313.6	0.5980	29.40	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2224. 3500. 0.1003E+09 0.8428E+08 323.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2289. 3500. 0.1060E+09 0.8996E+08 333.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2354. 3500. 0.1119E+09 0.9589E+08 344.0 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 800.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	DISTANCE FROM LEFT OF GRID	DISPOSAL MASS (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VERT. VELOCITY (FPS)
1	2419.	3500.	0.1181E+09	0.1021E+09	354.3	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOO
```

20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 900.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31
  2
OOOOOOOOOOOOOOOOOOOO
```

14 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 . .04 2.0 2.0 .04 0 0 0 0 0 0 0 0 0 0 0
15 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 + .03 .03 + 0 0 0 0 0 0 0 0 0 0 0
16 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
17 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  +  +  +  +  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .20 .20  +  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .14 .14  +  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2549.	3500.	0.1312E+09	0.1151E+09	375.3	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2614.	3500.	0.1381E+09	0.1220E+09	386.0	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD #	DISTANCE FROM TOP OF GRID	LEFT OF GRID	DISPOSAL (MG)	MASS (MG)	DIAMETER (FT)	TOP OF CLOUD (FT)	THICKNESS (FT)	VELOCITY (FPS)
1	2679.	3500.	0.1453E+09	0.1292E+09	396.7	0.0000E+00	30.00	0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2744. 3500. 0.1527E+09 0.1367E+09 407.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2809. 3500. 0.1604E+09 0.1444E+09 418.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2874. 3500. 0.1684E+09 0.1524E+09 429.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 2939. 3500. 0.1767E+09 0.1607E+09 440.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1700.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 1700.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3004. 3500. 0.1852E+09 0.1692E+09 451.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 1800.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2
OOOO

```
M N= 32  33  34  35  36  37  38  39  40  41  42  43  44
 2 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
 3   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 4   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 5   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 6   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 7   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 8   0   0   0   0   0   0   0   0   0   0   0   0OOOO
 9   0   0   0   0   0   0   0   0   0   0   0   0OOOO
10   0   0   0   0   0   0   0   0   0   0   0   0OOOO
11   0   0   0   0   0   0   0   0   0   0   0   0OOOO
12   0   0   0   0   0   0   0   0   0   0   0   0OOOO
13   0   0   0   0   0   0   0   0   0   0   0   0OOOO
14   0   0   0   0   0   0   0   0   0   0   0   0OOOO
15   0   0   0   0   0   0   0   0   0   0   0   0OOOO
16   0   0   0   0   0   0   0   0   0   0   0   0OOOO
17   0   0   0   0   0   0   0   0   0   0   0   0OOOO
18   0   0   0   0   0   0   0   0   0   0   0   0OOOO
19   0   0   0   0   0   0   0   0   0   0   0   0OOOO
20   0   0   0   0   0   0   0   0   0   0   0   0OOOO
21   0   0   0   0   0   0   0   0   0   0   0   0OOOO
22   0   0   0   0   0   0   0   0   0   0   0   0OOOO
23   0   0   0   0   0   0   0   0   0   0   0   0OOOO
24   0   0   0   0   0   0   0   0   0   0   0   0OOOO
25   0   0   0   0   0   0   0   0   0   0   0   0OOOO
26   0   0   0   0   0   0   0   0   0   0   0   0OOOO
27   0   0   0   0   0   0   0   0   0   0   0   0OOOO
28   0   0   0   0   0   0   0   0   0   0   0   0OOOO
29   0   0   0   0   0   0   0   0   0   0   0   0OOOO
30   0   0   0   0   0   0   0   0   0   0   0   0OOOO
31   0   0   0   0   0   0   0   0   0   0   0   0OOOO
32   0   0   0   0   0   0   0   0   0   0   0   0OOOO
33   0   0   0   0   0   0   0   0   0   0   0   0OOOO
34   0   0   0   0   0   0   0   0   0   0   0   0OOOO
35   0   0   0   0   0   0   0   0   0   0   0   0OOOO
36   0   0   0   0   0   0   0   0   0   0   0   0OOOO
37   0   0   0   0   0   0   0   0   0   0   0   0OOOO
38   0   0   0   0   0   0   0   0   0   0   0   0OOOO
39   0   0   0   0   0   0   0   0   0   0   0   0OOOO
40   0   0   0   0   0   0   0   0   0   0   0   0OOOO
41   0   0   0   0   0   0   0   0   0   0   0   0OOOO
42   0   0   0   0   0   0   0   0   0   0   0   0OOOO
43   0   0   0   0   0   0   0   0   0   0   0   0OOOO
44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 1800.00 SECONDS AFTER DUMP

30.00 FT BELOW THE WATER SURFACE

...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOO
```

42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 SMALL CLOUDS AT    1800.00 SECONDS ELAPSED TIME FOR COPPER


      LOCATION OF CLOUD CENTROID   MASS FROM   ENTRAINED   CLOUD X-Z   DEPTH OF   CLOUD VERT.
SOLIDS FALL
 CLOUD        DISTANCE FROM         DISPOSAL     MASS      DIAMETER  TOP OF CLOUD  THICKNESS
VELOCITY
  #    TOP OF GRID   LEFT OF GRID      (MG)       (MG)        (FT)        (FT)        (FT)         (FPS)

  1       3069.        3500.     0.1941E+09  0.1781E+09   463.3      0.0000E+00   30.00      0.000000E+00


 SUMMARY OF COPPER   DISTRIBUTIONS AFTER    1900.00 SEC

    TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) =    0.16023E+08

 SMALL CLOUDS AT    1900.00 SECONDS ELAPSED TIME FOR COPPER


      LOCATION OF CLOUD CENTROID   MASS FROM   ENTRAINED   CLOUD X-Z   DEPTH OF   CLOUD VERT.
SOLIDS FALL
 CLOUD        DISTANCE FROM         DISPOSAL     MASS      DIAMETER  TOP OF CLOUD  THICKNESS
VELOCITY
  #    TOP OF GRID   LEFT OF GRID      (MG)       (MG)        (FT)        (FT)        (FT)         (FPS)

  1       3134.        3500.     0.2032E+09  0.1872E+09   474.7      0.0000E+00   30.00      0.000000E+00


 SUMMARY OF COPPER   DISTRIBUTIONS AFTER    2000.00 SEC

    TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) =    0.16023E+08

 SMALL CLOUDS AT    2000.00 SECONDS ELAPSED TIME FOR COPPER


      LOCATION OF CLOUD CENTROID   MASS FROM   ENTRAINED   CLOUD X-Z   DEPTH OF   CLOUD VERT.
SOLIDS FALL
```

CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3199. 3500. 0.2127E+09 0.1967E+09 486.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 2100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3264. 3500. 0.2224E+09 0.2064E+09 497.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 2200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3329. 3500. 0.2325E+09 0.2165E+09 509.5 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 2300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3394. 3500. 0.2429E+09 0.2268E+09 521.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 2400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3459. 3500. 0.2536E+09 0.2375E+09 533.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16023E+08

SMALL CLOUDS AT 2500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3524. 3500. 0.2646E+09 0.2485E+09 545.2 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 2600.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL

```
 CLOUD        DISTANCE FROM          DISPOSAL     MASS      DIAMETER  TOP OF CLOUD  THICKNESS
VELOCITY
  #    TOP OF GRID   LEFT OF GRID      (MG)       (MG)       (FT)       (FT)       (FT)         (FPS)

  1       3589.        3500.      0.2759E+09  0.2599E+09   557.2      0.0000E+00   30.00      0.000000E+00


 SUMMARY OF COPPER   DISTRIBUTIONS AFTER    2700.00 SEC

    TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) =    0.16022E+08

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   2700.00 SECONDS AFTER
DUMP

              0.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOO
```

29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   2700.00 SECONDS AFTER
DUMP

            30.00 FT BELOW THE WATER SURFACE
 ...MULTIPLY DISPLAYED VALUES BY  0.1000E-01     (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT.
.000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOO
```

23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  .  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .04 .04  +  +  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .03 .14 .14 .03  +  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .10 .10 .02  +  0  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3719. 3500. 0.2996E+09 0.2836E+09 581.6 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 2900.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 2900.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3784. 3500. 0.3120E+09 0.2960E+09 593.9 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3000.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3000.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3849. 3500. 0.3247E+09 0.3087E+09 606.3 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3100.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3100.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3914. 3500. 0.3378E+09 0.3217E+09 618.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3200.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3200.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 3979. 3500. 0.3512E+09 0.3352E+09 631.4 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3300.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3300.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4044. 3500. 0.3650E+09 0.3489E+09 644.1 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3400.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3400.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4109. 3500. 0.3791E+09 0.3631E+09 656.8 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3500.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

SMALL CLOUDS AT 3500.00 SECONDS ELAPSED TIME FOR COPPER

LOCATION OF CLOUD CENTROID MASS FROM ENTRAINED CLOUD X-Z DEPTH OF CLOUD VERT. SOLIDS FALL
CLOUD DISTANCE FROM DISPOSAL MASS DIAMETER TOP OF CLOUD THICKNESS VELOCITY
TOP OF GRID LEFT OF GRID (MG) (MG) (FT) (FT) (FT) (FPS)

1 4174. 3500. 0.3937E+09 0.3776E+09 669.7 0.0000E+00 30.00 0.000000E+00

SUMMARY OF COPPER DISTRIBUTIONS AFTER 3600.00 SEC

TOTAL TRACER OR CONTAMINANT IN SOLUTION (MG) = 0.16022E+08

CONCENTRATIONS ABOVE BACKGROUND OF COPPER (MG/L) IN THE CLOUD 3600.00 SECONDS AFTER DUMP

0.00 FT BELOW THE WATER SURFACE
...MULTIPLY DISPLAYED VALUES BY 0.1000E-01 (LEGEND... + = .LT. .01 . = .LT. .0001 0 = .LT. .000001)
M N= 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
2
OOOO

```
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .01 .01  +  +  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  +  + .07 .22 .22 .07  +  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .05 .48 1.4 1.4 .48 .05  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .11 1.0 2.9 2.9 1.0 .11  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .08 .73 2.1 2.1 .73 .08  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .17 .52 .52 .17 .02  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .04 .04 .01  +  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
 5 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 6 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 7 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 8 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
 9 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
10 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
11 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
12 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
13 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
14 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
15 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
16 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
17 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
18 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
19 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  +  +  +  +  0  0  0  0  0  0  0  0  0  0
20 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  +  + .03 .11 .11 .03  +  0  0  0  0  0  0  0  0  0
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .02 .24 .70 .70 .24 .02  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .05 .50 1.4 1.4 .50 .05  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .04 .36 1.0 1.0 .36 .04  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  .  + .01 .08 .26 .26 .08 .01  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  .  +  + .02 .02  +  +  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 5   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 6   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 7   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 8   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 9   0  0  0  0  0  0  0  0  0  0  0  0OOOO
10   0  0  0  0  0  0  0  0  0  0  0  0OOOO
11   0  0  0  0  0  0  0  0  0  0  0  0OOOO
12   0  0  0  0  0  0  0  0  0  0  0  0OOOO
13   0  0  0  0  0  0  0  0  0  0  0  0OOOO
14   0  0  0  0  0  0  0  0  0  0  0  0OOOO
15   0  0  0  0  0  0  0  0  0  0  0  0OOOO
16   0  0  0  0  0  0  0  0  0  0  0  0OOOO
17   0  0  0  0  0  0  0  0  0  0  0  0OOOO
18   0  0  0  0  0  0  0  0  0  0  0  0OOOO
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

```
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
 2
OOOO
```

44
OOOO

```
 44 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

 CONCENTRATIONS ABOVE BACKGROUND OF COPPER   (MG/L) IN THE CLOUD   3600.00 SECONDS AFTER
DUMP

 THESE CONCENTRATIONS ARE THE MAXIMUM THAT EVER OCCURRED IN THE WATER COLUMN DURING
THE SIMULATION

 ...MULTIPLY DISPLAYED VALUES BY   1.000        (LEGEND... + = .LT. .01   . = .LT. .0001   0 = .LT. .000001)
 M N=  2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
31
  2
OOOOOOOOOOOOOOOOOOOO
```

37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

```
21 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  +  +  .  .  0  0  0  0  0  0  0  0  0  0
22 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
23 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  +  +  .  0  0  0  0  0  0  0  0  0  0  0
24 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  .  .  0  0  0  0  0  0  0  0  0  0  0  0
25 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
26 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
27 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
28 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
29 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
30 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
31 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
32 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
33 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
34 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
35 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
36 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
37 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
38 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
39 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
40 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
41 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
42 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
43 OOOO  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
44
OOOO
```

```
 21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
 44 OOOO
```

19 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
20 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . . . 0 0 0 0 0 0 0 0 0 0 0
21 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
22 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
23 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 . . 0 0 0 0 0 0 0 0 0 0 0 0
24 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
25 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
26 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
27 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
28 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
29 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
31 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
33 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
34 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
35 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
36 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
37 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
38 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
39 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
40 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
41 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
42 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
43 OOOO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
44
OOOO

```
19   0  0  0  0  0  0  0  0  0  0  0  0OOOO
20   0  0  0  0  0  0  0  0  0  0  0  0OOOO
21   0  0  0  0  0  0  0  0  0  0  0  0OOOO
22   0  0  0  0  0  0  0  0  0  0  0  0OOOO
23   0  0  0  0  0  0  0  0  0  0  0  0OOOO
24   0  0  0  0  0  0  0  0  0  0  0  0OOOO
25   0  0  0  0  0  0  0  0  0  0  0  0OOOO
26   0  0  0  0  0  0  0  0  0  0  0  0OOOO
27   0  0  0  0  0  0  0  0  0  0  0  0OOOO
28   0  0  0  0  0  0  0  0  0  0  0  0OOOO
29   0  0  0  0  0  0  0  0  0  0  0  0OOOO
30   0  0  0  0  0  0  0  0  0  0  0  0OOOO
31   0  0  0  0  0  0  0  0  0  0  0  0OOOO
32   0  0  0  0  0  0  0  0  0  0  0  0OOOO
33   0  0  0  0  0  0  0  0  0  0  0  0OOOO
34   0  0  0  0  0  0  0  0  0  0  0  0OOOO
35   0  0  0  0  0  0  0  0  0  0  0  0OOOO
36   0  0  0  0  0  0  0  0  0  0  0  0OOOO
37   0  0  0  0  0  0  0  0  0  0  0  0OOOO
38   0  0  0  0  0  0  0  0  0  0  0  0OOOO
39   0  0  0  0  0  0  0  0  0  0  0  0OOOO
40   0  0  0  0  0  0  0  0  0  0  0  0OOOO
41   0  0  0  0  0  0  0  0  0  0  0  0OOOO
42   0  0  0  0  0  0  0  0  0  0  0  0OOOO
43   0  0  0  0  0  0  0  0  0  0  0  0OOOO
44 OOOO
```

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.000E+00	0.	0.	0.000E+00
0.50	0.0	0.000E+00	0.	0.	0.000E+00
0.75	0.0	0.000E+00	0.	0.	0.000E+00
1.00	0.0	0.000E+00	0.	0.	0.000E+00
0.25	30.0	0.000E+00	0.	0.	0.000E+00
0.50	30.0	0.000E+00	0.	0.	0.000E+00
0.75	30.0	0.000E+00	0.	0.	0.000E+00
1.00	30.0	0.000E+00	0.	0.	0.000E+00

INITIAL MIXING COMPUTATIONS RESULTS FOR SILT :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.654E+01	2400.	3400.	0.654E+01
0.50	0.0	0.172E+02	3200.	3400.	0.172E+02
0.75	0.0	0.230E+02	3600.	3400.	0.230E+02
1.00	0.0	0.427E+02	3600.	3400.	0.427E+02
0.25	30.0	0.318E+03	2200.	3400.	0.318E+03
0.50	30.0	0.206E+03	2600.	3400.	0.206E+03
0.75	30.0	0.101E+03	3000.	3400.	0.101E+03
1.00	30.0	0.214E+02	3600.	3400.	0.214E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR CLAY :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)
0.25	0.0	0.279E+02	2400.	3400.	0.279E+02
0.50	0.0	0.319E+02	3000.	3400.	0.319E+02
0.75	0.0	0.368E+02	3600.	3400.	0.368E+02
1.00	0.0	0.669E+02	4200.	3400.	0.669E+02

0.25	30.0	0.986E+03	2200.	3400.	0.986E+03
0.50	30.0	0.393E+03	2600.	3400.	0.393E+03
0.75	30.0	0.190E+03	3000.	3400.	0.190E+03
1.00	30.0	0.834E+02	3400.	3400.	0.834E+02

INITIAL MIXING COMPUTATIONS RESULTS FOR COPPER :

TIME (HR)	DEPTH (FT)	MAX CONC ABOVE BACKGROUND ON ENTIRE GRID (MG/L)	MAX CONC ON GRID (MG/L)	X-LOC (FT)	Z-LOC (FT)	MAX CONC ABOVE BACKGROUND OUTSIDE MIXING ZONE (MG/L)	MAX CONC OUTSIDE MIXING ZONE (MG/L)
0.03	0.0	0.225E-35	0.100E+01	2000.	3400.	0.225E-35	0.100E+01
0.06	0.0	0.335E-07	0.100E+01	2000.	3400.	0.335E-07	0.100E+01
0.08	0.0	0.159E-02	0.100E+01	2000.	3400.	0.159E-02	0.100E+01
0.11	0.0	0.679E-01	0.107E+01	2200.	3400.	0.679E-01	0.107E+01
0.14	0.0	0.825E-01	0.108E+01	2200.	3400.	0.825E-01	0.108E+01
0.17	0.0	0.533E-01	0.105E+01	2200.	3400.	0.533E-01	0.105E+01
0.19	0.0	0.723E-01	0.107E+01	2400.	3400.	0.723E-01	0.107E+01
0.22	0.0	0.773E-01	0.108E+01	2400.	3400.	0.773E-01	0.108E+01
0.25	0.0	0.547E-01	0.105E+01	2400.	3400.	0.547E-01	0.105E+01
0.28	0.0	0.659E-01	0.107E+01	2600.	3400.	0.659E-01	0.107E+01
0.31	0.0	0.711E-01	0.107E+01	2600.	3400.	0.711E-01	0.107E+01
0.33	0.0	0.541E-01	0.105E+01	2600.	3400.	0.541E-01	0.105E+01
0.36	0.0	0.597E-01	0.106E+01	2800.	3400.	0.597E-01	0.106E+01
0.39	0.0	0.648E-01	0.106E+01	2800.	3400.	0.648E-01	0.106E+01
0.42	0.0	0.521E-01	0.105E+01	2800.	3400.	0.521E-01	0.105E+01
0.44	0.0	0.538E-01	0.105E+01	3000.	3400.	0.538E-01	0.105E+01
0.47	0.0	0.586E-01	0.106E+01	3000.	3400.	0.586E-01	0.106E+01
0.50	0.0	0.493E-01	0.105E+01	3000.	3400.	0.493E-01	0.105E+01
0.53	0.0	0.484E-01	0.105E+01	3200.	3400.	0.484E-01	0.105E+01
0.56	0.0	0.528E-01	0.105E+01	3200.	3400.	0.528E-01	0.105E+01
0.58	0.0	0.460E-01	0.105E+01	3200.	3400.	0.460E-01	0.105E+01
0.61	0.0	0.436E-01	0.104E+01	3400.	3400.	0.436E-01	0.104E+01
0.64	0.0	0.475E-01	0.105E+01	3400.	3400.	0.475E-01	0.105E+01
0.67	0.0	0.426E-01	0.104E+01	3400.	3400.	0.426E-01	0.104E+01
0.69	0.0	0.393E-01	0.104E+01	3600.	3400.	0.393E-01	0.104E+01
0.72	0.0	0.428E-01	0.104E+01	3600.	3400.	0.428E-01	0.104E+01
0.75	0.0	0.391E-01	0.104E+01	3600.	3400.	0.391E-01	0.104E+01
0.78	0.0	0.354E-01	0.104E+01	3800.	3400.	0.354E-01	0.104E+01
0.81	0.0	0.385E-01	0.104E+01	3800.	3400.	0.385E-01	0.104E+01
0.83	0.0	0.359E-01	0.104E+01	3800.	3400.	0.359E-01	0.104E+01
0.86	0.0	0.320E-01	0.103E+01	4000.	3400.	0.320E-01	0.103E+01
0.89	0.0	0.347E-01	0.103E+01	4000.	3400.	0.347E-01	0.103E+01
0.92	0.0	0.328E-01	0.103E+01	4000.	3400.	0.328E-01	0.103E+01
0.94	0.0	0.289E-01	0.103E+01	4200.	3400.	0.289E-01	0.103E+01

0.97	0.0	0.313E-01	0.103E+01	4200.	3400.	0.313E-01	0.103E+01
1.00	0.0	0.299E-01	0.103E+01	4200.	3400.	0.299E-01	0.103E+01

0.03	30.0	0.165E+00	0.117E+01	2000.	3400.	0.165E+00	0.117E+01
0.06	30.0	0.847E-01	0.108E+01	2000.	3400.	0.847E-01	0.108E+01
0.08	30.0	0.330E-01	0.103E+01	2000.	3400.	0.330E-01	0.103E+01
0.11	30.0	0.401E-01	0.104E+01	2200.	3400.	0.401E-01	0.104E+01
0.14	30.0	0.412E-01	0.104E+01	2200.	3400.	0.412E-01	0.104E+01
0.17	30.0	0.266E-01	0.103E+01	2200.	3400.	0.266E-01	0.103E+01
0.19	30.0	0.362E-01	0.104E+01	2400.	3400.	0.362E-01	0.104E+01
0.22	30.0	0.386E-01	0.104E+01	2400.	3400.	0.386E-01	0.104E+01
0.25	30.0	0.274E-01	0.103E+01	2400.	3400.	0.274E-01	0.103E+01
0.28	30.0	0.330E-01	0.103E+01	2600.	3400.	0.330E-01	0.103E+01
0.31	30.0	0.356E-01	0.104E+01	2600.	3400.	0.356E-01	0.104E+01
0.33	30.0	0.271E-01	0.103E+01	2600.	3400.	0.271E-01	0.103E+01
0.36	30.0	0.298E-01	0.103E+01	2800.	3400.	0.298E-01	0.103E+01
0.39	30.0	0.324E-01	0.103E+01	2800.	3400.	0.324E-01	0.103E+01
0.42	30.0	0.261E-01	0.103E+01	2800.	3400.	0.261E-01	0.103E+01
0.44	30.0	0.269E-01	0.103E+01	3000.	3400.	0.269E-01	0.103E+01
0.47	30.0	0.293E-01	0.103E+01	3000.	3400.	0.293E-01	0.103E+01
0.50	30.0	0.246E-01	0.102E+01	3000.	3400.	0.246E-01	0.102E+01
0.53	30.0	0.242E-01	0.102E+01	3200.	3400.	0.242E-01	0.102E+01
0.56	30.0	0.264E-01	0.103E+01	3200.	3400.	0.264E-01	0.103E+01
0.58	30.0	0.230E-01	0.102E+01	3200.	3400.	0.230E-01	0.102E+01
0.61	30.0	0.218E-01	0.102E+01	3400.	3400.	0.218E-01	0.102E+01
0.64	30.0	0.238E-01	0.102E+01	3400.	3400.	0.238E-01	0.102E+01
0.67	30.0	0.213E-01	0.102E+01	3400.	3400.	0.213E-01	0.102E+01
0.69	30.0	0.196E-01	0.102E+01	3600.	3400.	0.196E-01	0.102E+01
0.72	30.0	0.214E-01	0.102E+01	3600.	3400.	0.214E-01	0.102E+01
0.75	30.0	0.196E-01	0.102E+01	3600.	3400.	0.196E-01	0.102E+01
0.78	30.0	0.177E-01	0.102E+01	3800.	3400.	0.177E-01	0.102E+01
0.81	30.0	0.192E-01	0.102E+01	3800.	3400.	0.192E-01	0.102E+01
0.83	30.0	0.179E-01	0.102E+01	3800.	3400.	0.179E-01	0.102E+01
0.86	30.0	0.160E-01	0.102E+01	4000.	3400.	0.160E-01	0.102E+01
0.89	30.0	0.173E-01	0.102E+01	4000.	3400.	0.173E-01	0.102E+01
0.92	30.0	0.164E-01	0.102E+01	4000.	3400.	0.164E-01	0.102E+01
0.94	30.0	0.145E-01	0.101E+01	4200.	3400.	0.145E-01	0.101E+01
0.97	30.0	0.156E-01	0.102E+01	4200.	3400.	0.156E-01	0.102E+01
1.00	30.0	0.150E-01	0.101E+01	4200.	3400.	0.150E-01	0.101E+01

0.03	15.0	0.122E+01	0.222E+01	2000.	3400.	0.122E+01	0.222E+01
0.06	15.0	0.626E+00	0.163E+01	2000.	3400.	0.626E+00	0.163E+01
0.08	15.0	0.244E+00	0.124E+01	2000.	3400.	0.244E+00	0.124E+01
0.11	15.0	0.296E+00	0.130E+01	2200.	3400.	0.296E+00	0.130E+01
0.14	15.0	0.305E+00	0.130E+01	2200.	3400.	0.305E+00	0.130E+01
0.17	15.0	0.197E+00	0.120E+01	2200.	3400.	0.197E+00	0.120E+01

0.19	15.0	0.267E+00	0.127E+01	2400.	3400.	0.267E+00	0.127E+01
0.22	15.0	0.286E+00	0.129E+01	2400.	3400.	0.286E+00	0.129E+01
0.25	15.0	0.202E+00	0.120E+01	2400.	3400.	0.202E+00	0.120E+01
0.28	15.0	0.244E+00	0.124E+01	2600.	3400.	0.244E+00	0.124E+01
0.31	15.0	0.263E+00	0.126E+01	2600.	3400.	0.263E+00	0.126E+01
0.33	15.0	0.200E+00	0.120E+01	2600.	3400.	0.200E+00	0.120E+01
0.36	15.0	0.221E+00	0.122E+01	2800.	3400.	0.221E+00	0.122E+01
0.39	15.0	0.239E+00	0.124E+01	2800.	3400.	0.239E+00	0.124E+01
0.42	15.0	0.193E+00	0.119E+01	2800.	3400.	0.193E+00	0.119E+01
0.44	15.0	0.199E+00	0.120E+01	3000.	3400.	0.199E+00	0.120E+01
0.47	15.0	0.217E+00	0.122E+01	3000.	3400.	0.217E+00	0.122E+01
0.50	15.0	0.182E+00	0.118E+01	3000.	3400.	0.182E+00	0.118E+01
0.53	15.0	0.179E+00	0.118E+01	3200.	3400.	0.179E+00	0.118E+01
0.56	15.0	0.195E+00	0.120E+01	3200.	3400.	0.195E+00	0.120E+01
0.58	15.0	0.170E+00	0.117E+01	3200.	3400.	0.170E+00	0.117E+01
0.61	15.0	0.161E+00	0.116E+01	3400.	3400.	0.161E+00	0.116E+01
0.64	15.0	0.176E+00	0.118E+01	3400.	3400.	0.176E+00	0.118E+01
0.67	15.0	0.157E+00	0.116E+01	3400.	3400.	0.157E+00	0.116E+01
0.69	15.0	0.145E+00	0.115E+01	3600.	3400.	0.145E+00	0.115E+01
0.72	15.0	0.158E+00	0.116E+01	3600.	3400.	0.158E+00	0.116E+01
0.75	15.0	0.145E+00	0.114E+01	3600.	3400.	0.145E+00	0.114E+01
0.78	15.0	0.131E+00	0.113E+01	3800.	3400.	0.131E+00	0.113E+01
0.81	15.0	0.142E+00	0.114E+01	3800.	3400.	0.142E+00	0.114E+01
0.83	15.0	0.133E+00	0.113E+01	3800.	3400.	0.133E+00	0.113E+01
0.86	15.0	0.118E+00	0.112E+01	4000.	3400.	0.118E+00	0.112E+01
0.89	15.0	0.128E+00	0.113E+01	4000.	3400.	0.128E+00	0.113E+01
0.92	15.0	0.121E+00	0.112E+01	4000.	3400.	0.121E+00	0.112E+01
0.94	15.0	0.107E+00	0.111E+01	4200.	3400.	0.107E+00	0.111E+01
0.97	15.0	0.116E+00	0.112E+01	4200.	3400.	0.116E+00	0.112E+01
1.00	15.0	0.111E+00	0.111E+01	4200.	3400.	0.111E+00	0.111E+01

RESULT: THE WATER QUALITY STANDARD FOR THE MIXING ZONE WAS NOT VIOLATED.

*** RUN COMPLETED ***

APPENDIX C3

ANALYTICAL LABORATORY REPORT – TISSUE CHEMISTRY

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-68876-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
9/22/2021 3:22:04 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Client Sample Results 5
QC Sample Results 11
Certification Summary 13
Method Summary 14
Sample Summary 15
Chain of Custody 16
Receipt Checklists 19

Definitions/Glossary

Client: Wood E&I Solutions Inc
Job ID: 570-68876-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-68876-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68876-1

Comments
No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -2.0º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-D-Composite Mn. Rep 1 — **Lab Sample ID: 570-68876-1**
Date Collected: 08/24/21 11:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.20		0.149	0.0313	mg/Kg		09/20/21 09:30	09/20/21 17:24	20
Zinc	22.8		1.49	0.593	mg/Kg		09/20/21 09:30	09/20/21 17:24	20

Client Sample ID: FDD-D-Composite Mn. Rep 2 — **Lab Sample ID: 570-68876-2**
Date Collected: 08/24/21 08:24 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	0.945		0.150	0.0314	mg/Kg		09/20/21 09:30	09/20/21 17:27	20
Zinc	8.96		1.50	0.594	mg/Kg		09/20/21 09:30	09/20/21 17:27	20

Client Sample ID: FDD-D-Composite Mn. Rep 3 — **Lab Sample ID: 570-68876-3**
Date Collected: 08/24/21 09:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.31		0.151	0.0317	mg/Kg		09/20/21 09:30	09/20/21 17:49	20
Zinc	18.7		1.51	0.600	mg/Kg		09/20/21 09:30	09/20/21 17:49	20

Client Sample ID: FDD-D-Composite Mn. Rep 4 — **Lab Sample ID: 570-68876-4**
Date Collected: 08/24/21 11:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	0.986		0.150	0.0314	mg/Kg		09/20/21 09:30	09/20/21 17:52	20
Zinc	37.2		1.50	0.594	mg/Kg		09/20/21 09:30	09/20/21 17:52	20

Client Sample ID: FDD-D-Composite Mn. Rep 5 — **Lab Sample ID: 570-68876-5**
Date Collected: 08/24/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.10		0.150	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:56	20
Zinc	38.3		1.50	0.596	mg/Kg		09/20/21 09:30	09/20/21 17:56	20

Client Sample ID: FDD-D-Composite Nv. Rep 1 — **Lab Sample ID: 570-68876-6**
Date Collected: 08/21/21 10:10 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.09		0.149	0.0313	mg/Kg		09/20/21 09:30	09/20/21 17:59	20
Zinc	19.0		1.49	0.591	mg/Kg		09/20/21 09:30	09/20/21 17:59	20

Client Sample ID: FDD-D-Composite Nv. Rep 2 — **Lab Sample ID: 570-68876-7**
Date Collected: 08/21/21 09:13 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.16		0.150	0.0316	mg/Kg		09/20/21 09:30	09/20/21 18:02	20
Zinc	18.5		1.50	0.597	mg/Kg		09/20/21 09:30	09/20/21 18:02	20

Client Sample ID: FDD-D-Composite Nv. Rep 3 — **Lab Sample ID: 570-68876-8**
Date Collected: 08/21/21 09:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.20		0.152	0.0319	mg/Kg		09/20/21 09:30	09/20/21 18:05	20
Zinc	16.3		1.52	0.603	mg/Kg		09/20/21 09:30	09/20/21 18:05	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-D-Composite Nv. Rep 4
Date Collected: 08/21/21 10:12
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68876-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.80		0.151	0.0317	mg/Kg		09/20/21 09:30	09/20/21 18:08	20
Zinc	28.0		1.51	0.600	mg/Kg		09/20/21 09:30	09/20/21 18:08	20

Client Sample ID: FDD-D-Composite Nv. Rep 5
Date Collected: 08/21/21 09:31
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68876-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.28		0.149	0.0313	mg/Kg		09/20/21 09:30	09/20/21 18:11	20
Zinc	14.2		1.49	0.593	mg/Kg		09/20/21 09:30	09/20/21 18:11	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-D-Composite Mn. Rep 1 — **Lab Sample ID: 570-68876-1**
Date Collected: 08/24/21 11:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0221	J	0.0500	0.00810	mg/Kg		09/20/21 09:58	09/20/21 15:03	1

Client Sample ID: FDD-D-Composite Mn. Rep 2 — **Lab Sample ID: 570-68876-2**
Date Collected: 08/24/21 08:24 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0320	J	0.0505	0.00818	mg/Kg		09/20/21 09:58	09/20/21 15:05	1

Client Sample ID: FDD-D-Composite Mn. Rep 3 — **Lab Sample ID: 570-68876-3**
Date Collected: 08/24/21 09:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0104	J	0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 15:07	1

Client Sample ID: FDD-D-Composite Mn. Rep 4 — **Lab Sample ID: 570-68876-4**
Date Collected: 08/24/21 11:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0238	J	0.0510	0.00827	mg/Kg		09/20/21 09:58	09/20/21 15:08	1

Client Sample ID: FDD-D-Composite Mn. Rep 5 — **Lab Sample ID: 570-68876-5**
Date Collected: 08/24/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0120	J	0.0505	0.00818	mg/Kg		09/20/21 09:58	09/20/21 15:10	1

Client Sample ID: FDD-D-Composite Nv. Rep 1 — **Lab Sample ID: 570-68876-6**
Date Collected: 08/21/21 10:10 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0133	J	0.0500	0.00810	mg/Kg		09/20/21 09:58	09/20/21 15:16	1

Client Sample ID: FDD-D-Composite Nv. Rep 2 — **Lab Sample ID: 570-68876-7**
Date Collected: 08/21/21 09:13 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0490	0.00794	mg/Kg		09/20/21 09:58	09/20/21 15:18	1

Client Sample ID: FDD-D-Composite Nv. Rep 3 — **Lab Sample ID: 570-68876-8**
Date Collected: 08/21/21 09:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 15:20	1

Client Sample ID: FDD-D-Composite Nv. Rep 4 — **Lab Sample ID: 570-68876-9**
Date Collected: 08/21/21 10:12 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0114	J	0.0485	0.00786	mg/Kg		09/20/21 09:58	09/20/21 15:22	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-D-Composite Nv. Rep 5
Date Collected: 08/21/21 09:31
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68876-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0122	J	0.0490	0.00794	mg/Kg		09/20/21 09:58	09/20/21 15:23	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

General Chemistry

Client Sample ID: FDD-D-Composite Mn. Rep 1 — **Lab Sample ID: 570-68876-1**
Date Collected: 08/24/21 11:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	0.941		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	17.7		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Mn. Rep 2 — **Lab Sample ID: 570-68876-2**
Date Collected: 08/24/21 08:24 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	0.910		0.100	0.100	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	18.6		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Mn. Rep 3 — **Lab Sample ID: 570-68876-3**
Date Collected: 08/24/21 09:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.03		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	18.6		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Mn. Rep 4 — **Lab Sample ID: 570-68876-4**
Date Collected: 08/24/21 11:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	0.941		0.0980	0.0980	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	17.6		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Mn. Rep 5 — **Lab Sample ID: 570-68876-5**
Date Collected: 08/24/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.12		0.0980	0.0980	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	18.5		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Nv. Rep 1 — **Lab Sample ID: 570-68876-6**
Date Collected: 08/21/21 10:10 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.59		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	16.6		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Nv. Rep 2 — **Lab Sample ID: 570-68876-7**
Date Collected: 08/21/21 09:13 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.17		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	15.9		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Nv. Rep 3 — **Lab Sample ID: 570-68876-8**
Date Collected: 08/21/21 09:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.16		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	15.8		0.1	0.1	%			09/08/21 17:12	1

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-68876-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

General Chemistry

Client Sample ID: FDD-D-Composite Nv. Rep 4
Lab Sample ID: 570-68876-9
Date Collected: 08/21/21 10:12
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.14		0.0980	0.0980	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	16.3		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-D-Composite Nv. Rep 5
Lab Sample ID: 570-68876-10
Date Collected: 08/21/21 09:31
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	1.13		0.0990	0.0990	%		09/21/21 16:34	09/21/21 16:43	1
Percent Solids	16.5		0.1	0.1	%			09/08/21 17:12	1

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-180326/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.150	0.0314	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Zinc	ND		1.50	0.594	mg/Kg		09/20/21 09:30	09/20/21 16:23	20

Lab Sample ID: LCS 570-180326/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	12.5	11.99		mg/Kg		96	80 - 120
Zinc	12.5	12.82		mg/Kg		102	80 - 120

Lab Sample ID: LCSD 570-180326/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	12.5	12.32		mg/Kg		99	80 - 120	3	20
Zinc	12.5	12.79		mg/Kg		102	80 - 120	0	20

Lab Sample ID: 570-68875-A-1-I MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	1.30		12.4	13.71		mg/Kg		100	80 - 120
Zinc	9.99	F1	12.4	31.55	F1	mg/Kg		173	80 - 120

Lab Sample ID: 570-68875-A-1-J MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	1.30		12.5	13.84		mg/Kg		100	80 - 120	1	20
Zinc	9.99	F1	12.5	31.84	F1	mg/Kg		175	80 - 120	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-180307/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 14:31	1

Lab Sample ID: LCS 570-180307/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.500	0.5350		mg/Kg		107	82 - 124

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-180307/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.505	0.5431		mg/Kg		108	82 - 124	2	16

Lab Sample ID: 570-68875-A-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	0.0184	J	0.495	0.4568		mg/Kg		89	76 - 136		

Lab Sample ID: 570-68875-A-1-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0184	J	0.485	0.4671		mg/Kg		92	76 - 136	2	16

Method: Lipids - Percent Lipids

Lab Sample ID: MB 570-180790/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180797 — **Prep Batch: 180790**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	ND		0.100	0.100	%		09/21/21 16:34	09/21/21 16:43	1

Lab Sample ID: 570-63734-A-2-E DU — **Client Sample ID: Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180797 — **Prep Batch: 180790**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Lipids	1.02			1.065		%				4	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-68876-1 DU — **Client Sample ID: FDD-D-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 177662

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	17.7			17.9		%				1	10

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-68876-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0161	11-19-21
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-21
California	State	2944	09-30-21
Guam	State	21-003R	06-22-22
Nevada	State	CA00111	07-31-22
Oregon	NELAP	CA300001	01-30-22
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-21

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
Lipids	Percent Lipids	Lab SOP	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
In House	Tissue Handling and Preparation	NOAA	ECL 3

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
NOAA = National Marine Fisheries Service, National Oceanic And Atmospheric Administration, Seattle, WA, November 1988
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68876-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-68876-1	FDD-D-Composite Mn. Rep 1	Tissue	08/24/21 11:00	09/01/21 10:15
570-68876-2	FDD-D-Composite Mn. Rep 2	Tissue	08/24/21 08:24	09/01/21 10:15
570-68876-3	FDD-D-Composite Mn. Rep 3	Tissue	08/24/21 09:06	09/01/21 10:15
570-68876-4	FDD-D-Composite Mn. Rep 4	Tissue	08/24/21 11:23	09/01/21 10:15
570-68876-5	FDD-D-Composite Mn. Rep 5	Tissue	08/24/21 09:19	09/01/21 10:15
570-68876-6	FDD-D-Composite Nv. Rep 1	Tissue	08/21/21 10:10	09/01/21 10:15
570-68876-7	FDD-D-Composite Nv. Rep 2	Tissue	08/21/21 09:13	09/01/21 10:15
570-68876-8	FDD-D-Composite Nv. Rep 3	Tissue	08/21/21 09:25	09/01/21 10:15
570-68876-9	FDD-D-Composite Nv. Rep 4	Tissue	08/21/21 10:12	09/01/21 10:15
570-68876-10	FDD-D-Composite Nv. Rep 5	Tissue	08/21/21 09:31	09/01/21 10:15

U4876

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-68876 Chain of Custody

CHAIN OF CUSTODY RECORD

:: 08/31/21

: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL. 858-300-4300 E-MAIL. kimbrie.gobbi@woodplc.com

NBSD Mole Pier FDD Maintenance Dredging

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

PO NO: 3151187382 (Project not PO)

SAMPLER(S): (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE.

SPECIAL INSTRUCTIONS. Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes

Please report to MDL in dry weight. Please see attached sheet for details

COMPOSITE D COC

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160 3/SM 2540 B)	Metals (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD						
1	M n. Composite D Rep 1	8/24/2021	1100	tissues	1	X														X						
2	M.n Composite D Rep 2	8/24/2021	0824	tissues	1	X														X						
3	M n Composite D Rep 3	8/24/2021	0906	tissues	1	X														X						
4	M n Composite D Rep 4	8/24/2021	1123	tissues	1	X														X						
5	M n Composite D Rep 5	8/24/2021	0919	tissues	1	X														X						
6	A.v Composite D Rep 1	8/21/2021	1010	tissues	1	X														X						
7	A.v Composite D Rep 2	8/21/2021	0913	tissues	1	X														X						
8	A.v Composite D Rep 3	8/21/2021	0925	tissues	1	X														X						
9	A.v Composite D Rep 4	8/21/2021	1012	tissues	1	X														X						
10	A.v Composite D Rep 5	8/21/2021	0931	tissues	1	X														X						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
EcoAnalysts 8/31/21 1200	EZ	9/1/21	10:15
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

-1.6/-2.0 SLG

Analyte[i]	Analysis Method	Tissue Target RL[a,b]
Total Solids	USEPA160 3/SM 2540 B	0 10%
Total Lipids	NOAA, 1993 [i]	0 10%
Copper	USEPA 6020 [d]	0 1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg
Zinc	USEPA 6020 [d]	1 0 mg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis; tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al., 1995

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

i) National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July.

570-68876 Waybill

ORIGIN ID:PWTA (360) 297-6040
MICHELLE KNOWLEN
ECOANALYSTS, INC
4770 NE VIEW DR.

PORT GAMBLE, WA 98364
UNITED STATES US

SHIP DATE: 31AUG21
ACTWGT 14.00 LB
CAD: 3195116/INET4400
DIMS: 12x14x13 IN
DRY ICE: 2.28 KG
BILL SENDER

TO **CARLA HOLLOWELL**
EUROFINS CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF WOOD NBSD MOLE PIER TISSUES
INV:
PO: DEPT

56DJ2/5600/FE4A

FedEx Express

J212021070801uv

WED - 01 SEP 10:30A
PRIORITY OVERNIGHT

4 of 4
MPS# 0263 **7746 8598 8363**
Mstr# 7746 8598 8065

0201

ICE
92841
CA-US **SNA**

92 APVA

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-68876-1

Login Number: 68876
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-68875-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
10/5/2021 9:30:14 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Client Sample Results 5
Surrogate Summary 31
QC Sample Results 32
Certification Summary 44
Method Summary 45
Sample Summary 46
Chain of Custody 47
Receipt Checklists 51

Definitions/Glossary

Client: Wood E&I Solutions Inc
Job ID: 570-68875-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-68875-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68875-1

Comments
No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -3.6º C.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-177354 and 570-178458 and analytical batch 570-180783 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-177354 and 570-180326 and analytical batch 570-180283 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 570-68875-2

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68875-2

Comments
No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -3.6º C.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-B-Composite Mn. Rep 1
Lab Sample ID: 570-68875-1
Date Collected: 08/24/21 10:52
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-49	**2.9**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-52	**1.9**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-66	**2.0**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-70	**1.3**		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-99	**3.0**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-101	**4.2**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-110	**4.0**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-118	**3.3**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-132/153	**5.1**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-138/158	**4.1**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-149	**3.9**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-180	**1.5**		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-187	**1.4**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 21:19	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*42*		*10 - 120*	*09/11/21 08:22*	*09/24/21 21:19*	*1*
p-Terphenyl-d14 (Surr)	*93*		*26 - 168*	*09/11/21 08:22*	*09/24/21 21:19*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 2
Lab Sample ID: 570-68875-2
Date Collected: 08/24/21 11:06
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 21:44	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 2
Date Collected: 08/24/21 11:06
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-2
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-49	**1.5**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-52	**1.5**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-66	**1.8**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-70	**0.88**		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-99	**2.2**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-101	**3.0**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-110	**2.7**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-118	**2.5**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-132/153	**4.4**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-138/158	**3.3**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-149	**2.9**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-180	**1.1**		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-187	**1.1**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 21:44	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 21:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*69*		*10 - 120*	*09/11/21 08:22*	*09/24/21 21:44*	*1*
p-Terphenyl-d14 (Surr)	*135*		*26 - 168*	*09/11/21 08:22*	*09/24/21 21:44*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 3
Date Collected: 08/24/21 10:31
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/24/21 22:09	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 3
Date Collected: 08/24/21 10:31
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-49	**2.4**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-52	**1.6**		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-66	**1.9**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-70	**1.2**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-74	**0.65**		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-99	**2.4**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-101	**3.8**		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-110	**3.4**		0.20	0.046	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-118	**2.7**		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-132/153	**4.8**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-138/158	**4.2**		0.40	0.094	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-149	**3.4**		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-180	**0.98**		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-187	**1.2**		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 22:09	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*10 - 120*	*09/11/21 08:22*	*09/24/21 22:09*	*1*
p-Terphenyl-d14 (Surr)	*143*		*26 - 168*	*09/11/21 08:22*	*09/24/21 22:09*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 4
Date Collected: 08/24/21 09:07
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:33	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 4
Date Collected: 08/24/21 09:07
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-49	**1.8**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-52	**1.5**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-66	**1.6**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-70	**1.1**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-74	**0.48**		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-99	**2.3**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-101	**3.3**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-110	**2.9**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-118	**2.3**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-132/153	**4.2**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-138/158	**3.5**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-149	**3.4**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-180	**0.82**		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-187	**1.1**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 22:33	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 22:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*10 - 120*	*09/11/21 08:22*	*09/24/21 22:33*	*1*
p-Terphenyl-d14 (Surr)	*146*		*26 - 168*	*09/11/21 08:22*	*09/24/21 22:33*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 5
Date Collected: 08/24/21 11:25
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:58	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 5
Date Collected: 08/24/21 11:25
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-49	**2.0**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-52	**1.8**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-66	**1.9**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-70	**1.3**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-74	**0.75**		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-99	**3.1**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-101	**3.2**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-110	**3.7**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-118	**3.2**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-132/153	**5.3**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-138/158	**4.3**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-149	**3.8**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-180	**1.2**		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-187	**1.4**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 22:58	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*10 - 120*	*09/11/21 08:22*	*09/24/21 22:58*	*1*
p-Terphenyl-d14 (Surr)	*131*		*26 - 168*	*09/11/21 08:22*	*09/24/21 22:58*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 1
Date Collected: 08/21/21 10:04
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-49	**0.80**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 23:22	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 1
Date Collected: 08/21/21 10:04
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-52	**2.0**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-66	**1.2**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-99	**2.3**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-101	**3.4**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-110	**2.7**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-118	**2.1**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-132/153	**5.7**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-138/158	**4.7**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-149	**3.9**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-180	**2.2**		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-187	**2.3**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 23:22	1
PCB-206	**0.51**		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*85*		*10 - 120*	*09/11/21 08:22*	*09/24/21 23:22*	*1*
p-Terphenyl-d14 (Surr)	*168*		*26 - 168*	*09/11/21 08:22*	*09/24/21 23:22*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 2
Date Collected: 08/21/21 10:14
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-7
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-49	**0.78**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-52	**1.7**		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 21:38	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 2
Lab Sample ID: 570-68875-7
Date Collected: 08/21/21 10:14
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-66	**1.2**		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-99	**2.3**		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-101	**3.5**		0.20	0.098	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-105	**0.83**		0.20	0.055	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-110	**2.4**		0.20	0.046	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-118	**1.8**		0.20	0.084	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-128	**1.4**		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-132/153	**6.3**		0.40	0.17	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-138/158	**5.2**		0.40	0.094	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-149	**4.7**		0.20	0.098	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-170	**1.7**		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-177	**1.1**		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-180	**3.5**		0.20	0.042	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-183	**1.0**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-187	**2.8**		0.20	0.084	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 21:38	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/27/21 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*10 - 120*	*09/11/21 08:22*	*09/27/21 21:38*	*1*
p-Terphenyl-d14 (Surr)	*123*		*26 - 168*	*09/11/21 08:22*	*09/27/21 21:38*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 3
Lab Sample ID: 570-68875-8
Date Collected: 08/21/21 10:00
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-37	**2.2**		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-44	**1.3**		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-49	**0.65**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-52	**1.6**		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-66	**0.84**		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:02	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 3
Date Collected: 08/21/21 10:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-8
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-99	**0.97**		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-101	**2.4**		0.20	0.098	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-110	**1.6**		0.20	0.046	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-118	**1.4**		0.20	0.084	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-119	**0.78**		0.20	0.094	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-132/153	**4.0**		0.40	0.17	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-138/158	**3.3**		0.40	0.094	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-149	**2.8**		0.20	0.098	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-151	**0.69**		0.20	0.067	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-170	**2.9**		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-180	**1.9**		0.20	0.042	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-187	**1.6**		0.20	0.084	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-189	**1.5**		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 22:02	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/27/21 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*10 - 120*	*09/11/21 08:22*	*09/27/21 22:02*	*1*
p-Terphenyl-d14 (Surr)	*138*		*26 - 168*	*09/11/21 08:22*	*09/27/21 22:02*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 4
Date Collected: 08/21/21 09:19
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-49	**0.80**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-52	**1.4**		0.20	0.062	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-66	**1.1**		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/27/21 22:26	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 4
Lab Sample ID: 570-68875-9
Date Collected: 08/21/21 09:19
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-99	**1.5**		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-101	**2.8**		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-105	**0.75**		0.20	0.054	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-110	**2.0**		0.20	0.045	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-118	**1.3**		0.20	0.083	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-132/153	**4.1**		0.40	0.17	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-138/158	**3.2**		0.40	0.093	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-149	**2.9**		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-180	**1.9**		0.20	0.042	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-183	**0.74**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-187	**1.7**		0.20	0.083	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/27/21 22:26	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/27/21 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*10 - 120*	*09/11/21 08:22*	*09/27/21 22:26*	*1*
p-Terphenyl-d14 (Surr)	*114*		*26 - 168*	*09/11/21 08:22*	*09/27/21 22:26*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 5
Lab Sample ID: 570-68875-10
Date Collected: 08/21/21 10:21
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-49	**0.49**		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-52	**1.5**		0.20	0.062	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-66	**0.96**		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:50	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 5
Lab Sample ID: 570-68875-10
Date Collected: 08/21/21 10:21
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-99	**1.4**		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-101	**2.2**		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-110	**1.5**		0.20	0.045	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-118	**1.4**		0.20	0.083	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-132/153	**3.5**		0.40	0.17	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-138/158	**3.0**		0.40	0.093	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-149	**2.7**		0.20	0.097	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-151	**0.82**		0.20	0.067	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-187	**1.7**		0.20	0.083	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/27/21 22:50	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/27/21 22:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*10 - 120*	*09/11/21 08:22*	*09/27/21 22:50*	*1*
p-Terphenyl-d14 (Surr)	*118*		*26 - 168*	*09/11/21 08:22*	*09/27/21 22:50*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: FDD-B-Composite Mn. Rep 1
Lab Sample ID: 570-68875-1
Date Collected: 08/24/21 10:52
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
1-Methylnaphthalene	ND		9.8	1.1	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
2-Methylnaphthalene	ND		9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Acenaphthene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Acenaphthylene	**3.1**	**J**	9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Anthracene	**3.2**	**J**	9.8	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[a]anthracene	**7.3**	**J**	9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[a]pyrene	**100**		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[b]fluoranthene	**130**		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[e]pyrene	**41**		9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[g,h,i]perylene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Benzo[k]fluoranthene	**100**		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Chrysene	**8.9**	**J**	9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Dibenz(a,h)anthracene	**13**		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Fluoranthene	**3.8**	**J**	9.8	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Fluorene	ND		9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Indeno[1,2,3-cd]pyrene	**27**		9.8	1.3	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Isophorone	**1000**		490	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Naphthalene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Phenanthrene	**3.3**	**J**	9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:15	1
Pyrene	**6.4**	**J**	9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*126*		*18 - 162*	*09/11/21 10:17*	*09/22/21 02:15*	*1*
p-Terphenyl-d14 (Surr)	*79*		*34 - 148*	*09/11/21 10:17*	*09/22/21 02:15*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 2
Lab Sample ID: 570-68875-2
Date Collected: 08/24/21 11:06
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Acenaphthene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Acenaphthylene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Anthracene	**2.9**	**J**	10	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[a]pyrene	**110**		10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[b]fluoranthene	**140**		10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[e]pyrene	**49**		10	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[g,h,i]perylene	**18**		10	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Benzo[k]fluoranthene	**120**		10	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:37	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 2 — **Lab Sample ID: 570-68875-2**
Date Collected: 08/24/21 11:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		10	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Chrysene	**8.8**	**J**	10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Dibenz(a,h)anthracene	**13**		10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Dibenzothiophene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Fluoranthene	**2.8**	**J**	10	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Fluorene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Indeno[1,2,3-cd]pyrene	**29**		10	1.3	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Isophorone	**780**	**F2 F1**	500	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Naphthalene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Perthane	ND		10	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Perylene	ND		10	1.2	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Phenanthrene	**5.3**	**J**	10	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:37	1
Pyrene	**6.6**	**J**	10	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*107*		*18 - 162*	*09/11/21 10:17*	*09/22/21 02:37*	*1*
p-Terphenyl-d14 (Surr)	*102*		*34 - 148*	*09/11/21 10:17*	*09/22/21 02:37*	*1*

Client Sample ID: FDD-B-Composite Mn. Rep 3 — **Lab Sample ID: 570-68875-3**
Date Collected: 08/24/21 10:31 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Acenaphthylene	**2.6**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Anthracene	**3.2**	**J**	9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[a]pyrene	**110**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[b]fluoranthene	**140**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[e]pyrene	**48**		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Benzo[k]fluoranthene	**120**		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Dibenz(a,h)anthracene	**11**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Fluoranthene	**3.4**	**J**	9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Indeno[1,2,3-cd]pyrene	**27**		9.9	1.3	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Isophorone	**170**	**J**	500	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 02:58	1
Pyrene	**6.8**	**J**	9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 02:58	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	113		18 - 162	09/11/21 10:17	09/22/21 02:58	1
p-Terphenyl-d14 (Surr)	87		34 - 148	09/11/21 10:17	09/22/21 02:58	1

Client Sample ID: FDD-B-Composite Mn. Rep 4
Lab Sample ID: 570-68875-4
Date Collected: 08/24/21 09:07
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Acenaphthylene	**2.0**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[a]pyrene	**110**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[b]fluoranthene	**130**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[e]pyrene	**43**		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Benzo[k]fluoranthene	**100**		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Chrysene	**7.4**	**J**	9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Dibenz(a,h)anthracene	**11**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Fluoranthene	**2.8**	**J**	9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Indeno[1,2,3-cd]pyrene	**26**		9.9	1.3	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Isophorone	**360**	**J**	500	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:20	1
Pyrene	**5.4**	**J**	9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	132		18 - 162	09/11/21 10:17	09/22/21 03:20	1
p-Terphenyl-d14 (Surr)	107		34 - 148	09/11/21 10:17	09/22/21 03:20	1

Client Sample ID: FDD-B-Composite Mn. Rep 5
Lab Sample ID: 570-68875-5
Date Collected: 08/24/21 11:25
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
2,6-Dimethylnaphthalene	**5.6**	**J**	9.9	2.1	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Anthracene	**2.2**	**J**	9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Benzo[a]anthracene	**6.0**	**J**	9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Benzo[a]pyrene	**86**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 5
Date Collected: 08/24/21 11:25
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	**110**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Benzo[e]pyrene	**35**		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Benzo[g,h,i]perylene	**13**		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Benzo[k]fluoranthene	**89**		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Chrysene	**7.5**	**J**	9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Dibenz(a,h)anthracene	**10**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Fluoranthene	**3.2**	**J**	9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Indeno[1,2,3-cd]pyrene	**22**		9.9	1.3	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Isophorone	**96**	**J**	500	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Phenanthrene	**3.0**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 03:41	1
Pyrene	**6.4**	**J**	9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 03:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*91*		*18 - 162*	*09/11/21 10:17*	*09/22/21 03:41*	*1*
p-Terphenyl-d14 (Surr)	*73*		*34 - 148*	*09/11/21 10:17*	*09/22/21 03:41*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 1
Date Collected: 08/21/21 10:04
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
1-Methylnaphthalene	ND		9.8	1.1	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
2-Methylnaphthalene	ND		9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Acenaphthene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Acenaphthylene	ND		9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Anthracene	ND		9.8	1.9	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[a]anthracene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[a]pyrene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[b]fluoranthene	**15**		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[e]pyrene	**4.3**	**J**	9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[g,h,i]perylene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Benzo[k]fluoranthene	**9.4**	**J**	9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Chrysene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Dibenz(a,h)anthracene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Fluoranthene	ND		9.8	1.8	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Fluorene	ND		9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Indeno[1,2,3-cd]pyrene	ND		9.8	1.3	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Isophorone	**330**	**J**	490	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Naphthalene	ND		9.8	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 10:17	09/22/21 04:03	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 1 — **Lab Sample ID: 570-68875-6**
Date Collected: 08/21/21 10:04 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Phenanthrene	ND		9.8	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:03	1
Pyrene	ND		9.8	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*18 - 162*	*09/11/21 10:17*	*09/22/21 04:03*	*1*
p-Terphenyl-d14 (Surr)	*104*		*34 - 148*	*09/11/21 10:17*	*09/22/21 04:03*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 2 — **Lab Sample ID: 570-68875-7**
Date Collected: 08/21/21 10:14 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[b]fluoranthene	**13**		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[e]pyrene	**3.1**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Benzo[k]fluoranthene	**6.3**	**J**	9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Isophorone	**710**		500	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/22/21 04:24	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/22/21 04:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*54*		*18 - 162*	*09/11/21 10:17*	*09/22/21 04:24*	*1*
p-Terphenyl-d14 (Surr)	*78*		*34 - 148*	*09/11/21 10:17*	*09/22/21 04:24*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 3 — **Lab Sample ID: 570-68875-8**
Date Collected: 08/21/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/23/21 15:45	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 3 — **Lab Sample ID: 570-68875-8**
Date Collected: 08/21/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[b]fluoranthene	**13**		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[e]pyrene	**3.0**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Benzo[k]fluoranthene	**6.2**	**J**	9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Isophorone	**410**	**J**	500	1.5	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 15:45	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*18 - 162*	*09/11/21 10:17*	*09/23/21 15:45*	*1*
p-Terphenyl-d14 (Surr)	*79*		*34 - 148*	*09/11/21 10:17*	*09/23/21 15:45*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 4 — **Lab Sample ID: 570-68875-9**
Date Collected: 08/21/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[b]fluoranthene	**13**		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[e]pyrene	**3.2**	**J**	9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Benzo[k]fluoranthene	**7.4**	**J**	9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 4
Date Collected: 08/21/21 09:19
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Isophorone	**920**		500	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:07	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*54*		*18 - 162*	*09/11/21 10:17*	*09/23/21 16:07*	*1*
p-Terphenyl-d14 (Surr)	*88*		*34 - 148*	*09/11/21 10:17*	*09/23/21 16:07*	*1*

Client Sample ID: FDD-B-Composite Nv. Rep 5
Date Collected: 08/21/21 10:21
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[a]pyrene	**9.6**	**J**	9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[b]fluoranthene	**13**		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Benzo[k]fluoranthene	**6.7**	**J**	9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Isophorone	**240**	**J**	500	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 10:17	09/23/21 16:28	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 10:17	09/23/21 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*70*		*18 - 162*	*09/11/21 10:17*	*09/23/21 16:28*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 5
Date Collected: 08/21/21 10:21
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-10
Matrix: Tissue

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
p-Terphenyl-d14 (Surr)	96		34 - 148	09/11/21 10:17	09/23/21 16:28	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-B-Composite Mn. Rep 1 — **Lab Sample ID: 570-68875-1**
Date Collected: 08/24/21 10:52 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.152	0.0295	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Arsenic	**2.72**		0.152	0.0714	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Barium	**0.114**	**J**	0.152	0.0321	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Beryllium	ND		0.152	0.0585	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Cadmium	ND		0.152	0.0434	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Chromium	**0.886**		0.152	0.0293	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Cobalt	**0.110**	**J**	0.152	0.0275	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Copper	**1.30**		0.152	0.0319	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Lead	**0.176**		0.152	0.0501	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Molybdenum	**0.175**		0.152	0.111	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Nickel	**0.215**		0.152	0.0384	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Selenium	**0.298**		0.152	0.127	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Silver	ND	F1	0.152	0.0237	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Thallium	ND		0.152	0.0214	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Vanadium	**0.228**		0.152	0.0495	mg/Kg		09/20/21 09:30	09/20/21 16:36	20
Zinc	**9.99**	**F1**	1.52	0.603	mg/Kg		09/20/21 09:30	09/20/21 16:36	20

Client Sample ID: FDD-B-Composite Mn. Rep 2 — **Lab Sample ID: 570-68875-2**
Date Collected: 08/24/21 11:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.152	0.0295	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Arsenic	**4.57**		0.152	0.0714	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Barium	**0.882**		0.152	0.0321	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Beryllium	ND		0.152	0.0585	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Cadmium	ND		0.152	0.0434	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Chromium	**0.834**		0.152	0.0293	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Cobalt	**0.364**		0.152	0.0275	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Copper	**1.45**		0.152	0.0319	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Lead	**0.184**		0.152	0.0501	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Molybdenum	**0.465**		0.152	0.111	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Nickel	**0.359**		0.152	0.0384	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Selenium	**0.234**		0.152	0.127	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Silver	**0.0413**	**J**	0.152	0.0237	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Thallium	ND		0.152	0.0214	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Vanadium	**0.527**		0.152	0.0495	mg/Kg		09/20/21 09:30	09/20/21 16:49	20
Zinc	**14.7**		1.52	0.603	mg/Kg		09/20/21 09:30	09/20/21 16:49	20

Client Sample ID: FDD-B-Composite Mn. Rep 3 — **Lab Sample ID: 570-68875-3**
Date Collected: 08/24/21 10:31 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0292	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Arsenic	**2.13**		0.150	0.0707	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Barium	**0.0318**	**J**	0.150	0.0317	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Beryllium	ND		0.150	0.0579	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Cadmium	ND		0.150	0.0430	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Chromium	**1.12**		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Cobalt	**0.128**	**J**	0.150	0.0272	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Copper	**1.37**		0.150	0.0316	mg/Kg		09/20/21 09:30	09/20/21 16:58	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-B-Composite Mn. Rep 3 — **Lab Sample ID: 570-68875-3**
Date Collected: 08/24/21 10:31 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.205		0.150	0.0496	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Molybdenum	0.181		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Nickel	0.133	J	0.150	0.0380	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Selenium	0.408		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Silver	ND		0.150	0.0235	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Vanadium	0.103	J	0.150	0.0490	mg/Kg		09/20/21 09:30	09/20/21 16:58	20
Zinc	25.9		1.50	0.597	mg/Kg		09/20/21 09:30	09/20/21 16:58	20

Client Sample ID: FDD-B-Composite Mn. Rep 4 — **Lab Sample ID: 570-68875-4**
Date Collected: 08/24/21 09:07 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Arsenic	4.92		0.149	0.0701	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Barium	0.895		0.149	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Beryllium	ND		0.149	0.0575	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Cadmium	0.0517	J	0.149	0.0427	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Chromium	1.01		0.149	0.0288	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Cobalt	0.211		0.149	0.0270	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Copper	1.83		0.149	0.0313	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Lead	0.272		0.149	0.0493	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Molybdenum	0.735		0.149	0.109	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Nickel	0.520		0.149	0.0378	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Selenium	0.471		0.149	0.124	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Silver	0.0456	J	0.149	0.0233	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Vanadium	0.330		0.149	0.0487	mg/Kg		09/20/21 09:30	09/20/21 17:02	20
Zinc	18.6		1.49	0.593	mg/Kg		09/20/21 09:30	09/20/21 17:02	20

Client Sample ID: FDD-B-Composite Mn. Rep 5 — **Lab Sample ID: 570-68875-5**
Date Collected: 08/24/21 11:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0291	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Arsenic	6.04		0.150	0.0705	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Barium	1.19		0.150	0.0317	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Beryllium	ND		0.150	0.0578	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Cadmium	0.0496	J	0.150	0.0429	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Chromium	1.09		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Cobalt	0.449		0.150	0.0272	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Copper	1.92		0.150	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Lead	0.243		0.150	0.0495	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Molybdenum	0.604		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Nickel	0.486		0.150	0.0380	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Selenium	0.516		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Silver	0.0348	J	0.150	0.0234	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Vanadium	0.753		0.150	0.0489	mg/Kg		09/20/21 09:30	09/20/21 17:05	20
Zinc	19.1		1.50	0.596	mg/Kg		09/20/21 09:30	09/20/21 17:05	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-B-Composite Nv. Rep 1
Date Collected: 08/21/21 10:04
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Arsenic	**2.31**		0.149	0.0701	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Barium	ND		0.149	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Beryllium	ND		0.149	0.0575	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Cadmium	ND		0.149	0.0427	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Chromium	**0.742**		0.149	0.0288	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Cobalt	**0.123**	**J**	0.149	0.0270	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Copper	**1.32**		0.149	0.0313	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Lead	**0.0885**	**J**	0.149	0.0493	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Molybdenum	**0.149**		0.149	0.109	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Nickel	**0.144**	**J**	0.149	0.0378	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Selenium	**0.305**		0.149	0.124	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Silver	ND		0.149	0.0233	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Vanadium	**0.101**	**J**	0.149	0.0487	mg/Kg		09/20/21 09:30	09/20/21 17:08	20
Zinc	**9.57**		1.49	0.593	mg/Kg		09/20/21 09:30	09/20/21 17:08	20

Client Sample ID: FDD-B-Composite Nv. Rep 2
Date Collected: 08/21/21 10:14
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-7
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0291	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Arsenic	**3.04**		0.150	0.0705	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Beryllium	ND		0.150	0.0578	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Cadmium	**0.0501**	**J**	0.150	0.0429	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Chromium	**0.988**		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Cobalt	**0.107**	**J**	0.150	0.0272	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Copper	**1.41**		0.150	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Lead	**0.143**	**J**	0.150	0.0495	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Molybdenum	**0.216**		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Nickel	**0.185**		0.150	0.0380	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Selenium	**0.533**		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Silver	**0.0300**	**J**	0.150	0.0234	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Vanadium	**0.158**		0.150	0.0489	mg/Kg		09/20/21 09:30	09/20/21 17:11	20
Zinc	**19.2**		1.50	0.596	mg/Kg		09/20/21 09:30	09/20/21 17:11	20

Client Sample ID: FDD-B-Composite Nv. Rep 3
Date Collected: 08/21/21 10:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-8
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.152	0.0295	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Arsenic	**1.84**		0.152	0.0714	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Barium	ND		0.152	0.0321	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Beryllium	ND		0.152	0.0585	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Cadmium	ND		0.152	0.0434	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Chromium	**0.640**		0.152	0.0293	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Cobalt	**0.0585**	**J**	0.152	0.0275	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Copper	**0.812**		0.152	0.0319	mg/Kg		09/20/21 09:30	09/20/21 17:14	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: FDD-B-Composite Nv. Rep 3 — **Lab Sample ID: 570-68875-8**
Date Collected: 08/21/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0857	J	0.152	0.0501	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Molybdenum	0.126	J	0.152	0.111	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Nickel	0.179		0.152	0.0384	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Selenium	0.308		0.152	0.127	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Silver	ND		0.152	0.0237	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Thallium	ND		0.152	0.0214	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Vanadium	0.0833	J	0.152	0.0495	mg/Kg		09/20/21 09:30	09/20/21 17:14	20
Zinc	14.2		1.52	0.603	mg/Kg		09/20/21 09:30	09/20/21 17:14	20

Client Sample ID: FDD-B-Composite Nv. Rep 4 — **Lab Sample ID: 570-68875-9**
Date Collected: 08/21/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0291	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Arsenic	3.42		0.150	0.0705	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Beryllium	ND		0.150	0.0578	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Cadmium	0.0565	J	0.150	0.0429	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Chromium	1.12		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Cobalt	0.104	J	0.150	0.0272	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Copper	1.54		0.150	0.0315	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Lead	0.154		0.150	0.0495	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Molybdenum	0.232		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Nickel	0.197		0.150	0.0380	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Selenium	0.588		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Silver	0.0304	J	0.150	0.0234	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Vanadium	0.135	J	0.150	0.0489	mg/Kg		09/20/21 09:30	09/20/21 17:17	20
Zinc	13.6		1.50	0.596	mg/Kg		09/20/21 09:30	09/20/21 17:17	20

Client Sample ID: FDD-B-Composite Nv. Rep 5 — **Lab Sample ID: 570-68875-10**
Date Collected: 08/21/21 10:21 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0292	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Arsenic	4.02		0.150	0.0707	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Beryllium	ND		0.150	0.0579	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Cadmium	0.0753	J	0.150	0.0430	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Chromium	1.32		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Cobalt	0.141	J	0.150	0.0272	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Copper	1.84		0.150	0.0316	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Lead	0.192		0.150	0.0496	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Molybdenum	0.276		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Nickel	0.240		0.150	0.0380	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Selenium	0.817		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Silver	0.0362	J	0.150	0.0235	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Vanadium	0.155		0.150	0.0490	mg/Kg		09/20/21 09:30	09/20/21 17:21	20
Zinc	35.4		1.50	0.597	mg/Kg		09/20/21 09:30	09/20/21 17:21	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-B-Composite Mn. Rep 1 — **Lab Sample ID: 570-68875-1**
Date Collected: 08/24/21 10:52 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0184	J	0.0510	0.00827	mg/Kg		09/20/21 09:58	09/20/21 14:37	1

Client Sample ID: FDD-B-Composite Mn. Rep 2 — **Lab Sample ID: 570-68875-2**
Date Collected: 08/24/21 11:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0166	J	0.0500	0.00810	mg/Kg		09/20/21 09:58	09/20/21 14:42	1

Client Sample ID: FDD-B-Composite Mn. Rep 3 — **Lab Sample ID: 570-68875-3**
Date Collected: 08/24/21 10:31 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0194	J	0.0505	0.00818	mg/Kg		09/20/21 09:58	09/20/21 14:44	1

Client Sample ID: FDD-B-Composite Mn. Rep 4 — **Lab Sample ID: 570-68875-4**
Date Collected: 08/24/21 09:07 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0394	J	0.0510	0.00827	mg/Kg		09/20/21 09:58	09/20/21 14:46	1

Client Sample ID: FDD-B-Composite Mn. Rep 5 — **Lab Sample ID: 570-68875-5**
Date Collected: 08/24/21 11:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0349	J	0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 14:48	1

Client Sample ID: FDD-B-Composite Nv. Rep 1 — **Lab Sample ID: 570-68875-6**
Date Collected: 08/21/21 10:04 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0517		0.0500	0.00810	mg/Kg		09/20/21 09:58	09/20/21 14:54	1

Client Sample ID: FDD-B-Composite Nv. Rep 2 — **Lab Sample ID: 570-68875-7**
Date Collected: 08/21/21 10:14 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00824	J	0.0490	0.00794	mg/Kg		09/20/21 09:58	09/20/21 14:55	1

Client Sample ID: FDD-B-Composite Nv. Rep 3 — **Lab Sample ID: 570-68875-8**
Date Collected: 08/21/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0255	J	0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 14:57	1

Client Sample ID: FDD-B-Composite Nv. Rep 4 — **Lab Sample ID: 570-68875-9**
Date Collected: 08/21/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0182	J	0.0500	0.00810	mg/Kg		09/20/21 09:58	09/20/21 14:59	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-B-Composite Nv. Rep 5
Date Collected: 08/21/21 10:21
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68875-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0104	J	0.0485	0.00786	mg/Kg		09/20/21 09:58	09/20/21 15:01	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

General Chemistry

Client Sample ID: FDD-B-Composite Mn. Rep 1 — **Lab Sample ID: 570-68875-1**
Date Collected: 08/24/21 10:52 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:07	1
Trivalent Chromium	0.886	J	2.00	0.300	mg/Kg			09/23/21 23:07	1
Percent Lipids	0.706		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	19.8		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Mn. Rep 2 — **Lab Sample ID: 570-68875-2**
Date Collected: 08/24/21 11:06 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:08	1
Trivalent Chromium	0.834	J	2.00	0.300	mg/Kg			09/23/21 23:08	1
Percent Lipids	0.725		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	20.1		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Mn. Rep 3 — **Lab Sample ID: 570-68875-3**
Date Collected: 08/24/21 10:31 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:09	1
Trivalent Chromium	1.12	J	2.00	0.300	mg/Kg			09/23/21 23:09	1
Percent Lipids	0.870		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	19.3		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Mn. Rep 4 — **Lab Sample ID: 570-68875-4**
Date Collected: 08/24/21 09:07 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:19	1
Trivalent Chromium	1.01	J	2.00	0.300	mg/Kg			09/23/21 23:19	1
Percent Lipids	0.703		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.9		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Mn. Rep 5 — **Lab Sample ID: 570-68875-5**
Date Collected: 08/24/21 11:25 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/22/21 15:30	09/23/21 23:20	1
Trivalent Chromium	1.09	J	2.00	0.300	mg/Kg			09/23/21 23:20	1
Percent Lipids	0.752		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	19.2		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Nv. Rep 1 — **Lab Sample ID: 570-68875-6**
Date Collected: 08/21/21 10:04 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:21	1
Trivalent Chromium	0.742	J	2.00	0.300	mg/Kg			09/23/21 23:21	1
Percent Lipids	1.00		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.3		0.1	0.1	%			09/08/21 17:12	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

General Chemistry

Client Sample ID: FDD-B-Composite Nv. Rep 2 — **Lab Sample ID: 570-68875-7**
Date Collected: 08/21/21 10:14 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:22	1
Trivalent Chromium	0.988	J	2.00	0.300	mg/Kg			09/23/21 23:22	1
Percent Lipids	0.940		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.5		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Nv. Rep 3 — **Lab Sample ID: 570-68875-8**
Date Collected: 08/21/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.797	0.501	mg/Kg		09/22/21 15:30	09/23/21 23:23	1
Trivalent Chromium	0.640	J	2.00	0.300	mg/Kg			09/23/21 23:23	1
Percent Lipids	0.880		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.7		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Nv. Rep 4 — **Lab Sample ID: 570-68875-9**
Date Collected: 08/21/21 09:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/22/21 15:30	09/23/21 23:24	1
Trivalent Chromium	1.12	J	2.00	0.300	mg/Kg			09/23/21 23:24	1
Percent Lipids	1.05		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	17.9		0.1	0.1	%			09/08/21 17:12	1

Client Sample ID: FDD-B-Composite Nv. Rep 5 — **Lab Sample ID: 570-68875-10**
Date Collected: 08/21/21 10:21 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:25	1
Trivalent Chromium	1.32	J	2.00	0.300	mg/Kg			09/23/21 23:25	1
Percent Lipids	0.970		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	17.8		0.1	0.1	%			09/08/21 17:12	1

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Tissue **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	NBZ (18-162)	TPHd14 (34-148)								
570-68875-1	FDD-B-Composite Mn. Rep 1	126	79								
570-68875-2	FDD-B-Composite Mn. Rep 2	107	102								
570-68875-2 MS	FDD-B-Composite Mn. Rep 2	127	88								
570-68875-2 MSD	FDD-B-Composite Mn. Rep 2	162	94								
570-68875-3	FDD-B-Composite Mn. Rep 3	113	87								
570-68875-4	FDD-B-Composite Mn. Rep 4	132	107								
570-68875-5	FDD-B-Composite Mn. Rep 5	91	73								
570-68875-6	FDD-B-Composite Nv. Rep 1	76	104								
570-68875-7	FDD-B-Composite Nv. Rep 2	54	78								
570-68875-8	FDD-B-Composite Nv. Rep 3	63	79								
570-68875-9	FDD-B-Composite Nv. Rep 4	54	88								
570-68875-10	FDD-B-Composite Nv. Rep 5	70	96								
LCS 570-178458/2-A	Lab Control Sample	65	66								
LCSD 570-178458/3-A	Lab Control Sample Dup	67	76								
MB 570-178458/1-A	Method Blank	26	22 S1-								
MB 570-178458/1-A	Method Blank	73	67								

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Tissue **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	FBP (10-120)	TPHd14 (26-168)								
570-68872-A-4-B MS	Matrix Spike	71	141								
570-68872-A-4-C MSD	Matrix Spike Duplicate	62	123								
570-68875-1	FDD-B-Composite Mn. Rep 1	42	93								
570-68875-2	FDD-B-Composite Mn. Rep 2	69	135								
570-68875-3	FDD-B-Composite Mn. Rep 3	74	143								
570-68875-4	FDD-B-Composite Mn. Rep 4	76	146								
570-68875-5	FDD-B-Composite Mn. Rep 5	78	131								
570-68875-6	FDD-B-Composite Nv. Rep 1	85	168								
570-68875-7	FDD-B-Composite Nv. Rep 2	76	123								
570-68875-8	FDD-B-Composite Nv. Rep 3	79	138								
570-68875-9	FDD-B-Composite Nv. Rep 4	64	114								
570-68875-10	FDD-B-Composite Nv. Rep 5	65	118								
LCS 570-178411/2-A	Lab Control Sample	88	125								
LCSD 570-178411/3-A	Lab Control Sample Dup	89	124								
MB 570-178411/1-A	Method Blank	91	132								

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-178458/1-A
Matrix: Tissue
Analysis Batch: 180783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Acenaphthene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Acenaphthylene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Anthracene	ND		10	1.9	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Biphenyl	ND		10	1.9	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Chrysene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Dibenzothiophene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Fluoranthene	ND		10	1.8	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Fluorene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Isophorone	ND		500	1.5	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Naphthalene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Perthane	ND		10	2.0	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Perylene	ND		10	1.2	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Phenanthrene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/21/21 19:26	1
Pyrene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/21/21 19:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*26*		*18 - 162*	*09/11/21 10:17*	*09/21/21 19:26*	*1*
p-Terphenyl-d14 (Surr)	*22*	*S1-*	*34 - 148*	*09/11/21 10:17*	*09/21/21 19:26*	*1*

Lab Sample ID: MB 570-178458/1-A
Matrix: Tissue
Analysis Batch: 181629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Acenaphthene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Acenaphthylene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Anthracene	ND		10	1.9	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 570-178458/1-A
Matrix: Tissue
Analysis Batch: 181629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[e]pyrene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Biphenyl	ND		10	1.9	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Chrysene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Dibenzothiophene	ND		10	1.4	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Fluoranthene	ND		10	1.8	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Fluorene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Isophorone	ND		500	1.5	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Naphthalene	ND		10	1.5	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Perthane	ND		10	2.0	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Perylene	ND		10	1.2	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Phenanthrene	ND		10	1.7	ug/Kg		09/11/21 10:17	09/24/21 15:25	1
Pyrene	ND		10	1.6	ug/Kg		09/11/21 10:17	09/24/21 15:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*73*		*18 - 162*	*09/11/21 10:17*	*09/24/21 15:25*	*1*
p-Terphenyl-d14 (Surr)	*67*		*34 - 148*	*09/11/21 10:17*	*09/24/21 15:25*	*1*

Lab Sample ID: LCS 570-178458/2-A
Matrix: Tissue
Analysis Batch: 180783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178458

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	1000	629.9		ug/Kg		63	40 - 160
2-Methylnaphthalene	1000	593.0		ug/Kg		59	40 - 160
Acenaphthene	1000	620.8		ug/Kg		62	48 - 108
Acenaphthylene	1000	699.5		ug/Kg		70	40 - 160
Anthracene	1000	647.9		ug/Kg		65	40 - 160
Benzo[a]anthracene	1000	634.9		ug/Kg		63	40 - 160
Benzo[a]pyrene	1000	617.5		ug/Kg		62	17 - 163
Benzo[b]fluoranthene	1000	578.2		ug/Kg		58	40 - 160
Benzo[g,h,i]perylene	1000	580.8		ug/Kg		58	40 - 160
Benzo[k]fluoranthene	1000	606.5		ug/Kg		61	40 - 160
Chrysene	1000	550.7		ug/Kg		55	17 - 168
Dibenz(a,h)anthracene	1000	545.2		ug/Kg		55	40 - 160
Fluoranthene	1000	571.6		ug/Kg		57	26 - 137
Fluorene	1000	627.4		ug/Kg		63	59 - 121
Isophorone	1000	827.8		ug/Kg		83	40 - 160
Naphthalene	1000	577.5		ug/Kg		58	21 - 133
Phenanthrene	1000	586.3		ug/Kg		59	54 - 120
Pyrene	1000	644.3		ug/Kg		64	28 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*65*		*18 - 162*
p-Terphenyl-d14 (Surr)	*66*		*34 - 148*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCSD 570-178458/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 181306
Prep Batch: 178458

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene			1000	653.3		ug/Kg		65	40 - 160	4	20
2-Methylnaphthalene			1000	611.8		ug/Kg		61	40 - 160	3	20
Acenaphthene			1000	691.0		ug/Kg		69	48 - 108	11	20
Acenaphthylene			1000	775.5		ug/Kg		78	40 - 160	10	20
Anthracene			1000	706.8		ug/Kg		71	40 - 160	9	20
Benzo[a]anthracene			1000	730.6		ug/Kg		73	40 - 160	14	20
Benzo[a]pyrene			1000	698.8		ug/Kg		70	17 - 163	12	20
Benzo[b]fluoranthene			1000	649.3		ug/Kg		65	40 - 160	12	20
Benzo[g,h,i]perylene			1000	689.2		ug/Kg		69	40 - 160	17	20
Benzo[k]fluoranthene			1000	699.7		ug/Kg		70	40 - 160	14	20
Chrysene			1000	636.7		ug/Kg		64	17 - 168	14	20
Dibenz(a,h)anthracene			1000	661.4		ug/Kg		66	40 - 160	19	20
Fluoranthene			1000	608.4		ug/Kg		61	26 - 137	6	20
Fluorene			1000	678.7		ug/Kg		68	59 - 121	8	20
Isophorone			1000	860.0		ug/Kg		86	40 - 160	4	20
Naphthalene			1000	603.3		ug/Kg		60	21 - 133	4	20
Phenanthrene			1000	654.1		ug/Kg		65	54 - 120	11	20
Pyrene			1000	767.6		ug/Kg		77	28 - 106	17	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*67*		*18 - 162*
p-Terphenyl-d14 (Surr)	*76*		*34 - 148*

Lab Sample ID: 570-68875-2 MS
Client Sample ID: FDD-B-Composite Mn. Rep 2
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 180783
Prep Batch: 178458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1-Methylnaphthalene	ND		988	689.2		ug/Kg		70	40 - 160		
2-Methylnaphthalene	ND		988	651.0		ug/Kg		66	40 - 160		
Acenaphthene	ND		988	731.5		ug/Kg		74	40 - 160		
Acenaphthylene	ND		988	811.7		ug/Kg		82	40 - 160		
Anthracene	2.9	J	988	814.6		ug/Kg		82	40 - 160		
Benzo[a]anthracene	ND		988	838.6		ug/Kg		85	40 - 160		
Benzo[a]pyrene	110		988	914.8		ug/Kg		81	17 - 163		
Benzo[b]fluoranthene	140		988	907.4		ug/Kg		78	40 - 160		
Benzo[g,h,i]perylene	18		988	770.2		ug/Kg		76	40 - 160		
Benzo[k]fluoranthene	120		988	927.0		ug/Kg		81	40 - 160		
Chrysene	8.8	J	988	756.2		ug/Kg		76	17 - 168		
Dibenz(a,h)anthracene	13		988	764.4		ug/Kg		76	40 - 160		
Fluoranthene	2.8	J	988	666.1		ug/Kg		67	26 - 137		
Fluorene	ND		988	705.4		ug/Kg		71	59 - 121		
Isophorone	780	F2 F1	988	930.3	F1	ug/Kg		15	40 - 160		
Naphthalene	ND		988	614.4		ug/Kg		62	21 - 133		
Phenanthrene	5.3	J	988	746.8		ug/Kg		75	54 - 120		
Pyrene	6.6	J	988	871.9		ug/Kg		88	6 - 156		

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-68875-2 MS
Matrix: Tissue
Analysis Batch: 180783

Client Sample ID: FDD-B-Composite Mn. Rep 2
Prep Type: Total/NA
Prep Batch: 178458

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*127*		*18 - 162*
p-Terphenyl-d14 (Surr)	*88*		*34 - 148*

Lab Sample ID: 570-68875-2 MSD
Matrix: Tissue
Analysis Batch: 180783

Client Sample ID: FDD-B-Composite Mn. Rep 2
Prep Type: Total/NA
Prep Batch: 178458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	ND		986	806.5		ug/Kg		82	40 - 160	16	20
2-Methylnaphthalene	ND		986	764.4		ug/Kg		78	40 - 160	16	20
Acenaphthene	ND		986	884.5		ug/Kg		90	40 - 160	19	20
Acenaphthylene	ND		986	981.0		ug/Kg		99	40 - 160	19	20
Anthracene	2.9	J	986	940.8		ug/Kg		95	40 - 160	14	20
Benzo[a]anthracene	ND		986	981.5		ug/Kg		100	40 - 160	16	20
Benzo[a]pyrene	110		986	1050		ug/Kg		95	17 - 163	14	20
Benzo[b]fluoranthene	140		986	1018		ug/Kg		89	40 - 160	11	20
Benzo[g,h,i]perylene	18		986	853.1		ug/Kg		85	40 - 160	10	20
Benzo[k]fluoranthene	120		986	1082		ug/Kg		97	40 - 160	15	20
Chrysene	8.8	J	986	882.9		ug/Kg		89	17 - 168	15	20
Dibenz(a,h)anthracene	13		986	874.7		ug/Kg		87	40 - 160	13	20
Fluoranthene	2.8	J	986	777.1		ug/Kg		79	26 - 137	15	20
Fluorene	ND		986	829.4		ug/Kg		84	59 - 121	16	20
Isophorone	780	F2 F1	986	2209	E F2	ug/Kg		145	40 - 160	81	20
Naphthalene	ND		986	723.2		ug/Kg		73	21 - 133	16	20
Phenanthrene	5.3	J	986	881.0		ug/Kg		89	54 - 120	16	20
Pyrene	6.6	J	986	1018		ug/Kg		103	6 - 156	15	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*162*		*18 - 162*
p-Terphenyl-d14 (Surr)	*94*		*34 - 148*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-178411/1-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-52	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 13:24	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: MB 570-178411/1-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-99	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-101	ND		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-110	ND		0.20	0.046	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-118	ND		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-138/158	ND		0.40	0.094	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-149	ND		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-187	ND		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 13:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*91*		*10 - 120*	*09/11/21 08:22*	*09/24/21 13:24*	*1*
p-Terphenyl-d14 (Surr)	*132*		*26 - 168*	*09/11/21 08:22*	*09/24/21 13:24*	*1*

Lab Sample ID: LCS 570-178411/2-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	52.76		ug/Kg		106	32 - 120
PCB-28	50.0	57.35		ug/Kg		115	34 - 141
PCB-44	50.0	56.76		ug/Kg		114	38 - 133
PCB-52	50.0	56.38		ug/Kg		113	32 - 137
PCB-66	50.0	65.07		ug/Kg		130	42 - 146
PCB-77	50.0	56.16		ug/Kg		112	29 - 155
PCB-101	50.0	58.28		ug/Kg		117	35 - 137
PCB-105	50.0	58.67		ug/Kg		117	33 - 146

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-178411/2-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-118	50.0	53.32		ug/Kg		107	36 - 136
PCB-126	50.0	58.35		ug/Kg		117	26 - 159
PCB-128	50.0	65.16		ug/Kg		130	20 - 168
PCB-132/153	50.0	59.03		ug/Kg		118	34 - 165
PCB-138/158	50.0	53.45		ug/Kg		107	21 - 135
PCB-170	50.0	58.62		ug/Kg		117	22 - 141
PCB-180	50.0	62.30		ug/Kg		125	22 - 176
PCB-187	50.0	62.82		ug/Kg		126	22 - 166
PCB-201	50.0	65.29		ug/Kg		131	24 - 172
PCB-206	50.0	67.93		ug/Kg		136	13 - 170

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*88*		*10 - 120*
p-Terphenyl-d14 (Surr)	*125*		*26 - 168*

Lab Sample ID: LCSD 570-178411/3-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 178411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	55.77		ug/Kg		112	32 - 120	6	22
PCB-28	50.0	61.85		ug/Kg		124	34 - 141	8	21
PCB-44	50.0	61.63		ug/Kg		123	38 - 133	8	22
PCB-52	50.0	60.66		ug/Kg		121	32 - 137	7	21
PCB-66	50.0	70.51		ug/Kg		141	42 - 146	8	24
PCB-77	50.0	59.77		ug/Kg		120	29 - 155	6	22
PCB-101	50.0	63.90		ug/Kg		128	35 - 137	9	22
PCB-105	50.0	60.80		ug/Kg		122	33 - 146	4	22
PCB-118	50.0	56.97		ug/Kg		114	36 - 136	7	22
PCB-126	50.0	59.74		ug/Kg		119	26 - 159	2	22
PCB-128	50.0	68.42		ug/Kg		137	20 - 168	5	21
PCB-132/153	50.0	63.16		ug/Kg		126	34 - 165	7	22
PCB-138/158	50.0	55.29		ug/Kg		111	21 - 135	3	23
PCB-170	50.0	58.50		ug/Kg		117	22 - 141	0	22
PCB-180	50.0	65.01		ug/Kg		130	22 - 176	4	20
PCB-187	50.0	65.27		ug/Kg		131	22 - 166	4	21
PCB-201	50.0	68.60		ug/Kg		137	24 - 172	5	23
PCB-206	50.0	70.97		ug/Kg		142	13 - 170	4	22

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*89*		*10 - 120*
p-Terphenyl-d14 (Surr)	*124*		*26 - 168*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-68872-A-4-B MS
Client Sample ID: Matrix Spike
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 181323
Prep Batch: 178411

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		49.2	46.87		ug/Kg		95	25 - 115
PCB-28	ND		49.2	65.48		ug/Kg		133	28 - 161
PCB-44	ND		49.2	65.25		ug/Kg		133	26 - 142
PCB-52	0.90		49.2	57.82		ug/Kg		116	17 - 147
PCB-66	1.3		49.2	70.47		ug/Kg		141	20 - 167
PCB-77	ND		49.2	62.53		ug/Kg		127	10 - 180
PCB-101	2.5		49.2	59.21		ug/Kg		115	10 - 163
PCB-105	ND		49.2	66.19		ug/Kg		134	14 - 164
PCB-118	1.9		49.2	67.50		ug/Kg		133	17 - 163
PCB-126	ND		49.2	69.24		ug/Kg		141	10 - 180
PCB-128	ND		49.2	74.91		ug/Kg		152	10 - 180
PCB-132/153	3.5		49.2	71.71		ug/Kg		139	11 - 180
PCB-138/158	3.1		49.2	63.36		ug/Kg		122	10 - 155
PCB-170	ND		49.2	67.20		ug/Kg		137	14 - 152
PCB-180	ND		49.2	74.05		ug/Kg		150	10 - 180
PCB-187	1.0		49.2	75.37		ug/Kg		151	10 - 180
PCB-201	ND		49.2	79.85		ug/Kg		162	10 - 180
PCB-206	ND		49.2	66.91		ug/Kg		136	10 - 175

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*71*		*10 - 120*
p-Terphenyl-d14 (Surr)	*141*		*26 - 168*

Lab Sample ID: 570-68872-A-4-C MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 181323
Prep Batch: 178411

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		49.6	40.32		ug/Kg		81	25 - 115	15	40
PCB-28	ND		49.6	55.76		ug/Kg		112	28 - 161	16	40
PCB-44	ND		49.6	55.39		ug/Kg		112	26 - 142	16	40
PCB-52	0.90		49.6	52.25		ug/Kg		104	17 - 147	10	40
PCB-66	1.3		49.6	63.41		ug/Kg		125	20 - 167	11	40
PCB-77	ND		49.6	53.07		ug/Kg		107	10 - 180	16	40
PCB-101	2.5		49.6	51.65		ug/Kg		99	10 - 163	14	40
PCB-105	ND		49.6	52.31		ug/Kg		105	14 - 164	23	40
PCB-118	1.9		49.6	57.03		ug/Kg		111	17 - 163	17	40
PCB-126	ND		49.6	55.29		ug/Kg		111	10 - 180	22	40
PCB-128	ND		49.6	62.33		ug/Kg		126	10 - 180	18	40
PCB-132/153	3.5		49.6	58.72		ug/Kg		111	11 - 180	20	40
PCB-138/158	3.1		49.6	50.38		ug/Kg		95	10 - 155	23	40
PCB-170	ND		49.6	60.95		ug/Kg		123	14 - 152	10	40
PCB-180	ND		49.6	64.90		ug/Kg		131	10 - 180	13	40
PCB-187	1.0		49.6	59.05		ug/Kg		117	10 - 180	24	40
PCB-201	ND		49.6	63.09		ug/Kg		127	10 - 180	23	40
PCB-206	ND		49.6	62.81		ug/Kg		127	10 - 175	6	40

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-68872-A-4-C MSD
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 178411

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*10 - 120*
p-Terphenyl-d14 (Surr)	*123*		*26 - 168*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-180326/1-A ^20
Matrix: Tissue
Analysis Batch: 180283

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 180326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0290	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Arsenic	ND		0.150	0.0703	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Barium	ND		0.150	0.0316	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Beryllium	ND		0.150	0.0576	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Cadmium	ND		0.150	0.0428	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Chromium	ND		0.150	0.0289	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Cobalt	ND		0.150	0.0271	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Copper	ND		0.150	0.0314	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Lead	ND		0.150	0.0494	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Molybdenum	ND		0.150	0.110	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Nickel	ND		0.150	0.0379	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Selenium	ND		0.150	0.125	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Silver	ND		0.150	0.0233	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Thallium	ND		0.150	0.0211	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Vanadium	ND		0.150	0.0488	mg/Kg		09/20/21 09:30	09/20/21 16:23	20
Zinc	ND		1.50	0.594	mg/Kg		09/20/21 09:30	09/20/21 16:23	20

Lab Sample ID: LCS 570-180326/2-A ^20
Matrix: Tissue
Analysis Batch: 180283

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 180326

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	12.5	12.00		mg/Kg		96	80 - 120
Arsenic	12.5	12.52		mg/Kg		100	80 - 120
Barium	12.5	12.42		mg/Kg		99	80 - 120
Beryllium	12.5	12.55		mg/Kg		100	80 - 120
Cadmium	12.5	12.52		mg/Kg		100	80 - 120
Chromium	12.5	12.16		mg/Kg		97	80 - 120
Cobalt	12.5	11.91		mg/Kg		95	80 - 120
Copper	12.5	11.99		mg/Kg		96	80 - 120
Lead	12.5	12.43		mg/Kg		99	80 - 120
Molybdenum	12.5	11.74		mg/Kg		94	80 - 120
Nickel	12.5	12.44		mg/Kg		99	80 - 120
Selenium	12.5	12.51		mg/Kg		100	80 - 120
Silver	6.27	5.489		mg/Kg		88	80 - 120
Thallium	12.5	11.99		mg/Kg		96	80 - 120
Vanadium	12.5	11.70		mg/Kg		93	80 - 120
Zinc	12.5	12.82		mg/Kg		102	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-180326/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	12.5	11.87		mg/Kg		95	80 - 120	1	20
Arsenic	12.5	12.51		mg/Kg		100	80 - 120	0	20
Barium	12.5	12.38		mg/Kg		99	80 - 120	0	20
Beryllium	12.5	11.97		mg/Kg		96	80 - 120	5	20
Cadmium	12.5	12.32		mg/Kg		99	80 - 120	2	20
Chromium	12.5	11.82		mg/Kg		95	80 - 120	3	20
Cobalt	12.5	12.18		mg/Kg		97	80 - 120	2	20
Copper	12.5	12.32		mg/Kg		99	80 - 120	3	20
Lead	12.5	12.28		mg/Kg		98	80 - 120	1	20
Molybdenum	12.5	11.81		mg/Kg		94	80 - 120	1	20
Nickel	12.5	12.52		mg/Kg		100	80 - 120	1	20
Selenium	12.5	12.37		mg/Kg		99	80 - 120	1	20
Silver	6.25	5.957		mg/Kg		95	80 - 120	8	20
Thallium	12.5	11.82		mg/Kg		95	80 - 120	1	20
Vanadium	12.5	12.15		mg/Kg		97	80 - 120	4	20
Zinc	12.5	12.79		mg/Kg		102	80 - 120	0	20

Lab Sample ID: 570-68875-1 MS — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Antimony	ND		12.4	12.03		mg/Kg		97	80 - 120		
Arsenic	2.72		12.4	16.15		mg/Kg		108	80 - 120		
Barium	0.114	J	12.4	12.51		mg/Kg		100	80 - 120		
Beryllium	ND		12.4	12.52		mg/Kg		101	80 - 120		
Cadmium	ND		12.4	12.49		mg/Kg		100	80 - 120		
Chromium	0.886		12.4	13.09		mg/Kg		98	80 - 120		
Cobalt	0.110	J	12.4	12.14		mg/Kg		97	80 - 120		
Copper	1.30		12.4	13.71		mg/Kg		100	80 - 120		
Lead	0.176		12.4	12.74		mg/Kg		101	80 - 120		
Molybdenum	0.175		12.5	11.84		mg/Kg		94	80 - 120		
Nickel	0.215		12.4	12.69		mg/Kg		100	80 - 120		
Selenium	0.298		12.4	14.27		mg/Kg		112	80 - 120		
Silver	ND	F1	6.22	3.704	F1	mg/Kg		60	80 - 120		
Thallium	ND		12.4	12.11		mg/Kg		97	80 - 120		
Vanadium	0.228		12.4	11.94		mg/Kg		94	80 - 120		
Zinc	9.99	F1	12.4	31.55	F1	mg/Kg		173	80 - 120		

Lab Sample ID: 570-68875-1 MSD — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		12.5	12.48		mg/Kg		100	80 - 120	4	20
Arsenic	2.72		12.5	16.36		mg/Kg		109	80 - 120	1	20
Barium	0.114	J	12.5	13.17		mg/Kg		104	80 - 120	5	20
Beryllium	ND		12.5	12.83		mg/Kg		103	80 - 120	2	20
Cadmium	ND		12.5	13.03		mg/Kg		104	80 - 120	4	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-68875-1 MSD — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180326**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	0.886		12.5	13.02		mg/Kg		97	80 - 120	1	20
Cobalt	0.110	J	12.5	12.61		mg/Kg		100	80 - 120	4	20
Copper	1.30		12.5	13.84		mg/Kg		100	80 - 120	1	20
Lead	0.176		12.5	13.08		mg/Kg		103	80 - 120	3	20
Molybdenum	0.175		12.5	12.08		mg/Kg		95	80 - 120	2	20
Nickel	0.215		12.5	12.92		mg/Kg		102	80 - 120	2	20
Selenium	0.298		12.5	14.54		mg/Kg		114	80 - 120	2	20
Silver	ND	F1	6.25	3.789	F1	mg/Kg		61	80 - 120	2	20
Thallium	ND		12.5	12.50		mg/Kg		100	80 - 120	3	20
Vanadium	0.228		12.5	12.45		mg/Kg		98	80 - 120	4	20
Zinc	9.99	F1	12.5	31.84	F1	mg/Kg		175	80 - 120	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-180307/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0495	0.00802	mg/Kg		09/20/21 09:58	09/20/21 14:31	1

Lab Sample ID: LCS 570-180307/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.500	0.5350		mg/Kg		107	82 - 124

Lab Sample ID: LCSD 570-180307/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.505	0.5431		mg/Kg		108	82 - 124	2	16

Lab Sample ID: 570-68875-1 MS — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0184	J	0.495	0.4568		mg/Kg		89	76 - 136

Lab Sample ID: 570-68875-1 MSD — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180307**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0184	J	0.485	0.4671		mg/Kg		92	76 - 136	2	16

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 570-180854/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 22:51	1

Lab Sample ID: LCS 570-180854/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	20.0	16.69		mg/Kg		83	78 - 120

Lab Sample ID: LCSD 570-180854/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	19.9	16.39		mg/Kg		82	78 - 120	2	20

Lab Sample ID: 570-70395-A-1-A MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	ND	F1 F2	20.1	ND	F1	mg/Kg		0	75 - 125

Lab Sample ID: 570-70395-A-1-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	20.0	ND	F1	mg/Kg		0	75 - 125	NC	25

Lab Sample ID: 570-70395-A-1-C MSI ^25 — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	ND	F1 F2	984	363.9	F1	mg/Kg		37	75 - 125

Lab Sample ID: 570-70395-A-1-G MSID ^25 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSID Result	MSID Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	984	634.4	F1 F2	mg/Kg		64	75 - 125	54	25

Lab Sample ID: 570-70462-A-1-K MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	20.0	ND	F1	mg/Kg		0	75 - 125	NC	25

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: 570-70462-A-1-L MSI ^25 — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1 F2	976	739.9		mg/Kg		76	75 - 125		

Lab Sample ID: 570-70462-A-1-M MSID ^25 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSID Result	MSID Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	976	1029	F2	mg/Kg		105	75 - 125	33	25

Lab Sample ID: 570-70462-A-1-W MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1 F2	20.0	3.041	F1	mg/Kg		15	75 - 125		

Method: Lipids - Percent Lipids

Lab Sample ID: MB 570-180784/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180798 — **Prep Batch: 180784**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	ND		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1

Lab Sample ID: 570-68872-A-4-G DU — **Client Sample ID: Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180798 — **Prep Batch: 180784**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Lipids	0.686			0.6693		%				3	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-68875-1 DU — **Client Sample ID: FDD-B-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 177662

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	19.8			19.6		%				1	10

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-68875-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0161	11-19-21
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-21
California	State	2944	09-30-21
Guam	State	21-003R	06-22-22
Nevada	State	CA00111	07-31-22
Oregon	NELAP	CA300001	01-30-22
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-21

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
7196A	Chromium, Hexavalent	SW846	ECL 1
7196A	Chromium, Trivalent (Colorimetric)	SW846	ECL 1
Lipids	Percent Lipids	Lab SOP	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
In House	Tissue Handling and Preparation	NOAA	ECL 3

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
NOAA = National Marine Fisheries Service, National Oceanic And Atmospheric Administration, Seattle, WA, November 1988
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68875-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-68875-1	FDD-B-Composite Mn. Rep 1	Tissue	08/24/21 10:52	09/01/21 10:15
570-68875-2	FDD-B-Composite Mn. Rep 2	Tissue	08/24/21 11:06	09/01/21 10:15
570-68875-3	FDD-B-Composite Mn. Rep 3	Tissue	08/24/21 10:31	09/01/21 10:15
570-68875-4	FDD-B-Composite Mn. Rep 4	Tissue	08/24/21 09:07	09/01/21 10:15
570-68875-5	FDD-B-Composite Mn. Rep 5	Tissue	08/24/21 11:25	09/01/21 10:15
570-68875-6	FDD-B-Composite Nv. Rep 1	Tissue	08/21/21 10:04	09/01/21 10:15
570-68875-7	FDD-B-Composite Nv. Rep 2	Tissue	08/21/21 10:14	09/01/21 10:15
570-68875-8	FDD-B-Composite Nv. Rep 3	Tissue	08/21/21 10:00	09/01/21 10:15
570-68875-9	FDD-B-Composite Nv. Rep 4	Tissue	08/21/21 09:19	09/01/21 10:15
570-68875-10	FDD-B-Composite Nv. Rep 5	Tissue	08/21/21 10:21	09/01/21 10:15

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-68875 Chain of Custody

CHAIN OF CUSTODY RECORD

66675

E: 08/31/21

E: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

NBSD Mole Pier FDD Maintenance Dredging

PO NO: 3151187382 (Project not PO)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S) (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

COMPOSITE AREA B COC

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160 3/SM 2540 B)	Metals (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD						
1	M.n Composite B Rep 1	8/24/2021	1052	tissue	1	X														X						
2	M n Composite B Rep 2	8/24/2021	1106	tissue	1	X														X						
3	M n Composite B Rep 3	8/24/2021	1031	tissue	1	X														X						
4	M.n Composite B Rep 4	8/24/2021	0907	tissue	1	X														X						
5	M n. Composite B Rep 5	8/24/2021	1125	tissue	1	X														X						
6	A.v Composite B Rep 1	8/21/2021	1004	tissue	1	X														X						
7	A.v Composite B Rep 2	8/21/2021	1014	tissue	1	X														X						
8	A.v Composite B Rep 3	8/21/2021	1000	tissue	1	X														X						
9	A.v Composite B Rep 4	8/21/2021	0929	tissue	1	X														X						
10	A.v Composite B Rep 5	8/21/2021	1021	tissue	1	✓														X						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
EcoAnalysts 8/31/21 1200		9/1/3	10:15
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time

06/02/14 Revision

3.2/3.6 SCB

Page 47 of 51

10/5/2021

Analyte[1]	Analysis Method	Tissue Target RL[a,b]
Total Solids	USEPA160.3/SM 2540 B	0 10%
Total Lipids	NOAA, 1993 [i]	0 10%
Antimony	USEPA 6020 [d]	N/A
Arsenic	USEPA 6020 [d]	0 1 mg/kg
Barium	USEPA 6020 [d]	N/A
Beryllium	USEPA 6020 [d]	N/A
Cadmium	USEPA 6020 [d]	0 1 mg/kg
Chromium	USEPA 6020 [d]	0 1 mg/kg
Chromium, Hexavalent	EPA 7199	
Chromium, Trivalent	7199 CR3	
Cobalt	USEPA 6020 [d]	N/A
Copper	USEPA 6020 [d]	0 1 mg/kg
Lead	USEPA 6020[d]	0 1 mg/kg
Mercury	USEPA 7471A [d]	0.02 mg/kg
Molybdenum	USEPA 6020 [d]	N/A
Nickel	USEPA 6020 [d]	0 1 mg/kg
Selenium	USEPA 6020 [d]	0 1 mg/kg
Silver	USEPA 6020 [d]	0 1 mg/kg
Thallium	USEPA 6020 [d]	N/A
Vanadium	USEPA 6020 [d]	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0 5 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis; tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al , 1995.

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

i) National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

eurofins | Calscience

CHAIN OF CUSTODY RECORD

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

WO # / LAB USE ONLY

DATE:

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O. NO.: 3151187382 (Project not PO)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM.

RETAIN remaining material for potential future tests.

Please only report requested analytes. Please report totals for PCBs and PAHs.

Please report to MDL in dry weight. Please see attached sheet for details.

COMPOSITE AREA B COC

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160.3/SM 2540 B)	**Metals** (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD							
	FDD-B-Composite Mn. Rep 1			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Mn. Rep 2			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Mn. Rep 3			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Mn. Rep 4			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Mn. Rep 5			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Nv. Rep 1			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Nv. Rep 2			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Nv. Rep 3			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Nv. Rep 4			tissue		X			X	X	X			X		X		X									
	FDD-B-Composite Nv. Rep 5			tissue		X			X	X	X			X		X		X									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

68875

ORIGIN ID:PWIA (360) 297-6040
MICHELLE KNOWLEN
ECOANALYSTS, INC
4770 NE VIEW DR.

PORT GAMBLE, WA 98364
UNITED STATES US

SHIP DATE: 31AUG21
ACTWGT: 23.00 LB
CAD: 3195116/INET4400
DIMS: 12x17x11 IN
DRY ICE: 2.28 KG
BILL SENDER

570-68875 Waybill

TO CARLA HOLLOWELL
EUROFINS CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494
INV:
PO:
REF: WOOD NBSD MOLE PIER TISSUES
DEPT

56DJ2/56C0/FE4A

FedEx Express

2 of 4
MPS# 0263 7746 8598 8422
Mstr# 7746 8598 8065

0201

WED - 01 SEP 10:30A
PRIORITY OVERNIGHT
ICE

92 APVA

92841
CA-US SNA

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-68875-1

Login Number: 68875
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-68872-1
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
9/29/2021 9:47:53 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Client Sample Results 5
Surrogate Summary 21
QC Sample Results 22
Certification Summary 30
Method Summary 31
Sample Summary 32
Chain of Custody 33
Receipt Checklists 37

Definitions/Glossary

Client: Wood E&I Solutions Inc
Job ID: 570-68872-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Job ID: 570-68872-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68872-1

Comments
The samples were frozen after collection (prior to holding time expiration) at -18C, and remained frozen until the laboratory was ready to prepare the samples for analysis. Eurofins Calscience, Inc. follows SWAMP criteria and the Puget Sound Protocol (USEPA/PSWQAT, 1997, Table 2) for holding times in marine tissues and / or sediment samples, which states holding times may be extended up to six months to one year (two years for metals) if stored frozen at -18C after collection. Therefore, the sample results have not been flagged as exceeding the EPA Method recommended holding times. No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -2.4º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 570-68872-2

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68872-2

Comments
No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -2.4º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: FDD-A-Composite Mn. Rep 1
Lab Sample ID: 570-68872-1
Date Collected: 08/24/21 09:43
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-49	**2.6**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-52	**0.87**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-66	**1.3**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-70	**0.86**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-99	**2.0**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-101	**2.7**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-110	**2.5**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-118	**2.0**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-132/153	**4.1**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-138/158	**3.2**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-149	**2.7**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-187	**1.1**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 17:35	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*41*		*10 - 120*	*09/11/21 08:22*	*09/24/21 17:35*	*1*
p-Terphenyl-d14 (Surr)	*85*		*26 - 168*	*09/11/21 08:22*	*09/24/21 17:35*	*1*

Client Sample ID: FDD-A-Composite Mn. Rep 2
Lab Sample ID: 570-68872-2
Date Collected: 08/24/21 10:00
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 18:00	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Mn. Rep 2
Lab Sample ID: 570-68872-2
Date Collected: 08/24/21 10:00
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-49	**2.0**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-52	**0.81**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-66	**1.4**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-70	**0.55**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-99	**2.3**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-101	**2.6**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-110	**2.3**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-118	**2.1**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-132/153	**3.8**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-138/158	**3.3**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-149	**2.7**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-187	**1.0**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 18:00	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*10 - 120*	*09/11/21 08:22*	*09/24/21 18:00*	*1*
p-Terphenyl-d14 (Surr)	*156*		*26 - 168*	*09/11/21 08:22*	*09/24/21 18:00*	*1*

Client Sample ID: FDD-A-Composite Mn. Rep 3
Lab Sample ID: 570-68872-3
Date Collected: 08/24/21 11:40
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 18:24	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Mn. Rep 3
Date Collected: 08/24/21 11:40
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-49	**1.6**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-52	**0.68**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-66	**1.3**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-70	**0.59**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-99	**2.0**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-101	**2.6**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-110	**2.4**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-118	**2.2**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-132/153	**3.8**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-138/158	**3.0**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-149	**2.8**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-187	**1.0**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 18:24	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 18:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*10 - 120*	*09/11/21 08:22*	*09/24/21 18:24*	*1*
p-Terphenyl-d14 (Surr)	*138*		*26 - 168*	*09/11/21 08:22*	*09/24/21 18:24*	*1*

Client Sample ID: FDD-A-Composite Mn. Rep 4
Date Collected: 08/24/21 08:38
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 17:10	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Mn. Rep 4
Date Collected: 08/24/21 08:38
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-49	**1.3**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-52	**0.90**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-66	**1.3**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-70	**0.47**		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-99	**1.9**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-101	**2.5**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-110	**2.0**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-118	**1.9**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-132/153	**3.5**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-138/158	**3.1**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-149	**2.4**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-151	**0.71**		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-187	**1.0**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 17:10	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*10 - 120*	*09/11/21 08:22*	*09/24/21 17:10*	*1*
p-Terphenyl-d14 (Surr)	*133*		*26 - 168*	*09/11/21 08:22*	*09/24/21 17:10*	*1*

Client Sample ID: FDD-A-Composite Mn. Rep 5
Date Collected: 08/24/21 10:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 18:49	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Mn. Rep 5
Date Collected: 08/24/21 10:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-49	**1.7**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-52	**0.86**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-66	**1.5**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-70	**0.51**		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-99	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-101	**2.8**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-110	**2.5**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-118	**2.4**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-132/153	**4.4**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-138/158	**3.6**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-149	**3.2**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-187	**1.0**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 18:49	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*10 - 120*	*09/11/21 08:22*	*09/24/21 18:49*	*1*
p-Terphenyl-d14 (Surr)	*154*		*26 - 168*	*09/11/21 08:22*	*09/24/21 18:49*	*1*

Client Sample ID: FDD-A-Composite Nv. Rep 1
Date Collected: 08/21/21 09:46
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-49	**0.26**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:13	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Nv. Rep 1
Date Collected: 08/21/21 09:46
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-52	**0.93**		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-66	**0.86**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-99	**1.4**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-101	**2.0**		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-110	**1.4**		0.20	0.046	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-118	**1.3**		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-132/153	**3.6**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-138/158	**2.9**		0.40	0.094	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-149	**2.5**		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-187	**1.5**		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 19:13	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*10 - 120*	*09/11/21 08:22*	*09/24/21 19:13*	*1*
p-Terphenyl-d14 (Surr)	*158*		*26 - 168*	*09/11/21 08:22*	*09/24/21 19:13*	*1*

Client Sample ID: FDD-A-Composite Nv. Rep 2
Date Collected: 08/21/21 09:51
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-7
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-49	**0.38**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-52	**0.88**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 19:38	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Nv. Rep 2
Lab Sample ID: 570-68872-7
Date Collected: 08/21/21 09:51
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-66	**0.80**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-99	**1.2**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-101	**2.0**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-110	**1.1**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-118	**1.0**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-132/153	**3.2**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-138/158	**2.6**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-149	**2.1**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-180	**1.5**		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-187	**1.4**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 19:38	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*10 - 120*	*09/11/21 08:22*	*09/24/21 19:38*	*1*
p-Terphenyl-d14 (Surr)	*148*		*26 - 168*	*09/11/21 08:22*	*09/24/21 19:38*	*1*

Client Sample ID: FDD-A-Composite Nv. Rep 3
Lab Sample ID: 570-68872-8
Date Collected: 08/21/21 10:19
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-49	**0.64**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-52	**1.2**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-66	**0.90**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:03	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Nv. Rep 3
Lab Sample ID: 570-68872-8
Date Collected: 08/21/21 10:19
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-99	**1.6**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-101	**2.3**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-110	**1.6**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-118	**1.3**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-132/153	**4.0**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-138/158	**2.9**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-149	**2.6**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-170	**0.89**		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-180	**1.6**		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-187	**1.6**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 20:03	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*10 - 120*	*09/11/21 08:22*	*09/24/21 20:03*	*1*
p-Terphenyl-d14 (Surr)	*144*		*26 - 168*	*09/11/21 08:22*	*09/24/21 20:03*	*1*

Client Sample ID: FDD-A-Composite Nv. Rep 4
Lab Sample ID: 570-68872-9
Date Collected: 08/21/21 09:17
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-49	**0.30**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-52	**0.88**		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-66	**0.88**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 20:28	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Nv. Rep 4
Lab Sample ID: 570-68872-9
Date Collected: 08/21/21 09:17
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-99	**1.0**		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-101	**1.6**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-110	**0.87**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-118	**0.98**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-132/153	**2.7**		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-138/158	**2.2**		0.40	0.093	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-149	**1.6**		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-180	**1.0**		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-187	**1.3**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 20:28	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*10 - 120*	*09/11/21 08:22*	*09/24/21 20:28*	*1*
p-Terphenyl-d14 (Surr)	*138*		*26 - 168*	*09/11/21 08:22*	*09/24/21 20:28*	*1*

Client Sample ID: FDD-A-Composite Nv. Rep 5
Lab Sample ID: 570-68872-10
Date Collected: 08/21/21 09:53
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-49	**0.49**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-52	**1.2**		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-66	**0.93**		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 20:54	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: FDD-A-Composite Nv. Rep 5
Lab Sample ID: 570-68872-10
Date Collected: 08/21/21 09:53
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-99	**1.6**		0.20	0.059	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-101	**2.2**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-110	**1.4**		0.20	0.045	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-118	**1.4**		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-132/153	**4.6**		0.39	0.17	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-138/158	**3.6**		0.39	0.093	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-149	**3.0**		0.20	0.096	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-180	**1.5**		0.20	0.041	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-183	**0.67**		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-187	**1.8**		0.20	0.083	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:22	09/24/21 20:54	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*10 - 120*	*09/11/21 08:22*	*09/24/21 20:54*	*1*
p-Terphenyl-d14 (Surr)	*146*		*26 - 168*	*09/11/21 08:22*	*09/24/21 20:54*	*1*

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-Composite Mn. Rep 1 — **Lab Sample ID: 570-68872-1**
Date Collected: 08/24/21 09:43 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.97		0.149	0.0313	mg/Kg		09/26/21 12:40	09/27/21 22:16	20
Zinc	20.9		1.49	0.593	mg/Kg		09/26/21 12:40	09/27/21 22:16	20

Client Sample ID: FDD-A-Composite Mn. Rep 2 — **Lab Sample ID: 570-68872-2**
Date Collected: 08/24/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.67		0.150	0.0314	mg/Kg		09/26/21 12:40	09/27/21 22:19	20
Zinc	31.8		1.50	0.594	mg/Kg		09/26/21 12:40	09/27/21 22:19	20

Client Sample ID: FDD-A-Composite Mn. Rep 3 — **Lab Sample ID: 570-68872-3**
Date Collected: 08/24/21 11:40 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	3.29		0.150	0.0316	mg/Kg		09/26/21 12:40	09/27/21 22:23	20
Zinc	25.4		1.50	0.597	mg/Kg		09/26/21 12:40	09/27/21 22:23	20

Client Sample ID: FDD-A-Composite Mn. Rep 4 — **Lab Sample ID: 570-68872-4**
Date Collected: 08/24/21 08:38 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.49		0.150	0.0315	mg/Kg		09/26/21 12:40	09/27/21 22:26	20
Zinc	32.9		1.50	0.596	mg/Kg		09/26/21 12:40	09/27/21 22:26	20

Client Sample ID: FDD-A-Composite Mn. Rep 5 — **Lab Sample ID: 570-68872-5**
Date Collected: 08/24/21 10:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.34		0.151	0.0317	mg/Kg		09/26/21 12:40	09/27/21 22:29	20
Zinc	32.9		1.51	0.598	mg/Kg		09/26/21 12:40	09/27/21 22:29	20

Client Sample ID: FDD-A-Composite Nv. Rep 1 — **Lab Sample ID: 570-68872-6**
Date Collected: 08/21/21 09:46 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.15		0.150	0.0314	mg/Kg		09/26/21 12:40	09/27/21 22:32	20
Zinc	24.3		1.50	0.594	mg/Kg		09/26/21 12:40	09/27/21 22:32	20

Client Sample ID: FDD-A-Composite Nv. Rep 2 — **Lab Sample ID: 570-68872-7**
Date Collected: 08/21/21 09:51 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	2.08		0.150	0.0315	mg/Kg		09/26/21 12:40	09/27/21 22:35	20
Zinc	25.5		1.50	0.596	mg/Kg		09/26/21 12:40	09/27/21 22:35	20

Client Sample ID: FDD-A-Composite Nv. Rep 3 — **Lab Sample ID: 570-68872-8**
Date Collected: 08/21/21 10:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.68		0.149	0.0313	mg/Kg		09/26/21 12:40	09/27/21 22:38	20
Zinc	23.4		1.49	0.593	mg/Kg		09/26/21 12:40	09/27/21 22:38	20

Client Sample Results

Client: Wood E&I Solutions Inc
Job ID: 570-68872-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Method: 6020 - Metals (ICP/MS)

Client Sample ID: FDD-A-Composite Nv. Rep 4
Lab Sample ID: 570-68872-9
Date Collected: 08/21/21 09:17
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.53		0.149	0.0313	mg/Kg		09/26/21 12:40	09/27/21 22:42	20
Zinc	18.4		1.49	0.591	mg/Kg		09/26/21 12:40	09/27/21 22:42	20

Client Sample ID: FDD-A-Composite Nv. Rep 5
Lab Sample ID: 570-68872-10
Date Collected: 08/21/21 09:53
Matrix: Tissue
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.46		0.150	0.0315	mg/Kg		09/26/21 12:40	09/27/21 22:45	20
Zinc	20.7		1.50	0.596	mg/Kg		09/26/21 12:40	09/27/21 22:45	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-Composite Mn. Rep 1 — **Lab Sample ID: 570-68872-1**
Date Collected: 08/24/21 09:43 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0455	J	0.0515	0.00835	mg/Kg		09/20/21 11:34	09/20/21 17:15	1

Client Sample ID: FDD-A-Composite Mn. Rep 2 — **Lab Sample ID: 570-68872-2**
Date Collected: 08/24/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0221	J	0.0485	0.00786	mg/Kg		09/20/21 11:34	09/20/21 17:20	1

Client Sample ID: FDD-A-Composite Mn. Rep 3 — **Lab Sample ID: 570-68872-3**
Date Collected: 08/24/21 11:40 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0346	J	0.0500	0.00810	mg/Kg		09/20/21 11:34	09/20/21 17:22	1

Client Sample ID: FDD-A-Composite Mn. Rep 4 — **Lab Sample ID: 570-68872-4**
Date Collected: 08/24/21 08:38 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0313	J	0.0505	0.00818	mg/Kg		09/20/21 11:34	09/20/21 17:24	1

Client Sample ID: FDD-A-Composite Mn. Rep 5 — **Lab Sample ID: 570-68872-5**
Date Collected: 08/24/21 10:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0286	J	0.0510	0.00827	mg/Kg		09/20/21 11:34	09/20/21 17:30	1

Client Sample ID: FDD-A-Composite Nv. Rep 1 — **Lab Sample ID: 570-68872-6**
Date Collected: 08/21/21 09:46 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0193	J	0.0505	0.00818	mg/Kg		09/20/21 11:34	09/20/21 17:32	1

Client Sample ID: FDD-A-Composite Nv. Rep 2 — **Lab Sample ID: 570-68872-7**
Date Collected: 08/21/21 09:51 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0252	J	0.0495	0.00802	mg/Kg		09/20/21 11:34	09/20/21 17:34	1

Client Sample ID: FDD-A-Composite Nv. Rep 3 — **Lab Sample ID: 570-68872-8**
Date Collected: 08/21/21 10:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0199	J	0.0485	0.00786	mg/Kg		09/20/21 11:34	09/20/21 17:35	1

Client Sample ID: FDD-A-Composite Nv. Rep 4 — **Lab Sample ID: 570-68872-9**
Date Collected: 08/21/21 09:17 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0166	J	0.0495	0.00802	mg/Kg		09/20/21 11:34	09/20/21 17:37	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: FDD-A-Composite Nv. Rep 5
Date Collected: 08/21/21 09:53
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68872-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0276	J	0.0500	0.00810	mg/Kg		09/20/21 11:34	09/20/21 17:39	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

General Chemistry

Client Sample ID: FDD-A-Composite Mn. Rep 1 — **Lab Sample ID: 570-68872-1**
Date Collected: 08/24/21 09:43 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 23:02	09/20/21 20:20	1
Trivalent Chromium	0.877	J	2.00	0.300	mg/Kg			09/20/21 20:20	1
Percent Lipids	0.861		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.4		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Mn. Rep 2 — **Lab Sample ID: 570-68872-2**
Date Collected: 08/24/21 10:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 23:02	09/20/21 20:21	1
Trivalent Chromium	1.28	J	2.00	0.300	mg/Kg			09/20/21 20:21	1
Percent Lipids	0.733		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.2		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Mn. Rep 3 — **Lab Sample ID: 570-68872-3**
Date Collected: 08/24/21 11:40 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 23:02	09/20/21 20:22	1
Trivalent Chromium	1.14	J	2.00	0.300	mg/Kg			09/20/21 20:22	1
Percent Lipids	0.772		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.6		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Mn. Rep 4 — **Lab Sample ID: 570-68872-4**
Date Collected: 08/24/21 08:38 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 23:02	09/20/21 20:23	1
Trivalent Chromium	1.29	J	2.00	0.300	mg/Kg			09/20/21 20:23	1
Percent Lipids	0.686		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.0		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Mn. Rep 5 — **Lab Sample ID: 570-68872-5**
Date Collected: 08/24/21 10:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 23:02	09/20/21 20:26	1
Trivalent Chromium	1.29	J	2.00	0.300	mg/Kg			09/20/21 20:26	1
Percent Lipids	0.735		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	18.9		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Nv. Rep 1 — **Lab Sample ID: 570-68872-6**
Date Collected: 08/21/21 09:46 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/22/21 15:30	09/23/21 23:02	1
Trivalent Chromium	1.01	J	2.00	0.300	mg/Kg			09/23/21 23:02	1
Percent Lipids	0.790		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	15.9		0.1	0.1	%			09/08/21 17:04	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

General Chemistry

Client Sample ID: FDD-A-Composite Nv. Rep 2 — **Lab Sample ID: 570-68872-7**
Date Collected: 08/21/21 09:51 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 23:03	1
Trivalent Chromium	**1.01**	**J**	2.00	0.300	mg/Kg			09/23/21 23:03	1
Percent Lipids	**0.980**		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	**16.3**		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Nv. Rep 3 — **Lab Sample ID: 570-68872-8**
Date Collected: 08/21/21 10:19 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.797	0.501	mg/Kg		09/22/21 15:30	09/23/21 23:04	1
Trivalent Chromium	**0.900**	**J**	2.00	0.300	mg/Kg			09/23/21 23:04	1
Percent Lipids	**1.16**		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	**17.1**		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: FDD-A-Composite Nv. Rep 4 — **Lab Sample ID: 570-68872-9**
Date Collected: 08/21/21 09:17 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/22/21 15:30	09/23/21 23:05	1
Trivalent Chromium	**0.840**	**J**	2.00	0.300	mg/Kg			09/23/21 23:05	1
Percent Lipids	**0.832**		0.0990	0.0990	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	**16.0**		0.1	0.1	%			09/08/21 20:24	1

Client Sample ID: FDD-A-Composite Nv. Rep 5 — **Lab Sample ID: 570-68872-10**
Date Collected: 08/21/21 09:53 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/22/21 15:30	09/23/21 23:06	1
Trivalent Chromium	**0.812**	**J**	2.00	0.300	mg/Kg			09/23/21 23:06	1
Percent Lipids	**1.30**		0.0980	0.0980	%		09/21/21 16:20	09/21/21 16:43	1
Percent Solids	**16.1**		0.1	0.1	%			09/08/21 20:24	1

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Tissue

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	**Client Sample ID**	**FBP (10-120)**	**TPHd14 (26-168)**								
570-68872-1	FDD-A-Composite Mn. Rep 1	41	85								
570-68872-2	FDD-A-Composite Mn. Rep 2	80	156								
570-68872-3	FDD-A-Composite Mn. Rep 3	68	138								
570-68872-4	FDD-A-Composite Mn. Rep 4	68	133								
570-68872-4 MS	FDD-A-Composite Mn. Rep 4	71	141								
570-68872-4 MSD	FDD-A-Composite Mn. Rep 4	62	123								
570-68872-5	FDD-A-Composite Mn. Rep 5	75	154								
570-68872-6	FDD-A-Composite Nv. Rep 1	79	158								
570-68872-7	FDD-A-Composite Nv. Rep 2	77	148								
570-68872-8	FDD-A-Composite Nv. Rep 3	76	144								
570-68872-9	FDD-A-Composite Nv. Rep 4	72	138								
570-68872-10	FDD-A-Composite Nv. Rep 5	73	146								
LCS 570-178411/2-A	Lab Control Sample	88	125								
LCSD 570-178411/3-A	Lab Control Sample Dup	89	124								
MB 570-178411/1-A	Method Blank	91	132								

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-178411/1-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178411

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-52	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-99	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-101	ND		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-110	ND		0.20	0.046	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-118	ND		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-138/158	ND		0.40	0.094	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-149	ND		0.20	0.098	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-187	ND		0.20	0.084	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:22	09/24/21 13:24	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:22	09/24/21 13:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*91*		*10 - 120*	*09/11/21 08:22*	*09/24/21 13:24*	*1*
p-Terphenyl-d14 (Surr)	*132*		*26 - 168*	*09/11/21 08:22*	*09/24/21 13:24*	*1*

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCS 570-178411/2-A
Client Sample ID: Lab Control Sample
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 181323
Prep Batch: 178411

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18			50.0	52.76		ug/Kg		106	32 - 120		
PCB-28			50.0	57.35		ug/Kg		115	34 - 141		
PCB-44			50.0	56.76		ug/Kg		114	38 - 133		
PCB-52			50.0	56.38		ug/Kg		113	32 - 137		
PCB-66			50.0	65.07		ug/Kg		130	42 - 146		
PCB-77			50.0	56.16		ug/Kg		112	29 - 155		
PCB-101			50.0	58.28		ug/Kg		117	35 - 137		
PCB-105			50.0	58.67		ug/Kg		117	33 - 146		
PCB-118			50.0	53.32		ug/Kg		107	36 - 136		
PCB-126			50.0	58.35		ug/Kg		117	26 - 159		
PCB-128			50.0	65.16		ug/Kg		130	20 - 168		
PCB-132/153			50.0	59.03		ug/Kg		118	34 - 165		
PCB-138/158			50.0	53.45		ug/Kg		107	21 - 135		
PCB-170			50.0	58.62		ug/Kg		117	22 - 141		
PCB-180			50.0	62.30		ug/Kg		125	22 - 176		
PCB-187			50.0	62.82		ug/Kg		126	22 - 166		
PCB-201			50.0	65.29		ug/Kg		131	24 - 172		
PCB-206			50.0	67.93		ug/Kg		136	13 - 170		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*88*		*10 - 120*
p-Terphenyl-d14 (Surr)	*125*		*26 - 168*

Lab Sample ID: LCSD 570-178411/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Tissue
Prep Type: Total/NA
Analysis Batch: 181323
Prep Batch: 178411

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18			50.0	55.77		ug/Kg		112	32 - 120	6	22
PCB-28			50.0	61.85		ug/Kg		124	34 - 141	8	21
PCB-44			50.0	61.63		ug/Kg		123	38 - 133	8	22
PCB-52			50.0	60.66		ug/Kg		121	32 - 137	7	21
PCB-66			50.0	70.51		ug/Kg		141	42 - 146	8	24
PCB-77			50.0	59.77		ug/Kg		120	29 - 155	6	22
PCB-101			50.0	63.90		ug/Kg		128	35 - 137	9	22
PCB-105			50.0	60.80		ug/Kg		122	33 - 146	4	22
PCB-118			50.0	56.97		ug/Kg		114	36 - 136	7	22
PCB-126			50.0	59.74		ug/Kg		119	26 - 159	2	22
PCB-128			50.0	68.42		ug/Kg		137	20 - 168	5	21
PCB-132/153			50.0	63.16		ug/Kg		126	34 - 165	7	22
PCB-138/158			50.0	55.29		ug/Kg		111	21 - 135	3	23
PCB-170			50.0	58.50		ug/Kg		117	22 - 141	0	22
PCB-180			50.0	65.01		ug/Kg		130	22 - 176	4	20
PCB-187			50.0	65.27		ug/Kg		131	22 - 166	4	21
PCB-201			50.0	68.60		ug/Kg		137	24 - 172	5	23
PCB-206			50.0	70.97		ug/Kg		142	13 - 170	4	22

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCSD 570-178411/3-A
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 178411

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*89*		*10 - 120*
p-Terphenyl-d14 (Surr)	*124*		*26 - 168*

Lab Sample ID: 570-68872-4 MS
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: FDD-A-Composite Mn. Rep 4
Prep Type: Total/NA
Prep Batch: 178411

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	ND		49.2	46.87		ug/Kg		95	25 - 115
PCB-28	ND		49.2	65.48		ug/Kg		133	28 - 161
PCB-44	ND		49.2	65.25		ug/Kg		133	26 - 142
PCB-52	0.90		49.2	57.82		ug/Kg		116	17 - 147
PCB-66	1.3		49.2	70.47		ug/Kg		141	20 - 167
PCB-77	ND		49.2	62.53		ug/Kg		127	10 - 180
PCB-101	2.5		49.2	59.21		ug/Kg		115	10 - 163
PCB-105	ND		49.2	66.19		ug/Kg		134	14 - 164
PCB-118	1.9		49.2	67.50		ug/Kg		133	17 - 163
PCB-126	ND		49.2	69.24		ug/Kg		141	10 - 180
PCB-128	ND		49.2	74.91		ug/Kg		152	10 - 180
PCB-132/153	3.5		49.2	71.71		ug/Kg		139	11 - 180
PCB-138/158	3.1		49.2	63.36		ug/Kg		122	10 - 155
PCB-170	ND		49.2	67.20		ug/Kg		137	14 - 152
PCB-180	ND		49.2	74.05		ug/Kg		150	10 - 180
PCB-187	1.0		49.2	75.37		ug/Kg		151	10 - 180
PCB-201	ND		49.2	79.85		ug/Kg		162	10 - 180
PCB-206	ND		49.2	66.91		ug/Kg		136	10 - 175

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*71*		*10 - 120*
p-Terphenyl-d14 (Surr)	*141*		*26 - 168*

Lab Sample ID: 570-68872-4 MSD
Matrix: Tissue
Analysis Batch: 181323

Client Sample ID: FDD-A-Composite Mn. Rep 4
Prep Type: Total/NA
Prep Batch: 178411

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		49.6	40.32		ug/Kg		81	25 - 115	15	40
PCB-28	ND		49.6	55.76		ug/Kg		112	28 - 161	16	40
PCB-44	ND		49.6	55.39		ug/Kg		112	26 - 142	16	40
PCB-52	0.90		49.6	52.25		ug/Kg		104	17 - 147	10	40
PCB-66	1.3		49.6	63.41		ug/Kg		125	20 - 167	11	40
PCB-77	ND		49.6	53.07		ug/Kg		107	10 - 180	16	40
PCB-101	2.5		49.6	51.65		ug/Kg		99	10 - 163	14	40
PCB-105	ND		49.6	52.31		ug/Kg		105	14 - 164	23	40
PCB-118	1.9		49.6	57.03		ug/Kg		111	17 - 163	17	40
PCB-126	ND		49.6	55.29		ug/Kg		111	10 - 180	22	40
PCB-128	ND		49.6	62.33		ug/Kg		126	10 - 180	18	40
PCB-132/153	3.5		49.6	58.72		ug/Kg		111	11 - 180	20	40

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-68872-4 MSD — **Client Sample ID: FDD-A-Composite Mn. Rep 4**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181323 — **Prep Batch: 178411**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-138/158	3.1		49.6	50.38		ug/Kg		95	10 - 155	23	40
PCB-170	ND		49.6	60.95		ug/Kg		123	14 - 152	10	40
PCB-180	ND		49.6	64.90		ug/Kg		131	10 - 180	13	40
PCB-187	1.0		49.6	59.05		ug/Kg		117	10 - 180	24	40
PCB-201	ND		49.6	63.09		ug/Kg		127	10 - 180	23	40
PCB-206	ND		49.6	62.81		ug/Kg		127	10 - 175	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*10 - 120*
p-Terphenyl-d14 (Surr)	*123*		*26 - 168*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-181936/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181975 — **Prep Batch: 181936**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.150	0.0315	mg/Kg		09/26/21 12:40	09/27/21 08:07	20
Zinc	ND		1.50	0.596	mg/Kg		09/26/21 12:40	09/27/21 08:07	20

Lab Sample ID: LCS 570-181936/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181975 — **Prep Batch: 181936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	12.5	13.18		mg/Kg		106	80 - 120
Zinc	12.5	13.52		mg/Kg		108	80 - 120

Lab Sample ID: LCSD 570-181936/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181975 — **Prep Batch: 181936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	12.5	13.19		mg/Kg		105	80 - 120	0	20
Zinc	12.5	13.37		mg/Kg		107	80 - 120	1	20

Lab Sample ID: 570-63734-A-2-H MS ^20 — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181975 — **Prep Batch: 181936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Copper	22.8	F1	12.5	40.94	F1	mg/Kg		145	80 - 120
Zinc	14.6	F1	12.5	32.92	F1	mg/Kg		147	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-63734-A-2-I MSD ^20 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181975 — **Prep Batch: 181936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	22.8	F1	12.5	40.00	F1	mg/Kg		137	80 - 120	2	20
Zinc	14.6	F1	12.5	31.72	F1	mg/Kg		137	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-180381/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180381**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0485	0.00786	mg/Kg		09/20/21 11:34	09/20/21 17:09	1

Lab Sample ID: LCS 570-180381/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180381**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.495	0.5411		mg/Kg		109	82 - 124

Lab Sample ID: LCSD 570-180381/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180381**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.505	0.5518		mg/Kg		109	82 - 124	2	16

Lab Sample ID: 570-68872-1 MS — **Client Sample ID: FDD-A-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180381**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0455	J	0.510	0.4764		mg/Kg		84	76 - 136

Lab Sample ID: 570-68872-1 MSD — **Client Sample ID: FDD-A-Composite Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180381**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0455	J	0.495	0.4777		mg/Kg		87	76 - 136	0	16

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 570-180090/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/20/21 19:46	1

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: LCS 570-180090/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)			20.1	19.61		mg/Kg		98	78 - 120		

Lab Sample ID: LCSD 570-180090/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)			20.0	19.47		mg/Kg		97	78 - 120	1	20

Lab Sample ID: 320-78214-A-6-H MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1	19.9	13.31	F1	mg/Kg		67	75 - 125		

Lab Sample ID: 320-78214-A-6-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1	19.9	14.71	F1	mg/Kg		74	75 - 125	10	25

Lab Sample ID: 320-78214-A-6-J MSI — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1	980	797.8		mg/Kg		81	75 - 125		

Lab Sample ID: 320-78214-A-6-K MSID — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSID Result	MSID Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1	980	864.9		mg/Kg		88	75 - 125	8	25

Lab Sample ID: MB 570-180854/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/22/21 15:30	09/23/21 22:51	1

Lab Sample ID: LCS 570-180854/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)			20.0	16.69		mg/Kg		83	78 - 120		

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: LCSD 570-180854/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)			19.9	16.39		mg/Kg		82	78 - 120	2	20

Lab Sample ID: 570-70395-A-1-A MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1 F2	20.1	ND	F1	mg/Kg		0	75 - 125		

Lab Sample ID: 570-70395-A-1-B MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	20.0	ND	F1	mg/Kg		0	75 - 125	NC	25

Lab Sample ID: 570-70395-A-1-C MSI ^25 — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1 F2	984	363.9	F1	mg/Kg		37	75 - 125		

Lab Sample ID: 570-70395-A-1-G MSID ^25 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181507 — **Prep Batch: 180854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSID Result	MSID Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1 F2	984	634.4	F1 F2	mg/Kg		64	75 - 125	54	25

Method: Lipids - Percent Lipids

Lab Sample ID: MB 570-180784/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180798 — **Prep Batch: 180784**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	ND		0.100	0.100	%		09/21/21 16:20	09/21/21 16:43	1

Lab Sample ID: 570-68872-4 DU — **Client Sample ID: FDD-A-Composite Mn. Rep 4**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180798 — **Prep Batch: 180784**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Lipids	0.686			0.6693		%				3	25

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method: Moisture - Percent Moisture

Lab Sample ID: 570-68870-A-11 DU
Matrix: Tissue
Analysis Batch: 177656

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	16.8			16.7		%				0.1	10

Lab Sample ID: 570-68872-9 DU
Matrix: Tissue
Analysis Batch: 177708

Client Sample ID: FDD-A-Composite Nv. Rep 4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	16.0			16.6		%				4	10

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Job ID: 570-68872-1
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0161	11-19-21
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-21
California	State	2944	09-30-21
Guam	State	21-003R	06-22-22
Nevada	State	CA00111	07-31-22
Oregon	NELAP	CA300001	01-30-22
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-21

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Method	Method Description	Protocol	Laboratory
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
7196A	Chromium, Hexavalent	SW846	ECL 1
7196A	Chromium, Trivalent (Colorimetric)	SW846	ECL 1
Lipids	Percent Lipids	Lab SOP	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
In House	Tissue Handling and Preparation	NOAA	ECL 3

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
NOAA = National Marine Fisheries Service, National Oceanic And Atmospheric Administration, Seattle, WA, November 1988
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68872-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-68872-1	FDD-A-Composite Mn. Rep 1	Tissue	08/24/21 09:43	09/01/21 10:15
570-68872-2	FDD-A-Composite Mn. Rep 2	Tissue	08/24/21 10:00	09/01/21 10:15
570-68872-3	FDD-A-Composite Mn. Rep 3	Tissue	08/24/21 11:40	09/01/21 10:15
570-68872-4	FDD-A-Composite Mn. Rep 4	Tissue	08/24/21 08:38	09/01/21 10:15
570-68872-5	FDD-A-Composite Mn. Rep 5	Tissue	08/24/21 10:15	09/01/21 10:15
570-68872-6	FDD-A-Composite Nv. Rep 1	Tissue	08/21/21 09:46	09/01/21 10:15
570-68872-7	FDD-A-Composite Nv. Rep 2	Tissue	08/21/21 09:51	09/01/21 10:15
570-68872-8	FDD-A-Composite Nv. Rep 3	Tissue	08/21/21 10:19	09/01/21 10:15
570-68872-9	FDD-A-Composite Nv. Rep 4	Tissue	08/21/21 09:17	09/01/21 10:15
570-68872-10	FDD-A-Composite Nv. Rep 5	Tissue	08/21/21 09:53	09/01/21 10:15

48872

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus com or call us.

570-68872 Chain of Custody

CHAIN OF CUSTODY RECORD

TE: 08/31/21

GE. 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL. 858-300-4300 E-MAIL. kimbrie.gobbi@woodplc.com

NBSD Mole Pier FDD Maintenance Dredging

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

P O NO 3151187382 (Project not PO)

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes. Please report totals for PCBs

Please report to MDL in dry weight. Please see attached sheet for details.

COMPOSITE A COC

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160 3/SM 2540 B)	Metals (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD						
1	M.n. Composite A Rep 1	8/24/2021	0943	tissue	1	X														X						
2	M n Composite A Rep 2	8/24/2021	1000	tissue	1	X														X						
3	M n Composite A Rep 3	8/24/2021	1140	tissue	1	X														X						
4	M.n Composite A Rep 4	8/24/2021	0838	tissue	1	X														X						
5	M.n. Composite A Rep 5	8/24/2021	1015	tissue	1	X														X						
6	A.v Composite A Rep 1	8/21/2021	0946	tissue	1	X														X						
7	A.v Composite A Rep 2	8/21/2021	0951	tissue	1	X														X						
8	A.v Composite A Rep 3	8/21/2021	1019	tissue	1	X														X						
9	A.v Composite A Rep 4	8/21/2021	0917	tissue	1	X														X						
10	A.v Composite A Rep 5	8/21/2021	0953	tissue	1	X														X						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
EcoAnalysts 8/31/21 1200	EC	9/1/21	10:15
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

-2.0/-2.4 SLG

Analyte[i]	Analysis Method	Tissue Target RL[a,b]
Total Solids	USEPA160.3/SM 2540 B	0 10%
Total Lipids	NOAA, 1993[i]	0 10%
Mercury	USEPA 7471A [d]	0 02 mg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0 5 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis; tissue minimum levels are on a wet weight basis.

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

d) USEPA, 1986–2007 SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

i National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July

eurofins | Calscience

CHAIN OF CUSTODY RECORD

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

WO # / LAB USE ONLY

DATE:

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O. NO.: 3151187382 (Project not PO)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM.

RETAIN remaining material for potential future tests.

Please only report requested analytes. Please report totals for PCBs.

Please report to MDL in dry weight. Please see attached sheet for details.

COMPOSITE A COC

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160.3/SM 2540 B)	**Metals** (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD							
	FDD-A-Composite Mn. Rep 1			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Mn. Rep 2			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Mn. Rep 3			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Mn. Rep 4			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Mn. Rep 5			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Nv. Rep 1			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Nv. Rep 2			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Nv. Rep 3			tissue		X			X	X		X	X	X				X									
	FDD-A-CompositeNv. Rep 4			tissue		X			X	X		X	X	X				X									
	FDD-A-Composite Nv. Rep 5			tissue		X			X	X		X	X	X				X									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

ORIGIN ID:PWTA (360) 297-6040
MICHELLE KNOWLEN
ECOANALYSTS, INC
4770 NE VIEW DR.

PORT GAMBLE, WA 98364
UNITED STATES US

SHIP DATE: 31AUG21
ACTWGT: 22.00 LB
CAD: 3195116/INET4400
DIMS: 12x17x11 IN
DRY ICE: 2.28 KG
BILL SENDER

570-68872 Waybill

TO CARLA HOLLOWELL
EUROFINS CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494
INV:
PO:
REF WOOD NBSD MOLE PIER TISSUES
DEPT

56DJ2/56C0/FE4A

FedEx Express

1 of 4

TRK# 0201 7746 8598 8065

MASTER

92 APVA

WED - 01 SEP 10:30A
PRIORITY OVERNIGHT

ICE
92841
CA-US SNA

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-68872-1

Login Number: 68872
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-68870-1
Laboratory Sample Delivery Group: 3151187382
Client Project/Site: NBSD Mole Pier FDD Maintenance Dredging

For:
Wood E&I Solutions Inc
9177 Sky Park Court
San Diego, California 92123

Attn: Kimbrie Gobbi

Authorized for release by:
9/27/2021 8:52:15 PM

Carla Hollowell, Project Manager I
(714)895-5494
Carla.Hollowell@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Client Sample Results 5
Surrogate Summary 35
QC Sample Results 36
Certification Summary 46
Method Summary 47
Sample Summary 48
Chain of Custody 49
Receipt Checklists 53

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-68870-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-68870-1

Comments
No additional comments.

Receipt
The samples were received on 9/1/2021 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -1.4º C.

Receipt Exceptions
No additional comments.

GC/MS Semi VOA
Method 8270C SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-177352 and 570-178423 and analytical batch 570-180783 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8270C SIM CON: The continuing calibration verification (CCV) associated with batch 570-180803 recovered above the upper control limit for PCB-169, PCB-189 and PCB-206. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 570-180803/2).

Method 8270C SIM CON: The continuing calibration verification (CCV) associated with batch 570-181030 recovered above the upper control limit for PCB-156, PCB-177, PCB-201 and PCB-206. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: LA-5 Ref Nv. Rep 1 (570-68870-6), LA-5 Ref Nv. Rep 2 (570-68870-7), LA-5 Ref Nv. Rep 3 (570-68870-8), LA-5 Ref Nv. Rep 4 (570-68870-9), LA-5 Ref Nv. Rep 5 (570-68870-10), Mn Pre-Test (570-68870-11) and Nv Pre-Test (570-68870-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-177352 and 570-180328 and analytical batch 570-180283 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 6020: The method blank for preparation batch 570-180328 and analytical batch 570-180283 contained Chromium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 7471A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Hg outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Client Sample ID: LA-5 Ref Mn. Rep 1
Date Collected: 08/24/21 10:36
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-1
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-138/158	ND		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-149	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 02:16	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*58*		*10 - 120*	*09/11/21 08:20*	*09/22/21 02:16*	*1*
p-Terphenyl-d14 (Surr)	*120*		*26 - 168*	*09/11/21 08:20*	*09/22/21 02:16*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 2
Date Collected: 08/24/21 08:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-2
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 01:51	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 2
Date Collected: 08/24/21 08:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-2
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-52	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-99	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-101	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-118	ND		0.20	0.082	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-132/153	ND		0.39	0.17	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-138/158	ND		0.39	0.093	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-149	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:20	09/22/21 01:51	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*10 - 120*	*09/11/21 08:20*	*09/22/21 01:51*	*1*
p-Terphenyl-d14 (Surr)	*158*		*26 - 168*	*09/11/21 08:20*	*09/22/21 01:51*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 3
Date Collected: 08/24/21 08:29
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 02:40	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 3
Date Collected: 08/24/21 08:29
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-138/158	ND		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-149	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 02:40	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 02:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*10 - 120*	*09/11/21 08:20*	*09/22/21 02:40*	*1*
p-Terphenyl-d14 (Surr)	*145*		*26 - 168*	*09/11/21 08:20*	*09/22/21 02:40*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 4
Date Collected: 08/24/21 08:50
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:05	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 4
Date Collected: 08/24/21 08:50
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-4
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-138/158	ND		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-149	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 03:05	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 03:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*52*		*10 - 120*	*09/11/21 08:20*	*09/22/21 03:05*	*1*
p-Terphenyl-d14 (Surr)	*143*		*26 - 168*	*09/11/21 08:20*	*09/22/21 03:05*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 5
Date Collected: 08/24/21 09:37
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-5
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 03:29	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-52	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-99	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-101	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-118	ND		0.20	0.082	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-132/153	ND		0.39	0.17	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-138/158	ND		0.39	0.093	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-149	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:20	09/22/21 03:29	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*69*		*10 - 120*	*09/11/21 08:20*	*09/22/21 03:29*	*1*
p-Terphenyl-d14 (Surr)	*126*		*26 - 168*	*09/11/21 08:20*	*09/22/21 03:29*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:14	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 1
Date Collected: 08/21/21 10:02
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-6
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-52	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-99	**0.26**		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-101	**0.39**		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-118	ND		0.20	0.082	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-132/153	**1.9**		0.39	0.17	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-138/158	**1.5**		0.39	0.093	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-149	**0.77**		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-180	**0.85**		0.20	0.041	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-187	**0.98**		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:20	09/22/21 13:14	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*10 - 120*	*09/11/21 08:20*	*09/22/21 13:14*	*1*
p-Terphenyl-d14 (Surr)	*134*		*26 - 168*	*09/11/21 08:20*	*09/22/21 13:14*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 2
Date Collected: 08/21/21 08:47
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-7
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-52	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 13:38	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 2
Date Collected: 08/21/21 08:47
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-7
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-99	**0.31**		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-101	**0.31**		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-118	ND		0.20	0.082	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-132/153	**1.7**		0.39	0.17	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-138/158	**1.3**		0.39	0.093	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-149	**0.82**		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-187	**0.79**		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:20	09/22/21 13:38	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*10 - 120*	*09/11/21 08:20*	*09/22/21 13:38*	*1*
p-Terphenyl-d14 (Surr)	*135*		*26 - 168*	*09/11/21 08:20*	*09/22/21 13:38*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 3
Date Collected: 08/21/21 09:11
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-8
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:02	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 3
Date Collected: 08/21/21 09:11
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-8
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-99	**0.23**		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-101	**0.39**		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-132/153	**1.6**		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-138/158	**1.3**		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-149	**0.73**		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-187	**1.1**		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 14:02	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*10 - 120*	*09/11/21 08:20*	*09/22/21 14:02*	*1*
p-Terphenyl-d14 (Surr)	*149*		*26 - 168*	*09/11/21 08:20*	*09/22/21 14:02*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 4
Date Collected: 08/21/21 09:23
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 14:27	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 4
Date Collected: 08/21/21 09:23
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-132/153	**1.7**		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-138/158	**1.4**		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-149	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 14:27	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 14:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*10 - 120*	*09/11/21 08:20*	*09/22/21 14:27*	*1*
p-Terphenyl-d14 (Surr)	*136*		*26 - 168*	*09/11/21 08:20*	*09/22/21 14:27*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 5
Date Collected: 08/21/21 09:44
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-37	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-44	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-52	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-70	ND		0.20	0.058	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-74	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 14:51	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 5
Date Collected: 08/21/21 09:44
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-77	ND		0.20	0.076	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-99	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-101	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-114	ND		0.20	0.080	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-118	ND		0.20	0.082	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-119	ND		0.20	0.093	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-126	ND		0.20	0.078	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-132/153	ND		0.39	0.17	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-138/158	ND		0.39	0.093	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-149	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-151	ND		0.20	0.066	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-156	ND		0.20	0.056	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-157	ND		0.20	0.051	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-167	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-170	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-177	ND		0.20	0.085	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-180	ND		0.20	0.041	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-201	ND		0.20	0.095	ug/Kg		09/11/21 08:20	09/22/21 14:51	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 14:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*10 - 120*	*09/11/21 08:20*	*09/22/21 14:51*	*1*
p-Terphenyl-d14 (Surr)	*127*		*26 - 168*	*09/11/21 08:20*	*09/22/21 14:51*	*1*

Client Sample ID: Mn Pre-Test
Date Collected: 07/27/21 16:30
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-11
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 15:14	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: Mn Pre-Test
Date Collected: 07/27/21 16:30
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-11
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-138/158	ND		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-149	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 15:14	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*10 - 120*	*09/11/21 08:20*	*09/22/21 15:14*	*1*
p-Terphenyl-d14 (Surr)	*120*		*26 - 168*	*09/11/21 08:20*	*09/22/21 15:14*	*1*

Client Sample ID: Nv Pre-Test
Date Collected: 07/23/21 17:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-12
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.070	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-28	ND		0.20	0.033	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-44	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-52	ND		0.20	0.062	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-70	ND		0.20	0.059	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-74	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-77	ND		0.20	0.077	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:20	09/22/21 15:38	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Client Sample ID: Nv Pre-Test
Date Collected: 07/23/21 17:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-12
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-99	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-101	ND		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-105	ND		0.20	0.054	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-110	ND		0.20	0.045	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-114	ND		0.20	0.081	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-118	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-126	ND		0.20	0.079	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-132/153	**1.6**		0.40	0.17	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-138/158	**1.2**		0.40	0.093	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-149	**0.68**		0.20	0.097	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-156	ND		0.20	0.057	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-167	ND		0.20	0.061	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-168	ND		0.20	0.048	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-169	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-177	ND		0.20	0.086	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-187	ND		0.20	0.083	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-189	ND		0.20	0.060	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-201	ND		0.20	0.096	ug/Kg		09/11/21 08:20	09/22/21 15:38	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:20	09/22/21 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*10 - 120*	*09/11/21 08:20*	*09/22/21 15:38*	*1*
p-Terphenyl-d14 (Surr)	*153*		*26 - 168*	*09/11/21 08:20*	*09/22/21 15:38*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: LA-5 Ref Mn. Rep 1
Date Collected: 08/24/21 10:36
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-1
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[b]fluoranthene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Isophorone	**1200**		500	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:14	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*18 - 162*	*09/11/21 09:11*	*09/21/21 21:14*	*1*
p-Terphenyl-d14 (Surr)	*48*		*34 - 148*	*09/11/21 09:11*	*09/21/21 21:14*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 2
Date Collected: 08/24/21 08:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-2
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[b]fluoranthene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:35	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 2
Date Collected: 08/24/21 08:15
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-2
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Isophorone	**890**		500	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:35	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*93*		*18 - 162*	*09/11/21 09:11*	*09/21/21 21:35*	*1*
p-Terphenyl-d14 (Surr)	*78*		*34 - 148*	*09/11/21 09:11*	*09/21/21 21:35*	*1*

Client Sample ID: LA-5 Ref Mn. Rep 3
Date Collected: 08/24/21 08:29
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-3
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
1-Methylnaphthalene	ND		9.8	1.1	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
2-Methylnaphthalene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Acenaphthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Acenaphthylene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Anthracene	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[a]anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[a]pyrene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[b]fluoranthene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[e]pyrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[g,h,i]perylene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Benzo[k]fluoranthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Chrysene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Dibenz(a,h)anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Fluoranthene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Fluorene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Indeno[1,2,3-cd]pyrene	ND		9.8	1.3	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Isophorone	**240**	**J**	490	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Naphthalene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Phenanthrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 21:57	1
Pyrene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 21:57	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	68		18 - 162	09/11/21 09:11	09/21/21 21:57	1
p-Terphenyl-d14 (Surr)	53		34 - 148	09/11/21 09:11	09/21/21 21:57	1

Client Sample ID: LA-5 Ref Mn. Rep 4 — **Lab Sample ID: 570-68870-4**
Date Collected: 08/24/21 08:50 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[b]fluoranthene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Isophorone	**350**	**J**	500	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Perthane	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:18	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	121		18 - 162	09/11/21 09:11	09/21/21 22:18	1
p-Terphenyl-d14 (Surr)	81		34 - 148	09/11/21 09:11	09/21/21 22:18	1

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
1-Methylnaphthalene	ND	F2	9.8	1.1	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
2-Methylnaphthalene	ND	F2	9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Acenaphthene	ND	F2	9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Acenaphthylene	ND	F2	9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Anthracene	ND	F2	9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Benzo[a]anthracene	ND	F2	9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Benzo[a]pyrene	ND	F2	9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND	F2	9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Benzo[e]pyrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Benzo[g,h,i]perylene	ND	F2	9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Benzo[k]fluoranthene	ND	F2	9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Chrysene	ND	F2	9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Dibenz(a,h)anthracene	ND	F2	9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Fluoranthene	ND	F2	9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Fluorene	ND	F2 F1	9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Indeno[1,2,3-cd]pyrene	ND	F2	9.8	1.3	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Isophorone	**410**	**J F2**	490	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Naphthalene	ND	F2	9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Phenanthrene	**2.2**	**J F2 F1**	9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 22:40	1
Pyrene	ND	F2	9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*118*		*18 - 162*	*09/11/21 09:11*	*09/21/21 22:40*	*1*
p-Terphenyl-d14 (Surr)	*87*		*34 - 148*	*09/11/21 09:11*	*09/21/21 22:40*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
1-Methylnaphthalene	ND		9.8	1.1	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
2-Methylnaphthalene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Acenaphthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Acenaphthylene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Anthracene	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[a]anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[a]pyrene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[b]fluoranthene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[e]pyrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[g,h,i]perylene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Benzo[k]fluoranthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Chrysene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Dibenz(a,h)anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Fluoranthene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Fluorene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Indeno[1,2,3-cd]pyrene	ND		9.8	1.3	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Isophorone	**1100**		490	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Naphthalene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:01	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Phenanthrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:01	1
Pyrene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*18 - 162*	*09/11/21 09:11*	*09/21/21 23:01*	*1*
p-Terphenyl-d14 (Surr)	*93*		*34 - 148*	*09/11/21 09:11*	*09/21/21 23:01*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 2 — **Lab Sample ID: 570-68870-7**
Date Collected: 08/21/21 08:47 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
1-Methylnaphthalene	ND		9.8	1.1	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
1-Methylphenanthrene	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
2,6-Dimethylnaphthalene	ND		9.8	2.1	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
2-Methylnaphthalene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Acenaphthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Acenaphthylene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Anthracene	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[a]anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[a]pyrene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[b]fluoranthene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[e]pyrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[g,h,i]perylene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Benzo[k]fluoranthene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Biphenyl	ND		9.8	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Chrysene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Dibenz(a,h)anthracene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Dibenzothiophene	ND		9.8	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Fluoranthene	ND		9.8	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Fluorene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Indeno[1,2,3-cd]pyrene	ND		9.8	1.3	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Isophorone	**1200**		490	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Naphthalene	ND		9.8	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Perthane	ND		9.8	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Perylene	ND		9.8	1.2	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Phenanthrene	ND		9.8	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:23	1
Pyrene	ND		9.8	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*18 - 162*	*09/11/21 09:11*	*09/21/21 23:23*	*1*
p-Terphenyl-d14 (Surr)	*91*		*34 - 148*	*09/11/21 09:11*	*09/21/21 23:23*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 3 — **Lab Sample ID: 570-68870-8**
Date Collected: 08/21/21 09:11 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/21/21 23:44	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 3
Date Collected: 08/21/21 09:11
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-8
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[a]pyrene	**8.1**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[b]fluoranthene	**7.3**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[g,h,i]perylene	**3.1**	**J**	9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Dibenz(a,h)anthracene	**7.1**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Indeno[1,2,3-cd]pyrene	**8.3**	**J**	9.9	1.3	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Isophorone	**930**		500	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Perthane	**6.4**	**J**	9.9	2.0	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/21/21 23:44	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/21/21 23:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*18 - 162*	*09/11/21 09:11*	*09/21/21 23:44*	*1*
p-Terphenyl-d14 (Surr)	*76*		*34 - 148*	*09/11/21 09:11*	*09/21/21 23:44*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 4
Date Collected: 08/21/21 09:23
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[b]fluoranthene	**7.3**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 4
Date Collected: 08/21/21 09:23
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-9
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	**7.1**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Indeno[1,2,3-cd]pyrene	**8.3**	**J**	9.9	1.3	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Isophorone	**820**		500	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Perthane	**6.7**	**J**	9.9	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:06	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*		*18 - 162*	*09/11/21 09:11*	*09/22/21 00:06*	*1*
p-Terphenyl-d14 (Surr)	*85*		*34 - 148*	*09/11/21 09:11*	*09/22/21 00:06*	*1*

Client Sample ID: LA-5 Ref Nv. Rep 5
Date Collected: 08/21/21 09:44
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-10
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[a]pyrene	**8.1**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[b]fluoranthene	**7.3**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[g,h,i]perylene	**2.0**	**J**	9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Dibenz(a,h)anthracene	**7.1**	**J**	9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Indeno[1,2,3-cd]pyrene	**8.3**	**J**	9.9	1.3	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Isophorone	**310**	**J**	500	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Perthane	**6.8**	**J**	9.9	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:27	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*56*		*18 - 162*	*09/11/21 09:11*	*09/22/21 00:27*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 5
Date Collected: 08/21/21 09:44
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-10
Matrix: Tissue

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
p-Terphenyl-d14 (Surr)	61		34 - 148	09/11/21 09:11	09/22/21 00:27	1

Client Sample ID: Mn Pre-Test
Date Collected: 07/27/21 16:30
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-11
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
2,6-Dimethylnaphthalene	**2.7**	**J**	10	2.1	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Acenaphthene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Acenaphthylene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Anthracene	ND		10	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[a]pyrene	**8.5**	**J**	10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[b]fluoranthene	**7.4**	**J**	10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Biphenyl	ND		10	1.9	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Chrysene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Dibenz(a,h)anthracene	**7.3**	**J**	10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Dibenzothiophene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Fluoranthene	**2.1**	**J**	10	1.8	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Fluorene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Indeno[1,2,3-cd]pyrene	**8.4**	**J**	10	1.3	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Isophorone	**1100**		500	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Naphthalene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Perthane	ND		10	2.0	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Perylene	ND		10	1.2	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Phenanthrene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/22/21 00:49	1
Pyrene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/22/21 00:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	128		18 - 162	09/11/21 09:11	09/22/21 00:49	1
p-Terphenyl-d14 (Surr)	64		34 - 148	09/11/21 09:11	09/22/21 00:49	1

Client Sample ID: Nv Pre-Test
Date Collected: 07/23/21 17:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-12
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		9.9	1.8	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
1-Methylnaphthalene	ND		9.9	1.1	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
1-Methylphenanthrene	ND		9.9	2.0	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
2,6-Dimethylnaphthalene	ND		9.9	2.1	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
2-Methylnaphthalene	ND		9.9	1.6	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Acenaphthene	ND		9.9	1.5	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Acenaphthylene	ND		9.9	1.7	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Anthracene	ND		9.9	1.9	ug/Kg		09/11/21 09:12	09/22/21 01:10	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Client Sample ID: Nv Pre-Test
Date Collected: 07/23/21 17:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-12
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Benzo[a]pyrene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Benzo[b]fluoranthene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Benzo[e]pyrene	ND		9.9	1.7	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Benzo[g,h,i]perylene	ND		9.9	1.5	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Benzo[k]fluoranthene	ND		9.9	1.5	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Biphenyl	ND		9.9	1.9	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Chrysene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Dibenz(a,h)anthracene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Dibenzothiophene	ND		9.9	1.4	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Fluoranthene	ND		9.9	1.8	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Fluorene	ND		9.9	1.6	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Indeno[1,2,3-cd]pyrene	ND		9.9	1.3	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Isophorone	**1500**		500	1.5	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Naphthalene	ND		9.9	1.5	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Perthane	**30**		9.9	2.0	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Perylene	ND		9.9	1.2	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Phenanthrene	ND		9.9	1.7	ug/Kg		09/11/21 09:12	09/22/21 01:10	1
Pyrene	ND		9.9	1.6	ug/Kg		09/11/21 09:12	09/22/21 01:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*71*		*18 - 162*	*09/11/21 09:12*	*09/22/21 01:10*	*1*
p-Terphenyl-d14 (Surr)	*93*		*34 - 148*	*09/11/21 09:12*	*09/22/21 01:10*	*1*

Method: 6020 - Metals (ICP/MS)

Client Sample ID: LA-5 Ref Mn. Rep 1 — **Lab Sample ID: 570-68870-1**
Date Collected: 08/24/21 10:36 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0292	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Arsenic	**1.55**		0.150	0.0707	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Beryllium	ND		0.150	0.0579	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Cadmium	ND		0.150	0.0430	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Chromium	**0.528**	**B**	0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Cobalt	**0.0954**	**J**	0.150	0.0272	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Copper	**1.00**		0.150	0.0316	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Lead	**0.0562**	**J**	0.150	0.0496	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Molybdenum	ND		0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Nickel	**0.0825**	**J**	0.150	0.0380	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Selenium	**0.267**		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Silver	ND	F1	0.150	0.0235	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Vanadium	**0.0848**	**J**	0.150	0.0490	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Zinc	**13.0**	**F1**	1.50	0.597	mg/Kg		09/20/21 09:35	09/20/21 18:37	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:35	09/20/21 18:37	20

Client Sample ID: LA-5 Ref Mn. Rep 2 — **Lab Sample ID: 570-68870-2**
Date Collected: 08/24/21 08:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0289	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Arsenic	**2.18**		0.149	0.0700	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Beryllium	ND		0.149	0.0573	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Cadmium	ND		0.149	0.0426	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Chromium	**0.771**	**B**	0.149	0.0287	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Cobalt	**0.133**	**J**	0.149	0.0269	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Copper	**1.42**		0.149	0.0313	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Lead	**0.0767**	**J**	0.149	0.0491	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Molybdenum	**0.161**		0.149	0.109	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Nickel	**0.0919**	**J**	0.149	0.0377	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Selenium	**0.364**		0.149	0.124	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Silver	ND		0.149	0.0232	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Vanadium	**0.0949**	**J**	0.149	0.0485	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Zinc	**9.28**		1.49	0.591	mg/Kg		09/20/21 09:35	09/20/21 18:50	20
Barium	ND		0.149	0.0314	mg/Kg		09/20/21 09:35	09/20/21 18:50	20

Client Sample ID: LA-5 Ref Mn. Rep 3 — **Lab Sample ID: 570-68870-3**
Date Collected: 08/24/21 08:29 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.151	0.0292	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Arsenic	**2.63**		0.151	0.0709	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Beryllium	ND		0.151	0.0580	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Cadmium	ND		0.151	0.0431	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Chromium	**1.00**	**B**	0.151	0.0291	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Cobalt	**0.176**		0.151	0.0273	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Copper	**1.85**		0.151	0.0317	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Lead	**0.0987**	**J**	0.151	0.0497	mg/Kg		09/20/21 09:35	09/20/21 18:53	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: LA-5 Ref Mn. Rep 3 — **Lab Sample ID: 570-68870-3**
Date Collected: 08/24/21 08:29 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.199**		0.151	0.111	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Nickel	**0.125**	**J**	0.151	0.0381	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Selenium	**0.601**		0.151	0.126	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Silver	**0.0242**	**J**	0.151	0.0235	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Thallium	ND		0.151	0.0213	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Vanadium	**0.128**	**J**	0.151	0.0491	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Zinc	**42.8**		1.51	0.598	mg/Kg		09/20/21 09:35	09/20/21 18:53	20
Barium	ND		0.151	0.0318	mg/Kg		09/20/21 09:35	09/20/21 18:53	20

Client Sample ID: LA-5 Ref Mn. Rep 4 — **Lab Sample ID: 570-68870-4**
Date Collected: 08/24/21 08:50 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0292	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Arsenic	**2.46**		0.150	0.0707	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Beryllium	ND		0.150	0.0579	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Cadmium	ND		0.150	0.0430	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Chromium	**1.00**	**B**	0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Cobalt	**0.153**		0.150	0.0272	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Copper	**1.55**		0.150	0.0316	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Lead	**0.0896**	**J**	0.150	0.0496	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Molybdenum	**0.161**		0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Nickel	**0.114**	**J**	0.150	0.0380	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Selenium	**0.488**		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Silver	ND		0.150	0.0235	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Vanadium	**0.118**	**J**	0.150	0.0490	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Zinc	**17.0**		1.50	0.597	mg/Kg		09/20/21 09:35	09/20/21 18:56	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:35	09/20/21 18:56	20

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.152	0.0295	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Arsenic	**1.95**		0.152	0.0714	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Beryllium	ND		0.152	0.0585	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Cadmium	ND		0.152	0.0434	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Chromium	**0.659**	**B**	0.152	0.0293	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Cobalt	**0.132**	**J**	0.152	0.0275	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Copper	**1.16**		0.152	0.0319	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Lead	**0.0641**	**J**	0.152	0.0501	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Molybdenum	**0.157**		0.152	0.111	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Nickel	**0.0946**	**J**	0.152	0.0384	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Selenium	**0.550**		0.152	0.127	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Silver	ND		0.152	0.0237	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Thallium	ND		0.152	0.0214	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Vanadium	**0.0874**	**J**	0.152	0.0495	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Zinc	**18.2**		1.52	0.603	mg/Kg		09/20/21 09:35	09/20/21 19:05	20
Barium	ND		0.152	0.0321	mg/Kg		09/20/21 09:35	09/20/21 19:05	20

Method: 6020 - Metals (ICP/MS)

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Arsenic	**2.25**		0.150	0.0703	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Beryllium	ND		0.150	0.0576	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Cadmium	ND		0.150	0.0428	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Chromium	**0.832**	**B**	0.150	0.0289	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Cobalt	**0.136**	**J**	0.150	0.0271	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Copper	**1.51**		0.150	0.0314	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Lead	**0.0780**	**J**	0.150	0.0494	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Molybdenum	**0.165**		0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Nickel	**0.0934**	**J**	0.150	0.0379	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Selenium	**0.361**		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Silver	ND		0.150	0.0233	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Thallium	ND		0.150	0.0211	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Vanadium	**0.101**	**J**	0.150	0.0488	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Zinc	**11.6**		1.50	0.594	mg/Kg		09/20/21 09:35	09/20/21 19:09	20
Barium	**0.124**	**J**	0.150	0.0316	mg/Kg		09/20/21 09:35	09/20/21 19:09	20

Client Sample ID: LA-5 Ref Nv. Rep 2 — **Lab Sample ID: 570-68870-7**
Date Collected: 08/21/21 08:47 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0291	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Arsenic	**1.21**		0.150	0.0705	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Beryllium	ND		0.150	0.0578	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Cadmium	ND		0.150	0.0429	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Chromium	**0.516**	**B**	0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Cobalt	**0.0605**	**J**	0.150	0.0272	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Copper	**0.748**		0.150	0.0315	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Lead	**0.0530**	**J**	0.150	0.0495	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Molybdenum	ND		0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Nickel	**0.0692**	**J**	0.150	0.0380	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Selenium	**0.480**		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Silver	ND		0.150	0.0234	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Vanadium	**0.0517**	**J**	0.150	0.0489	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Zinc	**14.8**		1.50	0.596	mg/Kg		09/20/21 09:35	09/20/21 19:12	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:35	09/20/21 19:12	20

Client Sample ID: LA-5 Ref Nv. Rep 3 — **Lab Sample ID: 570-68870-8**
Date Collected: 08/21/21 09:11 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0289	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Arsenic	**2.13**		0.149	0.0700	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Beryllium	ND		0.149	0.0573	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Cadmium	ND		0.149	0.0426	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Chromium	**0.965**	**B**	0.149	0.0287	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Cobalt	**0.116**	**J**	0.149	0.0269	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Copper	**1.43**		0.149	0.0313	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Lead	**0.0884**	**J**	0.149	0.0491	mg/Kg		09/20/21 09:35	09/20/21 19:15	20

Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: LA-5 Ref Nv. Rep 3 — **Lab Sample ID: 570-68870-8**
Date Collected: 08/21/21 09:11 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.166**		0.149	0.109	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Nickel	**0.147**	**J**	0.149	0.0377	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Selenium	**0.398**		0.149	0.124	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Silver	ND		0.149	0.0232	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Vanadium	**0.104**	**J**	0.149	0.0485	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Zinc	**9.49**		1.49	0.591	mg/Kg		09/20/21 09:35	09/20/21 19:15	20
Barium	**0.0472**	**J**	0.149	0.0314	mg/Kg		09/20/21 09:35	09/20/21 19:15	20

Client Sample ID: LA-5 Ref Nv. Rep 4 — **Lab Sample ID: 570-68870-9**
Date Collected: 08/21/21 09:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0290	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Arsenic	**2.73**		0.149	0.0701	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Beryllium	ND		0.149	0.0575	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Cadmium	ND		0.149	0.0427	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Chromium	**0.991**	**B**	0.149	0.0288	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Cobalt	**0.158**		0.149	0.0270	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Copper	**1.50**		0.149	0.0313	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Lead	**0.109**	**J**	0.149	0.0493	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Molybdenum	**0.186**		0.149	0.109	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Nickel	**0.142**	**J**	0.149	0.0378	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Selenium	**0.609**		0.149	0.124	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Silver	ND		0.149	0.0233	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Vanadium	**0.123**	**J**	0.149	0.0487	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Zinc	**25.0**		1.49	0.593	mg/Kg		09/20/21 09:35	09/20/21 19:18	20
Barium	ND		0.149	0.0315	mg/Kg		09/20/21 09:35	09/20/21 19:18	20

Client Sample ID: LA-5 Ref Nv. Rep 5 — **Lab Sample ID: 570-68870-10**
Date Collected: 08/21/21 09:44 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0292	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Arsenic	**1.95**		0.150	0.0707	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Beryllium	ND		0.150	0.0579	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Cadmium	ND		0.150	0.0430	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Chromium	**0.773**	**B**	0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Cobalt	**0.106**	**J**	0.150	0.0272	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Copper	**1.21**		0.150	0.0316	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Lead	**0.0779**	**J**	0.150	0.0496	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Molybdenum	**0.115**	**J**	0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Nickel	**0.108**	**J**	0.150	0.0380	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Selenium	**0.307**		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Silver	ND		0.150	0.0235	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Vanadium	**0.0949**	**J**	0.150	0.0490	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Zinc	**8.98**		1.50	0.597	mg/Kg		09/20/21 09:35	09/20/21 19:21	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:35	09/20/21 19:21	20

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Method: 6020 - Metals (ICP/MS)

Client Sample ID: Mn Pre-Test
Date Collected: 07/27/21 16:30
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-11
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.151	0.0293	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Arsenic	**2.33**		0.151	0.0710	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Beryllium	ND		0.151	0.0582	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Cadmium	ND		0.151	0.0432	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Chromium	**0.660**	**B**	0.151	0.0292	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Cobalt	**0.0779**	**J**	0.151	0.0274	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Copper	**1.01**		0.151	0.0317	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Lead	**0.108**	**J**	0.151	0.0499	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Molybdenum	**0.132**	**J**	0.151	0.111	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Nickel	**0.140**	**J**	0.151	0.0382	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Selenium	**0.318**		0.151	0.126	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Silver	ND		0.151	0.0236	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Thallium	ND		0.151	0.0213	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Vanadium	**0.125**	**J**	0.151	0.0493	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Zinc	**8.81**		1.51	0.600	mg/Kg		09/20/21 09:35	09/20/21 19:24	20
Barium	ND		0.151	0.0319	mg/Kg		09/20/21 09:35	09/20/21 19:24	20

Client Sample ID: Nv Pre-Test
Date Collected: 07/23/21 17:00
Date Received: 09/01/21 10:15

Lab Sample ID: 570-68870-12
Matrix: Tissue

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.149	0.0290	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Arsenic	**1.77**		0.149	0.0701	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Beryllium	ND		0.149	0.0575	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Cadmium	ND		0.149	0.0427	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Chromium	**0.592**	**B**	0.149	0.0288	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Cobalt	**0.0495**	**J**	0.149	0.0270	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Copper	**0.753**		0.149	0.0313	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Lead	**0.0857**	**J**	0.149	0.0493	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Molybdenum	ND		0.149	0.109	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Nickel	**0.109**	**J**	0.149	0.0378	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Selenium	**0.255**		0.149	0.124	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Silver	ND		0.149	0.0233	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Thallium	ND		0.149	0.0210	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Vanadium	**0.0941**	**J**	0.149	0.0487	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Zinc	**6.88**		1.49	0.593	mg/Kg		09/20/21 09:35	09/20/21 19:28	20
Barium	ND		0.149	0.0315	mg/Kg		09/20/21 09:35	09/20/21 19:28	20

Method: 7471A - Mercury (CVAA)

Client Sample ID: LA-5 Ref Mn. Rep 1 — **Lab Sample ID: 570-68870-1**
Date Collected: 08/24/21 10:36 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0274	J	0.0510	0.00827	mg/Kg		09/20/21 10:06	09/20/21 17:56	1

Client Sample ID: LA-5 Ref Mn. Rep 2 — **Lab Sample ID: 570-68870-2**
Date Collected: 08/24/21 08:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0263	J F1	0.0485	0.00786	mg/Kg		09/20/21 10:06	09/20/21 17:47	1

Client Sample ID: LA-5 Ref Mn. Rep 3 — **Lab Sample ID: 570-68870-3**
Date Collected: 08/24/21 08:29 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0250	J	0.0505	0.00818	mg/Kg		09/20/21 10:06	09/20/21 17:58	1

Client Sample ID: LA-5 Ref Mn. Rep 4 — **Lab Sample ID: 570-68870-4**
Date Collected: 08/24/21 08:50 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0219	J	0.0495	0.00802	mg/Kg		09/20/21 10:06	09/20/21 18:00	1

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0183	J	0.0515	0.00835	mg/Kg		09/20/21 10:06	09/20/21 18:02	1

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0191	J	0.0485	0.00786	mg/Kg		09/20/21 10:06	09/20/21 18:04	1

Client Sample ID: LA-5 Ref Nv. Rep 2 — **Lab Sample ID: 570-68870-7**
Date Collected: 08/21/21 08:47 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0205	J	0.0490	0.00794	mg/Kg		09/20/21 10:06	09/20/21 18:06	1

Client Sample ID: LA-5 Ref Nv. Rep 3 — **Lab Sample ID: 570-68870-8**
Date Collected: 08/21/21 09:11 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0224	J	0.0500	0.00810	mg/Kg		09/20/21 10:06	09/20/21 18:08	1

Client Sample ID: LA-5 Ref Nv. Rep 4 — **Lab Sample ID: 570-68870-9**
Date Collected: 08/21/21 09:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0247	J	0.0495	0.00802	mg/Kg		09/20/21 10:06	09/20/21 18:09	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Method: 7471A - Mercury (CVAA)

Client Sample ID: LA-5 Ref Nv. Rep 5 — **Lab Sample ID: 570-68870-10**
Date Collected: 08/21/21 09:44 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0180	J	0.0500	0.00810	mg/Kg		09/20/21 10:06	09/20/21 18:15	1

Client Sample ID: Mn Pre-Test — **Lab Sample ID: 570-68870-11**
Date Collected: 07/27/21 16:30 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0171	J	0.0505	0.00818	mg/Kg		09/20/21 10:06	09/20/21 18:17	1

Client Sample ID: Nv Pre-Test — **Lab Sample ID: 570-68870-12**
Date Collected: 07/23/21 17:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0211	J	0.0495	0.00802	mg/Kg		09/20/21 10:06	09/20/21 18:19	1

General Chemistry

Client Sample ID: LA-5 Ref Mn. Rep 1 — **Lab Sample ID: 570-68870-1**
Date Collected: 08/24/21 10:36 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.797	0.501	mg/Kg		09/17/21 21:49	09/23/21 23:30	1
Trivalent Chromium	0.528	J	2.00	0.300	mg/Kg			09/23/21 23:30	1
Percent Lipids	0.812		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	17.3		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Mn. Rep 2 — **Lab Sample ID: 570-68870-2**
Date Collected: 08/24/21 08:15 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/23/21 23:31	1
Trivalent Chromium	0.771	J	2.00	0.300	mg/Kg			09/23/21 23:31	1
Percent Lipids	0.873		0.0980	0.0980	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	18.8		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Mn. Rep 3 — **Lab Sample ID: 570-68870-3**
Date Collected: 08/24/21 08:29 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/23/21 23:32	1
Trivalent Chromium	1.00	J	2.00	0.300	mg/Kg			09/23/21 23:32	1
Percent Lipids	0.911		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	17.5		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Mn. Rep 4 — **Lab Sample ID: 570-68870-4**
Date Collected: 08/24/21 08:50 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 21:49	09/23/21 23:33	1
Trivalent Chromium	1.00	J	2.00	0.300	mg/Kg			09/23/21 23:33	1
Percent Lipids	0.851		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	17.9		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Mn. Rep 5 — **Lab Sample ID: 570-68870-5**
Date Collected: 08/24/21 09:37 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/20/21 20:10	1
Trivalent Chromium	0.659	J	2.00	0.300	mg/Kg			09/20/21 20:10	1
Percent Lipids	0.745		0.0980	0.0980	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	17.9		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Nv. Rep 1 — **Lab Sample ID: 570-68870-6**
Date Collected: 08/21/21 10:02 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 21:49	09/20/21 20:11	1
Trivalent Chromium	0.832	J	2.00	0.300	mg/Kg			09/20/21 20:11	1
Percent Lipids	0.873		0.0980	0.0980	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	16.6		0.1	0.1	%			09/08/21 17:04	1

General Chemistry

Client Sample ID: LA-5 Ref Nv. Rep 2 — **Lab Sample ID: 570-68870-7**
Date Collected: 08/21/21 08:47 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/20/21 20:14	1
Trivalent Chromium	0.516	J	2.00	0.300	mg/Kg			09/20/21 20:14	1
Percent Lipids	0.961		0.0980	0.0980	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	15.7		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Nv. Rep 3 — **Lab Sample ID: 570-68870-8**
Date Collected: 08/21/21 09:11 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.797	0.501	mg/Kg		09/17/21 23:02	09/20/21 20:15	1
Trivalent Chromium	0.965	J	2.00	0.300	mg/Kg			09/20/21 20:15	1
Percent Lipids	0.921		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	16.5		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Nv. Rep 4 — **Lab Sample ID: 570-68870-9**
Date Collected: 08/21/21 09:23 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 23:02	09/20/21 20:16	1
Trivalent Chromium	0.991	J	2.00	0.300	mg/Kg			09/20/21 20:16	1
Percent Lipids	1.14		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	17.0		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: LA-5 Ref Nv. Rep 5 — **Lab Sample ID: 570-68870-10**
Date Collected: 08/21/21 09:44 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 23:02	09/20/21 20:17	1
Trivalent Chromium	0.773	J	2.00	0.300	mg/Kg			09/20/21 20:17	1
Percent Lipids	1.13		0.0980	0.0980	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	16.9		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: Mn Pre-Test — **Lab Sample ID: 570-68870-11**
Date Collected: 07/27/21 16:30 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.803	0.505	mg/Kg		09/17/21 23:02	09/20/21 20:18	1
Trivalent Chromium	0.660	J	2.00	0.300	mg/Kg			09/20/21 20:18	1
Percent Lipids	0.941		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	16.8		0.1	0.1	%			09/08/21 17:04	1

Client Sample ID: Nv Pre-Test — **Lab Sample ID: 570-68870-12**
Date Collected: 07/23/21 17:00 — **Matrix: Tissue**
Date Received: 09/01/21 10:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.797	0.501	mg/Kg		09/17/21 23:02	09/20/21 20:19	1
Trivalent Chromium	0.592	J	2.00	0.300	mg/Kg			09/20/21 20:19	1
Percent Lipids	1.17		0.0990	0.0990	%		09/21/21 16:13	09/21/21 16:44	1
Percent Solids	16.3		0.1	0.1	%			09/08/21 17:04	1

Surrogate Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Tissue **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	NBZ (18-162)	TPHd14 (34-148)								
570-68870-1	LA-5 Ref Mn. Rep 1	76	48								
570-68870-2	LA-5 Ref Mn. Rep 2	93	78								
570-68870-3	LA-5 Ref Mn. Rep 3	68	53								
570-68870-4	LA-5 Ref Mn. Rep 4	121	81								
570-68870-5	LA-5 Ref Mn. Rep 5	118	87								
570-68870-5 MS	LA-5 Ref Mn. Rep 5	59	49								
570-68870-5 MSD	LA-5 Ref Mn. Rep 5	139	78								
570-68870-6	LA-5 Ref Nv. Rep 1	69	93								
570-68870-7	LA-5 Ref Nv. Rep 2	74	91								
570-68870-8	LA-5 Ref Nv. Rep 3	63	76								
570-68870-9	LA-5 Ref Nv. Rep 4	79	85								
570-68870-10	LA-5 Ref Nv. Rep 5	56	61								
570-68870-11	Mn Pre-Test	128	64								
570-68870-12	Nv Pre-Test	71	93								
LCS 570-178423/2-A	Lab Control Sample	77	93								
LCSD 570-178423/3-A	Lab Control Sample Dup	77	93								
MB 570-178423/1-A	Method Blank	74									

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Matrix: Tissue **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	FBP (10-120)	TPHd14 (26-168)								
570-68870-1	LA-5 Ref Mn. Rep 1	58	120								
570-68870-2	LA-5 Ref Mn. Rep 2	81	158								
570-68870-2 MS	LA-5 Ref Mn. Rep 2	66	136								
570-68870-2 MSD	LA-5 Ref Mn. Rep 2	65	132								
570-68870-3	LA-5 Ref Mn. Rep 3	70	145								
570-68870-4	LA-5 Ref Mn. Rep 4	52	143								
570-68870-5	LA-5 Ref Mn. Rep 5	69	126								
570-68870-6	LA-5 Ref Nv. Rep 1	77	134								
570-68870-7	LA-5 Ref Nv. Rep 2	76	135								
570-68870-8	LA-5 Ref Nv. Rep 3	75	149								
570-68870-9	LA-5 Ref Nv. Rep 4	73	136								
570-68870-10	LA-5 Ref Nv. Rep 5	64	127								
570-68870-11	Mn Pre-Test	61	120								
570-68870-12	Nv Pre-Test	75	153								
LCS 570-178410/2-A	Lab Control Sample	83	113								
LCSD 570-178410/3-A	Lab Control Sample Dup	83	119								
MB 570-178410/1-A	Method Blank	78	121								

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 570-178423/1-A
Matrix: Tissue
Analysis Batch: 181629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,6,7-Trimethylnaphthalene	ND		10	1.8	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
1-Methylnaphthalene	ND		10	1.1	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
1-Methylphenanthrene	ND		10	2.0	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
2,6-Dimethylnaphthalene	ND		10	2.1	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
2-Methylnaphthalene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Acenaphthene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Acenaphthylene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Anthracene	ND		10	1.9	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[a]anthracene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[a]pyrene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[b]fluoranthene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[e]pyrene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[g,h,i]perylene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Benzo[k]fluoranthene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Biphenyl	ND		10	1.9	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Chrysene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Dibenz(a,h)anthracene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Dibenzothiophene	ND		10	1.4	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Fluoranthene	ND		10	1.8	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Fluorene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Indeno[1,2,3-cd]pyrene	ND		10	1.3	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Isophorone	ND		500	1.5	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Naphthalene	ND		10	1.5	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Perthane	ND		10	2.0	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Perylene	ND		10	1.2	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Phenanthrene	ND		10	1.7	ug/Kg		09/11/21 09:11	09/24/21 16:47	1
Pyrene	ND		10	1.6	ug/Kg		09/11/21 09:11	09/24/21 16:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*18 - 162*	*09/11/21 09:11*	*09/24/21 16:47*	*1*

Lab Sample ID: LCS 570-178423/2-A
Matrix: Tissue
Analysis Batch: 181306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	1000	842.7		ug/Kg		84	48 - 108
Benzo[a]pyrene	1000	855.7		ug/Kg		86	17 - 163
Chrysene	1000	792.8		ug/Kg		79	17 - 168
Fluoranthene	1000	783.6		ug/Kg		78	26 - 137
Fluorene	1000	865.2		ug/Kg		87	59 - 121
Naphthalene	1000	712.9		ug/Kg		71	21 - 133
Phenanthrene	1000	788.9		ug/Kg		79	54 - 120
Pyrene	1000	916.3		ug/Kg		92	28 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*77*		*18 - 162*
p-Terphenyl-d14 (Surr)	*93*		*34 - 148*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCSD 570-178423/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 181306 — **Prep Batch: 178423**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			1000	847.3		ug/Kg		85	48 - 108	1	20
Benzo[a]pyrene			1000	853.8		ug/Kg		85	17 - 163	0	20
Chrysene			1000	793.9		ug/Kg		79	17 - 168	0	20
Fluoranthene			1000	812.2		ug/Kg		81	26 - 137	4	20
Fluorene			1000	857.9		ug/Kg		86	59 - 121	1	20
Naphthalene			1000	705.3		ug/Kg		71	21 - 133	1	20
Phenanthrene			1000	793.6		ug/Kg		79	54 - 120	1	20
Pyrene			1000	895.9		ug/Kg		90	28 - 106	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*77*		*18 - 162*
p-Terphenyl-d14 (Surr)	*93*		*34 - 148*

Lab Sample ID: 570-68870-5 MS — **Client Sample ID: LA-5 Ref Mn. Rep 5**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180783 — **Prep Batch: 178423**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acenaphthene	ND	F2	984	437.8		ug/Kg		44	40 - 160		
Benzo[a]pyrene	ND	F2	984	474.0		ug/Kg		48	17 - 163		
Chrysene	ND	F2	984	427.6		ug/Kg		43	17 - 168		
Fluoranthene	ND	F2	984	425.9		ug/Kg		43	26 - 137		
Fluorene	ND	F2 F1	984	437.3	F1	ug/Kg		44	59 - 121		
Naphthalene	ND	F2	984	398.3		ug/Kg		40	21 - 133		
Phenanthrene	2.2	J F2 F1	984	448.6	F1	ug/Kg		45	54 - 120		
Pyrene	ND	F2	984	507.3		ug/Kg		52	6 - 156		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*59*		*18 - 162*
p-Terphenyl-d14 (Surr)	*49*		*34 - 148*

Lab Sample ID: 570-68870-5 MSD — **Client Sample ID: LA-5 Ref Mn. Rep 5**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180783 — **Prep Batch: 178423**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND	F2	988	714.7	F2	ug/Kg		72	40 - 160	48	20
Benzo[a]pyrene	ND	F2	988	775.2	F2	ug/Kg		78	17 - 163	48	20
Chrysene	ND	F2	988	703.3	F2	ug/Kg		71	17 - 168	49	20
Fluoranthene	ND	F2	988	668.3	F2	ug/Kg		68	26 - 137	44	20
Fluorene	ND	F2 F1	988	697.7	F2	ug/Kg		71	59 - 121	46	20
Naphthalene	ND	F2	988	558.6	F2	ug/Kg		57	21 - 133	33	20
Phenanthrene	2.2	J F2 F1	988	734.1	F2	ug/Kg		74	54 - 120	48	20
Pyrene	ND	F2	988	822.6	F2	ug/Kg		83	6 - 156	47	46

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*139*		*18 - 162*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 570-68870-5 MSD
Matrix: Tissue
Analysis Batch: 180783

Client Sample ID: LA-5 Ref Mn. Rep 5
Prep Type: Total/NA
Prep Batch: 178423

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
p-Terphenyl-d14 (Surr)	*78*		*34 - 148*

Method: 8270C SIM CON - PCB Congeners (GC/MS)

Lab Sample ID: MB 570-178410/1-A
Matrix: Tissue
Analysis Batch: 180803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-18	ND		0.20	0.071	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-28	ND		0.20	0.034	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-37	ND		0.20	0.060	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-44	ND		0.20	0.087	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-49	ND		0.20	0.11	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-52	ND		0.20	0.063	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-66	ND		0.20	0.10	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-70	ND		0.20	0.060	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-74	ND		0.20	0.087	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-77	ND		0.20	0.078	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-81	ND		0.20	0.12	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-87	ND		0.20	0.11	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-99	ND		0.20	0.061	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-101	ND		0.20	0.098	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-105	ND		0.20	0.055	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-110	ND		0.20	0.046	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-114	ND		0.20	0.082	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-118	ND		0.20	0.084	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-119	ND		0.20	0.094	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-123	ND		0.20	0.10	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-126	ND		0.20	0.080	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-128	ND		0.20	0.10	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-132/153	ND		0.40	0.17	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-138/158	ND		0.40	0.094	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-149	ND		0.20	0.098	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-151	ND		0.20	0.067	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-156	ND		0.20	0.058	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-157	ND		0.20	0.052	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-167	ND		0.20	0.062	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-168	ND		0.20	0.049	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-169	ND		0.20	0.061	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-170	ND		0.20	0.063	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-177	ND		0.20	0.087	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-180	ND		0.20	0.042	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-183	ND		0.20	0.11	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-187	ND		0.20	0.084	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-189	ND		0.20	0.061	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-194	ND		0.20	0.11	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-201	ND		0.20	0.097	ug/Kg		09/11/21 08:19	09/22/21 00:40	1
PCB-206	ND		0.20	0.19	ug/Kg		09/11/21 08:19	09/22/21 00:40	1

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		10 - 120	09/11/21 08:19	09/22/21 00:40	1
p-Terphenyl-d14 (Surr)	121		26 - 168	09/11/21 08:19	09/22/21 00:40	1

Lab Sample ID: LCS 570-178410/2-A
Matrix: Tissue
Analysis Batch: 180803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-18	50.0	43.85		ug/Kg		88	32 - 120
PCB-28	50.0	55.43		ug/Kg		111	34 - 141
PCB-44	50.0	52.02		ug/Kg		104	38 - 133
PCB-52	50.0	52.35		ug/Kg		105	32 - 137
PCB-66	50.0	56.04		ug/Kg		112	42 - 146
PCB-77	50.0	49.43		ug/Kg		99	29 - 155
PCB-101	50.0	50.33		ug/Kg		101	35 - 137
PCB-105	50.0	51.43		ug/Kg		103	33 - 146
PCB-118	50.0	47.75		ug/Kg		95	36 - 136
PCB-126	50.0	53.14		ug/Kg		106	26 - 159
PCB-128	50.0	59.68		ug/Kg		119	20 - 168
PCB-132/153	50.0	53.43		ug/Kg		107	34 - 165
PCB-138/158	50.0	47.98		ug/Kg		96	21 - 135
PCB-170	50.0	59.80		ug/Kg		120	22 - 141
PCB-180	50.0	57.92		ug/Kg		116	22 - 176
PCB-187	50.0	57.79		ug/Kg		116	22 - 166
PCB-201	50.0	61.63		ug/Kg		123	24 - 172
PCB-206	50.0	64.54		ug/Kg		129	13 - 170

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	83		10 - 120
p-Terphenyl-d14 (Surr)	113		26 - 168

Lab Sample ID: LCSD 570-178410/3-A
Matrix: Tissue
Analysis Batch: 180803

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 178410

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	50.0	48.70		ug/Kg		97	32 - 120	10	22
PCB-28	50.0	56.19		ug/Kg		112	34 - 141	1	21
PCB-44	50.0	54.95		ug/Kg		110	38 - 133	5	22
PCB-52	50.0	54.23		ug/Kg		108	32 - 137	4	21
PCB-66	50.0	62.63		ug/Kg		125	42 - 146	11	24
PCB-77	50.0	54.71		ug/Kg		109	29 - 155	10	22
PCB-101	50.0	55.22		ug/Kg		110	35 - 137	9	22
PCB-105	50.0	54.56		ug/Kg		109	33 - 146	6	22
PCB-118	50.0	51.84		ug/Kg		104	36 - 136	8	22
PCB-126	50.0	55.75		ug/Kg		112	26 - 159	5	22
PCB-128	50.0	63.14		ug/Kg		126	20 - 168	6	21
PCB-132/153	50.0	58.10		ug/Kg		116	34 - 165	8	22
PCB-138/158	50.0	51.19		ug/Kg		102	21 - 135	6	23
PCB-170	50.0	61.58		ug/Kg		123	22 - 141	3	22
PCB-180	50.0	61.35		ug/Kg		123	22 - 176	6	20

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: LCSD 570-178410/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180803 — **Prep Batch: 178410**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-187			50.0	60.53		ug/Kg		121	22 - 166	5	21
PCB-201			50.0	64.97		ug/Kg		130	24 - 172	5	23
PCB-206			50.0	69.57		ug/Kg		139	13 - 170	7	22

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*83*		*10 - 120*
p-Terphenyl-d14 (Surr)	*119*		*26 - 168*

Lab Sample ID: 570-68870-2 MS — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180803 — **Prep Batch: 178410**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-18	ND		49.4	44.77		ug/Kg		91	25 - 115		
PCB-28	ND		49.4	63.82		ug/Kg		129	28 - 161		
PCB-44	ND		49.4	63.07		ug/Kg		128	26 - 142		
PCB-52	ND		49.4	56.65		ug/Kg		115	17 - 147		
PCB-66	ND		49.4	65.74		ug/Kg		133	20 - 167		
PCB-77	ND		49.4	66.32		ug/Kg		134	10 - 180		
PCB-101	ND		49.4	59.66		ug/Kg		121	10 - 163		
PCB-105	ND		49.4	68.11		ug/Kg		138	14 - 164		
PCB-118	ND		49.4	63.94		ug/Kg		129	17 - 163		
PCB-126	ND		49.4	72.62		ug/Kg		147	10 - 180		
PCB-128	ND		49.4	80.96		ug/Kg		164	10 - 180		
PCB-132/153	ND		49.4	71.18		ug/Kg		144	11 - 180		
PCB-138/158	ND		49.4	65.51		ug/Kg		133	10 - 155		
PCB-170	ND		49.4	66.48		ug/Kg		135	14 - 152		
PCB-180	ND		49.4	78.91		ug/Kg		160	10 - 180		
PCB-187	ND		49.4	78.20		ug/Kg		158	10 - 180		
PCB-201	ND		49.4	81.68		ug/Kg		165	10 - 180		
PCB-206	ND		49.4	78.83		ug/Kg		160	10 - 175		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*66*		*10 - 120*
p-Terphenyl-d14 (Surr)	*136*		*26 - 168*

Lab Sample ID: 570-68870-2 MSD — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180803 — **Prep Batch: 178410**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-18	ND		49.2	41.50		ug/Kg		84	25 - 115	8	40
PCB-28	ND		49.2	59.18		ug/Kg		120	28 - 161	8	40
PCB-44	ND		49.2	58.38		ug/Kg		119	26 - 142	8	40
PCB-52	ND		49.2	52.93		ug/Kg		108	17 - 147	7	40
PCB-66	ND		49.2	61.81		ug/Kg		126	20 - 167	6	40
PCB-77	ND		49.2	60.90		ug/Kg		124	10 - 180	9	40
PCB-101	ND		49.2	54.94		ug/Kg		112	10 - 163	8	40

Method: 8270C SIM CON - PCB Congeners (GC/MS) (Continued)

Lab Sample ID: 570-68870-2 MSD — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180803 — **Prep Batch: 178410**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-105	ND		49.2	61.35		ug/Kg		125	14 - 164	10	40
PCB-118	ND		49.2	59.42		ug/Kg		121	17 - 163	7	40
PCB-126	ND		49.2	66.39		ug/Kg		135	10 - 180	9	40
PCB-128	ND		49.2	74.49		ug/Kg		151	10 - 180	8	40
PCB-132/153	ND		49.2	65.38		ug/Kg		133	11 - 180	8	40
PCB-138/158	ND		49.2	59.88		ug/Kg		122	10 - 155	9	40
PCB-170	ND		49.2	65.65		ug/Kg		133	14 - 152	1	40
PCB-180	ND		49.2	74.05		ug/Kg		150	10 - 180	6	40
PCB-187	ND		49.2	71.84		ug/Kg		146	10 - 180	8	40
PCB-201	ND		49.2	76.84		ug/Kg		156	10 - 180	6	40
PCB-206	ND		49.2	77.41		ug/Kg		157	10 - 175	2	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*65*		*10 - 120*
p-Terphenyl-d14 (Surr)	*132*		*26 - 168*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-180328/1-A ^20 — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.150	0.0291	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Arsenic	ND		0.150	0.0705	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Beryllium	ND		0.150	0.0578	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Cadmium	ND		0.150	0.0429	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Chromium	0.1385	J	0.150	0.0290	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Cobalt	ND		0.150	0.0272	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Copper	ND		0.150	0.0315	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Lead	ND		0.150	0.0495	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Molybdenum	ND		0.150	0.110	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Nickel	ND		0.150	0.0380	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Selenium	ND		0.150	0.125	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Silver	ND		0.150	0.0234	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Thallium	ND		0.150	0.0212	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Vanadium	ND		0.150	0.0489	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Zinc	ND		1.50	0.596	mg/Kg		09/20/21 09:35	09/20/21 18:18	20
Barium	ND		0.150	0.0317	mg/Kg		09/20/21 09:35	09/20/21 18:18	20

Lab Sample ID: LCS 570-180328/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	12.6	11.86		mg/Kg		94	80 - 120
Arsenic	12.6	12.35		mg/Kg		98	80 - 120
Beryllium	12.6	12.69		mg/Kg		101	80 - 120
Cadmium	12.6	12.38		mg/Kg		99	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-180328/2-A ^20 — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	12.6	11.92		mg/Kg		95	80 - 120
Cobalt	12.6	12.02		mg/Kg		96	80 - 120
Copper	12.6	12.19		mg/Kg		97	80 - 120
Lead	12.6	12.13		mg/Kg		97	80 - 120
Molybdenum	12.6	12.23		mg/Kg		97	80 - 120
Nickel	12.6	12.17		mg/Kg		97	80 - 120
Selenium	12.6	12.05		mg/Kg		96	80 - 120
Silver	6.28	5.593		mg/Kg		89	80 - 120
Thallium	12.6	11.67		mg/Kg		93	80 - 120
Vanadium	12.6	11.84		mg/Kg		94	80 - 120
Zinc	12.6	12.89		mg/Kg		103	80 - 120
Barium	12.6	13.28		mg/Kg		106	80 - 120

Lab Sample ID: LCSD 570-180328/3-A ^20 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	12.6	12.22		mg/Kg		97	80 - 120	3	20
Arsenic	12.6	12.46		mg/Kg		99	80 - 120	1	20
Beryllium	12.6	12.69		mg/Kg		101	80 - 120	0	20
Cadmium	12.6	12.67		mg/Kg		101	80 - 120	2	20
Chromium	12.6	12.37		mg/Kg		98	80 - 120	4	20
Cobalt	12.6	11.88		mg/Kg		94	80 - 120	1	20
Copper	12.6	12.71		mg/Kg		101	80 - 120	4	20
Lead	12.6	12.34		mg/Kg		98	80 - 120	2	20
Molybdenum	12.6	12.69		mg/Kg		101	80 - 120	4	20
Nickel	12.6	12.29		mg/Kg		98	80 - 120	1	20
Selenium	12.6	12.57		mg/Kg		100	80 - 120	4	20
Silver	6.30	5.406		mg/Kg		86	80 - 120	3	20
Thallium	12.6	12.10		mg/Kg		96	80 - 120	4	20
Vanadium	12.6	11.85		mg/Kg		94	80 - 120	0	20
Zinc	12.6	13.21		mg/Kg		105	80 - 120	2	20
Barium	12.6	12.89		mg/Kg		102	80 - 120	3	20

Lab Sample ID: 570-68870-1 MS — **Client Sample ID: LA-5 Ref Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		12.5	10.39		mg/Kg		83	80 - 120
Arsenic	1.55		12.5	12.39		mg/Kg		87	80 - 120
Beryllium	ND		12.5	11.47		mg/Kg		92	80 - 120
Cadmium	ND		12.5	11.09		mg/Kg		89	80 - 120
Chromium	0.528	B	12.5	11.15		mg/Kg		85	80 - 120
Cobalt	0.0954	J	12.5	10.66		mg/Kg		85	80 - 120
Copper	1.00		12.5	11.45		mg/Kg		84	80 - 120
Lead	0.0562	J	12.5	10.57		mg/Kg		84	80 - 120
Molybdenum	ND		12.5	10.72		mg/Kg		86	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-68870-1 MS — **Client Sample ID: LA-5 Ref Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	0.0825	J	12.5	10.64		mg/Kg		85	80 - 120
Selenium	0.267		12.5	12.07		mg/Kg		95	80 - 120
Silver	ND	F1	6.23	1.834	F1	mg/Kg		29	80 - 120
Thallium	ND		12.5	10.47		mg/Kg		84	80 - 120
Vanadium	0.0848	J	12.5	10.37		mg/Kg		83	80 - 120
Zinc	13.0	F1	12.5	16.82	F1	mg/Kg		31	80 - 120
Barium	ND		12.5	10.95		mg/Kg		88	80 - 120

Lab Sample ID: 570-68870-1 MSD — **Client Sample ID: LA-5 Ref Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180283 — **Prep Batch: 180328**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		12.5	10.77		mg/Kg		86	80 - 120	4	20
Arsenic	1.55		12.5	12.49		mg/Kg		88	80 - 120	1	20
Beryllium	ND		12.5	11.75		mg/Kg		94	80 - 120	2	20
Cadmium	ND		12.5	11.26		mg/Kg		90	80 - 120	2	20
Chromium	0.528	B	12.5	11.17		mg/Kg		85	80 - 120	0	20
Cobalt	0.0954	J	12.5	10.78		mg/Kg		85	80 - 120	1	20
Copper	1.00		12.5	11.57		mg/Kg		85	80 - 120	1	20
Lead	0.0562	J	12.5	10.96		mg/Kg		87	80 - 120	4	20
Molybdenum	ND		12.5	10.88		mg/Kg		87	80 - 120	1	20
Nickel	0.0825	J	12.5	10.93		mg/Kg		87	80 - 120	3	20
Selenium	0.267		12.5	12.45		mg/Kg		97	80 - 120	3	20
Silver	ND	F1	6.25	1.867	F1	mg/Kg		30	80 - 120	2	20
Thallium	ND		12.5	11.00		mg/Kg		88	80 - 120	5	20
Vanadium	0.0848	J	12.5	10.34		mg/Kg		82	80 - 120	0	20
Zinc	13.0	F1	12.5	17.08	F1	mg/Kg		33	80 - 120	2	20
Barium	ND		12.5	11.33		mg/Kg		91	80 - 120	3	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-180315/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180315**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0495	0.00802	mg/Kg		09/20/21 10:06	09/20/21 18:21	1

Lab Sample ID: LCS 570-180315/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180315**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.500	0.5757		mg/Kg		115	82 - 124

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-180315/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180315**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.505	0.5837		mg/Kg		116	82 - 124	1	16

Lab Sample ID: 570-68870-2 MS — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180315**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	0.0263	J F1	0.500	0.4032	F1	mg/Kg		75	76 - 136		

Lab Sample ID: 570-68870-2 MSD — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180390 — **Prep Batch: 180315**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0263	J F1	0.505	0.3977	F1	mg/Kg		74	76 - 136	1	16

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 570-180090/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.800	0.503	mg/Kg		09/17/21 21:49	09/20/21 19:46	1

Lab Sample ID: LCS 570-180090/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)			20.1	19.61		mg/Kg		98	78 - 120		

Lab Sample ID: LCSD 570-180090/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)			20.0	19.47		mg/Kg		97	78 - 120	1	20

Lab Sample ID: 320-78214-A-6-H MS — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1	19.9	13.31	F1	mg/Kg		67	75 - 125		

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 320-78214-A-6-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1	19.9	14.71	F1	mg/Kg		74	75 - 125	10	25

Lab Sample ID: 320-78214-A-6-J MSI — **Client Sample ID: Matrix Spike**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)	ND	F1	980	797.8		mg/Kg		81	75 - 125		

Lab Sample ID: 320-78214-A-6-K MSID — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180517 — **Prep Batch: 180090**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSID Result	MSID Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	ND	F1	980	864.9		mg/Kg		88	75 - 125	8	25

Method: Lipids - Percent Lipids

Lab Sample ID: MB 570-180779/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180799 — **Prep Batch: 180779**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Lipids	ND		0.100	0.100	%		09/21/21 16:13	09/21/21 16:44	1

Lab Sample ID: 570-68870-2 DU — **Client Sample ID: LA-5 Ref Mn. Rep 2**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 180799 — **Prep Batch: 180779**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Lipids	0.873			0.8696		%				0.3	25

Method: Moisture - Percent Moisture

Lab Sample ID: 570-68870-1 DU — **Client Sample ID: LA-5 Ref Mn. Rep 1**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 177656

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	17.3			17.4		%				0.4	10

Lab Sample ID: 570-68870-11 DU — **Client Sample ID: Mn Pre-Test**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 177656

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	16.8			16.7		%				0.1	10

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0161	11-19-21
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-21
California	State	2944	09-30-21
Guam	State	21-003R	06-22-22
Nevada	State	CA00111	07-31-22
Oregon	NELAP	CA300001	01-30-22
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-21

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ECL 1
8270C SIM CON	PCB Congeners (GC/MS)	SW846	ECL 1
6020	Metals (ICP/MS)	SW846	ECL 1
7471A	Mercury (CVAA)	SW846	ECL 1
7196A	Chromium, Hexavalent	SW846	ECL 1
7196A	Chromium, Trivalent (Colorimetric)	SW846	ECL 1
Lipids	Percent Lipids	Lab SOP	ECL 1
Moisture	Percent Moisture	EPA	ECL 1
3050B	Preparation, Metals	SW846	ECL 1
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ECL 1
3541	Automated Soxhlet Extraction	SW846	ECL 1
7471A	Preparation, Mercury	SW846	ECL 1
In House	Tissue Handling and Preparation	NOAA	ECL 3

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure
NOAA = National Marine Fisheries Service, National Oceanic And Atmospheric Administration, Seattle, WA, November 1988
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: NBSD Mole Pier FDD Maintenance Dredging

Job ID: 570-68870-1
SDG: 3151187382

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-68870-1	LA-5 Ref Mn. Rep 1	Tissue	08/24/21 10:36	09/01/21 10:15
570-68870-2	LA-5 Ref Mn. Rep 2	Tissue	08/24/21 08:15	09/01/21 10:15
570-68870-3	LA-5 Ref Mn. Rep 3	Tissue	08/24/21 08:29	09/01/21 10:15
570-68870-4	LA-5 Ref Mn. Rep 4	Tissue	08/24/21 08:50	09/01/21 10:15
570-68870-5	LA-5 Ref Mn. Rep 5	Tissue	08/24/21 09:37	09/01/21 10:15
570-68870-6	LA-5 Ref Nv. Rep 1	Tissue	08/21/21 10:02	09/01/21 10:15
570-68870-7	LA-5 Ref Nv. Rep 2	Tissue	08/21/21 08:47	09/01/21 10:15
570-68870-8	LA-5 Ref Nv. Rep 3	Tissue	08/21/21 09:11	09/01/21 10:15
570-68870-9	LA-5 Ref Nv. Rep 4	Tissue	08/21/21 09:23	09/01/21 10:15
570-68870-10	LA-5 Ref Nv. Rep 5	Tissue	08/21/21 09:44	09/01/21 10:15
570-68870-11	Mn Pre-Test	Tissue	07/27/21 16:30	09/01/21 10:15
570-68870-12	Nv Pre-Test	Tissue	07/23/21 17:00	09/01/21 10:15

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-68870 Chain of Custody

CHAIN OF CUSTODY RECORD

E: 08/31/21

E: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

NBSD Mole Pier FDD Maintenance Dredging

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

P O NO: 3151187382 (Project not PO)

SAMPLER(S): (PRINT): KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM

RETAIN remaining material for potential future tests

Please only report requested analytes Please report totals for PCBs and PAHs

Please report to MDL in dry weight. Please see attached sheet for details

LA-5 and PreTest Tissue COC

REQUESTED ANALYSES

Please check box or fill in blank as needed

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160 3/SM 2540 B)	Metals (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD						
1	M.n LA-5 Ref Rep 1	8/24/2021	1036	tissue	1	X														X						
2	M n LA-5 Ref Rep 2	8/24/2021	0815	tissue	1	X														X						
3	M n LA-5 Ref Rep 3	8/24/2021	0829	tissue	1	X														X						
4	M n LA-5 Ref Rep 4	8/24/2021	0850	tissue	1	X														X						
5	M n LA-5 Ref Rep 5	8/24/2021	0937	tissue	1	X														X						
6	A.v LA-5 Ref Rep 1	8/21/2021	1002	tissue	1	X														X						
7	A.v LA-5 Ref Rep 2	8/21/2021	0847	tissue	1	X														X						
8	A.v LA-5 Ref Rep 3	8/21/2021	0911	tissue	1	X														X						
9	A.v LA-5 Ref Rep 4	8/21/2021	0923	tissue	1	X														X						
10	A.v LA-5 Ref Rep 5	8/21/2021	0944	tissue	1	X														X						
11	M.n PreTest	7/27/2021	1630	tissue	1	X														X						
12	A.v PreTest	7/23/2021	1700	tissue	1	X														X						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date	Time
EcoAnalysts 8/31/21 1200			
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 9/1/21	Time: 10:15
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 9/1/21	Time

-1.0/-1.4 SCG

06/02/14 Revision

Analyte[i]	Analysis Method	Tissue Target RL[a,b]
Total Solids	USEPA160.3/SM 2540 B	0 10%
Total Lipids	NOAA, 1993 [i]	0.10%
Antimony	USEPA 6020 [d]	N/A
Arsenic	USEPA 6020 [d]	0 1 mg/kg
Barium	USEPA 6020 [d]	N/A
Beryllium	USEPA 6020 [d]	N/A
Cadmium	USEPA 6020 [d]	0.1 mg/kg
Chromium	USEPA 6020 [d]	0 1 mg/kg
Chromium, Hexavalent	EPA 7199	
Chromium, Trivalent	7199 CR3	
Cobalt	USEPA 6020 [d]	N/A
Copper	USEPA 6020 [d]	0.1 mg/kg
Lead	USEPA 6020[d]	0.1 mg/kg
Mercury	USEPA 7471A [d]	0 02 mg/kg
Molybdenum	USEPA 6020 [d]	N/A
Nickel	USEPA 6020 [d]	0 1 mg/kg
Selenium	USEPA 6020 [d]	0.1 mg/kg
Silver	USEPA 6020 [d]	0.1 mg/kg
Thallium	USEPA 6020 [d]	N/A
Vanadium	USEPA 6020 [d]	N/A
Zinc	USEPA 6020 [d]	1.0 mg/kg
Polycyclic Aromatic Hydrocarbons (PAHs)[e]	USEPA 8270C SIM [d]	10 µg/kg
Polychlorinated Biphenyl (PCB) Congeners [g]	USEPA 8270C SIM [d]	0 5 µg/kg

Notes

a) Sediment minimum detection limits are on a dry-weight basis, tissue minimum levels are on a wet weight basis

b) Reporting limits are provided by Eurofins Calscience Environmental Laboratories, Inc.

c) Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association et al., 1995.

d) USEPA, 1986–2007 SW-846. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition.

e) Includes 1-methylnaphthalene, 1-methylphenanthrene, 1,6,7-trimethylnaphthalene, 2-methylnaphthalene, 2,6-dimethylnaphthalene, acenaphthene, acenaphthylene, anthracene, naphthalene, phenanthrene, fluorene, benzo(a)anthracene, benzo(a)pyrene, , benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, isophorone, pyrene, dibenzothiophene, benzo(e)pyrene, perthane, perylene, and biphenyl

g) Polychlorinated biphenyls (PCBs) (sum of 41 congeners 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132/153, 138/158, 149, 151, 156, 157, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206)

i) National Oceanic and Atmospheric Administration. 1993. Sampling and Analytical Methods of the National Status and Trends Program National Benthic Surveillance and Mussel Watch Projects, 1984–1992, Volume IV, Comprehensive Descriptions of Trace Organic Analytical Methods, July.

eurofins | Calscience

CHAIN OF CUSTODY RECORD

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

WO # / LAB USE ONLY

DATE:

PAGE: 1 OF 2

LABORATORY CLIENT: Wood Environmental & Infrastructure Solutions, Inc.

ADDRESS: 9177 Sky Park Ct.

CITY: San Diego STATE: CA ZIP: 92123

TEL: 858-300-4300 E-MAIL: kimbrie.gobbi@woodplc.com

CLIENT PROJECT NAME / NUMBER: NBSD Mole Pier FDD Maintenance Dredging

P.O. NO.: 3151187382 (Project not PO)

PROJECT CONTACT: kimbrie.gobbi@woodplc.com

SAMPLER(S): (PRINT) KG

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: QUOTE NUMBER 965648 LOG CODE:

SPECIAL INSTRUCTIONS: Carla Hollowell is PM.

RETAIN remaining material for potential future tests.

Please only report requested analytes. Please report totals for PCBs and PAHs.

Please report to MDL in dry weight. Please see attached sheet for details.

LA-5 and PreTest Tissue COC

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	Total Lipids (NOAA, 1993)	Total Solids (160.3/SM 2540 B)	**Metals** (6020)	Copper only (6020)	Zinc only (6020)	Mercury (7471A)	Hexavalent and Trivalent Chromium (EPA 7199 and 7199C3, respectively)	PAHs (8270 C SIM)	Chlorinated Pesticides (8270 C SIM/8081A)	PCB Congeners (8270C SIM)		HOLD							
	LA-5 Ref Mn. Rep 1			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Mn. Rep 2			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Mn. Rep 3			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Mn. Rep 4			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Mn. Rep 5			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Nv. Rep 1			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Nv. Rep 2			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Nv. Rep 3			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Nv. Rep 4			tissue		X			X	X	X			X		X		X									
	LA-5 Ref Nv. Rep 5			tissue		X			X	X	X			X		X		X									
	Mn Pre-Test			tissue		X			X	X	X			X		X		X									
	Nv Pre-Test			tissue		X			X	X	X			X		X		X									

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

ORIGIN ID:PWIA
MICHELLE KNOWLEN
ECOANALYSTS, INC.
4770 NE VIEW DR.
PORT GAMBLE, WA 98364
UNITED STATES US

(360) 297-6040

SHIP DATE: 31AUG21
ACTWGT: 22.00 LB
CAD: 3195116/INET4400
DIMS: 12x17x11 IN
DRY ICE: 2.28 KG
BILL SENDER

570-68870 Waybill

TO CARLA HOLLOWELL
EUROFINS CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494
INV:
PO:
REF WOOD NBSD MOLE PIER TISSUES
DEPT

56DJ2/56C0/FE4A

FedEx Express

J21021870801uv

3 of 4

MPS# 0263 7746 8598 8628
Mstr# 7746 8598 8065

0201

WED - 01 SEP 10:30A
PRIORITY OVERNIGHT

ICE

92 APVA

92841
CA-US SNA

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 570-68870-1
SDG Number: 3151187382

Login Number: 68870
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience LLC

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C4

TISSUES CHEMISTRY STATISTICAL SUMMARY

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Appendix C4

Tissue Chemistry Statistical Summary

Summary of Lipid and Solid Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure

Macoma nasuta

	Replicate	Analyte (%) Solids	Lipids
Pretest	1	16.8	0.941
LA-5 Reference	1	17.3	0.812
	2	18.8	0.873
	3	17.5	0.911
	4	17.9	0.851
	5	17.9	0.745
	Mean	17.9	0.838
	Std. Dev.	0.6	0.063
FDD-A Composite	1	18.4	0.861
	2	18.2	0.733
	3	18.6	0.772
	4	18.0	0.686
	5	18.9	0.735
	Mean	18.4	0.757
	Std. Dev.	0.3	0.065
FDD-B Composite	1	19.8	0.706
	2	20.1	0.725
	3	19.3	0.870
	4	18.9	0.703
	5	19.2	0.752
	Mean	19.5	0.751
	Std. Dev.	0.5	0.069
FDD-C Composite[1]	1	NT	NT
	2	NT	NT
	3	NT	NT
	4	NT	NT
	5	NT	NT
	Mean	NA	NA
	Std. Dev.	NA	NA
FDD-D Composite	1	17.7	0.941
	2	18.6	0.910
	3	18.6	1.03
	4	17.6	0.941
	5	18.5	1.12
	Mean	18.2	0.988
	Std. Dev.	0.5	0.086

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

% = percent NT = not tested

ND = not detected NA = not applicable

Summary of Lipid and Solid Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure

Alitta Virens

	Replicate	Analyte (%) Solids	Lipids
Pretest	1	16.3	1.17
LA-5 Reference	1	16.6	0.873
	2	15.7	0.961
	3	16.5	0.921
	4	17.0	1.14
	5	16.9	1.13
	Mean	16.5	1.01
	Std. Dev.	0.5	0.12
FDD-A Composite	1	15.9	0.790
	2	16.3	0.980
	3	17.1	1.16
	4	16.0	0.832
	5	16.1	1.30
	Mean	16.3	1.01
	Std. Dev.	0.5	0.22
FDD-B Composite	1	18.3	1.00
	2	18.5	0.940
	3	18.7	0.880
	4	17.9	1.05
	5	17.8	0.970
	Mean	18.2	0.968
	Std. Dev.	0.4	0.064
FDD-C Composite[1]	1	NT	NT
	2	NT	NT
	3	NT	NT
	4	NT	NT
	5	NT	NT
	Mean	NA	NA
	Std. Dev.	NA	NA
FDD-D Composite	1	16.6	1.59
	2	15.9	1.17
	3	15.8	1.16
	4	16.3	1.14
	5	16.5	1.13
	Mean	16.2	1.24
	Std. Dev.	0.4	0.20

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

% = percent NT = not tested

ND = not detected NA = not applicable

Summary of Trace Metal Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure
Macoma nasuta

		Trace Metals (milligrams per kilogram [mg/kg] wet weight)									
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
Site	**FDA[a]**	**86**	**4**	**13**	**-**	**1.7**	**1.0***	**80**	**-**	**-**	**-**
Pre-test	**--**	2.33	ND<0.0432	0.660 B	1.01	0.108 J	0.0171 J	0.140 J	0.318	ND<0.0236	8.81
LA-5 Reference	1	1.55	ND<0.0430	0.528 B	1.00	0.0562 J	0.0274 J	0.0825 J	0.267	ND<0.0235	13.0 F1
	2	2.18	ND<0.0426	0.771 B	1.42	0.0767 J	0.0263 J F1	0.0919 J	0.364	ND<0.0232	9.28
	3	2.63	ND<0.0431	1.00 B	1.85	0.0987 J	0.0250 J	0.125 J	0.601	0.0242 J	42.8
	4	2.46	ND<0.0430	1.00 B	1.55	0.0896 J	0.0219 J	0.114 J	0.488	ND<0.0235	17.0
	5	1.95	ND<0.0434	0.659 B	1.16	0.0641 J	0.0183 J	0.0946 J	0.550	ND<0.0237	18.2
	Mean	2.15	0.0	0.792	1.40	0.0771	0.0238	0.102	0.454	0.0048	20.1
	Std. Dev.	0.43	--	0.209	0.33	0.0175	0.0037	0.017	0.137	0.0108	13.2
	1	NT	NT	NT	1.97	NT	0.0455 J	NT	NT	NT	20.9
FDD-A Composite	2	NT	NT	NT	2.67	NT	0.0221 J	NT	NT	NT	31.8
	3	NT	NT	NT	3.29	NT	0.0346 J	NT	NT	NT	25.4
	4	NT	NT	NT	2.49	NT	0.0313 J	NT	NT	NT	32.9
	5	NT	NT	NT	2.34	NT	0.0286 J	NT	NT	NT	32.9
	Mean	NA	NA	NA	2.55	NA	0.0324	NA	NA	NA	28.8
	Std. Dev.	NA	NA	NA	0.49	NA	0.0086	NA	NA	NA	5.4
	p-value[b]	--	--	--	0.001	--	0.034	--	--	--	0.054
	1	2.72	ND<0.0434	0.886	1.30	0.176	0.0184 J	0.215	0.298	ND<0.0237 F1	9.99 F1
FDD-B Composite	2	4.57	ND<0.0434	0.834	1.45	0.184	0.0166 J	0.359	0.234	0.0413 J	14.7
	3	2.13	ND<0.0430	1.12	1.37	0.205	0.0194 J	0.133 J	0.408	ND<0.0235	25.9
	4	4.92	0.0517 J	1.01	1.83	0.272	0.0394 J	0.520	0.471	0.0456 J	18.6
	5	6.04	0.0496 J	1.09	1.92	0.243	0.0349 J	0.486	0.516	0.0348 J	19.1
	Mean	4.08	0.0203	0.988	1.57	0.216	0.0257	0.343	0.385	0.0243	17.7
	Std. Dev.	1.62	0.0278	0.125	0.28	0.041	0.0106	0.168	0.118	0.0225	5.9
	p-value[b]	0.014	0.068	0.055	0.179	0.000	0.452	0.002	0.229	0.057	0.457
	1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
FDD-C Composite[1]	2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Std. Dev.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p-value[b]	--	--	--	--	--	--	--	--	--	--
	1	NT	NT	NT	1.20	NT	0.0221 J	NT	NT	NT	22.8
FDD-D Composite	2	NT	NT	NT	0.945	NT	0.0320 J	NT	NT	NT	8.96
	3	NT	NT	NT	2.31	NT	0.0104 J	NT	NT	NT	18.7
	4	NT	NT	NT	0.986	NT	0.0238 J	NT	NT	NT	37.2
	5	NT	NT	NT	1.10	NT	0.0120 J	NT	NT	NT	38.3
	Mean	NA	NA	NA	1.31	NA	0.0201	NA	NA	NA	25.2
	Std. Dev.	NA	NA	NA	0.57	NA	0.0089	NA	NA	NA	12.5
	p-value[b]	--	--	--	0.308	--	0.153	--	--	--	0.262

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

*FDA action limits for methyl mercury (wet weight)

MDL = method detection limit

St. Dev = standard deviation

FDA = Food and Drug Administration Action Level (1. U.S. Food and Drug Administration. 2011. Fish and Fisheries Products Hazards and Controls Guidance, 4rd Ed. Appendix 5—FDA & EPA Safety Levels in Regulations and Guidance. Accessed on January 28, 2015 at (http://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/seafood/ucm2018426.htm)

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

F1 = MS and/or MSD recovery exceeds control limits.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

ND = non-detect

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

Summary of Trace Metal Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure
Alitta Virens

		Trace Metals (milligrams per kilogram [mg/kg] wet weight)									
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Zinc (Zn)
Site	**FDA[a]**	**86**	**4.0**	**13**	**-**	**1.7**	**1.0***	**80**	**-**	**-**	**-**
Pre-test	**--**	1.77	ND<0.0427	0.592 B	0.753	0.0857 J	0.0211 J	0.109 J	0.255	ND<0.0233	6.88
LA-5 Reference	1	2.25	ND<0.0428	0.832 B	1.51	0.0780 J	0.0191 J	0.0934 J	0.361	ND<0.0233	11.6
	2	1.21	ND<0.0429	0.516 B	0.748	0.0530 J	0.0205 J	0.0692 J	0.480	ND<0.0234	14.8
	3	2.13	ND<0.0426	0.965 B	1.43	0.0884 J	0.0224 J	0.147 J	0.398	ND<0.0232	9.49
	4	2.73	ND<0.0427	0.991 B	1.50	0.109 J	0.0247 J	0.142 J	0.609	ND<0.0233	25.0
	5	1.95	ND<0.0430	0.773 B	1.21	0.0779 J	0.0180 J	0.108 J	0.307	ND<0.0235	8.98
	Mean	2.05	0.0	0.815	1.28	0.0813	0.0209	0.112	0.431	0.0	14.0
	Std. Dev.	0.55	--	0.190	0.32	0.0203	0.0027	0.033	0.118	--	6.6
	1	NT	NT	NT	2.15	NT	0.0193 J	NT	NT	NT	24.3
FDD-A Composite	2	NT	NT	NT	2.08	NT	0.0252 J	NT	NT	NT	25.5
	3	NT	NT	NT	1.68	NT	0.0199 J	NT	NT	NT	23.4
	4	NT	NT	NT	1.53	NT	0.0166 J	NT	NT	NT	18.4
	5	NT	NT	NT	1.46	NT	0.0276 J	NT	NT	NT	20.7
	Mean	NA	NA	NA	1.78	NA	0.0217	NA	NA	NA	22.5
	Std. Dev.	NA	NA	NA	0.32	NA	0.0045	NA	NA	NA	2.9
	p-value[b]	--	--	--	0.027	--	0.409	--	--	--	0.012
	1	2.31	ND<0.0427	0.742	1.32	0.0885 J	0.0517	0.144 J	0.305	ND<0.0233	9.57
FDD-B Composite	2	3.04	0.0501 J	0.988	1.41	0.143 J	0.00824 J	0.185	0.533	0.0300 J	19.2
	3	1.84	ND<0.0434	0.640	0.812	0.0857 J	0.0255 J	0.179	0.308	ND<0.0237	14.2
	4	3.42	0.0565 J	1.12	1.54	0.154	0.0182 J	0.197	0.588	0.0304 J	13.6
	5	4.02	0.0753 J	1.32	1.84	0.192	0.0104 J	0.240	0.817	0.0362 J	35.4
	Mean	2.93	0.0364	0.962	1.38	0.133	0.0228	0.189	0.510	0.0193	18.4
	Std. Dev.	0.87	0.0345	0.277	0.38	0.045	0.0175	0.035	0.214	0.0178	10.1
	p-value[b]	0.055	0.022	0.201	0.350	0.023	0.355	0.005	0.298	0.020	0.208
	1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
FDD-C Composite[1]	2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	Mean	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Std. Dev.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p-value[b]	--	--	--	--	--	--	--	--	--	--
	1	NT	NT	NT	2.09	NT	0.0133 J	NT	NT	NT	19.0
FDD-D Composite	2	NT	NT	NT	2.16	NT	ND<0.00794	NT	NT	NT	18.5
	3	NT	NT	NT	1.20	NT	ND<0.00802	NT	NT	NT	16.3
	4	NT	NT	NT	1.80	NT	0.0114 J	NT	NT	NT	28.0
	5	NT	NT	NT	1.28	NT	0.0122 J	NT	NT	NT	14.2
	Mean	NA	NA	NA	1.71	NA	0.0074	NA	NA	NA	19.2
	Std. Dev.	NA	NA	NA	0.45	NA	0.0068	NA	NA	NA	5.3
	p-value[b]	--	--	--	0.074	--	0.004	--	--	--	0.066

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

*FDA action limits for methyl mercury (wet weight)

MDL = method detection limit

St. Dev = standard deviation

FDA = Food and Drug Administration Action Level (1. U.S. Food and Drug Administration. 2011. Fish and Fisheries Products Hazards and Controls Guidance, 4rd Ed. Appendix 5—FDA & EPA Safety Levels in Regulations and Guidance. Accessed on January 28, 2015 at (http://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/seafood/ucm2018426.htm)

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

ND = non-detect

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

Summary of PAH Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - NBSD

Macoma nasuta

			LA-5 Reference							FDD-A Composite			FDD-B Composite								FDD-C Composite[1]			FDD-D Composite		
Analyte (µg/kg wet weight)	FDA[a]	Pre-test	1	2	3	4	5	Mean	Std. Dev.	Mean	Std. Dev.	p-value[b]	1	2	3	4	5	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]
1,6,7-Trimethylnapthalene	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	NA	NA	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	--	NA	NA	--	NA	NA	--
1-Methylnapthalene	--	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1 F2	0.0	--	NA	NA	--	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	0.0	--	--	NA	NA	--	NA	NA	--
1-Methylphenanthrene	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	0.0	--	NA	NA	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	0.0	--	--	NA	NA	--	NA	NA	--
2,6-Dimethylnapthalene	--	2.7 J	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	0.0	--	NA	NA	--	ND<2.1	ND<2.1	ND<2.1	ND<2.1	5.6 J	1.12	2.5	0.1733	NA	NA	--	NA	NA	--
2-Methylnapthalene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6 F2	0.0	--	NA	NA	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	--	NA	NA	--	NA	NA	--
Acenaphthene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5 F2	0.0	--	NA	NA	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	--	NA	NA	--	NA	NA	--
Acenaphthylene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7 F2	0.0	--	NA	NA	--	3.1 J	ND<1.7	2.6 J	2.0 J	ND<1.7	1.5	1.5	0.0226	NA	NA	--	NA	NA	--
Anthracene	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9 F2	0.0	--	NA	NA	--	3.2 J	2.9 J	3.2 J	ND<1.9	2.2 J	2.3	1.3	0.0026	NA	NA	--	NA	NA	--
Benzo (a) Anthracene	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4 F2	0.0	--	NA	NA	--	7.3 J	ND<1.4	ND<1.4	ND<1.4	6.0 J	2.7	3.7	0.0708	NA	NA	--	NA	NA	--
Benzo (a) Pyrene	--	8.5 J	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4 F2	0.0	--	NA	NA	--	100	110	110	110	86	103	11	0.0000	NA	NA	--	NA	NA	--
Benzo (b) Fluoranthene	--	7.4 J	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4 F2	0.0	--	NA	NA	--	130	140	140	130	110	130	12	0.0000	NA	NA	--	NA	NA	--
Benzo (e) Pyrene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	NA	NA	--	41	49	48	43	35	43	6	0.0000	NA	NA	--	NA	NA	--
Benzo (g,h,i) Perylene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5 F2	0.0	--	NA	NA	--	ND<1.5	18	ND<1.5	ND<1.5	13	6.2	8.7	0.0710	NA	NA	--	NA	NA	--
Benzo (k) Fluoranthene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5 F2	0.0	--	NA	NA	--	100	120	120	100	89	106	14	0.0000	NA	NA	--	NA	NA	--
Biphenyl	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	NA	NA	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	--	NA	NA	--	NA	NA	--
Chrysene	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4 F2	0.0	--	NA	NA	--	8.9 J	8.8 J	ND<1.4	7.4 J	7.5 J	6.5	3.7	0.0020	NA	NA	--	NA	NA	--
Dibenz (a,h) Anthracene	--	7.3 J	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4 F2	0.0	--	NA	NA	--	13	13	11	11	10	12	1	0.0000	NA	NA	--	NA	NA	--
Fluoranthene	--	2.1 J	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8 F2	0.0	--	NA	NA	--	3.8 J	2.8 J	3.4 J	2.8 J	3.2 J	3.2	0.4	0.0000	NA	NA	--	NA	NA	--
Fluorene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6 F2 F1	0.0	--	NA	NA	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	--	NA	NA	--	NA	NA	--
Indeno (1,2,3-c,d) Pyrene	--	8.4 J	ND<1.3	ND<1.3	ND<1.3	ND<1.3	ND<1.3 F2	0.0	--	NA	NA	--	27	29	27	26	22	26	3	0.0000	NA	NA	--	NA	NA	--
Naphthalene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5 F2	0.0	--	NA	NA	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	--	NA	NA	--	NA	NA	--
Phenanthrene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	2.2 J F2 F1	0.44	0.98	NA	NA	--	3.3 J	5.3 J	ND<1.7	ND<1.7	3.0 J	2.3	2.3	0.0677	NA	NA	--	NA	NA	--
Pyrene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6 F2	0.0	--	NA	NA	--	6.4 J	6.6 J	6.8 J	5.4 J	6.4 J	6.3	0.5	0.0000	NA	NA	--	NA	NA	--
Total PAHs[2]	--	-	0.0	0.0	0.0	0.0	2.2	0.44	0.98	NA	NA	--	447	505	472	438	399	452	40	0.0002	NA	NA	--	NA	NA	--

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[2]If all samples are ND, then the Total PAHs is calculated zero.

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

µg/kg = microgram per kilogram

MDL = method detection limit

St. Dev. = standard deviation

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

F1 = MS and/or MSD recovery exceeds control limits.

F2 = MS/MSD RPD exceeds control limits

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

ND = not detected

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

Summary of PAH Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - NBSD

Alitta virens

			LA-5 Reference							FDD-A Composite			FDD-B Composite								FDD-C Composite[1]			FDD-D Composite		
Analyte (µg/kg wet weight)	**FDA[a]**	**Pre-test**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**p-value[b]**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev.**	**p-value[b]**	**Mean**	**Std. Dev.**	**p-value[b]**	**Mean**	**Std. Dev.**	**p-value[b]**
1,6,7-Trimethylnapthalene	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	NA	NA	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	--	NA	NA	--	NA	NA	--
1-Methylnapthalene	--	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	0.0	--	NA	NA	--	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	0.0	--	--	NA	NA	--	NA	NA	--
1-Methylphenanthrene	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	0.0	--	NA	NA	--	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	0.0	--	--	NA	NA	--	NA	NA	--
2,6-Dimethylnapthalene	--	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	0.0	--	NA	NA	--	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	0.0	--	--	NA	NA	--	NA	NA	--
2-Methylnapthalene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	NA	NA	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	--	NA	NA	--	NA	NA	--
Acenaphthene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	NA	NA	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	--	NA	NA	--	NA	NA	--
Acenaphthylene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	NA	NA	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	--	NA	NA	--	NA	NA	--
Anthracene	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	NA	NA	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	--	NA	NA	--	NA	NA	--
Benzo (a) Anthracene	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	0.0	--	NA	NA	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	0.0	--	--	NA	NA	--	NA	NA	--
Benzo (a) Pyrene	--	ND<1.4	ND<1.4	ND<1.4	8.1 J	ND<1.4	8.1 J	3.2	4.4	NA	NA	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	9.6 J	1.9	4.3	0.2914	NA	NA	--	NA	NA	--
Benzo (b) Fluoranthene	--	ND<1.4	ND<1.4	ND<1.4	7.3 J	7.3 J	7.3 J	4.4	4.0	NA	NA	--	15	13	13	13 J	13	13	0.9	0.0139	NA	NA	--	NA	NA	--
Benzo (e) Pyrene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	NA	NA	--	4.3 J	3.1 J	3.0 J	3.2 J	ND<1.7	2.7	1.6	0.0023	NA	NA	--	NA	NA	--
Benzo (g,h,i) Perylene	--	ND<1.5	ND<1.5	ND<1.5	3.1 J	ND<1.5	2.0 J	1.0	1.4	NA	NA	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	--	NA	NA	--	NA	NA	--
Benzo (k) Fluoranthene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	NA	NA	--	9.4 J	6.3 J	6.2 J	7.4 J	6.7 J	7.2	1.3	0.0000	NA	NA	--	NA	NA	--
Biphenyl	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	NA	NA	--	ND<1.9	ND<1.9	ND<1.9	ND<1.9	ND<1.9	0.0	--	--	NA	NA	--	NA	NA	--
Chrysene	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	0.0	--	NA	NA	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	0.0	--	--	NA	NA	--	NA	NA	--
Dibenz (a,h) Anthracene	--	ND<1.4	ND<1.4	ND<1.4	7.1 J	7.1 J	7.1 J	4.3	3.9	NA	NA	--	ND<1.4	ND<1.4	ND<1.4	ND<1.4	ND<1.4	0.0	--	--	NA	NA	--	NA	NA	--
Fluoranthene	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	NA	NA	--	ND<1.8	ND<1.8	ND<1.8	ND<1.8	ND<1.8	0.0	--	--	NA	NA	--	NA	NA	--
Fluorene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	NA	NA	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	--	NA	NA	--	NA	NA	--
Indeno (1,2,3-c,d) Pyrene	--	ND<1.3	ND<1.3	ND<1.3	8.3 J	8.3 J	8.3 J	5.0	4.5	NA	NA	--	ND<1.3	ND<1.3	ND<1.3	ND<1.3	ND<1.3	0.0	--	--	NA	NA	--	NA	NA	--
Naphthalene	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	NA	NA	--	ND<1.5	ND<1.5	ND<1.5	ND<1.5	ND<1.5	0.0	--	--	NA	NA	--	NA	NA	--
Phenanthrene	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	NA	NA	--	ND<1.7	ND<1.7	ND<1.7	ND<1.7	ND<1.7	0.0	--	--	NA	NA	--	NA	NA	--
Pyrene	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	NA	NA	--	ND<1.6	ND<1.6	ND<1.6	ND<1.6	ND<1.6	0.0	--	--	NA	NA	--	NA	NA	--
Total PAHs[2]	--	-	ND<1.6	ND<1.6	34	23	33	18	17	NA	NA	--	29	22	22	24	29	25	3	0.0747	NA	NA	--	NA	NA	--

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[2]If all samples are ND, then the Total PAHs is calculated as zero.

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

µg/kg = microgram per kilogram

MDL = method detection limit

St. Dev. = standard deviation

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

ND = not detected

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

Summary of PCB Congener Concentrations in Clam Tissues Following the 28-Day Bioaccumulation Exposure - NBSD

Macoma nasuta

			LA-5 Reference							FDD-A Composite								FDD-B Composite								FDD-C Composite[1]			FDD-D Composite		
Analyte (µg/kg wet weight)	FDA[a]	Pre-test	1	2	3	4	5	Mean	Std. Dev.	1	2	3	4	5	Mean	Std. Dev.	p-value[b]	1	2	3	4	5	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]
PCB018	--	ND<0.070	ND<0.070	ND<0.070	ND<0.070	ND<0.070	ND<0.070	0.0	--	ND<0.070	ND<0.070	ND<0.070	ND<0.070	ND<0.070	0.0	--	--	ND<0.070	ND<0.070	ND<0.071	ND<0.070	ND<0.070	0.0	--	--	NA	NA	--	NA	NA	--
PCB028	--	ND<0.033	ND<0.033	ND<0.033	ND<0.033	ND<0.033	ND<0.033	0.0	--	ND<0.033	ND<0.033	ND<0.033	ND<0.033	ND<0.033	0.0	--	--	ND<0.033	ND<0.033	ND<0.034	ND<0.033	ND<0.033	0.0	--	--	NA	NA	--	NA	NA	--
PCB037	--	ND<0.060	ND<0.060	ND<0.059	ND<0.060	ND<0.060	ND<0.059	0.0	--	ND<0.060	ND<0.060	ND<0.060	ND<0.059	ND<0.059	0.0	--	--	ND<0.059	ND<0.059	ND<0.060	ND<0.060	ND<0.060	0.0	--	--	NA	NA	--	NA	NA	--
PCB044	--	ND<0.086	ND<0.086	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.086	ND<0.086	ND<0.086	ND<0.085	ND<0.085	0.0	--	--	ND<0.085	ND<0.085	ND<0.087	ND<0.086	ND<0.086	0.0	--	--	NA	NA	--	NA	NA	--
PCB049	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	2.6	2.0	1.6	1.3	1.7	1.8	0.5	0.0000	2.9	1.5	2.4	1.8	2.0	2.1	0.5	0.0000	NA	NA	--	NA	NA	--
PCB052	--	ND<0.062	ND<0.062	ND<0.061	ND<0.062	ND<0.062	ND<0.061	0.0	--	0.87	0.81	0.68	0.90	0.86	0.82	0.09	0.0000	1.9	1.5	1.6	1.5	1.8	1.7	0.2	0.0000	NA	NA	--	NA	NA	--
PCB066	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	1.3	1.4	1.3	1.3	1.5	1.4	0.1	0.0000	2.0	1.8	1.9	1.6	1.9	1.8	0.2	0.0000	NA	NA	--	NA	NA	--
PCB070	--	ND<0.059	ND<0.059	ND<0.058	ND<0.059	ND<0.059	ND<0.058	0.0	--	0.86	0.55	0.59	0.47	0.51	0.60	0.15	0.0000	1.3	0.88	1.2	1.1	1.3	1.2	0.2	0.0000	NA	NA	--	NA	NA	--
PCB074	--	ND<0.086	ND<0.086	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.086	ND<0.086	ND<0.086	ND<0.085	ND<0.085	0.0	--	--	ND<0.085	ND<0.085	0.65	0.48	0.75	0.38	0.36	0.0208	NA	NA	--	NA	NA	--
PCB077	--	ND<0.077	ND<0.077	ND<0.076	ND<0.077	ND<0.077	ND<0.076	0.0	--	ND<0.077	ND<0.077	ND<0.077	ND<0.076	ND<0.076	0.0	--	--	ND<0.076	ND<0.076	ND<0.078	ND<0.077	ND<0.077	0.0	--	--	NA	NA	--	NA	NA	--
PCB081	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	--	NA	NA	--	NA	NA	--
PCB087	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	NA	NA	--	NA	NA	--
PCB099	--	ND<0.060	ND<0.060	ND<0.059	ND<0.060	ND<0.060	ND<0.059	0.0	--	2.0	2.3	2.0	1.9	ND<0.059	1.6	0.9	0.0020	3.0	2.2	2.4	2.3	3.1	2.6	0.4	0.0000	NA	NA	--	NA	NA	--
PCB101	--	ND<0.097	ND<0.097	ND<0.096	ND<0.097	ND<0.097	ND<0.096	0.0	--	2.7	2.6	2.6	2.5	2.8	2.6	0.1	0.0000	4.2	3.0	3.8	3.3	3.2	3.5	0.5	0.0000	NA	NA	--	NA	NA	--
PCB105	--	ND<0.054	ND<0.054	ND<0.054	ND<0.054	ND<0.054	ND<0.054	0.0	--	ND<0.054	ND<0.054	ND<0.054	ND<0.054	ND<0.054	0.0	--	--	ND<0.054	ND<0.054	ND<0.055	ND<0.054	ND<0.054	0.0	--	--	NA	NA	--	NA	NA	--
PCB110	--	ND<0.045	ND<0.045	ND<0.045	ND<0.045	ND<0.045	ND<0.045	0.0	--	2.5	2.3	2.4	2.0	2.5	2.3	0.2	0.0000	4.0	2.7	3.4	2.9	3.7	3.3	0.5	0.0000	NA	NA	--	NA	NA	--
PCB114	--	ND<0.081	ND<0.081	ND<0.080	ND<0.081	ND<0.081	ND<0.080	0.0	--	ND<0.081	ND<0.081	ND<0.081	ND<0.080	ND<0.080	0.0	--	--	ND<0.080	ND<0.080	ND<0.082	ND<0.081	ND<0.081	0.0	--	--	NA	NA	--	NA	NA	--
PCB118	--	ND<0.083	ND<0.083	ND<0.082	ND<0.083	ND<0.083	ND<0.082	0.0	--	2.0	2.1	2.2	1.9	2.4	2.1	0.2	0.0000	3.3	2.5	2.7	2.3	3.2	2.8	0.4	0.0000	NA	NA	--	NA	NA	--
PCB119	--	ND<0.094	ND<0.094	ND<0.093	ND<0.094	ND<0.094	ND<0.093	0.0	--	ND<0.094	ND<0.094	ND<0.094	ND<0.093	ND<0.093	0.0	--	--	ND<0.093	ND<0.093	ND<0.094	ND<0.094	ND<0.094	0.0	--	--	NA	NA	--	NA	NA	--
PCB123	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	NA	NA	--	NA	NA	--
PCB126	--	ND<0.079	ND<0.079	ND<0.078	ND<0.079	ND<0.079	ND<0.078	0.0	--	ND<0.079	ND<0.079	ND<0.079	ND<0.078	ND<0.078	0.0	--	--	ND<0.078	ND<0.078	ND<0.080	ND<0.079	ND<0.079	0.0	--	--	NA	NA	--	NA	NA	--
PCB128	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	NA	NA	--	NA	NA	--
PCB132/153	--	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	0.0	--	4.1	3.8	3.8	3.5	4.4	3.9	0.3	0.0000	5.1	4.4	4.8	4.2	5.3	4.8	0.5	0.0000	NA	NA	--	NA	NA	--
PCB138/158	--	ND<0.093	ND<0.093	ND<0.093	ND<0.093	ND<0.093	ND<0.093	0.0	--	3.2	3.3	3.0	3.1	3.6	3.2	0.2	0.0000	4.1	3.3	4.2	3.5	4.3	3.9	0.4	0.0000	NA	NA	--	NA	NA	--
PCB149	--	ND<0.097	ND<0.097	ND<0.096	ND<0.097	ND<0.097	ND<0.096	0.0	--	2.7	2.7	2.8	2.4	3.2	2.8	0.3	0.0000	3.9	2.9	3.4	3.4	3.8	3.5	0.4	0.0000	NA	NA	--	NA	NA	--
PCB151	--	ND<0.067	ND<0.067	ND<0.066	ND<0.067	ND<0.067	ND<0.066	0.0	--	ND<0.067	ND<0.067	ND<0.067	0.71	ND<0.066	0.14	0.32	0.1725	ND<0.066	ND<0.066	ND<0.067	ND<0.067	ND<0.067	0.0	--	--	NA	NA	--	NA	NA	--
PCB156	--	ND<0.057	ND<0.057	ND<0.056	ND<0.057	ND<0.057	ND<0.056	0.0	--	ND<0.057	ND<0.057	ND<0.057	ND<0.056	ND<0.056	0.0	--	--	ND<0.056	ND<0.056	ND<0.058	ND<0.057	ND<0.057	0.0	--	--	NA	NA	--	NA	NA	--
PCB157	--	ND<0.052	ND<0.052	ND<0.051	ND<0.052	ND<0.052	ND<0.051	0.0	--	ND<0.052	ND<0.052	ND<0.052	ND<0.051	ND<0.051	0.0	--	--	ND<0.051	ND<0.051	ND<0.052	ND<0.052	ND<0.052	0.0	--	--	NA	NA	--	NA	NA	--
PCB167	--	ND<0.061	ND<0.061	ND<0.060	ND<0.061	ND<0.061	ND<0.060	0.0	--	ND<0.061	ND<0.061	ND<0.061	ND<0.060	ND<0.060	0.0	--	--	ND<0.060	ND<0.060	ND<0.062	ND<0.061	ND<0.061	0.0	--	--	NA	NA	--	NA	NA	--
PCB168	--	ND<0.048	ND<0.048	ND<0.048	ND<0.048	ND<0.048	ND<0.048	0.0	--	ND<0.048	ND<0.048	ND<0.048	ND<0.048	ND<0.048	0.0	--	--	ND<0.048	ND<0.048	ND<0.049	ND<0.048	ND<0.048	0.0	--	--	NA	NA	--	NA	NA	--
PCB169	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	--	ND<0.060	ND<0.060	ND<0.061	ND<0.060	ND<0.060	0.0	--	--	NA	NA	--	NA	NA	--
PCB170	--	ND<0.063	ND<0.063	ND<0.062	ND<0.063	ND<0.063	ND<0.062	0.0	--	ND<0.063	ND<0.063	ND<0.063	ND<0.062	ND<0.062	0.0	--	--	ND<0.062	ND<0.062	ND<0.063	ND<0.063	ND<0.063	0.0	--	--	NA	NA	--	NA	NA	--
PCB177	--	ND<0.086	ND<0.086	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.086	ND<0.086	ND<0.086	ND<0.085	ND<0.085	0.0	--	--	ND<0.085	ND<0.085	ND<0.087	ND<0.086	ND<0.086	0.0	--	--	NA	NA	--	NA	NA	--
PCB180	--	ND<0.042	ND<0.042	ND<0.041	ND<0.042	ND<0.042	ND<0.041	0.0	--	ND<0.042	ND<0.042	ND<0.042	ND<0.041	ND<0.041	0.0	--	--	1.5	1.1	0.98	0.82	1.2	1.1	0.3	0.0000	NA	NA	--	NA	NA	--
PCB183	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	NA	NA	--	NA	NA	--
PCB187	--	ND<0.083	ND<0.083	ND<0.083	ND<0.083	ND<0.083	ND<0.083	0.0	--	1.1	1.0	1.0	1.0	1.0	1.0	0.0	0.0000	1.4	1.1	1.2	1.1	1.4	1.2	0.2	0.0000	NA	NA	--	NA	NA	--
PCB189	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	--	ND<0.060	ND<0.060	ND<0.061	ND<0.060	ND<0.060	0.0	--	--	NA	NA	--	NA	NA	--
PCB194	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	NA	NA	--	NA	NA	--
PCB201	--	ND<0.096	ND<0.096	ND<0.095	ND<0.096	ND<0.096	ND<0.095	0.0	--	ND<0.096	ND<0.096	ND<0.096	ND<0.095	ND<0.095	0.0	--	--	ND<0.095	ND<0.095	ND<0.097	ND<0.096	ND<0.096	0.0	--	--	NA	NA	--	NA	NA	--
PCB206	--	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.0	--	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.0	--	--	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.0	--	--	NA	NA	--	NA	NA	--
Total PCB Congeners[2]	2000	-	0.0	0.0	0.0	0.0	0.0	0.0	--	26	25	24	23	24	24	1	0.0000	39	29	35	30	37	34	4	0.0000	NA	NA	--	NA	NA	--

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[2]If all samples are ND, then the Total PCB Congeners is calculated as zero.

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

MDL = method detection limit

St. Dev. = standard deviation

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

ND = not detected

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

Summary of PCB Congener Concentrations in Worm Tissues Following the 28-Day Bioaccumulation Exposure - NBSD

Alitta virens

			LA-5 Reference							FDD-A Composite								FDD-B Composite								FDD-C Composite[1]			FDD-D Composite		
Analyte (µg/kg wet weight)	FDA[a]	Pre-test	1	2	3	4	5	Mean	Std. Dev.	1	2	3	4	5	Mean	Std. Dev.	p-value[b]	1	2	3	4	5	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]	Mean	Std. Dev.	p-value[b]
PCB018	--	ND<0.070	ND<0.070	ND<0.070	ND<0.070	ND<0.070	ND<0.070	0.0	--	ND<0.071	ND<0.070	ND<0.070	ND<0.070	ND<0.070	0.0	--	--	ND<0.070	ND<0.071	ND<0.071	ND<0.070	ND<0.070	0.0	--	--	NA	NA	--	NA	NA	--
PCB028	--	ND<0.033	ND<0.033	ND<0.033	ND<0.033	ND<0.033	ND<0.033	0.0	--	ND<0.034	ND<0.033	ND<0.033	ND<0.033	ND<0.033	0.0	--	--	ND<0.033	ND<0.034	ND<0.034	ND<0.033	ND<0.033	0.0	--	--	NA	NA	--	NA	NA	--
PCB037	--	ND<0.060	ND<0.059	ND<0.059	ND<0.060	ND<0.060	ND<0.059	0.0	--	ND<0.060	ND<0.059	ND<0.060	ND<0.060	ND<0.059	0.0	--	--	ND<0.059	ND<0.060	2.2	ND<0.060	ND<0.060	0.44	0.98	0.1717	NA	NA	--	NA	NA	--
PCB044	--	ND<0.086	ND<0.085	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.087	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	--	ND<0.085	ND<0.087	1.3	ND<0.086	ND<0.086	0.26	0.58	0.1710	NA	NA	--	NA	NA	--
PCB049	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	0.26	0.38	0.64	0.30	0.49	0.41	0.15	0.0000	0.80	0.78	0.65	0.80	0.49	0.70	0.14	0.0000	NA	NA	--	NA	NA	--
PCB052	--	ND<0.062	ND<0.061	ND<0.061	ND<0.062	ND<0.062	ND<0.061	0.0	--	0.93	0.88	1.2	0.88	1.2	1.0	0.2	0.0000	2.0	1.7	1.6	1.4	1.5	1.6	0.2	0.0000	NA	NA	--	NA	NA	--
PCB066	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	0.86	0.80	0.90	0.88	0.93	0.87	0.05	0.0000	1.2	1.2	0.84	1.1	0.96	1.1	0.2	0.0000	NA	NA	--	NA	NA	--
PCB070	--	ND<0.059	ND<0.058	ND<0.058	ND<0.059	ND<0.059	ND<0.058	0.0	--	ND<0.060	ND<0.058	ND<0.059	ND<0.059	ND<0.058	0.0	--	--	ND<0.058	ND<0.060	ND<0.060	ND<0.059	ND<0.059	0.0	--	--	NA	NA	--	NA	NA	--
PCB074	--	ND<0.086	ND<0.085	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.087	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	--	ND<0.085	ND<0.087	ND<0.087	ND<0.086	ND<0.086	0.0	--	--	NA	NA	--	NA	NA	--
PCB077	--	ND<0.077	ND<0.076	ND<0.076	ND<0.077	ND<0.077	ND<0.076	0.0	--	ND<0.078	ND<0.076	ND<0.077	ND<0.077	ND<0.076	0.0	--	--	ND<0.076	ND<0.078	ND<0.078	ND<0.077	ND<0.077	0.0	--	--	NA	NA	--	NA	NA	--
PCB081	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	--	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	0.0	--	--	NA	NA	--	NA	NA	--
PCB087	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	NA	NA	--	NA	NA	--
PCB099	--	ND<0.060	0.26	0.31	0.23	ND<0.060	ND<0.059	0.16	0.15	1.4	1.2	1.6	1.0	1.6	1.4	0.3	0.0009	2.3	2.3	0.97	1.5	1.4	1.7	0.6	0.0007	NA	NA	--	NA	NA	--
PCB101	--	ND<0.097	0.39	0.31	0.39	ND<0.097	ND<0.096	0.22	0.20	2.0	2.0	2.3	1.6	2.2	2.0	0.3	0.0005	3.4	3.5	2.4	2.8	2.2	2.9	0.6	0.0002	NA	NA	--	NA	NA	--
PCB105	--	ND<0.054	ND<0.054	ND<0.054	ND<0.054	ND<0.054	ND<0.054	0.0	--	ND<0.055	ND<0.054	ND<0.054	ND<0.054	ND<0.054	0.0	--	--	ND<0.054	0.83	ND<0.055	0.75	ND<0.054	0.32	0.43	0.0698	NA	NA	--	NA	NA	--
PCB110	--	ND<0.045	ND<0.045	ND<0.045	ND<0.045	ND<0.045	ND<0.045	0.0	--	1.4	1.1	1.6	0.87	1.4	1.3	0.3	0.0000	2.7	2.4	1.6	2.0	1.5	2.0	0.5	0.0000	NA	NA	--	NA	NA	--
PCB114	--	ND<0.081	ND<0.080	ND<0.080	ND<0.081	ND<0.081	ND<0.080	0.0	--	ND<0.082	ND<0.080	ND<0.081	ND<0.081	ND<0.080	0.0	--	--	ND<0.080	ND<0.082	ND<0.082	ND<0.081	ND<0.081	0.0	--	--	NA	NA	--	NA	NA	--
PCB118	--	ND<0.083	ND<0.082	ND<0.082	ND<0.083	ND<0.083	ND<0.082	0.0	--	1.3	1.0	1.3	0.98	1.4	1.2	0.2	0.0000	2.1	1.8	1.4	1.3	1.4	1.6	0.3	0.0000	NA	NA	--	NA	NA	--
PCB119	--	ND<0.094	ND<0.093	ND<0.093	ND<0.094	ND<0.094	ND<0.093	0.0	--	ND<0.094	ND<0.093	ND<0.094	ND<0.094	ND<0.093	0.0	--	--	ND<0.093	ND<0.094	0.78	ND<0.094	ND<0.094	0.16	0.35	0.1718	NA	NA	--	NA	NA	--
PCB123	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	NA	NA	--	NA	NA	--
PCB126	--	ND<0.079	ND<0.078	ND<0.078	ND<0.079	ND<0.079	ND<0.078	0.0	--	ND<0.080	ND<0.078	ND<0.079	ND<0.079	ND<0.078	0.0	--	--	ND<0.078	ND<0.080	ND<0.080	ND<0.079	ND<0.079	0.0	--	--	NA	NA	--	NA	NA	--
PCB128	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.0	--	--	ND<0.10	1.4	ND<0.10	ND<0.10	ND<0.10	0.28	0.63	0.1733	NA	NA	--	NA	NA	--
PCB132/153	--	1.6	1.9	1.7	1.6	1.7	ND<0.17	1.4	0.8	3.6	3.2	4.0	2.7	4.6	3.6	0.7	0.0304	5.7	6.3	4.0	4.1	3.5	4.7	1.2	0.0161	NA	NA	--	NA	NA	--
PCB138/158	--	1.2	1.5	1.3	1.3	1.4	ND<0.093	1.1	0.62	2.9	2.6	2.9	2.2	3.6	2.8	0.5	0.0379	4.7	5.2	3.3	3.2	3.0	3.9	1.0	0.0196	NA	NA	--	NA	NA	--
PCB149	--	0.68	0.77	0.82	0.73	ND<0.097	ND<0.096	0.46	0.42	2.5	2.1	2.6	1.6	3.0	2.4	0.5	0.0063	3.9	4.7	2.8	2.9	2.7	3.4	0.9	0.0029	NA	NA	--	NA	NA	--
PCB151	--	ND<0.067	ND<0.066	ND<0.066	ND<0.067	ND<0.067	ND<0.066	0.0	--	ND<0.067	ND<0.066	ND<0.067	ND<0.067	ND<0.066	0.0	--	--	ND<0.066	ND<0.067	0.69	ND<0.067	0.82	0.30	0.42	0.0701	NA	NA	--	NA	NA	--
PCB156	--	ND<0.057	ND<0.056	ND<0.056	ND<0.057	ND<0.057	ND<0.056	0.0	--	ND<0.058	ND<0.056	ND<0.057	ND<0.057	ND<0.056	0.0	--	--	ND<0.056	ND<0.058	ND<0.058	ND<0.057	ND<0.057	0.0	--	--	NA	NA	--	NA	NA	--
PCB157	--	ND<0.052	ND<0.051	ND<0.051	ND<0.052	ND<0.052	ND<0.051	0.0	--	ND<0.052	ND<0.051	ND<0.052	ND<0.052	ND<0.051	0.0	--	--	ND<0.051	ND<0.052	ND<0.052	ND<0.052	ND<0.052	0.0	--	--	NA	NA	--	NA	NA	--
PCB167	--	ND<0.061	ND<0.060	ND<0.060	ND<0.061	ND<0.061	ND<0.060	0.0	--	ND<0.062	ND<0.060	ND<0.061	ND<0.061	ND<0.060	0.0	--	--	ND<0.060	ND<0.062	ND<0.062	ND<0.061	ND<0.061	0.0	--	--	NA	NA	--	NA	NA	--
PCB168	--	ND<0.048	ND<0.048	ND<0.048	ND<0.048	ND<0.048	ND<0.048	0.0	--	ND<0.049	ND<0.048	ND<0.048	ND<0.048	ND<0.048	0.0	--	--	ND<0.048	ND<0.049	ND<0.049	ND<0.048	ND<0.048	0.0	--	--	NA	NA	--	NA	NA	--
PCB169	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	ND<0.061	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	--	ND<0.060	ND<0.061	ND<0.061	ND<0.060	ND<0.060	0.0	--	--	NA	NA	--	NA	NA	--
PCB170	--	ND<0.063	ND<0.062	ND<0.062	ND<0.063	ND<0.063	ND<0.062	0.0	--	ND<0.063	ND<0.062	0.89	ND<0.063	ND<0.062	0.18	0.40	0.1728	ND<0.062	1.7	2.9	ND<0.063	ND<0.063	0.92	1.33	0.0707	NA	NA	--	NA	NA	--
PCB177	--	ND<0.086	ND<0.085	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	ND<0.087	ND<0.085	ND<0.086	ND<0.086	ND<0.085	0.0	--	--	ND<0.085	1.1	ND<0.087	ND<0.086	ND<0.086	0.22	0.49	0.1709	NA	NA	--	NA	NA	--
PCB180	--	ND<0.042	0.85	ND<0.041	ND<0.042	ND<0.042	ND<0.041	0.17	0.38	ND<0.042	1.5	1.6	1.0	1.5	1.1	0.7	0.0240	2.2	3.5	1.9	1.9	ND<0.042	1.9	1.3	0.0180	NA	NA	--	NA	NA	--
PCB183	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.67	0.13	0.28	0.1733	ND<0.11	1.0	ND<0.11	0.74	ND<0.11	0.35	0.49	0.0710	NA	NA	--	NA	NA	--
PCB187	--	ND<0.083	0.98	0.79	1.1	ND<0.083	ND<0.083	0.57	0.54	1.5	1.4	1.6	1.3	1.8	1.5	0.2	0.0282	2.3	2.8	1.6	1.7	1.7	2.0	0.5	0.0169	NA	NA	--	NA	NA	--
PCB189	--	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	ND<0.061	ND<0.060	ND<0.060	ND<0.060	ND<0.060	0.0	--	--	ND<0.060	ND<0.061	1.5	ND<0.060	ND<0.060	0.30	0.67	0.1721	NA	NA	--	NA	NA	--
PCB194	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	ND<0.11	ND<0.11	ND<0.11	ND<0.11	ND<0.11	0.0	--	--	NA	NA	--	NA	NA	--
PCB201	--	ND<0.096	ND<0.095	ND<0.095	ND<0.096	ND<0.096	ND<0.095	0.0	--	ND<0.097	ND<0.095	ND<0.096	ND<0.096	ND<0.095	0.0	--	--	ND<0.095	ND<0.097	ND<0.097	ND<0.096	ND<0.096	0.0	--	--	NA	NA	--	NA	NA	--
PCB206	--	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.0	--	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.0	--	--	0.51	ND<0.19	ND<0.19	ND<0.19	ND<0.19	0.10	0.23	0.1733	NA	NA	--	NA	NA	--
Total PCB Congeners[2]	2000	-	6.7	5.2	5.4	3.1	0.0	4.1	2.6	18.7	18.2	23.1	15.3	24.4	19.9	3.7	0.0927	34	41	32	25	21	31	8	0.0759	NA	NA	--	NA	NA	--

Notes:

[1]FDD-C-Composite tissues were not analyzed for this study. Composite Area C = Suitable for ocean disposal at LA-5 ODMDS per Tier 1 exclusion (Appendix D).

[2]If all samples are ND, then the Total PCB Congeners is calculated as zero.

[a] FDA action limits are reported in wet weight.

[b] Log-transformed one-tailed unpaired t-tests were performed

MDL = method detection limit

St. Dev. = standard deviation

For stastical comparisons p-values were calculated using 1/2 of the MDL in place of non-detects. For means, standard deviations, and sums, NDs were treated as 0 (zero) per USACE/USEPA guidance (DMMP Region 10 User Manual, 2018)

ND = not detected

NT = not tested

NA = not applicable. Sample not tested

p-value <0.05 and test tissue concentration is greater than reference tissue concentration

This page intentionally left blank.

APPENDIX D1

AGENCY CORRESPONDENCE – SEDIMENT COMPOSITING APPROVAL

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Gobbi, Kimbrie

From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Wednesday, June 30, 2021 4:46 PM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA); Snyder, Barry; Gobbi, Kimbrie
Cc: Ota, Allan
Subject: Updated Revised Draft Testing SAP and subsequent documents for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Corps and EPA comments on compositing scheme and required Tier 3 testing
Attachments: Proposed Compositing_Agency Considerations_30June2021 (Figure 3-1).pdf

Importance: High

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

All,

Reference is made to various documents received from the Navy's consultant (Wood) for the testing SAP for the subject action and attached documents and emails received from June 8, 2021 to June 30, 2021. The Corps is requesting that the current SAP be revised to incorporate the documents/emails that have been submitted since early June 2021 for the final suitability determination (SUAD/NUAD) once Tier 3 testing is complete and reviewed/approved or sooner so that we can track the changes to date. The Corps and EPA are providing the latest comments below. EPA Region 9/Corps has the following comments below on the notes of our meeting today below on the proposed compositing scheme for additional biological testing for ocean disposal or evaluation for other beneficial reuse/handling options, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230.

The Navy provided the following notes and documents from our meeting today, as follows for each element of the current compositing proposal and here are the Corps comments:

1) Composite A - Turning Basin = Perform Full Tier III Comprised of FDD-A-C1, FDD-A-C2, FDD-A-C3, FDD-A-C4
-- The Corps concurs that all of these cores should be into one test composite, and subjected to full Tier 3 testing. Note that the Corps will be providing the test results to our Federal channel points of contact to assist the Navy when the Navy applies for Section 408 authorization for the dredging proposed in and near the Federal channel.

2) Composite B - Recent Bay Deposits = Perform Full Tier III Comprised of samples:
FDD-B-C2
FDD-B-C3
FDD-B-C5
FDD-B-C6
FDD-B-C7
FDD-B-C8
FDD-B-C10
FDD-B-C12

-- The Corps concurs with EPA that these eight (8) cores should be combined into the test composite ("B") to characterize the upper unconsolidated sediments of the approach and sump areas by conducting full Tier 3 testing.

Composite Area B Samples Considered as NUAD Based on Analytical Chemistry:
FDD-B-C1
FDD-B-C4
FDD-B-C9
FDD-B-C11
-- The Corps concurs that these four (4) cores should be excluded from the test composite. The attached map Figure 3-1 that shows the NUAD areas is a good start for when we get the Tier 3 results.

3) Composite C (Native Formational Materials; Approach+Sideslope) - Approved for Modified Tier I/Tier II Exemption for Ocean Disposal

The Corps requires that further ITM/ODM testing may be required for compatibility with the nearshore disposal site per the telcon today and also notes that with the recent UXO and Munitions data that the Navy has submitted recently to the Corps for the dredging area we may need more information from the Navy on whether UXO/MFLs (ordinance/munitions) could be within any dredged material proposed for nearshore disposal with resultant public and navigational safety issues from UXO or MFLs. The Navy may want to schedule a telcon with the UXO/MFL staff and the Corps regulatory staff to see if any areas proposed for nearshore disposal be cleared for UXO or MFLs and how would such a site investigation/clearing of UXO/MFLs be done unless all of the suitable material goes to ocean disposal at LA-5 once Tier 3 testing/approval is done under the forthcoming SUAD/NUAD. Overall from an Inland Testing Manual compliance view the sediment chemistry for Composite C indicates native formation sediments; as such, these sediments may be suitable for ocean nearshore disposal but further testing for compatibility for nearshore placement is needed along with resolution of the potential UXO/MFL issues.

4) Composite D (Native Formational Materials; Dry Dock Sump) - Full Tier III Test Samples FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, FDD-D-C6
-- We concur that these cores should be combined into the test composite and subjected to full Tier 3 testing.

With the exception of #3 above (Composite C), the Corps concurs with the sediment testing approach as indicated above and the SUAD/NUAD suitability determination is made by the Corps/EPA once all 10-day (acute toxicity) bioassays and/or bioaccumulation tests concluded and reviewed and approved. If we get new information we will respond accordingly. Thanks and Happy July 4th weekend.

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://urldefense.proofpoint.com/v2/url?u=https-3A__www.spl.usace.army.mil_Portals_17_docs_publicnotices_COVID19-2520Regulatory-5FSPN.pdf-3Fver-3D2020-2D03-2D19-2D134532-2D833&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=lEMZ6sjwuB4XTea8_rfioShoyLGWUNMGxiLAIXq5qNc&e=

Assist us in better serving you!
Please complete our brief customer service survey, located at the following link:
https://urldefense.proofpoint.com/v2/url?u=https-3A__regulatory.ops.usace.army.mil_customer-2Dservice-2Dsurvey_&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=TgHzpB8oqO3FXvkUwCyKFFI8UXlPXOVUc_1oq1Y_6x0&e=

-----Original Message-----
From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Wednesday, June 30, 2021 3:20 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Subject: [Non-DoD Source] Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - EPA comments on compositing scheme and required Tier 3 testing
Importance: High

Hi, Robert.
Based on our recent telephone conference call and review of the subject presentation and preliminary sediment physical and chemical data, EPA Region 9 has the following comments on the notes of our meeting today on the proposed compositing scheme for additional biological testing for ocean disposal or evaluation for other beneficial reuse/handling options, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230.

The Navy provided the following notes from our meeting today, as follows:
1) Composite A - Turning Basin = Perform Full Tier III Comprised of FDD-A-C1, FDD-A-C2, FDD-A-C3, FDD-A-C4
-- We concur that all of these cores should be into one test composite, and subjected to full Tier 3 testing.

2) Composite B - Recent Bay Deposits = Perform Full Tier III Comprised of samples:
FDD-B-C2
FDD-B-C3
FDD-B-C5
FDD-B-C6
FDD-B-C7
FDD-B-C8
FDD-B-C10
FDD-B-C12
-- We concur that these eight (8) cores should be combined into the test composite ("B") to characterize the upper unconsolidated sediments of the approach and sump areas by conducting full Tier 3 testing.

Composite Area B Samples Considered as NUAD Based on Analytical Chemistry:
FDD-B-C1
FDD-B-C4
FDD-B-C9
FDD-B-C11
-- We concur that these four (4) cores should be excluded from the test composite.

3) Composite C (Native Formational Materials; Approach+Sideslope) - Approved for Modified Tier I/Tier II Exemption for Ocean Disposal and/or Nearshore Placement
-- We concur that no further testing is required; the sediment chemistry is indicative of formation sediments; as such, these sediments are suitable for ocean disposal or nearshore placement if compatible with a receiver site.

4) Composite D (Native Formational Materials; Dry Dock Sump) - Full Tier III Test Samples FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, FDD-D-C6
-- We concur that these cores should be combined into the test composite and subjected to full Tier 3 testing.

With the exception of #3 above (Composite C), EPA Region 9 concurs with the sediment testing approach as indicated above; suitability determination will be made at the conclusion of the 10-day (acute toxicity) bioassays and/or bioaccumulation tests. We presume that any failures in the 10-day acute toxicity testing phase (i.e., mortality in excess of 20% and statistically significant) would preclude any bioaccumulation tests. For the test composites that pass the 10-

day acute toxicity bioassays and continue to bioaccumulation testing, we are expecting to review the chemistry data again to confirm the tissue analytes for determining suitability for ocean disposal based on evaluation of bioaccumulation potential.

We appreciate the coordination between our program offices. Please contact me at your convenience if you have questions.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

-----Original Message-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Wednesday, June 30, 2021 12:01 PM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Corps and EPA review of individual cores to confirm compositing scheme - EPA comments on Composite B testing

Good morning,

Thank you for taking the time to discuss the subject project this morning! We really appreciated your time and expertise on the call today.

Attached to this email is a Figure with a summary of the proposed compositing scheme for the study that we discussed and gained preliminary approval over teleconference. We have also offered a recommendation for the No Unconfined Aquatic Disposal (NUAD) areas on this figure, based on Allan's initial feedback below.

The following are the key take-aways from the call today:

1) Composite A - Turning Basin = Perform Full Tier III Comprised of FDD-A-C1, FDD-A-C2, FDD-A-C3, FDD-A-C4

2) Composite B - Recent Bay Deposits = Perform Full Tier III Comprised of samples:
FDD-B-C2
FDD-B-C3
FDD-B-C5
FDD-B-C6
FDD-B-C7
FDD-B-C8
FDD-B-C10
FDD-B-C12

Composite Area B Samples Considered as NUAD Based on Analytical Chemistry:
FDD-B-C1
FDD-B-C4
FDD-B-C9
FDD-B-C11

3) Composite C (Native Formational Materials; Approach+Sideslope) - Approved for Modified Tier I/Tier II Exemption for Ocean Disposal and/or Nearshore Placement

4) Composite D (Native Formational Materials; Dry Dock Sump) - Full Tier III Test Samples FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, FDD-D-C6

In addition, I am sending Robert Composite Area A files for the 408 paperwork and investigating historical geology for the area to see if I can identify any naturally occurring sources of Mercury or Copper.

Please let us know if you need any additional information for your review and consideration.

Thank you!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttp-253A-252F-252Fwww.woodplc.com-252F-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DQuMsx-252BRnLW9ZTmhTdCGqI1qKWleYYG1b-252B2gaJdqzciE-253D-26amp-3Breserved-3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=wCfTmcMELGcIKwrVU0Js33ZjSNs85k7MRsiXQxTIyQU&e=

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----

From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Wednesday, June 30, 2021 9:55 AM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Corps and EPA review of individual cores to confirm compositing scheme - EPA comments on Composite B testing

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

Hi, Robert.
Here is my annotated map for composite B as follow-up to our brief discussion this morning... my additional core to remove from further testing. I hope this is helpful... we'll wait for the presentation/discussion this morning to hopefully clarify more issues on this project.
-Allan

-----Original Message-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Wednesday, June 30, 2021 9:18 AM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme

Good morning,

I wanted to pass along a slightly updated presentation (attached) for today that has a slide with some updates from our geotechnical evaluation (happening now).

Looking forward to chatting at 1000.

Best Regards,

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Furldefense.proofpoint.com-252Fv2-252Furl-253Fu-253Dhttps-2D3A-5F-5Fgcc02.safelinks.protection.outlook.com-5F-2D3Furl-2D3Dhttp-2D253A-2D252F-2D252Fwww.woodplc.com-2D252F-2D26amp-2D3Bdata-2D3D04-2D257C01-2D257COta.Allan-2D2540epa.gov-2D257C66b30955d6374b17d53508d93be2cae5-2D257C88b378b367484867acf976aacbeca6a7-2D257C0-2D257C0-2D257C637606667913403844-2D257CUnknown-2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D253D-2D257C1000-2D26amp-2D3Bsdata-2D3DCwzHFXfDmizP3FMSHnX1vvVB2LgxcjlfVLrCti3WSEk-2D253D-2D26amp-2D3Breserved-2D3D0-2526d-253DDwIGaQ-2526c-253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-5FL93Z9mQ-2526r-253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-5FrtJQ-2526m-253DWUWwxrXhMZuIQ7qxwWBBY130nnBXUA-2Dh5fgunHvJd3A-2526s-253DOaTYhdxozxuQRfKxsip8XFwDluH6mPpdcADGPbOjIJw-2526e-253D-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-

257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DPXwGtZZiiYieMAchFVo1Nfyz4Jx8hQMTsqzADlxwTq8-253D-26amp-3Breserved-3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=ol74cyN6dNrV-rsJ6ZAAGKxP9zLqqhY1aI55uMh_nAY&e=

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Gobbi, Kimbrie
Sent: Tuesday, June 29, 2021 9:05 PM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme

Hello!

Great news - we'll be having our data review meeting today at 1000 as planned. My apologies for not giving you more time to review the data before the meeting but we will go through everything together on the call.

Attached to this email is some data for your review and consideration. To help ease the review process, I've also pulled together a Powerpoint presentation to highlight the field event and go over some of the results (attached as PDF but there are some animations that you will be able to see if you can connect over teams). The Powerpoint is a high level summary of the full results that are presented in the tables. I intend to go over the Powerpoint first and then we can go through the tables more closely, as needed.

Thank you for taking the time to consider this data with us!

Looking forward to speaking with you tomorrow over Microsoft Teams.

Best Regards,

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Furldefense.proofpoint.com-252Fv2-252Furl-253Fu-253Dhttps-2D3A-5F-5Fgcc02.safelinks.protection.outlook.com-5F-2D3Furl-2D3Dhttp-2D253A-2D252F-2D252Fwww.woodplc.com-2D252F-2D26amp-2D3Bdata-2D3D04-2D257C01-2D257COta.Allan-2D2540epa.gov-2D257C66b30955d6374b17d53508d93be2cae5-2D257C88b378b367484867acf976aacbeca6a7-2D257C0-2D257C0-2D257C637606667913403844-2D257CUnknown-2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D253D-2D257C1000-2D26amp-2D3Bsdata-2D3DCwzHFXfDmizP3FMSHnX1vvVB2LgxcjlfVLrCti3WSEk-2D253D-2D26amp-2D3Breserved-2D3D0-2526d-253DDwIGaQ-2526c-253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-5FL93Z9mQ-2526r-253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-5FrtJQ-2526m-253DWUWwxrXhMZuIQ7qxwWBBY130nnBXUA-2Dh5fgunHvJd3A-2526s-253DOaTYhdxozxuQRfKxsip8XFwDluH6mPpdcADGPbOjIJw-2526e-253D-26amp-3Bdata-3D04-

257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-
257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-
257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-
3Bsdata-3DPXwGtZZiiYieMAchFVo1Nfyz4Jx8hQMTsqzADlxwTq8-253D-26amp-3Breserved-
3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D
9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=ol74cyN6dNrV-
rsJ6ZAAGKxP9zLqqhY1aI55uMh_nAY&e=

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Gobbi, Kimbrie
Sent: Friday, June 25, 2021 11:50 AM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme

Hello,

That is great, thank you Allan and Robert!

I've sent meeting invites for June 30 at 1000-1100 and July 8 from 1300-1400.

Thank you and have a great weekend!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-
252F-252Furldefense.proofpoint.com-252Fv2-252Furl-253Fu-253Dhttps-2D3A-5F-
5Fgcc02.safelinks.protection.outlook.com-5F-2D3Furl-2D3Dhttp-2D253A-2D252F-2D252Fwww.woodplc.com-2D252F-
2D26amp-2D3Bdata-2D3D04-2D257C01-2D257COta.Allan-2D2540epa.gov-
2D257C66b30955d6374b17d53508d93be2cae5-2D257C88b378b367484867acf976aacbeca6a7-2D257C0-2D257C0-
2D257C637606667913403844-2D257CUnknown-
2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D253D-2D257C1000-
2D26amp-2D3Bsdata-2D3DCwzHFXfDmizP3FMSHnX1vvVB2LgxcjlfVLrCti3WSEk-2D253D-2D26amp-2D3Breserved-
2D3D0-2526d-253DDwIGaQ-2526c-253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-5FL93Z9mQ-2526r-
253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-5FrtJQ-2526m-253DWUWwxrXhMZuIQ7qxwWBBY130nnBXUA-
2Dh5fgunHvJd3A-2526s-253DOaTYhdxozxuQRfKxsip8XFwDluH6mPpdcADGPbOjIJw-2526e-253D-26amp-3Bdata-3D04-
257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-
257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-
257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-
3Bsdata-3DPXwGtZZiiYieMAchFVo1Nfyz4Jx8hQMTsqzADlxwTq8-253D-26amp-3Breserved-
3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D
9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=ol74cyN6dNrV-
rsJ6ZAAGKxP9zLqqhY1aI55uMh_nAY&e=

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Friday, June 25, 2021 11:42 AM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme
Importance: High

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

I am available as follows:
June 30 @ 9 am to 12 noon
July 8 @ 9 am to 11 am; @ 1 pm to 3 pm

I hope this helps.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

“Live simply, so that others may simply live.” – Saint (Mother) Teresa

-----Original Message-----
From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Thursday, June 24, 2021 4:13 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Ota, Allan <Ota.Allan@epa.gov>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme

I am open 6/30/21 (except from 1100-1200) and all day from 0800-1500 on 7/8/21.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Furldefense.proofpoint.com-252Fv2-252Furl-253Fu-253Dhttps-2D3A-5F-5Fgcc02.safelinks.protection.outlook.com-5F-2D3Furl-2D3Dhttps-2D253A-2D252F-2D252Furldefense.proofpoint.com-2D252Fv2-2D252Furl-2D253Fu-2D253Dhttps-2D2D3A-2D5F-2D5Fgcc02.safelinks.protection.outlook.com-2D5F-2D2D3Furl-2D2D3Dhttps-2D2D253A-2D2D252F-2D2D252Fwww.spl.usace.army.mil-2D2D252FPortals-2D2D252F17-2D2D252Fdocs-2D2D252Fpublicnotices-2D2D252FCOVID19-2D2D252520Regulatory-2D2D5FSPN.pdf-2D2D253Fver-2D2D253D2020-2D2D2D03-2D2D2D19-2D2D2D134532-2D2D2D833-2D2D26amp-2D2D3Bdata-2D2D3D04-2D2D257C01-2D2D257COta.Allan-2D2D2540epa.gov-2D2D257C7921e53891204a7e965f08d937667de5-2D2D257C88b378b367484867acf976aacbeca6a7-2D2D257C0-2D2D257C0-2D2D257C637601735932119341-2D2D257CUnknown-2D2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D2D253D-2D2D257C1000-2D2D26amp-2D2D3Bsdata-2D2D3De6HdbzJLelCvV9e6chk1LbvZ-2D2D252By2k-2D2D252BDJGKJQokLBOgpk-2D2D253D-2D2D26amp-2D2D3Breserved-2D2D3D0-2D2526d-2D253DDwIGaQ-2D2526c-2D253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-2D5FL93Z9mQ-2D2526r-2D253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-2D5FrtJQ-2D2526m-2D253Dl91J-2D2DXhMycP9qyy8IrH7d14bihRuxGGyEvTYVzChb4U-2D2526s-2D253Dwd7RcBHsTJX2i7JZyvEhzJRCOJYYTvg5FmmOJZEPagw-2D2526e-2D253D-2D26amp-2D3Bdata-2D3D04-2D257C01-2D257COta.Allan-2D2540epa.gov-2D257C66b30955d6374b17d53508d93be2cae5-2D257C88b378b367484867acf976aacbeca6a7-2D257C0-2D257C0-2D257C637606667913403844-2D257CUnknown-2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D253D-2D257C1000-2D26amp-2D3Bsdata-2D3DZWIw9n2qNZgrA5cE9Dwg7HmWQgkH7UFiG-2D252BLlYzJebFM-2D253D-2D26amp-2D3Breserved-2D3D0-2526d-253DDwIGaQ-2526c-253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-5FL93Z9mQ-2526r-253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-5FrtJQ-2526m-253DWUWwxrXhMZuIQ7qxwWBBY130nnBXUA-2Dh5fgunHvJd3A-2526s-253DshUqkBtJ4TW4IPkmQRV3BCc5XgKGGrNRr0zwwwqkveM-2526e-253D-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DL-252FNdspoXeINF54-252F7puimOQNZf-252FhzWKyvlo2vqLhKJ-252B0-253D-26amp-3Breserved-3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=Wcw7pgr9QH1reXVq_PGg_9XxQ4KfBsZE1veY7eX1s3M&e=

Assist us in better serving you!
Please complete our brief customer service survey, located at the following link:
https://urldefense.proofpoint.com/v2/url?u=https-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Furldefense.proofpoint.com-252Fv2-252Furl-253Fu-253Dhttps-2D3A-5F-5Fgcc02.safelinks.protection.outlook.com-5F-2D3Furl-2D3Dhttps-2D253A-2D252F-2D252Furldefense.proofpoint.com-2D252Fv2-2D252Furl-2D253Fu-2D253Dhttps-2D2D3A-2D5F-2D5Fgcc02.safelinks.protection.outlook.com-2D5F-2D2D3Furl-2D2D3Dhttps-2D2D253A-2D2D252F-2D2D252Fregulatory.ops.usace.army.mil-2D2D252Fcustomer-2D2D2Dservice-2D2D2Dsurvey-2D2D252F-2D2D26amp-2D2D3Bdata-2D2D3D04-2D2D257C01-2D2D257COta.Allan-2D2D2540epa.gov-2D2D257C7921e53891204a7e965f08d937667de5-2D2D257C88b378b367484867acf976aacbeca6a7-2D2D257C0-2D2D257C0-2D2D257C637601735932119341-2D2D257CUnknown-2D2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D2D253D-2D2D257C1000-2D2D26amp-2D2D3Bsdata-2D2D3D9tTvOrNIJgG80BgNPPD-2D2D252F1QZhY-2D2D252BnEEM6SmTvyFYk-2D2D252BMdM-2D2D253D-2D2D26amp-2D2D3Breserved-2D2D3D0-2D2526d-2D253DDwIGaQ-2D2526c-2D253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-2D5FL93Z9mQ-2D2526r-2D253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-2D5FrtJQ-2D2526m-2D253Dl91J-2D2DXhMycP9qyy8IrH7d14bihRuxGGyEvTYVzChb4U-2D2526s-2D253DrYXEs-2D5FOotpqZDk7hNseEDy2gXwN22a5qtsaLLerO9xQ-2D2526e-2D253D-2D26amp-2D3Bdata-2D3D04-2D257C01-2D257COta.Allan-2D2540epa.gov-2D257C66b30955d6374b17d53508d93be2cae5-2D257C88b378b367484867acf976aacbeca6a7-2D257C0-2D257C0-2D257C637606667913403844-2D257CUnknown-2D257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-2D253D-2D257C1000-2D26amp-2D3Bsdata-2D3D1exV0u0WN5hzO2YP0MnuCur3Y2NXlT-2D252FbhHYdAUQ3dzA-2D253D-2D26amp-2D3Breserved-2D3D0-2526d-253DDwIGaQ-2526c-253DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR-5FL93Z9mQ-2526r-253DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4-5FrtJQ-2526m-253DWUWwxrXhMZuIQ7qxwWBBY130nnBXUA-2Dh5fgunHvJd3A-2526s-253D9Z7rKbEjuyopWiuIOXiLU38FzkVDzheQld2ie8kB2SM-2526e-253D-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257C92e5ec38d1c7415b09b508d93bf96861-257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637606765122599767-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DR-252F5j9D8WhWIV-252BAxGC6mPsfY1vUJ1d-252BfsMLNVSt31g3g-253D-26amp-3Breserved-3D0&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=sqbxU5BllVPU3yHfdPgLbK7fDXwAG1Uk1ty_hC-uSU0&s=f3f-ueMguPCGoKpLjvJcAraECRDQF_MXfM96e9u1S-g&e=

-----Original Message-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Thursday, June 24, 2021 2:27 PM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>
Subject: [Non-DoD Source] RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme

Hello Allan!

Thank you so much for reaching out to check given your out of office schedule!

We finished our field sampling effort on June 8 and are now receiving analytical data reports from our chemistry lab. I had hoped to have them all by yesterday but I think there are still two outstanding. In the meantime, we're working on

pulling a summary table together and QC'ing the analytical results as they come in. We need to let our toxicity lab know about our approved compositing scheme by no later than 7/9/2021.

Ideally I am hoping to have all data in the next two days and then have a draft to you for a meeting next Wednesday morning/afternoon (given your out of office). Do you mind if we set up a meeting on your calendar as a placeholder? Also can we set up a second meeting on Tuesday 7/8 just in case we're not quite ready for the 6/30 date (which I really think we will be but I also think it would be better for our schedule to earmark the other time just in case)?

So that said:

What is your and Robert's availability for a meeting on 6/30?
What is your and Robert's availability for a back-up meeting on 7/8?

Thank you!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.woodplc.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122609722%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=0i5A5MespjaCw8UyMuzOc8%2FC68x5NYXPd0F7czEhPjY%3D&reserved=0

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Thursday, June 24, 2021 1:11 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Subject: RE: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA review of individual cores to confirm compositing scheme
Importance: High

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

Hi, all.
Robert and I have not seen any updates on this project; I have not seen any emails received in my inbox since the end of May. Has the field sampling been completed yet? We are expecting to review the physical and chemical data for the individual cores as agreed. Next week is a short week for me, Monday through Wednesday only (scheduled off work on July 1-2), and Robert's availability may be limited as well. So, please contact us during the remaining days of this week and next week if there is data to be reviewed. We presume that if sediment samples have been collected already, there are holding time issues, so we can be available for the remaining work days.

Thank you for your attention to this.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

-----Original Message-----
From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Thursday, May 27, 2021 2:39 PM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Cc: Ota, Allan <Ota.Allan@epa.gov>
Subject: Updated Revised Draft Testing SAP for Naval Base San Diego for Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021 - Corps and EPA testing SAPapproval
Importance: High

All,

The Corps makes reference to the attached revised Final Testing SAMPLING AND ANALYSIS PLAN FOR A SEDIMENT CHARACTERIZATION STUDY TO SUPPORT PROPOSED DREDGING AT THE MOLE PIER FLOATING DRY DOCK (FDD) AT NAVAL BASE SAN DIEGO (SAP) dated May 20, 2021 as prepared for NAVFAC Southwest. The Corps and EPA originally provided comments in June 2019 (which are included in the SAP) but the project was revised by the Navy per the attached testing SAP. The Corps and EPA both provided verbal comments in a telcon mtg. held on May 19, 2021 with the applicant and their consultants. The Corps offers the following comments along with EPA's comments below (per the Ocean Disposal Manual and Inland Testing Manual) in reference to the attached revised SAP that was received on May 20, 2021.

1. The Project would include pile driving, partial demolition of the existing Mole Pier Wharf to create space for new concrete and steel
mooring dolphins, and associated dredging to ready the Project footprint for a new remotely fabricated FDD. Within the FDD footprint, dredging would be performed to re-establish necessary berthing and transit depths, and deepening would be required for the three dredge areas shown in the FDD sump, approach area, and turning basin areas shown in the SAP per Table 1-1. Total dredging yardage is also shown as 121,247 cubic yards (cy) at the depths shown in Table 1-1

of the SAP with 2 ft. of proposed over depth. Dredging and core testing will extend into and adjacent to the Corps Federal Navigation Channel shown in Figure 1-1b of the SAP.

2. Dredged material is proposed for disposal at the LA-5 Ocean Dredged Material Disposal Site (ODMDS) and/or a beneficial reuse location at the Navy's nearshore replenishment site at the Naval Base Coronado Silver Strand Training Complex Boat Lanes 9 and 10 which could be utilized for the Project dredged materials.

3. Native formational sediments found deeper in the dredge footprint would likely be assessed with a geotechnical evaluation performed by another Navy contractor. The Corps has expressed concerns in the telcon that relative to native formational materials being disposed at the nearshore site that if they do not break down and did form a hard or reef substrate that there could be long term effects to the substrate of the nearshore replenishment site if reef habitat was to form which could affect the long tern viability of the beneficial reuse site. Also grain size compatibility issues may arise per the ITM for the native formation material at the beneficial reuse site.

4. For the SAP, the dredge area will be tested as four composite areas with four proposed vibracore locations in Composite Area A; ten proposed vibracore locations in Composite Area B, and six proposed locations in Composite Areas C and D (26 total core locations in the proposed dredge
footprint). The Composite Areas are defined both horizontally (A, B, C, and D) and vertically (B, C, and D). In addition to vibra-core samples, three geotechnical borings will be collected within the Project footprint to support the Navy's construction design. The Corps approves the proposed compositing scheme and testing plan with the revised figures shown in Figure 3-2a based on our telcon as supplemented by EPA's comments in item 5 below.

5. The proposed project is proposing core testing and dredging in the Corps Federal Navigation channel (at core FDD-C1 and adjacent cores to the Federal channel shown in the SAP) which may require Section 408 authorization so please contact Veronica Li and Joe Ryan with the Corps for information on Section 408 compliance. Once the 408 authorization or coordination is completed then the project appears to comply with Nationwide permit 6 for survey activities that has NMFS approval under the EFH general concurrence (no eelgrass impacts) given the Navy will ensure USCG notification with the proposed measures in the SAP. Additional dredging in the channel may require Corps Section 408 authorization concurrent or even way before the Corps permit processing once the ODM/ITM process is completed.

If the Corps gets new information we will respond accordingly. Call me if you have questions.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttps-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Fwww.spl.usace.army.mil-252FPortals-252F17-252Fdocs-252Fpublicnotices-252FCOVID19-252520Regulatory-5FSPN.pdf-253Fver-253D2020-2D03-2D19-2D134532-2D833-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257Cdcb0cf7e3ab44bfeb2a108d9215a17ca-257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637577493785211028-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DjIjABHQsIuMMe7uViUGwrASf9BZy9oTI8HdYCl5baOg-253D-26amp-3Breserved-

3D0%26d%3DDwIGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DhHxODyXoI5O_ilM8M0iJQ2SoBoC-QPfrt591PVTtrhU%26s%3DFTcc3YU7HkMqT6Ye3fD5GKr4I1hPzuwnZtWZbxQORpc%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122609722%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ndhuAVQcoXBt2ngbRM5AFrFZRqoXQRCrasAJ1Fx4t0Q%3D&reserved=0

Assist us in better serving you!
Please complete our brief customer service survey, located at the following link:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttps-3A__gcc02.safelinks.protection.outlook.com_-3Furl-3Dhttps-253A-252F-252Fregulatory.ops.usace.army.mil-252Fcustomer-2Dservice-2Dsurvey-252F-26amp-3Bdata-3D04-257C01-257COta.Allan-2540epa.gov-257Cdcb0cf7e3ab44bfeb2a108d9215a17ca-257C88b378b367484867acf976aacbeca6a7-257C0-257C0-257C637577493785211028-257CUnknown-257CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0-253D-257C1000-26amp-3Bsdata-3DjavelTtw7Pz-252FzpB2Ws2hxqd-252BHPmY6hlI8jcqUE0wSLc-253D-26amp-3Breserved-3D0%26d%3DDwIGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DhHxODyXoI5O_ilM8M0iJQ2SoBoC-QPfrt591PVTtrhU%26s%3DxdtzWTsk5VnBEfG-iZ8vNJQx9890YoUrYTzBJkLV3sE%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122609722%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=dxwymrEV5DWs0m%2B3GG1NOr1RuS4ySyS8TKGmlfkCbZI%3D&reserved=0

-----Original Message-----
From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Thursday, May 27, 2021 12:46 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Subject: [Non-DoD Source] RE: Updated Revised Draft Final SAP for NBSD Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021
Importance: High

Hi, Robert.
Based on our recent telephone conference call and review of the revised sampling and analysis plan, EPA Region 9 has the following comments, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230:

1. We understand this revised project is expected to generate about 121,247 cubic yards of dredged material; the SAP was designed to characterize the dredge cuts that would generate this volume.
2. We understand that project depths have been adjusted as follows:
a. Turning basin project depth is -36 feet (-38 ft including overdredge depth)
b. Approach channel project depth is -37 feet (-39 ft including overdredge depth)
c. FDD sump footprint project depth is -56 feet (-58 ft including overdredge depth)
3. We understand that samples will be differentiated to characterize overlying unconsolidated (maintenance dredging) layer versus the underlying consolidated formation layer (not daylighted/exposed to anthropogenic pollutants) – respectively, full Tier 3 sediment testing versus confirmatory geotechnical, grain size, and chemistry analysis – USACE and EPA Region 9 will review the results of this analysis.
4. We understand that individual cores will be analyzed for physical grain size and chemistry to confirm the test composite scheme proposed in this SAP, for example including shoaled areas approximately 700 feet apart in the

proposed Turning Basin test composite (Figure 3-1 and 3-1a) – USACE and EPA Region 9 will review the results of this analysis.
5. We understand that cross sections in Figure 3-2a and Figure 3-2b will be clarified with plan view cross section line inset references using Figure 3-1, Figure 3-1b, and/or Figure 3-1c.

This revised SAP has incorporated the changes we highlighted in our email dated December 18, 2020 and clarifications in our recent conference call/meeting confirmed some last details highlighted above. As such, the revised SAP is approved and the field sampling may proceed to determine suitability for ocean disposal at LA-5.

We appreciate the coordination between our program offices. Please contact us at your convenience if you have questions.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

-----Original Message-----
From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Wednesday, May 26, 2021 2:42 PM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: RE: Updated Revised Draft Final SAP for NBSD Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021

I just talked w Allan and we hope to get these comments to you by tomorrow.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008

Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.spl.usace.army.mil%2FPortals%2F17%2Fdocs%2Fpublicnotices%2FCOVID19%2520Regulatory_SPN.pdf%3Fver%3D2020-03-19-134532-833&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122609722%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=UycrDtAuvhB7USZlNf2VTRa14EAbra2KAGr0%2BYdlmxo%3D&reserved=0

Assist us in better serving you!
Please complete our brief customer service survey, located at the following link:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fregulatory.ops.usace.army.mil%2Fcustomer-service-survey%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122609722%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=YciJwB5VCZp8YnVxvmJ5ImKar7wOTupbKlC8UVrpjQM%3D&reserved=0

-----Original Message-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Thursday, May 20, 2021 12:16 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: [Non-DoD Source] Updated Revised Draft Final SAP for NBSD Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 20, 2021

Hello,

Attached to this email is the updated Draft SAP with the following updates:

1) Figure 1-1d - updated to remove NASNI beneficial reuse area
2) Figure 3-2a - updated to add plan view map and cross section locations (A-A', B-B')
3) Figure 3-2b - updated to add color legend and also cross section locations (A-A', B-B') to correspond with Figure 3-2a
4) Updated appendix A with more current alternatives analysis/plans for the project (November 2020)

I am sending two emails (due to file size) the first includes a version with highlights and the second includes a version without. This is email 1 of 2.

Thank you!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager Mobile (443) 852.4637
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.woodplc.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0

%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=30tZ775O8LtEvc4uZl5PXBkNQUvIVq64xhd3ipItEt0%3D&reserved=0

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Gobbi, Kimbrie
Sent: Wednesday, May 12, 2021 3:43 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: Revised Draft Final SAP for NBSD Mole Pier Floating Dry Dock Dredging - Approved June 2019, Revised May 2021

Hello,

I've just sent a meeting invitation for Wednesday May 19 at from 1100-1200.

Please let us know if you require a hardcopy of the attached SAP to help ease your review. If you need a hardcopy, please provide an address to which it should be sent.

I know that it has been some time since you last saw this SAP but any updates that have been made since your last review are highlighted. As mentioned in my email below, SAP updates include:

1) Outstanding agency comments provide 5 June 2019 (see email string below)
2) Updated dredging footprints that include 2019 bathymetry
3) Revised sampling locations and updated design depths, per new Navy needs requests,
4) Addition of a geotechnical boring study which will provide some additional information about the native formational materials to be dredged, and
5) Added language to request early-concurrence for a Tier I exemption or modified Tier II analysis for the native formational materials.

Thank you!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager Mobile (443) 852.4637
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.woodplc.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=30tZ775O8LtEvc4uZl5PXBkNQUvIVq64xhd3ipItEt0%3D&reserved=0

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>

Sent: Tuesday, May 11, 2021 4:28 PM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: RE: Revised: Draft Final SAP for Navy Floating Dry Dock Maintenance Dredging at NBSD - Approved June 2019, Revised May 2021

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

I just talked with Allan Ota and we are available next week from 1000-1430 on Monday, on the 19th we are open in the morning til 1230, Thursday from 0900-1400 hours, and we are open from 1030-1400 hours on Friday May 14th.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttps-3A__www.spl.usace.army.mil_Portals_17_docs_publicnotices_COVID19-2520Regulatory-5FSPN.pdf-3Fver-3D2020-2D03-2D19-2D134532-2D833%26d%3DDwIGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DafUodqRsCspyNS6DVPCwNuxEXEmv9iMHIS3_Lu933JU%26s%3DnksHJRVYRdlynsLO4HBuyKkgYHJX37QlmSEGSeTjtjU%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=9hi5sthmd40NGV2DV1Hv%2BeNa%2B%2FqMANAZAKKGHZWR970%3D&reserved=0

Assist us in better serving you!
Please complete our brief customer service survey, located at the following link:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttps-3A__regulatory.ops.usace.army.mil_customer-2Dservice-2Dsurvey_%26d%3DDwIGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DafUodqRsCspyNS6DVPCwNuxEXEmv9iMHIS3_Lu933JU%26s%3DTJ7RqInjlyClTQa7nq5ObqNt9Ck7uOftpugWKn2RF3c%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=mB2gQjLY%2Bg37Ws0FVnQbjrOmFfjdJpafhY%2FI%2F5VETtc%3D&reserved=0

-----Original Message-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Tuesday, May 11, 2021 2:47 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>

Cc: Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: [Non-DoD Source] Revised: Draft Final SAP for Navy Floating Dry Dock Maintenance Dredging at NBSD - Approved June 2019, Revised May 2021
Importance: High

Good afternoon!

I am reaching out on behalf of the Navy to set up a call to discuss updates to the Draft Sampling and Analysis Plan for the Mole Pier Floating Dry Dock Dredging Sediment Characterization Study at NBSD. We last prepared and submitted a draft of this SAP and received agency comments and approval in June 2019. The Project was delayed while the Navy explored additional needs and options and several updates have been made to the previously submitted SAP. The updated SAP addresses:

1) Outstanding agency comments provide 5 June 2019 (see email string below)
2) Updated dredging footprints that include 2019 bathymetry
3) Revised sampling locations and updated design depths, per new Navy needs requests,
4) Addition of a geotechnical boring study which will provide some additional information about the native formational materials to be dredged, and
5) Added language to request early-concurrence for a Tier I exemption or modified Tier II analysis for the native formational materials.

The Navy would like to set up this meeting at your earliest convenience in the next week or two to obtain approvals before the sediment sampling event scheduled June 1-4 and 7-8, 2021.

Once we set up the call, I will send along the Draft SAP for your review. Please let me know if you would like a hard copy of the document for your review and if so, where it should be sent.

Please let us know when you are available so we may discuss this upcoming project at your convenience.

Thank you,

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager Mobile (443) 852.4637
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.woodplc.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=30tZ775O8LtEvc4uZl5PXBkNQUvIVq64xhd3ipItEt0%3D&reserved=0

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----
From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Wednesday, June 5, 2019 10:21 AM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Coler, Kari J CIV USN NAVFAC SW SAN CA (USA) <kari.coler@navy.mil>; Ota, Allan <Ota.Allan@epa.gov>
Subject: FW: Draft SAP for Navy Floating Dry Dock Maintenance Dredging at NBSD - EPA Region 9 and Corps comments on testing SAP dated May 2019

Importance: High

All,

In reference to the Sediment Sampling and Analysis Plan for the Mole Pier Floating Dry Dock at Naval Base San Diego received by the Corps on May 22, 2019 (SAP). Below are EPA's comments on the initial testing SAP. Below are the Corps comments.

1. First please put the date of the SAP/SAPR with day/month/year on the cover page and update the SAP date every time there is a change and a new submittal is made to the Corps and EPA. For future reference always put the day/month/year on all SAPs and SAPRs as I believe I had flagged this comment before. It is hard to track changes without having the day/month/year of each SAP/SAPR.

2. The Corps recd the latest SAP with the yellow highlighted changes based on our initial review with EPA last April. The Corps appreciates the yellow highlighting though. Also note that the Corps coordinated with our Civil Works Federal projects section and the LA-5 coordinates were correctly shown in the latest SAP per their comments.

3. The project as covered by EPA's comments has four composite areas with up to 31 core samples and with individual core subsamples for the dredging project and the three beneficial reuse site areas in the areas shown in Figure 1-1d. In reference to the lack of samples (per Section 3.2.5) for the beneficial reuse sites shown in Figure 1-d the Corps did not receive the data for the Silver Strand or the Boat Lanes grain size sites so please submit to the Corps and EPA by putting it in the SAP. If other reuse disposal sites are used like over at NBPL then we will need this info added to the SAP asap.

4. The project will dredge up to 62,821 cy of native formational material (still not defined per Section 3.2.4 with greater than 2 ft. variance potential) and this may create an issue if the LA-5 ODMDS or the other beneficial reuse sites are used as the Corps and EPA were heavily involved (placement and disposal management) with the last BAE Drydock project that had extensive hard native formational material as the hard native formational material may create issues for the disposal areas insofar as reef creation potential which could affect the future use of the disposal sites if reefs start to form with sensitive aquatic reef issues. Also the Corps and EPA may have to be involved with the LA-5 placement to preclude the reef creation potential. The Corps would support the Tier 1 exclusionary criteria for the native formational material once it is adequately mapped but this needs to be clarified.

5. EPA's comment Nos. 5 and 6 has not been addressed. Please revise SAP to account for their comments.

6. The Corps approves the SAP for testing to begin and please submit a revised SAP for Corps and EPA supplemental review when Allan comes back next week if need be. If I get new information I will respond accordingly.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552 Assist us in better serving you! Please complete our brief customer survey, located at the following link:
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A__corpsmapu.usace.army.mil_cm-2Dapex_f-3Fp-3Dregulatory-5Fsurvey%26d%3DDwIGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DaoOC8Rj1LBLRkKt_CV3sWW3Bi3N402xv_uoNxBWHMQs%26s%3DzFT266m6n2qu3cV6LZOqfkwr5RIeKyJ640cClKIK2KM%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=uzMzIeCDJwugltQTLTwtYgT8%2F5ZfmbouoMr0wc96cLM%3D&reserved=0

-----Original Message-----
From: Ota, Allan [mailto:Ota.Allan@epa.gov]
Sent: Tuesday, June 4, 2019 1:13 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Subject: [Non-DoD Source] Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD - EPA Region 9 comments on SAP
Importance: High

Hi, Robert.

EPA Region 9 has reviewed the subject SAP in accordance with authorities of the MPRSA at 33 USC 1401 et seq and the EPA Ocean Dumping regulations at 40 CFR 220-227; we have the following understandings and comments:

1. [Section 1.0] This project is expected to generate about 90,560 cubic yards of dredged material.
2. [Table 3-1] There are three dredging depths associated with this project: turning basin (-35 feet; -37 feet with overdredge depth), approach (-40 feet; -42 feet with OD depth), and main floating dry dock sump footprint (-55 feet; -57 feet with OD depth).
3. [Section 3.1, 3.2, Figures 3-1, 3-1a, 3.1b, and 3.1c, Table 3-2a, Figure 3-2b, Table 3-2b, Section 3.2.4] There are four proposed test composites: Composite A (turning basin; Federal Channel), Composite B (recent deposits; maintenance material), Composite C (native formation layer; approach and outer sump), and Composite D (native formation layer; main floating dry dock sump footprint); a total of 31 individual cores will be collected.
4. [Section 3.2.10] Archived subsamples from each of the 31 individual core samples will be retained and be available for individual analysis if higher resolution analysis is necessary.
5. Individual core analysis appears to be indicated in Section 3.3, but it is not clear if the results would be used to confirm the compositing scheme.
6. The draft SAP is not clearly written for this – in our conference call, we discussed a scenario involving refusal during vibracore sampling into the consolidated/lithified native formation sediment layer. Chemistry analysis of the native formation layer obtained by limited penetration of the vibracore may indicate the absence of contamination (contrast to levels typically associated with maintenance deposits); absence of contamination would suggest no daylighting/exposure to pollutants and suggest Tier 1 exclusion from further testing – please confirm if this was intended for consolidated/lithified native formation sediments.
7. The rest of the SAP (chemistry list; proposed bioassay test species, and QA) appears to be acceptable for full characterization of the proposed dredged material for suitability determination for ocean or beneficial reuse.

We appreciate the coordination between our program offices. Please contact me at your convenience if you have questions.

-Allan

==========

Allan Ota

Oceanographer / Regional Ocean Dumping Program Coordinator

Dredging and Sediment Management Team

U.S. Environmental Protection Agency, Region 9

Water Division

Mail Code: WTR-2-4

75 Hawthorne Street

San Francisco, CA 94105

415-972-3476 office

ota.allan@epa.gov <mailto:ota.allan@epa.gov>

==========

If you have more than 20 MB worth of attachments to send to me,

please contact me first by email to make arrangements to share the files.

“Live simply, so that others may simply live.” -- Mother Teresa

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Wednesday, May 22, 2019 11:41 AM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; kimbrie.gobbi@gmail.com; Snyder, Barry <barry.snyder@woodplc.com>; 'Coler, Kari J CIV NAVFAC SW, OPME' <kari.coler@navy.mil>
Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hi Allan,

Great, I will send an invite.

Yes it's been sent. You should have a hardcopy at your office and I've re-attached the electronic version to this email.

Thank you!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Ota, Allan [mailto:Ota.Allan@epa.gov]
Sent: Wednesday, May 22, 2019 11:37 AM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >; 'Coler, Kari J CIV NAVFAC SW, OPME' <kari.coler@navy.mil <mailto:kari.coler@navy.mil> >
Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD
Importance: High

I have a break; enough to reply. I am available 1-2 pm tomorrow (Thursday); I'll put this on my calendar as a placeholder. Has the draft SAP been sent?

-Allan

==========

Allan Ota

Oceanographer / Regional Ocean Dumping Program Coordinator

Dredging and Sediment Management Team

U.S. Environmental Protection Agency, Region 9

Water Division

Mail Code: WTR-2-4

75 Hawthorne Street

San Francisco, CA 94105

415-972-3476 office

ota.allan@epa.gov <mailto:ota.allan@epa.gov>

==========

If you have more than 20 MB worth of attachments to send to me,

please contact me first by email to make arrangements to share the files.

“Live simply, so that others may simply live.” -- Mother Teresa

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >
Sent: Wednesday, May 22, 2019 11:15 AM
To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >; 'Coler, Kari J CIV NAVFAC SW, OPME' <kari.coler@navy.mil <mailto:kari.coler@navy.mil> >
Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

My apologies, Robert is available from 1030 until 1400, not 1000. :)

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Gobbi, Kimbrie
Sent: Wednesday, May 22, 2019 11:14 AM
To: 'Smith, Robert R Jr CIV CESPL CESPD (US)' <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >; 'Coler, Kari J CIV NAVFAC SW, OPME' <kari.coler@navy.mil <mailto:kari.coler@navy.mil> >
Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hello!

Allan, are you back in the office yet? Do you have any time tomorrow afternoon to discuss this project? It is my understanding that Robert is available between 10-2 and the Navy and Wood are available at any time after 10.

Please let us know!

Thank you!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Smith, Robert R Jr CIV CESPL CESPD (US) [mailto:Robert.R.Smith@usace.army.mil]
Sent: Tuesday, May 21, 2019 2:54 PM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >
Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

I have another navy telecom w Michelle desroches on Thursday but do not know the time yet

Sent with BlackBerry Work
(Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.blackberry.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122619677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=TPjZw%2FFR6Gf3oR4PcoBjslKd7hL4y3uOm9qP%2F8WFUuU%3D&reserved=0
<Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A__www.blackberry.com%26d%3DDwMGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DQHe_EdbASqse7FLo9SvnLQeAFKtGBsf0TYrVCWb0l0M%26s%3D__eWXulny0wL4_tADI_v_ECXh0Gy4BB8fuVxPP53Yg8%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FwMGC%2BO9zPw2HETeymEhW7iX0OcbDk4fJ7XWUlq8h%2F0%3D&reserved=0>)

From: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >

Date: Tuesday, May 21, 2019, 10:45 AM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >, Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >, Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >, kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com>

<kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> >, Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

I'm available anytime, thank you.

-----Original Message-----

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >

Sent: Friday, May 17, 2019 1:59 PM

To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: [Non-DoD Source] RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Thursday afternoon or Friday would also work! :)

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----

From: Smith, Robert R Jr CIV CESPL CESPD (US) [mailto:Robert.R.Smith@usace.army.mil]

Sent: Friday, May 17, 2019 1:45 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

I just realized I have another commitment on Weds. Maybe Thursday-Friday?

Robert Revo Smith Jr., P.E., M. ASCE

Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers

5900 La Place Ct. Suite 100

Carlsbad, CA 92008

Email: Robert.r.smith@usace.army.mil <mailto:Robert.r.smith@usace.army.mil>

☎ (760) 602-4831 Office or Cell (760) 277-5552 Assist us in better serving you! Please complete our brief customer survey, located at the following link:

BlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FUUB4knEjuT2mhJJoJ1QAyrMvCdOkP418tjPA2AeCpg%3D&reserved=0 corpsmapu.usace.army.mil cm-2Dapex f-3Fp-3Dregulatory-5Fsurvey&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNRL93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4 rtJQ&m=h-jgwbCzSZ2UwLt1H74PvbRI0GYzMBTon4Q7KKABHvQ&s=cPZb9rr7w1icE57BYLhEdyh-MTJ6sGxsjxdh5aLHPyc&e=

-----Original Message-----

From: Gobbi, Kimbrie [mailto:kimbrie.gobbi@woodplc.com]

Sent: Friday, May 17, 2019 1:39 PM

To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: [Non-DoD Source] RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Thank you, Robert!

We will try for Wednesday depending on what Allan says - do you have a preferred time?

Happy Friday!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----

From: Smith, Robert R Jr CIV CESPL CESPD (US) [mailto:Robert.R.Smith@usace.army.mil]

Sent: Friday, May 17, 2019 1:34 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: RE: Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

I think Allan is out today and back Weds. I am out Monday and Tuesday and back on Wednesday.

Robert Revo Smith Jr., P.E., M. ASCE

Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers

5900 La Place Ct. Suite 100

Carlsbad, CA 92008

Email: Robert.r.smith@usace.army.mil <mailto:Robert.r.smith@usace.army.mil>

☎ (760) 602-4831 Office or Cell (760) 277-5552 Assist us in better serving you! Please complete our brief customer survey, located at the following link:

BlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FUUB4knEjuT2mhJJoJ1QAyrMvCdOkP418tjPA2AeCpg%3D&reserved=0 corpsmapu.usace.army.mil cm-2Dapex f-3Fp-3Dregulatory-5Fsurvey&d=DwIGaQ&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4 rtJQ&m=3OR-rGeL HyiU0b4OuE9eqgOWOkSO5Ak0OofqIdpM0U&s=HPQflNyUgsB5gE hRxl4OvNuDhxc3w6CkUu QZ-qdxo&e=

-----Original Message-----

From: Gobbi, Kimbrie [mailto:kimbrie.gobbi@woodplc.com]

Sent: Thursday, May 16, 2019 3:07 PM

To: Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov> >; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com

<mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: [Non-DoD Source] Third Time is a Charm - Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hello there!

Attached to this email you will find the updated draft for the sediment characterization to support dredging for a Floating Dry Dock to be located South of the Mole Pier at Naval Base San Diego.

This SAP has been updated since our last call to include the following elements:

1) Updates to total Dredge volumes

2) Updates to Sampling Locations and Figures (Figures 1-1c, 3-1, 3-1a-c, 3-2a & b, and Tables 3-1, 3-2a & b)

To summarize, we've updated the dredge volumes, changed the composite areas and schemes to reflect a new compositing scheme that will include vertical compositing requested by the Navy (the upper 2-foot section, vs. native in the approach and sump areas), and adjusted the dredge depths to -35 in the turning basin, -40 in the approach, and -55 in the sump.

To ease your review of this updated draft, the SAP has been highlighted with changes compared to the prior document.

We were wondering if you have any availability next week for a teleconference to discuss the SAP?

A hardcopy will be sent to you via FedEx in the next few days! :)

Thank you so much for your time and energy on this project!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Ota, Allan [mailto:Ota.Allan@epa.gov]

Sent: Thursday, April 11, 2019 2:56 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> >; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil> >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil> >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com> >

Subject: RE: [Non-DoD Source] RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Importance: High

That should work; I'll look for it.

-Allan

==========

Allan Ota

Oceanographer / Regional Ocean Dumping Program Coordinator

Dredging and Sediment Management Team

U.S. Environmental Protection Agency, Region 9

Water Division

Mail Code: WTR-2-4

75 Hawthorne Street

San Francisco, CA 94105

415-972-3476 office

ota.allan@epa.gov <mailto:ota.allan@epa.gov> <mailto:ota.allan@epa.gov>

==========

If you have more than 20 MB worth of attachments to send to me,

please contact me first by email to make arrangements to share the files.

“Live simply, so that others may simply live.” -- Mother Teresa

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com%20%3cmailto:kimbrie.gobbi@woodplc.com> > >

Sent: Thursday, April 11, 2019 2:49 PM

To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: [Non-DoD Source] RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hi there,

I just sent an invitation out for Wednesday at 1430. I hope that's okay! :)

Thank you so much! :)

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Smith, Robert R Jr CIV CESPL CESPD (US) [mailto:Robert.R.Smith@usace.army.mil]

Sent: Thursday, April 11, 2019 2:39 PM

To: Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov
<mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com
<mailto:kimbrie.gobbi@woodplc.com
<mailto:kimbrie.gobbi@woodplc.com%20%3cmailto:kimbrie.gobbi@woodplc.com> > >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil
<mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; kimbrie.gobbi@gmail.com
<mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com
<mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: [Non-DoD Source] RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

So wednesday at 1?

Sent with BlackBerry Work

(BlockedBlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.blackberry.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=OI0U1Ch6OzL9vmQCCely8m52rGeVVBIvAh4iGiAVm3g%3D&reserved=0
<BlockedBlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867ac

f976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FUUB4knEjuT2mhJJoJ1QAyrMvCdOkP418tjPA2AeCpg%3D&reserved=0
Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.blackberry.com%2F&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=OI0U1Ch6OzL9vmQCCely8m52rGeVVBIvAh4iGiAVm3g%3D&reserved=0
<Blockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A__www.blackberry.com-26d-3DDwMGaQ-26c-3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR%26d%3DDwMGaQ%26c%3DZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ%26r%3DdJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ%26m%3DQHe_EdbASqse7FLo9SvnLQeAFKtGBsf0TYrVCWb0l0M%26s%3DQNhunkxrumroLcjqKqP5XajZHqxFQ2wDVxGBa3LvXnM%26e%3D&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=WD4yOjt5JDTpNDYlf66WZkyU2d7UvKNU11inBPkCw1E%3D&reserved=0>
L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4 rtJQ&m=dCNaHHhUaFK7r0TPE0THXw1Xaanp
UASu7eyRtdjzJg&s=PzwI7lW 2peHWfBkwo f-UXlWBx8lIwpxNnODYFp6iY&e=>)

From: Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov
<mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >

Date: Thursday, Apr 11, 2019, 2:35 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com
<mailto:kimbrie.gobbi@woodplc.com%20%3cmailto:kimbrie.gobbi@woodplc.com> > >, Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil
<mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >, Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil
<mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >, kimbrie.gobbi@gmail.com
<mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> <kimbrie.gobbi@gmail.com
<mailto:kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com%20%3cmailto:kimbrie.gobbi@gmail.com> > >, Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com
<mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: [Non-DoD Source] RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Tuesday afternoon is booked up; Wednesday is wide open for me for now. I am at a conference all day on Thursday so nothing there; Friday is fairly open for now. If Robert is still available on Wednesday after 1 pm, that would work for me. I have tentatively blocked off Wed after 1 pm for now.

-Allan

==========

Allan Ota

Oceanographer / Regional Ocean Dumping Program Coordinator Dredging and Sediment Management Team U.S. Environmental Protection Agency, Region 9 Water Division Mail Code: WTR-2-4

75 Hawthorne Street

San Francisco, CA 94105

415-972-3476 office

ota.allan@epa.gov <mailto:ota.allan@epa.gov> <mailto:ota.allan@epa.gov>

==========

If you have more than 20 MB worth of attachments to send to me, please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." -- Mother Teresa

-----Original Message-----

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com%20%3cmailto:kimbrie.gobbi@woodplc.com> > >

Sent: Thursday, April 11, 2019 12:43 PM

To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >;

Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Tuesday at 1pm would work great for Barry and I if Lisa and Allan are available?

If not, Wednesday at 230pm also looks great! :)

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

-----Original Message-----

From: Smith, Robert R Jr CIV CESPL CESPD (US) [mailto:Robert.R.Smith@usace.army.mil]

Sent: Thursday, April 11, 2019 12:31 PM

To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com%20%3cmailto:kimbrie.gobbi@woodplc.com> > >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Tuesday or Wednesday works after say after 1 PM. Or Thursday before 1130.

Robert Revo Smith Jr., P.E., M. ASCE

Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers

5900 La Place Ct. Suite 100

Carlsbad, CA 92008

Email: Robert.r.smith@usace.army.mil <mailto:Robert.r.smith@usace.army.mil>
<mailto:Robert.r.smith@usace.army.mil>

☎ (760) 602-4831 Office or Cell (760) 277-5552 Assist us in better serving you! Please complete our brief customer survey, located at the following link:

BlockedBlockedBlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122629635%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FUUB4knEjuT2mhJJoJ1QAyrMvCdOkP418tjPA2AeCpg%3D&reserved=0 corpsmapu.usace.army.mil cm-2Dapex f-3Fp-3Dregulatory-5Fsurvey&d=DwIGIw&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4 rtJQ&m=VurZIf5YwIua4bPGIGvrWJw7teTUnVUmZjBKVV-8t0I&s=FbHfOA2sYhStuHceMge-DEVbSI352BIjNo-K8IKI j0&e=

-----Original Message-----

From: Gobbi, Kimbrie [mailto:kimbrie.gobbi@woodplc.com]

Sent: Thursday, April 11, 2019 12:14 PM

To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >; Ota, Allan <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >;

Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: [Non-DoD Source] RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hello!

We plan to send a revised Draft SAP with updated Navy information to you for review Monday. I was wondering when you would be available next week for a call to discuss?

Thank you! :)

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Gobbi, Kimbrie

Sent: Wednesday, April 03, 2019 1:35 PM

To: 'Smith, Robert R Jr CIV CESPL CESPD (US)' <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >; 'Ota, Allan' <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >;

'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; 'kimbrie.gobbi@gmail.com' <kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com%20%3cmailto:kimbrie.gobbi@gmail.com> > >; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hello!

NBSD plans to have an OPS meeting to discuss the design depth for the Floating Dry Dock next Wednesday. Because of this, we are going to hold off on re-submittal of the Draft Floating Dry Dock SAP until this time.

We will be in touch about rescheduling the call as soon as we can!

Thank you all for your review, time, and input!

Take care,

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

From: Gobbi, Kimbrie

Sent: Wednesday, April 03, 2019 11:10 AM

To: 'Smith, Robert R Jr CIV CESPL CESPD (US)' <Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil <mailto:Robert.R.Smith@usace.army.mil%20%3cmailto:Robert.R.Smith@usace.army.mil> > >; 'Ota, Allan' <Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov <mailto:Ota.Allan@epa.gov%20%3cmailto:Ota.Allan@epa.gov> > >; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil <mailto:lisa.seneca@navy.mil%20%3cmailto:lisa.seneca@navy.mil> > >; 'kimbrie.gobbi@gmail.com' <kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com%20%3cmailto:kimbrie.gobbi@gmail.com> > >; Snyder, Barry <barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com <mailto:barry.snyder@woodplc.com%20%3cmailto:barry.snyder@woodplc.com> > >

Subject: RE: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

Hello!

I hope you're having a wonderful day. Just a short reminder of our teleconference at 1300. The call in information is:

Call in Number 866-324-4184

Access code: 1048474

Also, we had an update from the Navy regarding the dredge depth for the dry dock. We have confirmed the maintenance depth of the dry dock sump is actually -55 feet MLLW, so the Navy plans to re-design the dredging project to meet the former maintenance depth in the sump only.

Attached to this email are two updated figures and an updated table that represents this change. These pages will replace pages 3-1, 3-3 (Figure 3-1), 3-9 (Figure 3-1c), and page 3-13 in the SAP you received via FedEx.

<< File: Fig3-1 ProposedSamplingLocations.pdf >> << File: NBSD Floating Dry Dock Page 3-13.pdf >> << File: NBSD Floating Dry Dock Page 3-1.pdf >> << File: Fig3-1c ProposedSamplingLocations.pdf >>

Thank you!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637 kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com> <mailto:kimbrie.gobbi@woodplc.com>

I speak for the trees! Please consider the environment before printing this email!

-----Original Appointment-----

From: Gobbi, Kimbrie

Sent: Friday, March 29, 2019 11:41 AM

To: Smith, Robert R Jr CIV CESPL CESPD (US); Ota, Allan; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA); kimbrie.gobbi@gmail.com <mailto:kimbrie.gobbi@gmail.com> <mailto:kimbrie.gobbi@gmail.com> ; Gobbi, Kimbrie; Snyder, Barry

Subject: Call to Discuss Draft SAP for Floating Dry Dock Maintenance Dredging at NBSD

When: Wednesday, April 03, 2019 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: Call in Number 866-324-4184 1048474

Hello! I figured we can try for 1300 Wednesday for this one. Allan if it doesn't work for you, just let us know! :)

<< File: Draft FDD Dredging SAP 28March2019.pdf >> The call in information is:

Call in Number 866-324-4184 1048474

A hardcopy of the attached SAP will be sent to you via FedEx early next week.

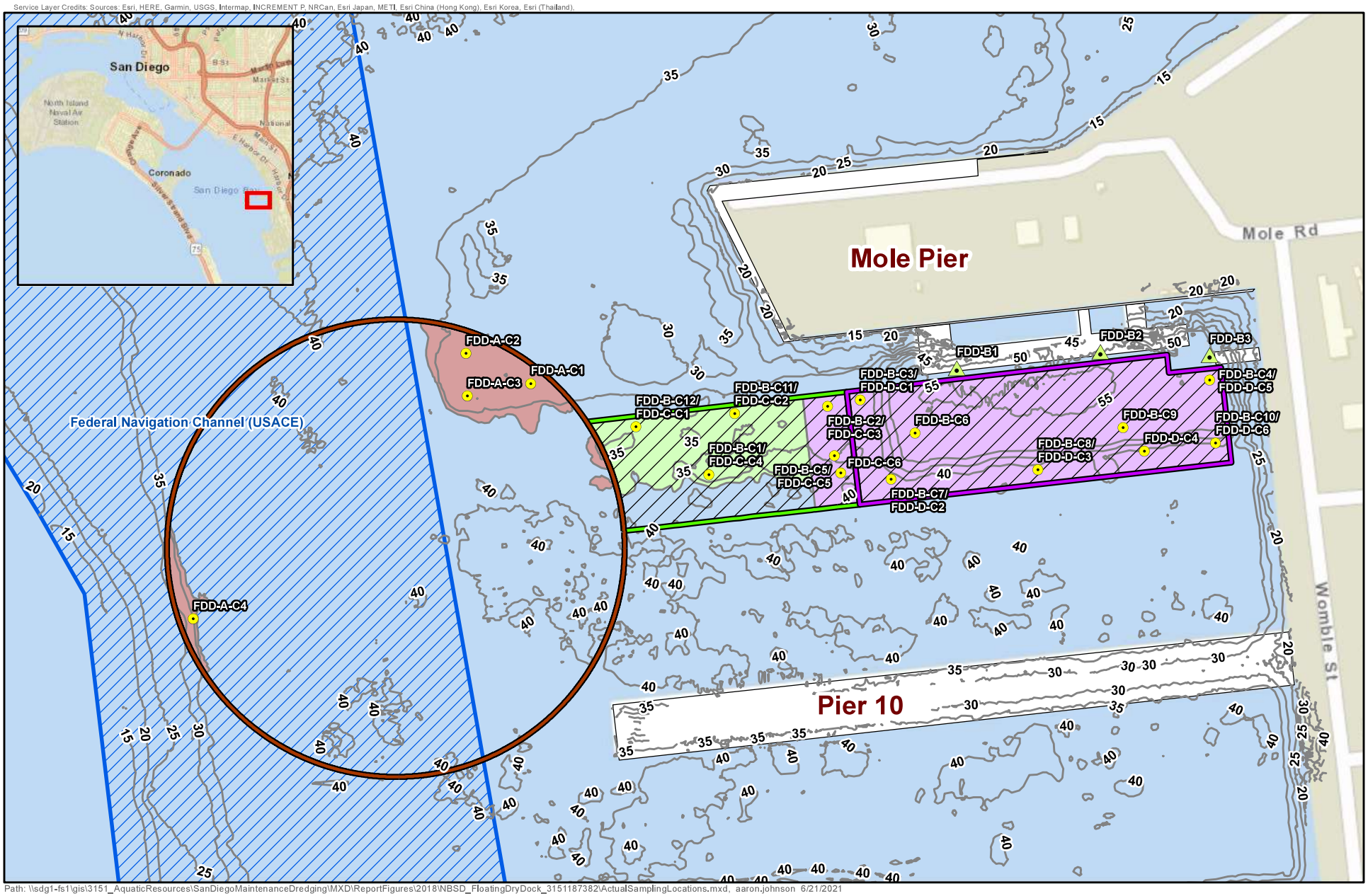
Best Regards,

This message is the property of John Wood Group PLC and/or its subsidiaries and/or affiliates and is intended only for the named recipient(s). Its contents (including any attachments) may be confidential, legally privileged or otherwise protected from disclosure by law. Unauthorized use, copying, distribution or disclosure of any of it may be unlawful and is strictly prohibited. We assume no responsibility to persons other than the intended named recipient(s) and do not accept liability for any errors or omissions which are a result of email transmission. If you have received this message in error, please notify us immediately by reply email to the sender and confirm that the original message and any attachments and copies have been destroyed and deleted from your system.

If you do not wish to receive future unsolicited commercial electronic messages from us, please forward this email to: unsubscribe@woodplc.com <mailto:unsubscribe@woodplc.com> <mailto:unsubscribe@woodplc.com> and include “Unsubscribe” in the subject line. If applicable, you will continue to receive invoices, project communications and similar factual, non-commercial electronic communications.

Please click BlockedBlockedBlockedBlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fblockedwww.woodplc.com%2Femail-disclaimer&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122639590%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=hVqlCMNolrcOCYEmQRrsGPRgGjDL9LCmX5AnZVy1w%2Fs%3D&reserved=0 for notices and company information in relation to emails originating in the UK, Italy or France.

As a recipient of an email from a John Wood Group Plc company, your contact information will be on our systems and we may hold other personal data about you such as identification information, CVs, financial information and information contained in correspondence. For more information on our privacy practices and your data protection rights, please see our privacy notice at BlockedBlockedBlockedBlockedBlockedBlockedhttps://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2FblockedwWw.woodplc.com%2Fpolicies%2Fprivacy-notice&data=04%7C01%7COta.Allan%40epa.gov%7C92e5ec38d1c7415b09b508d93bf96861%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637606765122639590%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=Icj1x0zbUBFJQZLy2Uj32Tpk4klkV6WSWVKNl0gKwL8%3D&reserved=0



Path: \\sdg1-fs1\gis\3151_AquaticResources\SanDiegoMaintenanceDredging\MXD\ReportFigures\2018\NBSD_FloatingDryDock_3151187382\ActualSamplingLocations.mxd, aaron.johnson 6/21/2021

Actual Sampling Location

Proposed Geotechnical Borings

Bathymetric Contour

Dredge Footprint - Design Depth

-36

-37

-56

Composite Areas

Composite A: Turning Basin

Composite B: Recent Bay Deposits (Approach and Sump)

Composite C: Native Formational Material (Approach and Sump)

Composite D: Native Formational Material (Sump)

1 inch = 300 feet

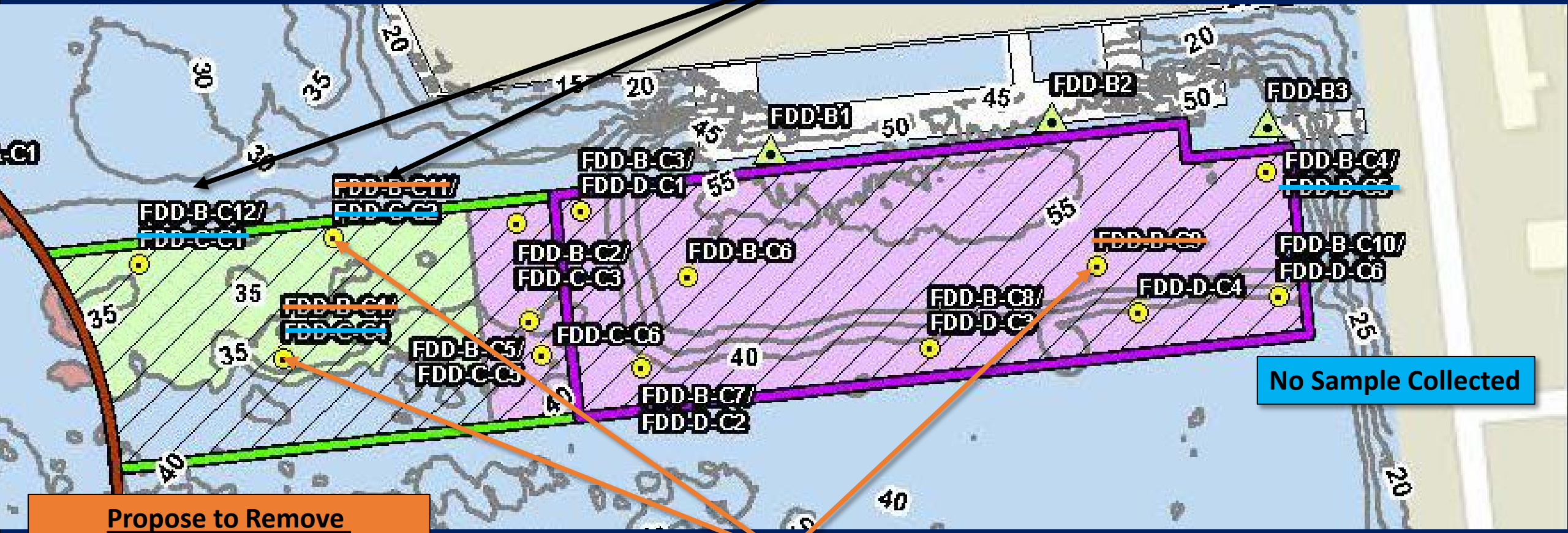
0 150 300 Feet

FIGURE 3-1

Actual Sampling Locations
EA Preparation and Sediment Testing
Floating Dry Dock, Naval Base San Diego
San Diego, CA

Composite B Results

Added Two Samples
(no native formational material at site)



Propose to Remove
FDD-B-C1
FDD-B-C9
FDD-B-C11
Rationale = 2 ERM exceedances

To Be Considered as No Unconfined Aquatic Disposal [NUAD]

Remainder (9 samples) To Be Composited and Considered for Ocean Disposal following Tier III Tests

Composite C – Approach + Side Slope

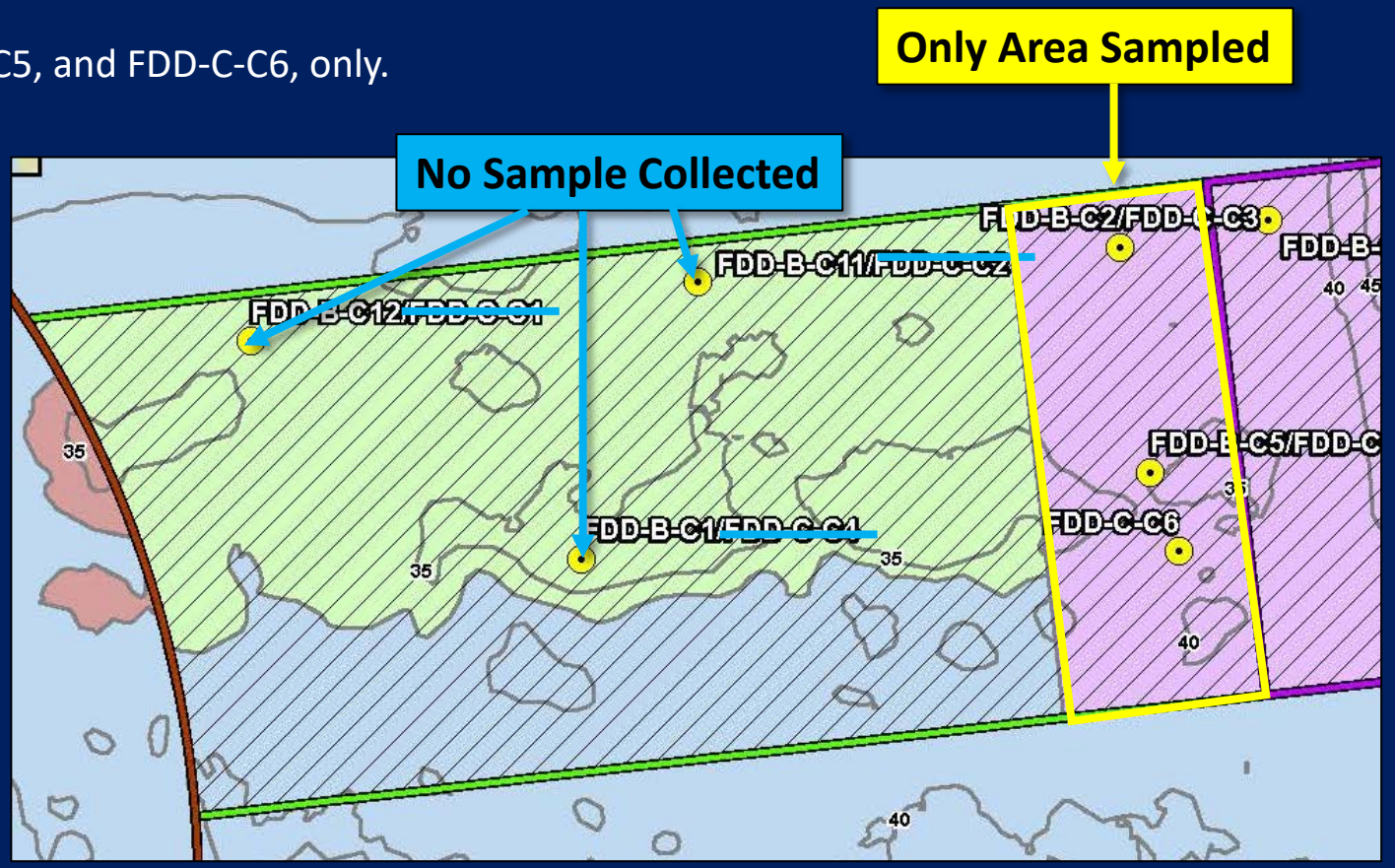
Dredge Depth = Varies between -37 feet MLLW (-39 feet MLLW to OD) and -56 feet MLLW (-58 feet MLLW to OD)
Proposed Volume = 19,872 cubic yards to OD (originally; will need to be re-calculated)
Average Depth of Unconsolidated Native Formational Materials = 7.4 feet/-43.9 feet MLLW; range from -38.9 to -44.8 feet MLLW
Deviation from SAP

- Three samples in the "Approach" area (FDD-C-C1, FDD-C-C2, and FDD-C-C4) did not exist (no native formational material in core sample); no sample collected.
- Composite Comprised of samples FDD-C-C3, FDD-C-C5, and FDD-C-C6, only.

Chemistry Data Summary

- No ERL or ERM exceedances
- Most analytes are non-detect
- No Analytes above Regional Screening Levels (for nearshore placement/beach replenishment)

SAMPLE ID	% Sand	% Silt	% Clay	Classification
FDD-C-C1	NS	NS	NS	NS
FDD-C-C2	NS	NS	NS	NS
FDD-C-C3	82.38	6.05	1.04	Coarse Sand
FDD-C-C4	NS	NS	NS	NS
FDD-C-C5	88.94	4.89	1.01	Coarse Sand
FDD-C-C6	88.49	2.87	0.77	Coarse Sand



Proposed Composting Scheme = Modified Tier I/Tier II Exemption (no Additional testing) for ocean disposal
Proposed to be considered for nearshore placement at the Silver Strand Boat Lanes

Composite D – Former Dry Dock Sump

Dredge Depth = -56 feet MLLW (-58 feet MLLW to OD)
Proposed Volume = 55,221 cubic yards to OD
Average Depth of Unconsolidated Native Formational Materials = -45.6 feet MLLW; range = -42.8 to -51.4 feet MLLW
Deviation from SAP

- FDD-D-C5 did not have any native formational material (no sample)
- Composite Comprised of: FDD-D-C1, FDD-D-C2, FDD-D-C3, FDD-D-C4, FDD-D-C6

Grain Size Summary

SAMPLE ID	% Sand	% Silt	% Clay	Classification
FDD-D-C1	90.48	4.97	0.96	Medium Sand
FDD-D-C2	85.25	5.35	0.98	Coarse Sand
FDD-D-C3	84.50	3.43	0.75	Very Coarse Sand
FDD-D-C4	80.61	9.85	1.45	Medium Sand
FDD-D-C5	NS	NS	NS	NS
FDD-D-C6	72.79	18.61	3.50	Medium Sand

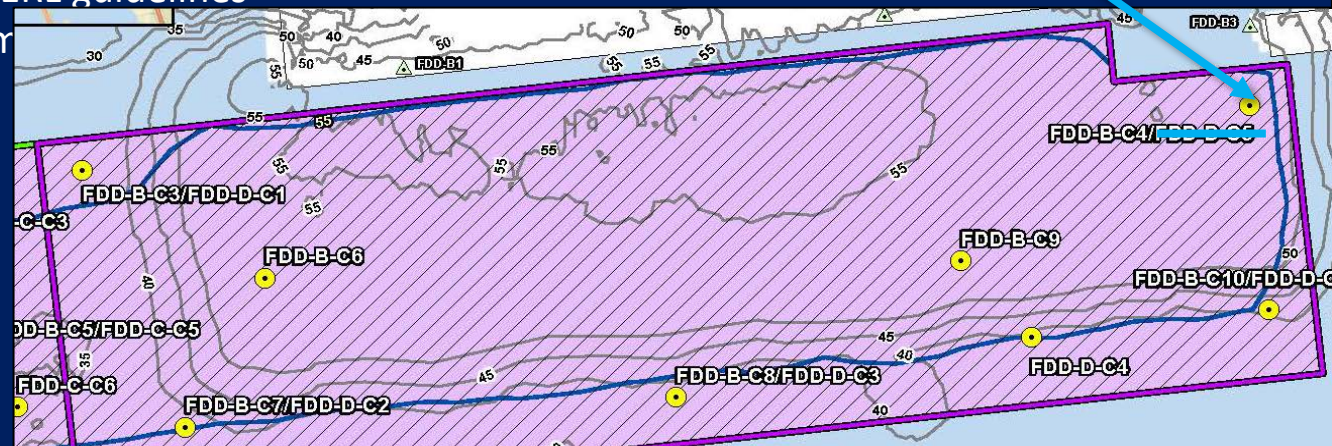
Chemistry Data Summary

- ERL Exceedances for metals
  - FDD-D-C1 = Copper (106 mg/kg) and Mercury (0.416 mg/kg)
  - FDD-D-C2 = Copper (120 mg/kg) and Mercury (0.370 mg/kg)
  - FDD-D-C3 = Copper (111 mg/kg), Mercury (0.418 mg/kg) , and Zinc (150 mg/kg)
  - FDD-D-C4 = Copper (133 mg/kg), Mercury (0.359 mg/kg) , and Zinc (151 mg/kg)
  - FDD-D-C6 = Copper (148 mg/kg), Mercury (0.355 mg/kg) , and Zinc (162 mg/kg)

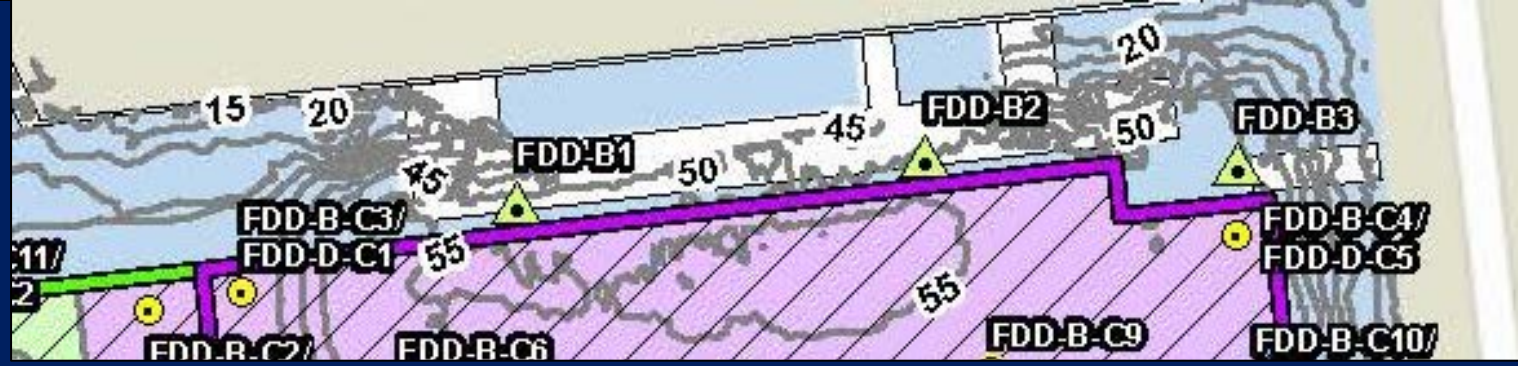
- Most analytes remaining are non-detect and are below respective ERL guidelines
- No Analytes above Regional Screening Levels (for nearshore placem

Proposed Composting Scheme = Modified Tier I/Tier II Exemption for Ocean Disposal (No Additional testing)

- If additional tiers required, propose to composite as presented in SAP (all five cores in the same composite)
- Proposed to be considered for nearshore placement at the Silver Strand Boat Lanes

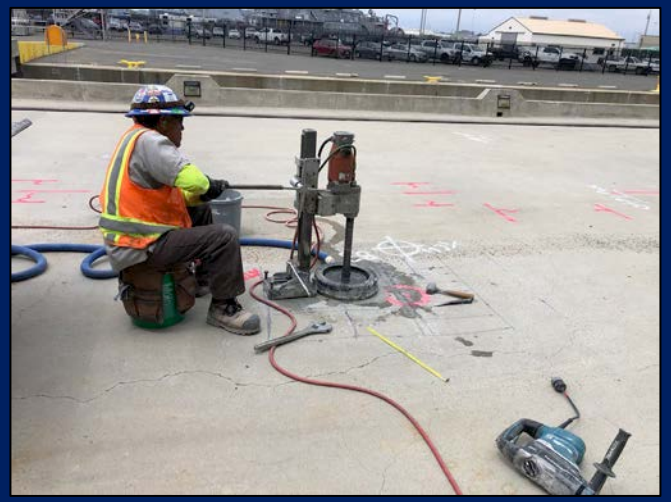


Geotechnical Study Update



- Started 6/29/2021
- Projected to Finish July 1, 2021

- Samples to be collected from three locations through the existing piers
- Sample depths will be from between the mudline (approximately -35 feet MLLW) at regular intervals up to 120 feet below
- Will be evaluated for geotechnical properties to assist construction phases
- Will be analyzed for chemistry to -60 feet MLLW to support the dredged material evaluation study
- Samples will be composited and analyzed for the same parameters as the vibracore samples
- Sample compositing will be determined based on the geotechnical results report
- Potential Issues – Existing Rip Rap at the site may prohibit sample collection after a certain depth



Questions?

APPENDIX D2

AGENCY CORRESPONDENCE – TISSUE ANALYSIS APPROVAL

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Gobbi, Kimbrie

From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Tuesday, August 31, 2021 1:18 PM
To: Gobbi, Kimbrie; Allan Ota - US EPA Region 9 (Ota.Allan@epa.gov)
Cc: Snyder, Barry; Campbell, Stephen (Tech Prof 3-Aquatic Science); Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)
Subject: RE: NBSD Mole Pier FDD - Preliminary Toxicity Testing Results
Attachments: Draft NBSD_MolePier_FDD_AllSedChem_18August2021.pdf; Draft Toxicity Testing Results NBSD Mole Pier FDD_11 August 2021.pdf; Final Testing Navy Floating Dry Dock Dredging SAP_24 June 2019_Revised_20 May 2021_clean.pdf; Fig3-1_Actual Sampling Locations Navy Mole Pier recd 8-25-21 .pdf; Corps & EPA approval email Testing SAP Navy Mole Pier Floating Drydock project.pdf

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

All,

Below are Allan Ota's comments from EPA for the latest attached preliminary Toxicity Testing Results per your email (Woodplc) below and our previous attached emails dated May 27, 2021 with your attachments in your email below. We discussed the latest results today and the Corps offers the following response with EPA's below. Attached is latest testing SAP we had received that was dated May 20, 2021. Note that the new unsuitable dredge material shown in the areas in the attached Figure 3-1 (NUAD Area East and NUAD Area West) that are now shown in the revised attached Figure 3-1 will not be disposed of in waters of the U.S. The Corps is in agreement with EPA on the following tissue analytes as follows:

a. Composite Area A = adding two more tissue analytes to 2 proposed analytes
    i. Mercury
    ii. PCB congeners
    iii. Copper - added
    iv. Zinc - added
b. Composite Area B = agree with the suggested tissue analytes
    i. Metals
    ii. Mercury
    iii. PAHs
    iv. PCB congeners
c. Composite Area C = Suitable for ocean disposal at LA-5 per Tier 1 exclusion. Note that the Navy will need to coordinate with Corps Civil Works team members in reference to impacts to the Corps Federal Channel project under Section 408 process and keep me informed.
d. Composite Area D = agree with the suggested tissue analytes below.

Once all testing is completed then the Corps will require the submittal of a final SAPr for Corps and EPA approval based on the attached Final testing SAP and our current guidelines that are on our regulatory website. Note that the dredged material within the NUAD areas mentioned above will be taken to a landfill or approved upland disposal site. Also please contact Veronica Li in our Regulatory office in reference to beginning the Section 408 process for the proposed dredging in the Corps Federal channel; her nos. is 213 452-3292. If I get new info I will respond accordingly.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100

Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

Hi, Robert.
Based on our recent telephone conference call and review of the subject sediment testing report, EPA Region 9 has the following comments, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230:

1. We understand the testing of sediments for this project is nearly completed, including the completion of the 28-day bioaccumulation testing.
2. The contractor for the Navy has provided suggestions for the tissue analytes, and after our review today, we have the following comments and modifications:
    a. Composite Area A = adding two more tissue analytes
        i. Mercury
        ii. PCB congeners
        iii. Copper
        iv. Zinc
    b. Composite Area B = agree with the suggested tissue analytes
        i. Metals
        ii. Mercury
        iii. PAHs
        iv. PCB congeners
    c. Composite Area C = recall earlier Tier 1 chemistry confirmation and decision that further testing was not necessary; suitable for ocean disposal at LA-5
    d. Composite Area D = agree with the suggested tissue analytes
        i. Copper
        ii. Mercury
        iii. Zinc
3. The geotechnical information provided in the sediment chemistry tables (Geotechnical Samples) appear to indicate higher than expected presence of anthropogenic organic contaminants, especially in FDD-Bay Deposits layer (-46 to -51 feet):
    a. Total PAHs = 855 ppb; J flag notation (less than the RL but greater than or equal to the MDL)
    b. What was the reporting limit for this analysis and the method detection limit for this analysis?

We look forward to receiving from the Navy a compilation of the various pieces of preliminary data and information provided to date in a draft final sediment testing report. This is a complex project with several sediment layers (unconsolidated and native formation strata), and a vertical profile schematic of the project area will be helpful, especially for delineating the unsuitable segments of the project (NUAD West and NUAD East) which were excluded from further testing and will be sent to a landfill; also Composite C which was excluded from further testing by Tier 1 confirmatory chemistry.

We appreciate the coordination between our program offices. Please contact us at your convenience if you have questions.
-Allan

==========

Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

---

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Wednesday, August 25, 2021 8:32 AM
To: Allan Ota - US EPA Region 9 (Ota.Allan@epa.gov) <ota.allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Cc: Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>
Subject: [Non-DoD Source] FW: NBSD Mole Pier FDD - Preliminary Toxicity Testing Results

Good morning Allan and Robert!

On behalf of the Navy, attached are the preliminary toxicity testing results for the NBSD Mole Pier FDD sediment characterization study. Overall, the results indicate that the majority of the dredged material, except for the surface sediments collected at locations FDD-B-C1, FDD-B-C4, FDD-B-C9, and FDD-B-C11 (already defined as NUAD), are likely suitable for open water disposal at the LA-5 ODMDS dependent upon the results of our bioaccumulation tissue testing results.

Based on these results and the analytical chemistry results (updated files attached with composite chemistry), we request that you consider limiting our tissue analysis to the following analytes:

Composite Area A = Mercury and PCB Congeners
Composite Area B = Metals + Mercury, PAHs, and PCB congeners
Composite Area D = Copper, Mercury, and Zinc (only)

Please let us know if you have any questions or thoughts about this request. The bioaccumulation tests ended on 8/23 and will arrive at the analytical testing laboratory early next week. If you could provide your approvals by 8/30 it would be ideal.

Thank you!

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
www.woodplc.com

I speak for the trees! Please consider the environment before printing this email!

This message is the property of John Wood Group PLC and/or its subsidiaries and/or affiliates and is intended only for the named recipient(s). Its contents (including any attachments) may be confidential, legally privileged or otherwise protected from disclosure by law. Unauthorized use, copying, distribution or disclosure of any of it may be unlawful and is strictly prohibited. We assume no responsibility to persons other than the intended named recipient(s) and do not accept liability for any errors or omissions which are a result of email transmission. If you have received this message in error, please notify us immediately by reply email to the sender and confirm that the original message and any attachments and copies have been destroyed and deleted from your system.

If you do not wish to receive future unsolicited commercial electronic messages from us, please forward this email to: unsubscribe@woodplc.com and include “Unsubscribe” in the subject line. If applicable, you will continue to receive invoices, project communications and similar factual, non-commercial electronic communications.

Please click http://www.woodplc.com/email-disclaimer for notices and company information in relation to emails originating in the UK, Italy or France.

As a recipient of an email from a John Wood Group Plc company, your contact information will be on our systems and we may hold other personal data about you such as identification information, CVs, financial information and information contained in correspondence. For more information on our privacy practices and your data protection rights, please see our privacy notice at https://www.woodplc.com/policies/privacy-notice

---

APPENDIX D3

AGENCY CORRESPONDANCE – PRELIMINARY SUAD DETERMINATION

DRAFT FINAL

This page intentionally left blank.

DRAFT FINAL

Gobbi, Kimbrie

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Tuesday, January 17, 2023 7:12 AM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA); Ota.Allan@epa.gov
Cc: Gobbi, Kimbrie; Snyder, Barry
Subject: RE: Naval Base Sand Diego (NBSD) Mole Pier Floating Dry Dock (FDD) Dredging Project Sampling and Analysis Report (SAP) Report - EPA Region 9 and Corps comments (Corps Nos. 2022-00586-RRS)

Thanks Lisa for the 408 clarification. Insofar as the current SUAD the Corps will need the Navy to send a revised SAP that accounts for the potential presence of UXO/other munitions in the dredging area with potential for public safety issues and the needed change to the SAP for no proposed nearshore disposal or beach nourishment. If you want to have another telcon to discuss the UXO/other munitions issue then we can set one up. Once we get the revised SAP then we can move forward with review and approval of the final SAP and then proceed with permit processing.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>
Sent: Friday, January 13, 2023 4:36 PM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>; Ota.Allan@epa.gov
Cc: Gobbi, Kimbrie (kimbrie.gobbi@woodplc.com) <kimbrie.gobbi@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: FW: Naval Base Sand Diego (NBSD) Mole Pier Floating Dry Dock (FDD) Dredging Project Sampling and Analysis Report (SAP) Report - EPA Region 9 and Corps comments (Corps Nos. 2022-00586-RRS)
Importance: High

Hello Robert and Allan –

Thank you very much for issuing this final SUAD for the NBSD Floating Dry Dock project. We appreciate all your time and efforts on this project.

By the way, Item 6 below, the Sec 408 process question was resolved. Joe Ryan, Coastal Engineering, Section noted that an earlier SAPR figure mapped the federal channel incorrectly. The new dredging footprint figure in the revised SAPR submitted to you shows that the turning basin dredging footprints are outside of the federal channel. Also, Veronica Li's confirmed in the attached email that the project would not "include an alteration or modification to a Federal Project and therefore, does not require a Section 408 permission at this time" because the proposed dredge depth of -35' (+2 ft allowable overdepth) is consistent with the design depth of the federal channel. Please let me know if you have any questions about this.

Again, thank you both very much.
VR Lisa

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Thursday, January 12, 2023 12:30 PM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Ota, Allan <Ota.Allan@epa.gov>
Subject: FW: Naval Base Sand Diego (NBSD) Mole Pier Floating Dry Dock (FDD) Dredging Project Sampling and Analysis Report (SAP) Report - EPA Region 9 and Corps comments (Corps Nos. 2022-00586-RRS)
Importance: High

All,

The Corps has reviewed the attached draft SAP as prepared by NAVFAC and dated December 16, 2022 for the subject Navy dredging and disposal project (project) that was done in compliance with the Ocean Testing Manual (OTM). Below are EPA's emails comments on the revised SAP and the Corps hereby provides our comments on the SAP per Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act, and since there is ocean disposal of dredged materials then that work is regulated under Section 103 of the Marine Protection, Research, and Sanctuaries Act and Title 33 Code of Federal Regulations (CFR) 320-330 and 33 CFR 335-338 and environmental evaluations of dredged materials proposed for ocean disposal will comply with applicable criteria published in Title 40 CFR 220-228.

1. The project would include pile driving, partial demolition of the existing Mole Pier Wharf to create space for new concrete and steel mooring dolphins, and associated dredging to ready the project footprint for a new remotely fabricated FDD. Within the FDD footprint, dredging would be performed to re-establish necessary berthing and transit depths, and deepening would be required for the FDD approach area (Figure 1-1b). The currently proposed Project includes dredging and removal of approximately 97,214 cubic yards (cy) of material (including a 2-ft overdredge [OD] allowance) across three dredging areas with varying design depths. These areas include: 1) the turning basin to be dredged to a depth of -35 ft mean lower low water (MLLW); 2) the approach channel to be dredged to a depth of -37 ft MLLW; and 3) the FDD Sump footprint to be dredged to a depth of -56 ft MLLW within the Corps Federal channel. All three of these areas were evaluated to the proposed depths plus a 2-ft (OD) allowance (to -37, -39, and -58 ft MLLW, respectively) (Table 1-1 of the SAP). In total, the dredge area encompasses approximately 8.28 acres. Based on the required Project dredging depths, it was assumed that the majority of the sediments to be dredged are native formational materials. Because of the two distinct types of sediment found within the dredge footprint (unconsolidated and native), this dredged material characterization study (Study) employed multiple approaches to characterize the sediment.
   We understand that this project's report has been revised per our earlier comments in an email sent on November 29, 2022; the reviewed draft report was modified to include an adjusted footprint within test composites subjected to full Tier 3 testing (Figures 3-2a and 3-2b); the volume of the overall adjusted dredging footprint is 97,214 cubic yards, including 2-foot over-dredge depth allowance.

2. Based on the OTM the overall suitability determination has not changed from last year's email but note that the email below from the Corps and Allan Ota that discusses the potential for the presence of unexploded ordinance (UXO) or other munitions in the Mole Pier project dredging area which could make any nearshore or beach nourishment dredged material placement problematic. The Corps is willing to discuss this UXO/Other munitions issue with the Navy and EPA in another telcon.
    a. Section 4.1: The physical data indicate that the sediments for three of the four test composites are predominantly coarse-grained and are not suitable for beneficial reuse as the Corps would argue that the potential presence of UXO or other munitions would negate any nearshore or beach nourishment , including nearshore placement at identified sandy beach receiver sites such as the Silver Strand. Also FDD-B is too fine and not suitable for nearshore placement for beach nourishment (Table 4-1). If the Navy wants to discuss how the UXO and/or other munitions can be controlled the Corps can discuss any options with EPA.
    b. The Corps concurs with EPA that under Section 4.2 of the SAP (corrections to the report): The chemical analysis results appear to show generally low contaminant concentrations for most constituents, except for high concentrations of mercury and PCBs in FDD-B (all 12 cores) and high mercury in FDD-D (all cores; greater than ER-L or ER-M (Tables 4-2b and 4-2d).
    c. The Corps concurs that under Sections 4.4 (corrections to TRVs) of the SAP: The bioassays indicate these sediments are suitable for ocean disposal at LA-5 and it would seem that given the potential for UXO and other munitions then maybe the entire dredged amount would need to go to LA-5 (except the NUAD Area East and NUAD Area West amounts (19,321 cy)) but we can discuss with the Navy if there is a way to evaluate the dredged material for UXO and other munitions if nearshore or other beach nourishment is requested still. The Corps does note what EPA noted about the following SAP info:
        i. 10-day acute toxicity amphipod and worm bioassays; survivals indicating passing the LPC (Table 4-11).
        ii. 28-day bioaccumulation tests: no exceedances of TRVs (Table 4-15).

3. The Corps concurs that under Section 5.5; Table 5-1: The NUAD Area East and NUAD Area West sediments (19,321 cy shown in Table 5-1) in the SAP must be taken to an upland disposal site.

4. The Corps notes that EPA Region 9's determination of alternatives for ocean disposal differs from the Navy's proposed alternatives for the Native Formation Material (NFM) as described in the email below from EPA.
    a. The NFM in the dry dock sump (Composite Area D) is expected to be dredged as larger consolidated pieces of material and would not be appropriate for nearshore placement unless ground down to a size fraction similar to the coarsest grain size for the receiver beach site. Here again even with the grounding down of the NFM though the potential for UXO and other munitions negates the use of nearshore or beach nourishment of the suitable dredged material given potential public safety concerns.
    b. Depending on the expected volume, the NFM shall not be dumped solely in the SDZ for the LA-5 site; this targeted dumping would create a rubble pile and a potential hard bottom habitat which could nullify this site for future disposals of dredged material. Instead, the sediments shall be screened with a 12-inch grizzly and then ground down to a 4-inch size fraction, and dumping shall be managed over a larger area grid (i.e., series of quadrants). The Corps concurs with EPA with this ocean dumping screening with a 12 inch grizzly with grounding down but would want to hear from the Navy on how or if there was to be UXO or other munitions screening for the entire 97,214 cy of material to be dredged and going to LA-5 with EPA approval as they are responsible for the LA-5 ODMDS but the Corps will need to request LA-5 site use conditions when the Navy submits the Corps application and we have made a draft permit decision. Also the Navy would need to revise the SAP for the above comments and EPA's comments and resubmit for Corps approval with EPA review given the UXO/munitions issue.

5. As such, the Corps concurs with EPA Region 9 that the project sediments identified in Section 5 (excluding the NUAD Area East and NUAD Area West dredging amounts shown in Table 5-1 in the SAP) are suitable for ocean

disposal at the LA-5 ocean dredged material disposal site but that given the potential for UXO or other munitions in the dredged material then any nearshore or beach nourishment could not be approved unless the Navy and their team wanted to discuss options for UXO and other munitions screening with the Corps and EPA. Also note that the Corps concurs with EPA that one of the four composites (FDD-B) is too fine for beach nourishment. We also understand the sediments identified as NUAD Area West and NUAD Area East (19,321 cy) shown in Figure 3-1 of the SAP in this report (Section 5.5) would be handled/transported to an upland disposal site.

6. The Corps will also continue to track the Section 408 process. If I get new information then I will respond accordingly.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Thursday, January 12, 2023 8:09 AM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Cc: Scianni, Melissa <Scianni.Melissa@epa.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - EPA Region 9 comments
Importance: High

Hi, Robert.
Yes, similar to about 15 years ago (or more) with the big Navy carrier berth dredging, UXO or other munitions in sandy sediments would be problematic for nearshore or beach placement. As you may recall, the sediments from that carrier berth dredging project ended up going to the LA-5 site because the initial attempts to screen out the UXO or other munitions proved to be too challenging (and dangerous).

I hope this helps.

We have been weathering the storm so far… flooding has happened in our neighborhood but nothing threatening our home so far even though the soils are really saturated… another Category 3 storm is forecasted to arrive on Saturday.

-Allan

==========

Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

==========

If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

---

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Thursday, January 12, 2023 7:43 AM
To: Ota, Allan <Ota.Allan@epa.gov>
Cc: Scianni, Melissa <Scianni.Melissa@epa.gov>
Subject: RE: NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - EPA Region 9 comments

Allan

I just realized there may be an issue with UXO or other munitions in the Navy Mole Pier dredging area. Would that disallow all nearshore or beach disposal? Remember the mortar shell that was dredged and disposed of years ago at a beach in Oceanside. I tried to call you today. Hope you are weathering the storm. I cc'd Melissa as I guess she is to provide comments also in addition to yours?

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Wednesday, January 11, 2023 3:53 PM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Cc: Scianni, Melissa <Scianni.Melissa@epa.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - EPA Region 9

Hi, Robert.
Based on our recent telephone conference call and review of the subject updated sediment testing report, EPA Region 9 has the following comments, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230:

1. We understand that this project's report has been revised per our earlier comments in an email sent on November 29, 2022; the reviewed draft report was modified to include an adjusted footprint within test composites subjected to full Tier 3 testing (Figures 3-2a and 3-2b); the volume of the overall adjusted footprint is 97,214 cubic yards, including 2-foot over-dredge depth allowance.

2. The overall suitability determination has not changed from last year's email:
    a. Section 4.1: The physical data indicate that the sediments for three of the four test composites are predominantly coarse-grained and are suitable for beneficial reuse, including nearshore placement at identified sandy beach receiver sites; FDD-B is too fine and not suitable for nearshore placement for beach nourishment (Table 4-1).
    b. Section 4.2 (corrections to the report): The chemical analysis results appear to show generally low contaminant concentrations for most constituents, except for high concentrations of mercury and PCBs in FDD-B (all 12 cores) and high mercury in FDD-D (all cores; greater than ER-L or ER-M (Tables 4-2b and 4-2d).
    c. Sections 4.4 (corrections to TRVs): The bioassays indicate these sediments are suitable for ocean disposal at LA-5:
        i. 10-day acute toxicity amphipod and worm bioassays; survivals indicating passing the LPC (Table 4-11).
        ii. 28-day bioaccumulation tests: no exceedances of TRVs (Table 4-15).

3. Section 5.5; Table 5-1: The NUAD sediments must be taken to an upland disposal site.

4. However, EPA Region 9's determination of alternatives for ocean disposal differs from the Navy's proposed alternatives for the Native Formation Material (NFM) as described in the email below.
    a. The NFM in the dry dock sump (Composite Area D) is expected to be dredged as larger consolidated pieces of material and would not be appropriate for nearshore placement unless ground down to a size fraction similar to the coarsest grain size for the receiver beach site.
    b. Depending on the expected volume, the NFM shall not be dumped solely in the SDZ for the LA-5 site; this targeted dumping would create a rubble pile and a potential hard bottom habitat which could nullify this site for future disposals of dredged material. Instead, the sediments shall be screened with a 12-inch grizzly and then ground down to a 4-inch size fraction, and dumping shall be managed over a larger area grid (i.e., series of quadrants).

As such, EPA Region 9 concurs that the project sediments identified in Section 5 are suitable for ocean disposal at the LA-5 ocean dredged material disposal site; one of the four composites (FDD-B) is too fine for beach nourishment and the NFM is too coarse for nearshore placement without additional management action as described above. We also understand the sediments identified as NUAD in this report (Section 5.5) would be handled/transported to an upland disposal site.

We appreciate the coordination between our program offices. Please contact me at your convenience if you have questions.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team
U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

==========
If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

---

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Monday, December 19, 2022 2:41 PM
To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Subject: RE: NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Determination by EPA Region 9 and Corps comments (Nos. 2022-00586-RRS)

Greetings,

Attached to this email is an updated Draft Final SAP Report for the NBSD Mole Pier Floating Dry Dock sediment characterization study. Within this report we have updated the following information:

1) The location of the FNC has been adjusted per USACE comment. Most notably, the project does not overlap with the FNC. Consequently, Figures 1-1b, 3-1, 3-1a, 3-2a, 3-2b, and 5-1 have been updated accordingly.
2) The most recent dredged material design from the Navy is presented on Figures 3-1, 3-1a, 3-1b, 3-1c, 3-2a and 3-2b. The design includes the proposed side slope areas. Based on the updated dredging design, NUAD area East and NUAD area West have been adjusted to encompass the side slope areas now shown on the figures.
3) Figure 3-2a also shows the location of the current dredging design, with accurate side slopes represented.
4) Figure 3-2b shows representative cross sections with dimensions of the proposed dredging area.

5) The Navy has not provided updated dredging volumes at this time.

Although the original composite area footprints appear to be shifted south in comparison to the Navy's current design, the dredged material evaluation study is still representative of the proposed dredging footprint. Based on this, we request agency review and concurrence of the current design plans for placement as follows:

At the LA-5 ODMDS (approximately 78,000 cy):

1) Sediments from the Turning Basin (Composite Area A)
2) Native Formational Material in the dry dock sump (Composite Area D)
3) Unconsolidated materials in the Approach represented by cores FDD-B-C12, FDD-B-C5, and FDD-B-C2 in Composite Area B
4) Unconsolidated materials in the Dry Dock Sump represented by cores FDD-B-C3, FDD-B-C6, FDD-B-C7, FDD-B-C8, and FDD-B-C10 in Composite Area B.

At the Silver Strand Boat Lanes (approximately/up to 35,000 cy):

1) Sediments from the Turning Basin (Composite Area A)
2) Native Formational Material in the dry dock sump (Composite Area D)

Upland at an appropriately permitted CA landfill (approximately 19,500 cy):

1) Unconsolidated sediments in the Approach represented by core sites FDD-B-C11 and FDD-B-C1 (NUAD Area West)
2) Unconsolidated sediments in the Dry Dock Sump represented by core sites FDD-B-C4 and FDD-B-C9 (NUAD Area East)

Thank you!

Kimbrie Gobbi
Associate Scientist
(she/her)

M+ 1 443-852-4637

I speak for the trees! Please consider the environment before printing this email!

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Tuesday, November 29, 2022 3:00 PM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>; Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Snyder, Barry <barry.snyder@woodplc.com>; Ota, Allan <Ota.Allan@epa.gov>
Subject: NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Determination by EPA Region 9 and Corps comments (Nos. 2022-00586-RRS)

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

All

Below are EPA's comments from November 25, 2022 for the subject Corps permit action and the latest attached SAP we received along with my comments from our last telcon which have been responded to I believe partially. I was not able

to get to my comments given a family emergency since a few weeks ago. Once we get the revised SAP then we can respond back. Thanks everyone.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Friday, November 25, 2022 11:20 AM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Subject: [Non-DoD Source] Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Determination by EPA Region 9

Hi, Robert.
Based on our recent telephone conference call and review of the subject sediment testing report, EPA Region 9 has the following comments, provided pursuant to our authorities under the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 USC 1401 et seq), EPA Ocean Dumping Regulations at 40 CFR 220-227, the Clean Water Act (CWA; 33 USC 1251 et seq), and the CWA 404 Regulations at 40 CFR 230:

1. We understand that this project has been modified to include an adjusted footprint within test composites subjected to full Tier 3 testing (Figures 3-2a and 3-2b); the volume of the overall adjusted footprint is 97,214 cubic yards, including 2-foot over-dredge depth allowance.
2. Section 5.1: The physical data indicate that the sediments for three of the four test composites are predominantly coarse-grained and are suitable for beneficial reuse, including nearshore placement at identified sandy beach receiver sites; FDD-B is too fine and not suitable for nearshore placement for beach nourishment (Table 4-1).
3. Section 5.2 (corrections to the report): The chemical analysis results appear to show generally low contaminant concentrations for most constituents, except for high concentrations of mercury and PCBs in FDD-B (all 12 cores) and high mercury in FDD-D (all cores; greater than ER-L or ER-M (Tables 4-2b and 4-2d).
4. Sections 5.3 and 5.4 (corrections to TRVs): The bioassays indicate these sediments are suitable for ocean disposal at LA-5:
    a. 10-day acute toxicity amphipod and worm bioassays; survivals indicating passing the LPC (Table 4-11).
    b. 28-day bioaccumulation tests: no exceedances of TRVs (Table 4-15).
    c. EPA Region 9 will send updated TRVs.
5. Section 5.5; Table 5-1: The NUAD sediments must be taken to an upland disposal site; the report must be revised to indicate this alternative to ocean disposal.

As such, EPA Region 9 concurs that the project sediments identified in Section 5 are suitable for ocean disposal at the LA-5 ocean dredged material disposal site; one of the four composites (FDD-B) is too fine for beach nourishment. We understand the sediments identified as NUAD in this report (Section 5.5) would be handled/transported to an upland disposal site; report should be revised to indicate this.

We appreciate the coordination between our program offices. Please contact me at your convenience if you have questions.
-Allan

Hello!

Lisa forwarded me the following information from Robert with additional requests for information for our SUAD. I am responding to the email in-line with Robert's text and attaching some additional information to this email for your review/consideration. I am also attaching an updated Figure 3-2b with (what I know to be) the current specifications for the dry dock. We expect to have updated cross sections by the end of this week. In the meantime, we hope that you can provide your determination and feedback based on the results presented.

Also, Allan can you please send us the TRV information that USEPA is currently using for tissue results review?

Email start --
From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Tuesday, November 22, 2022 6:48 AM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>
Cc: Ota, Allan <Ota.Allan@epa.gov>
Subject: RE: Section 408 Permit Contact for Navy Floating Drydock Dredging Project and additional information for the SAP

Lisa

The Section 408 contact's email information is below:

Li, Veronica C CIV USARMY CESPL (USA) Veronica.C.Li@usace.army.mil

Also per our telcon yesterday the Corps needs the following information in the SAP per my telcon with Allan Ota from EPA and the Navy and your consultant on November 3, 2022 and subsequent telcon last week:

1) A statement for where the dredged material in the NUAD areas is to be disposed of. With no testing of the NUAD areas as far as I can tell the dredged material would have to be taken to an upland site so please have the SAP revised to include the disposal area of all dredged material in the NUAD areas.
    a. *The NUAD areas were evaluated using individual core chemistry. There are analytical chemistry results for sediment samples in the report in Table 4-2b for samples FDD-B-C4, FDD-B-C9, (NUAD EAST) and FDD-B-C1, and FDD-B-C11 (NUAD WEST). These samples are all representative of the dredged material from the sediment water interface to the proposed design depths plus a 2-foot OD allowance at each location. This information was shared with USACE and USEPA in a meeting on 29 June 2022 and is discussed in the report in Section 3.5 Deviations from the Sampling and Analysis Plan, Section 3.2.6 Sample preparation, and Section 5.2 Chemical Testing results. The Navy and agencies determined that these areas were NUAD and did not perform any additional testing. As described in the SAP Report in Section 1.1.2 Proposed Alternative Placement Options, 1.3.1 Scope of Work, the notes on Table 4-2b, Section 4.2.3.1 California Title 22 and RCRA Assessment (results in Table 4-3), these proposed dredged materials will be disposal upland at an appropriately permitted California (in-state) landfill to be*

identified by the contractor, similar to other dredging projects performed at NBSD. To clarify the results, any material in the NW corner of the footprint ("NUAD west," side slope included) would be placed upland. Any dredged material in the south part of the footprint (south of "NUAD west," side slope included) is proposed for ocean disposal at the LA-5 ODMDS.

2) A current cross section and site plan of the current project in the SAP referenced in the telcon we had on November 3, 2022.
    a. *We are waiting for a response from Navy coastal design engineers for when they will be able to provide this information and it will be included in the permit applications. The design in the SAP is the most updated design available at this time and any modification would be transmitted to the agencies as soon as possible. We hope to have a new cross section and design file from the Navy by the end of the week. I've attached an updated Figure 3-2b updated to include my understanding of the current length and widths for the sump design. Please note this is still preliminary and likely not the final specifications for the project.*
3) Any other information from Allan Ota from EPA from the telcon we had with the consultant a few days ago given that some of the dredged material is to go to the LA-5 ODMDS and the Corps will eventually need to have EPA's approval for the LA-5 site use conditions and the SUAD/NUAD determination.
    a. *We are waiting on Allan's review of the SAP Report and hope that the sediment testing results can be evaluated for SUAD for in-water placement at the LA-5 ODMDS, for all areas except the two NUAD areas, while we wait for the Navy's updated design. If additional information is needed to review the results and evaluate them for ocean disposal suitability, please let us know.*

If I get new info I will send it to you. I copied EPA also on this email. Thanks and Happy Thanksgiving!

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

-- Email end

Kimbrie Gobbi
Associate Scientist
(she/her)

M+ 1 443-852-4637

I speak for the trees! Please consider the environment before printing this email!

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Thursday, November 17, 2022 1:18 PM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; 'Ota, Allan' <Ota.Allan@epa.gov>; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Cc: Georgo, James S CIV USN NAVFAC MIDLANT NOR (USA) <james.s.georgo.civ@us.navy.mil>
Subject: RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

I did talk to Allan Ota yesterday and we hope to get a response to you soon.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Thursday, November 17, 2022 12:44 PM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>; 'Ota, Allan' <Ota.Allan@epa.gov>; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Cc: Georgo, James S CIV USN NAVFAC MIDLANT NOR (USA) <james.s.georgo.civ@us.navy.mil>
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion

Hello everyone,

I hope that you're all doing well. Since it has been two weeks since our meeting, I wanted to check in with you regarding the SUAD for this project and see if you need any additional information from us to move forward with the approvals?

Thank you in advance for your time and consideration.

Have a wonderful afternoon,

Kimbrie Gobbi
Associate Scientist
(she/her)

M+ 1 443-852-4637

I speak for the trees! Please consider the environment before printing this email!

From: Gobbi, Kimbrie
Sent: Thursday, November 3, 2022 8:19 AM
To: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>; 'Ota, Allan' <Ota.Allan@epa.gov>; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Cc: Georgo, James S CIV USN NAVFAC MIDLANT NOR (USA) <james.s.georgo.civ@us.navy.mil>
Subject: RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion

Good morning,

We are looking forward to discussing the SAP Report with everyone this morning. I understand the files were transmitted via DOD safe but am also attaching just the report file to this document in case you have not had a chance to download everything.

Take care,

Kimbrie Gobbi
Associate Scientist
(she/her)

M+ 1 443-852-4637

I speak for the trees! Please consider the environment before printing this email!

From: Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>
Sent: Wednesday, November 2, 2022 9:16 AM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; 'Ota, Allan' <Ota.Allan@epa.gov>; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Cc: Georgo, James S CIV USN NAVFAC MIDLANT NOR (USA) <james.s.georgo.civ@us.navy.mil>
Subject: RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

All,

I just talked with Allan Ota who is in Hawaii and in transit back to his office for the telcon tomorrow and he said he hopes to be back for the telcon. I guess we can discuss the latest changes to the SAP then. I am home teleworking today and hope to call in also. Thanks everyone.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents to any Regulatory staff or office. For further details on corresponding with us, please view our COVID-19 special public notice at:
https://www.spl.usace.army.mil/Portals/17/docs/publicnotices/COVID19%20Regulatory_SPN.pdf?ver=2020-03-19-134532-833

Assist us in better serving you!
Please complete our **brief customer service survey**, located at the following link:
https://regulatory.ops.usace.army.mil/customer-service-survey/

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Thursday, October 13, 2022 7:16 AM
To: 'Ota, Allan' <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV USARMY CESPL (USA) <Robert.R.Smith@usace.army.mil>; 'Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA)' <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>
Cc: Georgo, James S CIV USN NAVFAC MIDLANT NOR (USA) <james.s.georgo.civ@us.navy.mil>
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion

Hello!

Attached to this email is an updated Draft SAP Report for the NBSD Mole Pier Floating Dry Dock Dredging Project. The project footprint has been updated by the Navy to reflect current design plans and we would like to set up a meeting at your earliest convenience for the SUAD discussion. We are happy to go through this report with you from top to bottom as it's been quite some time since we all reviewed and discussed.

Please let us know when a good time would be for us to chat. Options available to the Navy include any time on the following dates:

Monday October 17, 2022
Thursday October 20, 2022
Monday October 24, 2022

I think we will need at least an hour to review and discuss the project.

Thank you!

Kimbrie Gobbi
Associate Scientist
(she/her)

M+ 1 443-852-4637

I speak for the trees! Please consider the environment before printing this email!

From: Gobbi, Kimbrie
Sent: Wednesday, December 15, 2021 9:12 AM
To: Ota, Allan <Ota.Allan@epa.gov>; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Kimbrie Gobbi <kimbrie.gobbi@gmail.com>
Subject: RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion - draft report not received - not reviewed...

HI Allan,

Thank you for circling back about this; we haven't been able to finalize the dredged material volumes for ocean disposal vs. beneficial reuse so I think that we may delay the meeting to the New Year. I am going to hold off on canceling to see if we get information before COB but if we do not, I will cancel tomorrow's gathering.

When would you (and Robert) be back in the office to chat?

Take care,

Kimbrie Gobbi, M. Sc.
Senior Marine Scientist and Project Manager
Mobile (443) 852.4637
www.woodplc.com

I speak for the trees! Please consider the environment before printing this email!

From: Ota, Allan <Ota.Allan@epa.gov>
Sent: Wednesday, December 15, 2021 7:22 AM
To: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>; Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil>; Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.a.seneca.civ@us.navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Campbell, Stephen (Tech Prof 3-Aquatic Science) <stephen.campbell@woodplc.com>; Kimbrie Gobbi <kimbrie.gobbi@gmail.com>
Subject: RE: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion - draft report not received - not reviewed...
Importance: High

CAUTION: External email. Please do not click on links/attachments unless you know the content is genuine and safe.

Hi, Kimbrie.
I am sending this email to let you know that I have not received the draft report; if you have already sent it, please try again. Also, please confirm we are still on for a meeting on Thursday (Dec 16) @ 10:30 am.
-Allan

==========
Allan Ota
Oceanographer | Regional Ocean Dumping Program Coordinator | FAC-COR II
Ocean Dumping Program - Dredging and Sediment Management Team

U.S. Environmental Protection Agency, Region 9
Water Division
Mail Code: WTR-2-2
75 Hawthorne Street
San Francisco, CA 94105

415-972-3476 office
ota.allan@epa.gov

==========
If you have more than 20 MB worth of attachments to send to me,
Please contact me first by email to make arrangements to share the files.

"Live simply, so that others may simply live." – Saint (Mother) Teresa

-----Original Appointment-----
From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Friday, December 10, 2021 11:55 AM
To: Ota, Allan; Smith, Robert R Jr CIV CESPL CESPD (US); Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA); Snyder, Barry; Campbell, Stephen (Tech Prof 3-Aquatic Science); Kimbrie Gobbi
Subject: Draft NBSD Mole Pier Floating Dry Dock Dredging Project SAP Report - SUAD Discussion
When: Friday, December 17, 2021 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

Thank you for taking the time to go over the draft report with us. I will send it along for review as soon as possible.

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting
Or call in (audio only)
+1 213-282-5170,,403817364# United States, Los Angeles
(866) 670-1764,,403817364# United States (Toll-free)
Phone Conference ID: 403 817 364#
Find a local number | Reset PIN

To ensure the best experience for this meeting, please join via the Desktop or mobile Teams application. The use of the dial-in audio conferencing number is discouraged and should only be used if other options do not work or are not available.
Learn More | Help | Meeting options

This message is the property of John Wood Group PLC and/or its subsidiaries and/or affiliates and is intended only for the named recipient(s). Its contents (including any attachments) may be confidential, legally privileged or otherwise protected

from disclosure by law. Unauthorized use, copying, distribution or disclosure of any of it may be unlawful and is strictly prohibited. We assume no responsibility to persons other than the intended named recipient(s) and do not accept liability for any errors or omissions which are a result of email transmission. If you have received this message in error, please notify us immediately by reply email to the sender and confirm that the original message and any attachments and copies have been destroyed and deleted from your system.

If you do not wish to receive future unsolicited commercial electronic messages from us, please forward this email to: unsubscribe@woodplc.com and include “Unsubscribe” in the subject line. If applicable, you will continue to receive invoices, project communications and similar factual, non-commercial electronic communications.

Please click http://www.woodplc.com/email-disclaimer for notices and company information in relation to emails originating in the UK, Italy or France.

As a recipient of an email from a John Wood Group Plc company, your contact information will be on our systems and we may hold other personal data about you such as identification information, CVs, financial information and information contained in correspondence. For more information on our privacy practices and your data protection rights, please see our privacy notice at https://www.woodplc.com/policies/privacy-notice

---