



**Naval Facilities Engineering Command Southwest
BRAC PMO West
San Diego, CA**

AIR MONITORING SUMMARY REPORT FEBRUARY 16 TO MARCH 1, 2019

Remedial Action/Non-Time-Critical Removal Action Installation
Restoration Site 12

FORMER NAVAL STATION TREASURE ISLAND, SAN
FRANCISCO, CA

March 2019

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DCN: GLBN-0005-F4239-024



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FRANCISCO, CA

Prepared for:



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TABLE OF CONTENTS

List of Figures	i
List of Tables	i
List of Attachments	i
List of Abbreviations and Acronyms	ii
1.0 Introduction	1
2.0 Monitoring Site Locations	2
2.1 Dust Monitoring	2
2.2 Air Monitoring.....	2
2.3 Radiological Air Monitoring	3
3.0 Sampling and Analytical Methods	3
3.1 Dust Samples	3
3.2 Air Samples	4
3.3 Radiological Air Samples.....	4
4.0 Dust and Air Monitoring Data.....	5
5.0 Air Monitoring Results	8
6.0 References	9

LIST OF FIGURES

Figure 1	PDR Monitoring Locations IR Site 32
Figure 2	PDR Monitoring Locations IR Site 12
Figure 3	Air Monitoring Locations IR Site 12

LIST OF TABLES

Table 1	Dust Monitoring Project Action Levels
Table 2	Air Monitoring Project Screening Criteria

LIST OF ATTACHMENTS

Attachment 1	PDR Summary Table and Field Forms
Attachment 2	Summary of Air Monitoring and Air Sampling Results
Attachment 3	Radiological Air Monitoring Results

LIST OF ABBREVIATIONS AND ACRONYMS

4,4'-DDD	4,4-dichlorodiphenyldichloroethane
AMP	Air Monitoring Plan
BAAQMD	Bay Area Air Quality Management District
BAP	benzo(a)pyrene
cfm	cubic feet per minute
CFR	Code of Federal Regulations
DAC	derived air concentration
DTSC	Department of Toxic Substances Control
HERO	Human and Ecological Risk Office
Gilbane	Gilbane Federal
DCP	Dust Control Plan
IR	Installation Restoration
mg/m ³	milligram per cubic meter
Navy	U.S. Department of the Navy
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDR	personal data-logging real-time aerosol monitor
PM10	particulate matter less than 10 microns in diameter
PUF	polyurethane foam
Ra-226	radium-226
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TLV	threshold limit value
TSP	total suspended particulates
µg/m ³	microgram per cubic meter
USEPA	United States Environmental Protection Agency
Work Plan	<i>Final Work Plan, Remedial Action/Non-Time Critical Removal Action, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California</i>

1.0 INTRODUCTION

This Air Monitoring Report was prepared by Gilbane Federal (Gilbane) as requested by the United States Department of the Navy (Navy) under the Radiological Multiple Award Contract (RADMAC II) N62473-12-D-D005, Contract Task Order F4239. Gilbane is performing dust and air monitoring at Former Naval Station Treasure Island in accordance with the Final Dust Control Plan (DCP) and Air Monitoring Plan (AMP), included as appendices to *Remedial Action/Non-Time Critical Removal Action Work Plan, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California* (Work Plan; Gilbane, 2018).

The DCP describes best management practices and procedures to be implemented to minimize dust generation during work activities. Dust monitoring is conducted to ensure that these procedures are effective. Dust monitoring is also conducted to verify that the working environment meets occupational health and safety standards and that workers are safe. The AMP outlines the requirements for prevention of exposure for construction workers to dust and potential airborne chemicals of concern from the work area. The AMP also establishes the conservative project action levels for dust at the work area boundary to protect residents.

This summary report describes the following:

- Dust and air monitoring sampling locations – **Section 2.0**;
- Dust and air monitoring sample collection and analytical methods – **Section 3.0**;
- Dust and air monitoring data – **Section 4.0**; and
- Dust and air monitoring results – **Section 5.0**.

This summary report presents the dust and air monitoring test results at Installation Restoration (IR) Site 12 and/or IR Site 32 from February 16th, 2019 through March 1st, 2019, and compares the results with the established action levels included in the Work Plan (Gilbane, 2018).

IR Site 32, located 600 yards to the east of IR Site 12, is being used as a radiological screening yard and staging yard for the IR Site 12 project activities. The screening criteria established for IR Site 12 will be applied to the air monitoring at IR Site 32.

During the reporting period, personal data-logging real-time aerosol monitoring (PDR) dust data was collected. Air samples were collected and analyzed for lead, chromium, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), dioxin [2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)], total suspended particulates (TSP), and particulate matter less than 10 microns in diameter (PM10). In addition, air samples were analyzed for radiological gross alpha and beta levels.

2.0 MONITORING SITE LOCATIONS

2.1 Dust Monitoring

During earthmoving activities, multiple PDR stations are set up to monitor real-time airborne dust concentrations. The purpose of the PDR stations is to act as a first line of defense in protecting workers' health, and ultimately the public's health, during field activities. Dust levels are monitored at, and immediately adjacent to, the work area at the locations that will most likely contain the greatest volume of airborne dust. The objective of this dust monitoring approach is to demonstrate that dust levels are below action levels.

The general locations for dust monitors in IR Site 32 are shown on Figure 1, and the general locations for dust monitors for IR Site 12 are shown on Figure 2. Specific locations of each PDR are described in the individual PDR daily data files. Field forms from each location are presented in Attachment 1 of this report. During earth moving activities (i.e. transporting soil to radiological screening yard pads, managing radiological screening yard pads, etc.) at IR Site 32, one PDR serves as the upwind (background) location and two PDRs are placed in downwind perimeter locations. Correspondingly, during earth moving activities at IR Site 12 (i.e., transportation of top soil or import material, excavation, and backfilling), one PDR serves as the upwind (background) location and two PDRs are placed in downwind perimeter locations. Weather forecasts including wind direction are checked daily with a weather station located at Building 572.

2.2 Air Monitoring

Air monitoring samples were collected at the upwind Perimeter Road location and at the downwind location at the gate to Site 32. Air monitoring samples collected using high volume samplers are collected to identify and quantify airborne contaminants and to confirm the results recorded during dust (PDR) monitoring. Air monitoring stations are mobilized to collect air monitoring samples upwind and downwind of work areas. General locations of air monitoring stations are shown on Figure 3. The locations of the air monitoring stations are determined based on the prevailing wind direction (typically

from the northwest) and are modified as needed. A weather station is erected to monitor the wind direction.

High volume air monitoring stations remain stationary while sampling is being conducted; however, locations may be adjusted when the wind direction changes and when overall excavation work areas change from one site to another. Each upwind and downwind high volume monitoring station includes separate monitoring systems for the following:

- TSP- collected daily
- PM10- collected daily
- Lead and chromium- collected daily
- PAHs, PCBs, and Dioxins- collected on alternating days

2.3 Radiological Air Monitoring

Radiological air samplers are positioned adjacent to excavation work activities for radiologically impacted soil at one upwind and one downwind location during earthmoving activities associated with radiologically impacted soil. The radiological air samplers may be co-located with PDRs or the high-volume samplers.

3.0 SAMPLING AND ANALYTICAL METHODS

Dust and air samples are collected during earthmoving activities. However, during precipitation events, the dust and air monitoring units may not be operable. An attempt will be made to collect samples and readings regardless of the weather. If dust or air monitors are found to be malfunctioning or nonfunctional, earthmoving activities will stop until monitors can be repaired or replaced. The Site Health and Safety Officer is responsible for monitoring the air and dust monitoring sampling equipment. In rare cases, due to ancillary equipment malfunction such as generator failure during the night, a sample may be collected that represents a period of less than 24 hours. If this situation occurs, a note is added to the sample result data tables indicating why the full sampling period was not achieved.

3.1 Dust Samples

The PDR is a high sensitivity photometric monitor with a light-scattering sensing configuration that has been optimized for the measurement of the respirable fraction of airborne dust, smoke, fumes, and mists.

PDRs are used to evaluate real-time monitoring of airborne dust concentrations, to determine if there is a need for additional dust control or personal protection.

3.2 Air Samples

Air samples were sampled in accordance with the United States Environmental Protection Agency (USEPA) reference sampling method for PM₁₀, described in 40 Code of Federal Regulations (CFR) 50, Subpart J. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighted to determine the amount of PM₁₀ collected.

TSP samples were collected with a high-volume (39 to 60 cubic feet per minute [cfm]) air sampler in accordance with USEPA's reference sampling method for TSP, described in Title 40 CFR, Part 50, Subpart B. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighed to determine the amount of TSP collected. Once the filter weight was determined, the sample was analyzed for lead and chromium in accordance with USEPA Method 6020 using inductively coupled mass spectrometry.

Air samples for PCBs, PAHs, and dioxins are collected and analyzed in accordance with USEPA Methods TO-4A, TO-13, TO-9A, respectively, using TISH polyurethane (PUF) samplers. The filter media collected from the air samplers is submitted to the analytical laboratory for appropriate analysis.

PCB, PAH, and dioxin samples are collected on alternating days at the downwind and upwind stations during earthmoving activities.

3.3 Radiological Air Samples

Radiological air monitoring is also conducted upwind and downwind on days of earthmoving activities. Radiological samples are collected with a LV-1 low volume air sampler. Air filters are counted on site following a decay period and are compared with public air concentration limits published in 10 CFR Part 20. Radiological air sampling methods and procedures are detailed in Gilbane Radiological Procedure PR-RP-150 *Radiological Survey and Sampling*.

The radiological air sample is counted on a Low Background Protean WPC-9950 and analyzed for gross alpha and beta activity. The calculated airborne concentration in microcuries is then compared to the effluent concentration (often but incorrectly refer to as a derived air concentration [DAC] which applies only to occupational exposures) limit specified in Table 2 of Appendix B to 10 CFR 20. The effluent

concentration is the concentration of a given radionuclide in air which, if inhaled continuously over the course of a year, results in an exposure equal to the annual regulatory limit specified in 10 CFR 20.1302. The threshold for radiological effluent air monitoring samples is 10 percent of the effluent concentration, which ensures work practices are evaluated and modified as necessary to ensure the limit is not reached.

4.0 DUST AND AIR MONITORING DATA

The Human and Ecological Risk Office (HERO) at the request of the California Department of Toxic Substances Control (DTSC) developed dust action levels for community air monitoring for IR Site 12. Subchronic and chronic dust action levels as PM₁₀ were calculated for lead, chromium, dioxin, benzo(a)pyrene (BAP), 4,4-dichlorodiphenyldichloroethane (4,4'-DDD) and PCBs. As presented in the document *Dust Action Levels for Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California* (HERO, 2018), the action levels were calculated using the maximum chemicals of concern soil concentrations at IR Site 12. As noted in **Section 1.0**, IR Site 12 action levels will be implemented for project work at IR Site 32.

Based on HERO's recommendations, a PM₁₀ dust action level of 50 microgram per cubic meter (ug/m³) will be implemented for all excavations areas at IR Site 12 except at the area surrounding sampling location KCH-1217-1 which will have a limit of 8 ug/m³ due to the elevated level of contaminants historically measured at this location. TSP is expected to be further controlled based on the limit employed for PM₁₀, in accordance with guidance provided by the San Francisco Bay Area Air Quality Management District (BAAQMD), which estimates that PM₁₀ makes up approximately 55 percent of TSP. If it is apparent that project activities are the cause of exceedances, additional control measures will be considered and implemented.

Dust monitoring action levels that are implemented on a real-time basis are listed in Table 1. PDR data are collected and reviewed each day by the Site Health and Safety Manager. PDR data are included in Attachment 1.

Analytical results from air monitoring samples are compared with the project screening criteria (threshold limit values [TLV]) listed in Table 2. Air monitoring results are included in Attachment 2. Radiological monitoring results are included in Attachment 3.

Table 1
Dust Monitoring Project Action Levels

Method	Monitoring Location	Monitoring Frequency ^a	Action Level ^b	Action
PDR	Near Workers' Breathing Zones (typically on equipment)	Periodically ^c	<2.5 mg/m ³ >2.5 mg/m ³	Continue work. Use Level D and increase dust control (i.e., apply water or other suppression method). Optionally upgrade to Level C until concentrations are reduced.
	Job Site Perimeter	Continuously	<1.0 mg/m ³ >1.0 mg/m ³	Continue work. Increase dust control and re- evaluate. Stop work if levels do not decrease.

Notes:

Only the Health and Safety Manager is authorized to downgrade levels of personal protective equipment.

^a Frequency of air monitoring may be adjusted by the project Certified Industrial Hygienist after sufficient characterization of site contaminants has been completed, tasks have been modified, or site controls have proven effective.

^b Five readings exceeding the action level in any 15-minute period or a sustained reading exceeding the action level for five minutes will trigger a response. Action levels represent airborne particulate concentrations in excess of background particulate concentrations.

^c PDR will be monitored a minimum of three times a day.

< less than

> greater than

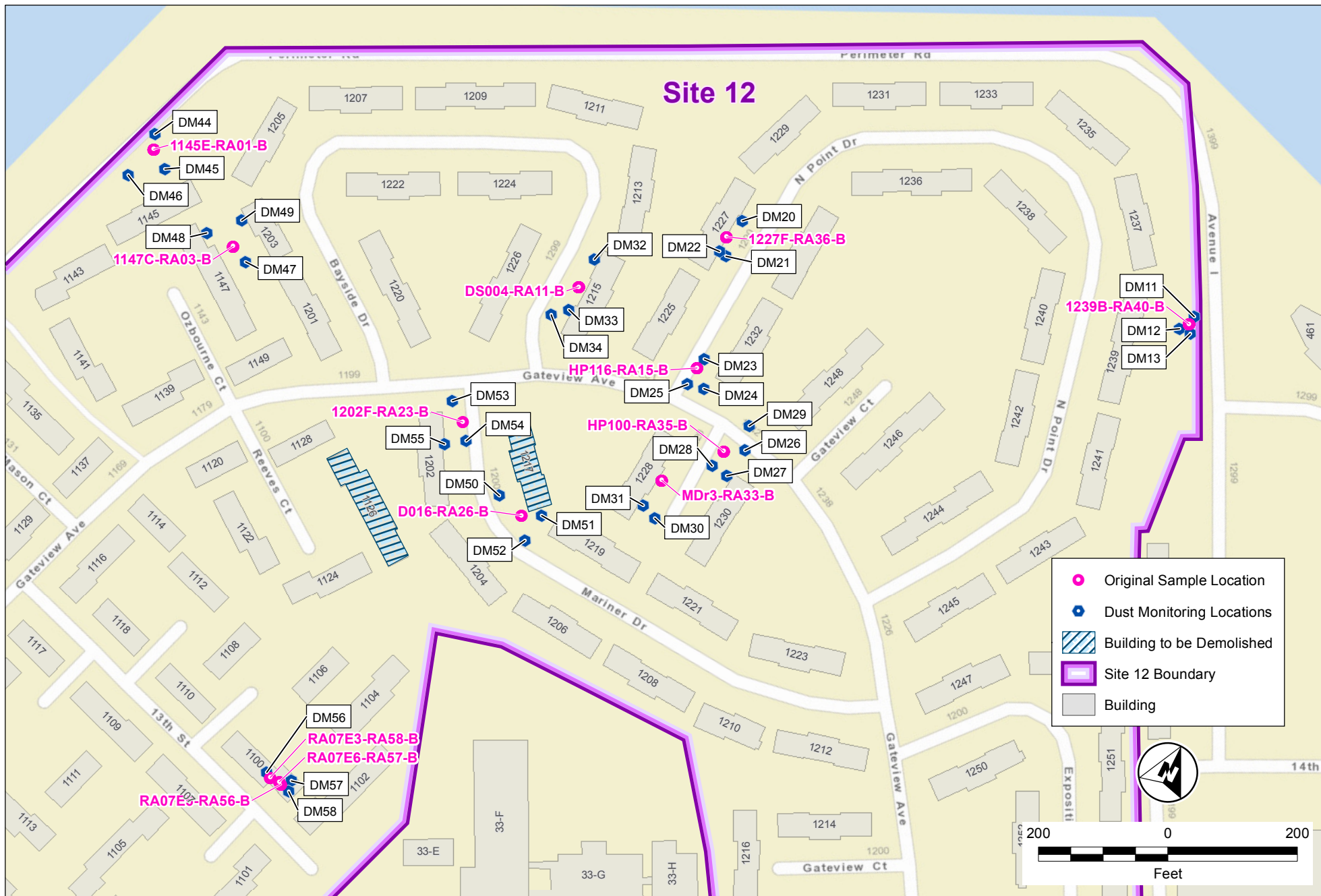
mg/m³ milligram per cubic meter

PDR personal data-logging real-time aerosol monitor



**IR Site 12 Non-SWDA Remedial Action/
SWDA Removal Action**
Former Naval Station Treasure Island
San Francisco, CA

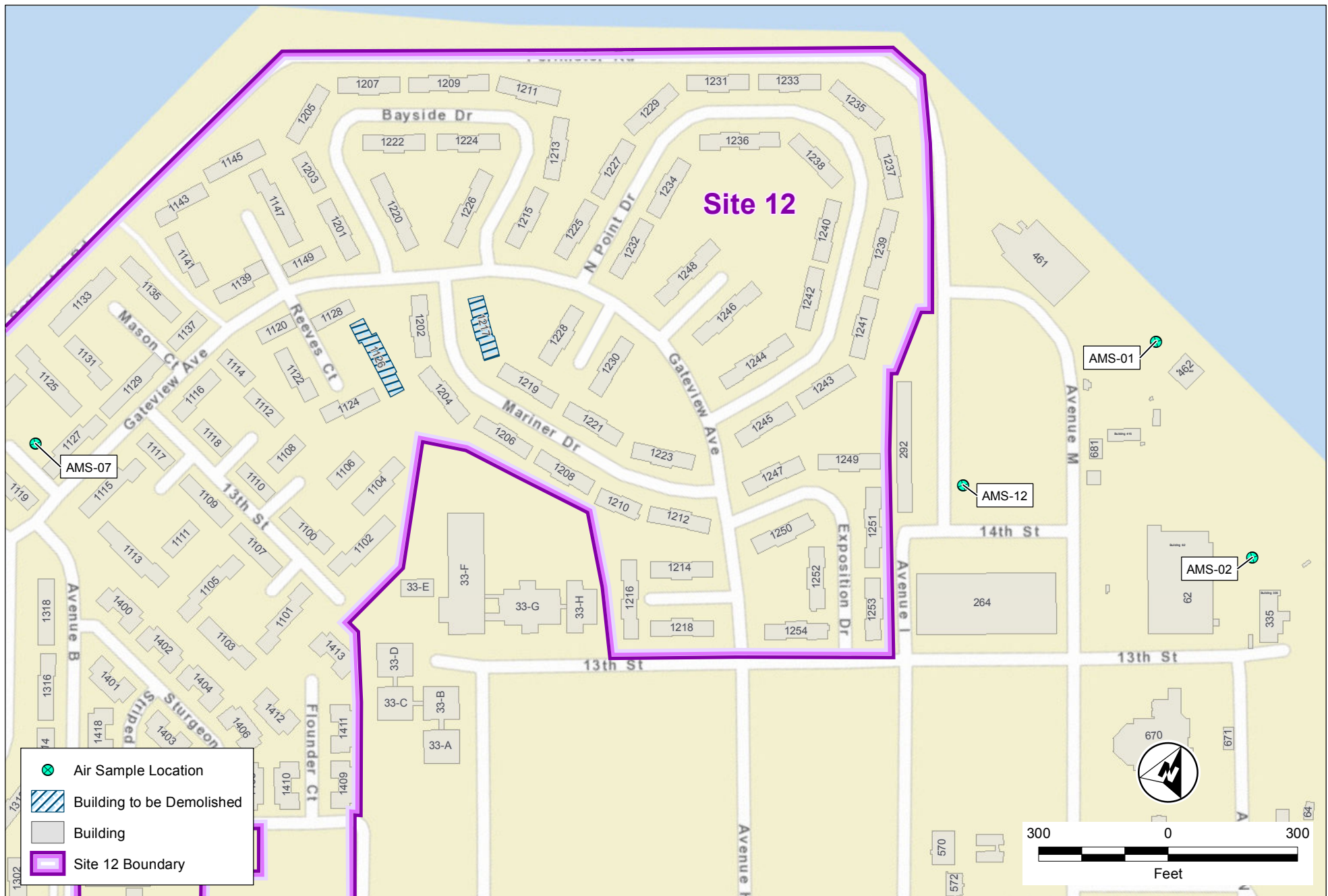
Figure 1
PDR Monitoring Locations
IR Site 32



**IR Site 12 Non-SWDA Remedial Action/
SWDA Removal Action**
Former Naval Station Treasure Island
San Francisco, CA

Figure 2
PDR Monitoring Locations
IR Site 12





**IR Site 12 Non-SWDA Remedial Action/
SWDA Removal Action**
Former Naval Station Treasure Island
San Francisco, CA

Figure 3
Air Monitoring Locations
IR Site 12



Table 2
Air Monitoring Project Screening Criteria

Chemicals of Concern	Project Screening Criteria (Threshold Limit Value) $\mu\text{g}/\text{m}^3$	Basis
Lead	242	TI Site 12 Dust Action Level
Chromium	929	TI Site 12 Dust Action Level
TSP	50	TI Site 12 Dust Action Level
PM10	50	BAAQMD ambient air quality
BAP	50 (8) ^b	TI Site 12 Dust Action Level
PCBs ^a	NA	TI Site 12 Dust Action Level
4,4'-DDD	200	TI Site 12 Dust Action Level
Dioxin ^a	1E+07	TI Site 12 Dust Action Level
Radiological (Ra-226)	10% of DAC ^c	Occupational and public air concentration limits for Ra-226 published in 10 Code of Federal Regulations Part 20.

Notes:

a The dust action level was increased by a factor of 10 to account for the short-term duration of the project relative to the lifetime assumptions incorporated into the toxicity criteria and exposure assumption.

b BAP action levels will be 50 $\mu\text{g}/\text{m}^3$ for all excavations except for the area surrounding sample locations KCH-1217-1 at which it will be 8 $\mu\text{g}/\text{m}^3$

c Public air concentration limits are commonly referred to as DAC, but are in actuality Effluent Concentrations from Table 2 for 10 CFR Part 20.

% percent

4,4'-DDD dichlorodiphenyldichloroethane

BAAQMD Bay Area Air Quality Management District

BAP benzo(a)pyrene

DAC derived air concentration

PCBs polychlorinated biphenyls

PM10 particulate matter smaller than 10 microns in diameter

Ra-226 radium-226

TSP total suspended particulates

$\mu\text{g}/\text{m}^3$ microgram per cubic meter

5.0 AIR MONITORING RESULTS

If dust (PDR) monitoring equipment alarm, the source of exceedance will be determined by evaluating both upwind and downwind dust (PDR) sample locations. If the difference between upwind and downwind concentrations is greater than the action level for a sustained period of 15 minutes, then earthmoving activities will be halted until dust control measures are implemented. These may include, but are not limited to adding water to the work area during earth moving tasks, evaluation of alternate work procedures or equipment, and/or cessation of the activity that is creating the dust until the PDR readings are below the screening criteria.

PDR summary results are presented in Attachment 1. Weather information (including ambient pressure and temperature data) and high volume air monitoring sample results are presented in Attachment 2. Weather information was collected from the weather station at Building 572, Avenue M, Treasure Island, San Francisco, California. Radiological air monitoring results are presented in Attachment 3.

PM10 analytical results from February 16, 2019 to March 1, 2019 did not exceed the project-specific screening criteria presented in Table 2.

TSP analytical results from February 16, 2019 to March 1, 2019 did not exceed the project-specific screening criteria presented in Table 2. TSP analytical results for location AMS12 collected March 1, 2019, are unavailable due to an analytical anomaly which resulted in the rejection of the TSP results during the validation process. The net weight for the sample was recorded as negative, but the sample appeared to have particulate matter on the filter and there was no observable physical damage to the filter. The laboratory was asked to confirm the data and did so; however, it was not possible to confirm the original tare weight.

Metals (chromium and lead), PAHs, total PCBs, and dioxin analytical results from February 16, 2019 to March 1, 2019 did not exceed the project-specific screening criteria presented in Table 2.

Dust (PDR) delta action levels did not exceed during the reporting period. The data sheets are found in Attachment 1.

Radiological air monitoring action levels were not exceeded during the reporting period.

6.0 REFERENCES

Gilbane, 2016. *Radiological Procedure PR-RP-150 Radiological Survey and Sampling*. January.

Gilbane, 2018. *Remedial Action/Non-Time Critical Removal Action Work Plan, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

Gilbane, 2018. *Remedial Action/Non-Time Critical Removal Action Work Plan, Air Monitoring Report, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

Gilbane, 2018. *Remedial Action/Non-Time Critical Removal Action Work Plan, Dust Control Plan, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

HERO, 2018. *Dust Action Levels for Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

FIGURES

ATTACHMENTS

ATTACHMENT 1
PDR SUMMARY TABLE AND FIELD FORMS

Table 1-1

Personal Data-logging Real-time (PDR) Aerosol Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



DustTrak Unit	IR Site	Date	Maximum (mg/m ³)	Average (mg/m ³)	Delta Between Upwind and Downwind stations (mg/m ³)	Below action level? (0.050 mg/m ³) (Yes/No)
DM1	Site 32	2/20/2019	0.003	0.002	NA	NA
DM2	Site 32		0.004	0.003	0.001	Yes
DM3	Site 32		0.004	0.003	0.001	Yes
DM44	Site 12		0.006	0.005	NA	NA
DM45	Site 12		0.003	0.002	-0.003	Yes
DM46	Site 12		0.007	0.003	-0.002	Yes
DM1	Site 32	2/21/2019	0.007	0.004	NA	NA
DM2	Site 32		0.004	0.002	-0.002	Yes
DM3	Site 32		0.004	0.002	-0.002	Yes
DM47	Site 12		0.003	0.003	NA	NA
DM48	Site 12		0.003	0.001	-0.002	Yes
DM49	Site 12		0.006	0.003	0.000	Yes
DM1	Site 32	2/25/2019	0.016	0.014	NA	NA
DM2	Site 32		0.010	0.008	-0.006	Yes
DM3	Site 32		0.018	0.013	-0.001	Yes
DM11	Site 12		0.010	0.009	NA	NA
DM12	Site 12		0.008	0.008	-0.001	Yes
DM13	Site 12		0.007	0.007	-0.002	Yes
DM23	Site 12		0.010	0.010	NA	NA
DM24	Site 12		0.010	0.010	0.000	Yes
DM25	Site 12		0.008	0.008	-0.002	Yes
DM20	Site 12		0.008	0.008	NA	NA
DM21	Site 12		0.013	0.011	0.003	Yes
DM22	Site 12		0.009	0.009	0.001	Yes
DM26	Site 12		0.010	0.010	NA	NA
DM27	Site 12		0.008	0.008	-0.002	Yes
DM28	Site 12		0.008	0.008	-0.002	Yes
DM29	Site 12		0.006	0.006	NA	NA
DM30	Site 12		0.006	0.006	0.000	Yes
DM31	Site 12		0.008	0.008	0.002	Yes
DM32	Site 12		0.006	0.006	NA	NA
DM33	Site 12		0.007	0.007	0.001	Yes
DM34	Site 12		0.020	0.014	0.008	Yes
DM1	Site 32	2/27/2019	0.011	0.007	NA	NA
DM2	Site 32		0.005	0.004	-0.003	Yes
DM3	Site 32		0.013	0.008	0.001	Yes
DM50	Site 12		0.003	0.002	NA	NA
DM51	Site 12		0.006	0.004	0.002	Yes
DM52	Site 12		0.005	0.004	0.002	Yes
DM1	Site 32	2/28/2019	0.014	0.010	NA	NA
DM2	Site 32		0.009	0.008	-0.002	Yes
DM3	Site 32		0.009	0.007	-0.003	Yes
DM53	Site 12		0.005	0.005	NA	NA
DM54	Site 12		0.008	0.007	0.002	Yes
DM55	Site 12		0.006	0.005	0.000	Yes
DM56	Site 12		0.005	0.005	NA	NA
DM57	Site 12		0.004	0.004	-0.001	Yes
DM58	Site 12		0.007	0.005	0.000	Yes

Notes:

bold = results above screening criteria

mg/m³ = milligram per cubic meter

NA = not applicable



AIR MONITORING LOG

Client Name NAVFAC

Date 2/20/19

Project No. J310000300

Page of

Logged by Mike Cox

Weather Cloudy

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:26	DM1	Upwind site 32	0.001	2368	No earth moving activities
7:37	DM2	Downwind site 32	0.004	1649	↓
7:40	DM3	Down wind site 32	0.002	2724	
9:32	DM44	Up wind excavation site 12 1145-E	0.004	3703	Pre excavation
9:33	DM45	Down wind excavation site 12 1145-E	0.002	2714	↓
9:34	DM46	Down wind excavation site 12 1145-E	0.007	3204	
9:52	DM1		0.002	2368	Inspection during excavation
9:55	DM2		0.004	1649	
9:58	DM3		0.004	2724	
10:54	DM44		0.004	3703	
10:55	DM45		0.003	2714	
10:56	DM46		0.001	3204	
12:02	DM44		0.006	3703	Excavation complete
12:03	DM45		0.002	2714	
12:04	DM46		0.001	3204	
1:38	DM1		0.003	2368	
1:42	DM2		0.001	1649	
1:43	DM3		0.003	2724	
4:29	DM1		0.10 0.001 MC	2368	
4:34	DM2		0.004 ^{2/20}	1649	↓



AIR MONITORING LOG

Client Name NAVFAC

Date 2/21/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather Sunny

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:30	DM1	UW site 32	0.007	3703	No earth moving activities
7:41	DM2	DW site 32	0.004	2714	↓
7:44	DM3	DW site 32	0.004	2368	↓
8:28	DM47	UW excavation 1147-C site 12	0.003	2724	Pre excavation
8:30	DM48	DW excavation 1147-C site 12	0.003	1649	↓
8:31	DM49	DW excavation 1147-C site 12	0.006	3204	↓
10:10	DM47		0.002	2724	Backfill w/ clean material ongoing
10:11	DM48		0.001	1649	↓
10:12	DM49		0.002	3204	↓
1140	DM47		0.003		
1141	DM48		0.000		
1142	DM49		0.000		↓
1150	DM1		0.002		
1154	DM2		0.001		
1155	DM3		0.001		
1400	DM1		0.002		
1402	DM2		0.001		
1403	DM3		0.001		

KSA
2-21-19



AIR MONITORING LOG

Client Name NAVFAC

Date 2/25/19

Project No. J310000300

Page 1 of 2

Logged by Mike Cox

Weather cloudy 50°

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:35	DM1	UW site 32	0.016	3703	No earth moving activities
7:42	DM2	DW site 32	0.010	2714	↓
7:45	DM3	DW site 32	0.013	3204	
9:15	DM11	UW excavation 1236-B	0.008	2724	Placing top soil
9:17	DM12	DW excavation 1236-B	0.008	2368	
9:19	DM13	DW excavation 1236-B	0.006	1649	
9:26	DM11		0.010	2724	
9:28	DM12		0.008	2368	
9:30	DM13		0.007	1649	
9:49	DM23	UW excavation HP116	0.010	2724	Placing top soil
9:51	DM24	DW excavation HP116	0.010	2368	
9:52	DM25	DW excavation HP116	0.008	1649	
10:02	DM23		0.009	2724	
10:03	DM24		0.009	2368	
10:04	DM25		0.007	1649	
10:10	DM20	UW excavation 1227-F	0.008	1649	Placing top soil
10:11	DM21	DW 1227-F	0.009	2724	
10:12	DM22	DW 1227-F	0.009	2368	
10:18	DM20		0.008	1649	
10:19	DM21		0.013	2724	
10:20	DM22		0.009	2368	
10:23	DM26	UW HP100	0.010	2724	Placing top soil
10:24	DM27	DW HP100	0.008	2368	
10:25	DM28	DW HP100	0.008	1649	

10:30 DM26 UW HP 100 0.009 2724

10:31 DM27 DW HP 100 0.008 2368

10:32 DM28 DW HP 100 0.007 1649



AIR MONITORING LOG

Client Name NAVFAC

Date 2/25/19

Project No. J310000300

Page 2 of 2

Logged by Mike Cox

Weather _____

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
10:43	DM1	UW site 32	0.010	3703	
10:47	DM2	DW site 32	0.007	2714	
10:49	DM3	DW site 32	0.010	3204	
10:58	DM29	UW MDR-3	0.006	1649	Placing top soil
11:00	DM30	DW MDR-3	0.006	2368	
11:01	DM31	DW MDR-3	0.007	2724	
11:09	DM29		0.006	1649	
11:10	DM30		0.006	2368	
11:11	DM31		0.008	2724	
11:13	DM32	UW 1200 D5004	0.006	1649	Placing top soil
11:15	DM33	DW D5004	0.007	2368	
11:17	DM34	DW D5004	0.020	2724	
11:24	DM32		0.006	1649	
11:25	DM33		0.007	2368	
11:26	DM34		0.007	2724	
12:48	DM1		0.015	3703	
12:50	DM2		0.008	2714	
12:53	DM3		0.018	3204	
3:07	DM1		0.015	3703	
3:10	DM2		0.007	2714	
3:11	DM3		0.009	3703	



AIR MONITORING LOG

Client Name NAVFAC

Date 2/27/19

Project No. J310000300

Page of

Logged by Mike Cox

Weather Rain 50°

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:32	DM1	UW site 32	0.003	2368	No earth moving activities ↓
7:43	DM2	DW site 32	0.004	2714	
7:45	DM3	DW site 32	0.004	3204	
8:56	DM50	UW discrete sampling D016	0.001	2724	Sampling with dirt rig ↓
8:57	DM51	DW discrete sampling D016	0.002	1649	
8:58	DM52	DW discrete sampling D016	0.003	3703	
9:39	DM1		0.006	2368	
9:42	DM2		0.002	2714	
9:43	DM3		0.007	3204	
11:00	DM50		0.003		
↓	DM51		0.006		
↓	DM52		0.005		
11:45	DM1		0.006		
↓	DM2		0.005		
↓	DM3		0.008		
11:50	DM51		0.004		
↓	DM50		0.003		
↓	DM52		0.005		
1500	DM1		0.011		
	DM2		0.005		
	DM3		0.013		



AIR MONITORING LOG

Client Name NAVFACDate 2-28-19Project No. J310000300

Page _____ of _____

Logged by Mike CoxWeather Sunny 49°Instrument Type: Dust Trak IICalibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:26	DM1	UW site 32	0.010	3703	No earth moving activities
7:33	DM2	DW site 32	0.008	2724	↓
7:36	DM3	DW site 32	0.009	3204	
8:26	DM53	UW sample 1202-F	0.005	2714	Discreet sampling
8:27	DM54	DW sample 1202-F	0.005	2368	
8:28	DM55	DW sample 1202-F	0.003	1649	
10:13	DM1		0.014	3703	
10:14	DM2		0.006	2724	
10:15	DM3		0.008	3204	
10:18	DM53		0.004	2714	
↓	DM54		0.008	2368	
↓	DM55		0.006	1649	
10:55	DM56	UW discreet RAO7E sample A015-6	0.005	2714	
↓	DM57	DW sample RAO7E A015-6	0.004	1649	
↓	DM58	DW sample RAO7E A015-6	0.007	2368	
12:12	D56	UW sample 7E-03	0.004		
↓	D57	DW sample 7E-03	0.003		
↓	D58	DW sample 7E-03	0.003		↓
3:38	DM1	UW site 32	0.007	3703	End of day readings
↓	DM2	DW site 32	0.009	2724	↓
↓	DM3	DW site 32	0.004	3204	

ATTACHMENT 2
SUMMARY OF AIR MONITORING AND AIR SAMPLING RESULTS

Table 2-1**Ambient Pressure and Temperature Monitoring Results****Remedial Action/NTCRA IR Site 12****Former Naval Station Treasure Island, San Francisco, California**

Sample Date	Ambient Pressure (inches of Hg)	Ambient Temperature (°F)	Ambient Temperature (°K)
2/20/2019	30.33	49.23	282.72
2/21/2019	30.04	49.42	282.83
2/22/2019	30.04	48.92	282.55
2/26/2019	30.15	53.39	285.03
2/27/2019	30.09	53.84	285.28
2/28/2019	30.21	52.18	284.36
3/1/2019	30.32	50.11	283.21

Notes:

Weather data collected from weather station at Building 572, Avenue M, Treasure Island, San Francisco, CA

°F = Degrees Fahrenheit

Hg = mercury

°K = Degrees Kelvin

Table 2-2

Particulate Matter Smaller than Ten Microns (PM10)

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	Particulate Matter Less Than 10 Microns in Diameter (ug/m ³)	Delta between Downwind and Upwind Stations (ug/m ³)	PM10 Exceedance? (Yes/No)
Screening Criteria					50
AMS01	25.04	02/20/2019	12	NA	NA
	24.81	02/21/2019	9.2	NA	NA
	24.29	02/22/2019	3.3	NA	NA
	25.16	02/26/2019	12	NA	NA
	24.78	02/27/2019	9.1	NA	NA
	24.76	02/28/2019	7	NA	NA
	24.00	03/01/2019	9.3	NA	NA
AMS02	24.25	02/20/2019	21	9	No
	23.83	02/21/2019	26	16.8	No
	23.43	02/22/2019	5.5	2.2	No
	23.56	02/26/2019	12	0	No
	23.65	02/27/2019	9.8	0.7	No
	23.67	02/28/2019	8.6	1.6	No
	23.58	03/01/2019	9.4	0.1	No
AMS07	22.75	02/21/2019	8.2	NA	NA
	23.56	02/22/2019	0.75	NA	NA
	23.30	02/26/2019	9.6	NA	NA
	23.72	02/28/2019	9.9	NA	NA
	23.62	03/01/2019	7.2	NA	NA
AMS12	23.96	02/21/2019	6.2	-2.0	No
	23.64	02/22/2019	0.37	-0.4	No
	23.87	02/26/2019	8.7	-0.9	No
	23.83	02/28/2019	6.7	-3.2	No
	23.69	03/01/2019	4.4	-2.8	No

Notes:

NA = not applicable

PM10 = particulate matter less than 10 microns in diameter

ug/m³ = microgram per cubic meter

Table 2-3

Total Suspended Particulates Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	Total Suspended Particulate (ug/m ³)	Delta Between Downwind and Upwind Stations (ug/m ³)	TSP Exceedance? (Yes/No)
Screening Criteria					50
AMS01	25.04	02/20/2019	14.21	NA	NA
	24.84	02/21/2019	11.68	NA	NA
	24.27	02/22/2019	24.09	NA	NA
	25.04	02/26/2019	20.22	NA	NA
	24.91	02/27/2019	15.76	NA	NA
	24.78	02/28/2019	11.45	NA	NA
	24.63	03/01/2019	11.58	NA	NA
AMS02	24.16	02/20/2019	39.49	25.3	No
	23.92	02/21/2019	57.35	45.7	No
	23.42	02/22/2019	30.95	6.9	No
	23.44	02/26/2019	18.55	-1.7	No
	23.62	02/27/2019	12.90	-2.9	No
	23.76	02/28/2019	13.25	1.8	No
	23.47	03/01/2019	5.55	-6.0	No
AMS07	22.84	02/21/2019	11.42	NA	NA
	23.57	02/22/2019	8.70	NA	NA
	23.43	02/26/2019	23.04	NA	NA
	23.7	02/28/2019	16.78	NA	NA
	23.58	03/01/2019	0.93	NA	NA
AMS12	23.99	02/21/2019	11.94	0.52	No
	23.67	02/22/2019	16.33	7.63	No
	24.13	02/26/2019	20.09	-2.96	No
	23.79	02/28/2019	12.65	-4.13	No
	24.43	03/01/2019	R	NA	NA

Notes:

NA = not applicable

R = rejected data; result unusable

TSP = total suspended particulate

Table 2-4

Metals by EPA 6020 Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	Lead (ug/m ³)	Lead Exceedance? (Yes/No)	Chromium (ug/m ³)	Chromium Exceedance? (Yes/No)
Screening Criteria				242	929	
AMS01	25.04	02/20/2019	0.0012	No	0.0042	No
	24.81	02/21/2019	0.00052	No	0.004	No
	24.29	02/22/2019	0.00094	No	0.0044	No
	25.16	02/26/2019	0.00097	No	0.004	No
	24.78	02/27/2019	0.00045	No	0.00092	No
	24.76	02/28/2019	0.00036	No	0.00085	No
	24.00	03/01/2019	0.00083	No	0.00087	No
AMS02	24.25	02/20/2019	0.0029	No	0.0049	No
	23.83	02/21/2019	0.0033	No	0.0053	No
	23.43	02/22/2019	0.0017	No	0.0045	No
	23.56	02/26/2019	0.0011	No	0.0046	No
	23.65	02/27/2019	0.00059	No	0.00097	No
	23.67	02/28/2019	0.00035	No	0.00083	No
	23.58	03/01/2019	0.00096	No	0.0040	No
AMS07	22.75	02/21/2019	0.00099	No	0.0043	No
	23.56	02/22/2019	0.00055	No	0.0038	No
	23.3	02/26/2019	0.0012	No	0.0043	No
	23.72	02/28/2019	0.00074	No	0.00097	No
	23.62	03/01/2019	0.00085	No	0.004	No
AMS12	23.96	02/21/2019	0.0012	No	0.0044	No
	23.64	02/22/2019	0.0014	No	0.0046	No
	23.87	02/26/2019	0.0023	No	0.0015	No
	23.83	02/28/2019	0.0009	No	0.00087	No
	23.69	03/01/2019	0.00067	No	0.0039	No

Notes:

ug/m³ = microgram per cubic meter

Table 2-5
Polycyclic Aromatic Hydrocarbons by TO-13 Monitoring Results
Remedial Action/NTCRA IR Site 12
Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	BAP(Eq) Exceed-ance? (Yes/No)	BAP(Eq)	2-Methyl-naph-thalene (ug/m ³)	Acenaph-thene (ug/m ³)	Acenaph-thylene (ug/m ³)	Anthra-cene (ug/m ³)	Benzo(a) anthra-cene (ug/m ³)	Benzo(a) pyrene (ug/m ³)	Benzo(b) fluoran-thene (ug/m ³)	Benzo(g,h,i) perylene (ug/m ³)	Benzo(k) fluoran-thene (ug/m ³)	Chrysene (ug/m ³)	Dibenz(a,h) anthra-cene (ug/m ³)	Fluoran-thene (ug/m3)	Fluorene (ug/m3)	Indeno (1,2,3-c,d) pyrene (ug/m3)	Naph-thalene (ug/m3)	Phenan-threne (ug/m3)	Pyrene (ug/m3)
Screening Criteria ¹				50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
AMS01	25.01	02/20/2019	No	0	0.0042	0.00023 J	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	0.00032 J	< 0.00044	0.0037	0.00044	< 0.00044
	22.68	02/26/2019	No	0	0.001 J	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	0.0018	0.00036 J	< 0.00053
	24.51	03/01/2019	No	0	0.0036	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	0.00034 J	< 0.00051	0.0045	0.00047 J	< 0.00051
AMS02	24.16	02/20/2019	No	0	0.005	0.00036 J	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045	< 0.00045	0.00018 J	0.00067	< 0.00045	0.0092	0.0013	0.00032 J
	23.61	02/26/2019	No	0	0.0014	0.0002 J	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	0.00021 J	< 0.00048	0.0029	0.00046 J	< 0.00048
	23.51	03/01/2019	No	0	0.0044	0.0004 J	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	0.00021 J	0.00066	< 0.00047	0.0084	0.0015	0.00034 J
AMS07	23.23	02/26/2019	No	0	0.0013	0.00042 J	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	< 0.00044	0.00033 J	< 0.00044	0.0024	0.00064	< 0.00044
	23.67	03/01/2019	No	0	0.0014	0.00043	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	< 0.00041	0.00044	< 0.00041	0.0028	0.001	< 0.00041
AMS12	24.34	02/26/2019	No	0	0.001	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	0.0015	0.00028 J	< 0.00038
	23.66	03/01/2019	No	0	0.001	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	0.0022	0.00023 J	< 0.00038

Notes:

¹ The screening criteria for BAP(Eq) is 50 ug/m³ except for the area surrounding excavation KCH-1217-1 at which it will be 8 ug/m³.

NE = Not established

BAP(Eq) = Benzo(a) pyrene equivalency

J = estimated value

< = nondetected less than associated reporting limit

Table 2-6

Polychlorinated Biphenyls by TO-4A Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	Total PCB Exceedance? (Yes/No)	Total PCB	PCB-1016 (Aroclor 1016) (ug/m ³)	PCB-1221 (Aroclor 1221) (ug/m ³)	PCB-1232 (Aroclor 1232) (ug/m ³)	PCB-1242 (Aroclor 1242) (ug/m ³)	PCB-1248 (Aroclor 1248) (ug/m ³)	PCB-1254 (Aroclor 1254) (ug/m ³)	PCB-1260 (Aroclor 1260) (ug/m ³)
Screening Criteria							NE				
AMS01	24.2	02/22/2019	NA	0	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	24.66	02/28/2019	NA	0	< 0.00072	< 0.00072	< 0.00072	< 0.00072	< 0.00072	< 0.00072	< 0.00072
AMS02	23.32	02/22/2019	NA	0	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075
	23.59	02/28/2019	NA	0	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068
AMS07	23.57	02/22/2019	NA	0	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069
	7.72	02/28/2019	NA	0	< 0.0018	< 0.0018	< 0.0018	< 0.0018	< 0.0018	< 0.0018	< 0.0018
AMS12	22.02	02/22/2019	NA	0	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059
	23.8	02/28/2019	NA	0	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055

Notes:

NA = Not applicable

NE = none established

PCB = polychlorinated biphenyl

ug/m³ = microgram per cubic meter

< = nondetected less than associated reporting limit

Table 2-7

Dioxin as 2,3,4,7,8-TCDD by TO-9A Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



Location ID	Sampling Period (Hours)	Sample Date	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ug/m ³)	Dioxin Exceedance? (Yes/No)
Screening Criteria				10,000,000
AMS01	24.84	02/21/2019	< 0.000000017	No
	24.78	02/27/2019	< 0.000000019	No
AMS02	23.85	02/21/2019	< 0.000000018	No
	23.60	02/27/2019	< 0.000000018	No
AMS07	22.74	02/21/2019	< 0.000000019	No
AMS12	23.98	02/21/2019	< 0.000000015	No

Notes:

ug/m³ = microgram per cubic meter

< = nondetected less than associated reporting limit

ATTACHMENT 3
RADIOLOGICAL AIR MONITORING RESULTS



AIR SAMPLE RESULTS - PUBLIC EXPOSURE MONITORING

Project Information									Effluent Air Concentration					Sampling Period				Color Codes					
Contract / Task Order Number: N62473-17-D-0005		Project Title / Location: IR Site 12 RD/RA, Treasure Island, SF, CA			Gilbane Project Number: J310000300						Alpha	Beta	Air samples collected between February 16, 2019 and March 1, 2019		Value < MDC		Value < 0.1 x Effluent Conc						
									Radionuclide		Ra-226	Sr-90			< 72 hr decay time		Value > 0.1 x Effluent Conc						
Information effective as of: 3/22/2019									Effluent Conc (µCi/ml)		9.E-13	6.E-12			Data reviewed		Value > Effluent Conc						
Sample Collection									Count Information								Sample Results				Initials		
Sample Number	Sample Type	Sample Location	Equip No	Ave Flow Rate (lpm)	Start Day Time	End Date Time	Elapsed Time (min)	Volume (ml)	Inst No	Count Date	Time (min)	Counting Units	Gross Activity		Net dpm		Activity (µCi/ml)		Effluent Conc (%)		Count Tech	Data Reviewer	
													Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta			
AS-146	Perimeter	AMS-01	PE01	50	2/19/19 7:15	2/19/19 15:55	520	2.6E+07	A	3/4/19	20	cpm	0.150	3.950	0.4	8.3	7.5E-15	1.4E-13	0.8%	2.4%	BS	CB	
AS-147	Perimeter	AMS-02	PE02	60	2/19/19 7:30	2/19/19 16:00	510	3.1E+07	A	3/4/19	20	cpm	0.250	4.650	0.7	10.2	1.1E-14	1.5E-13	1.2%	2.5%	BS	CB	
AS-148	Perimeter	AMS-01	PE01	50	2/20/19 5:50	2/20/19 15:00	550	2.8E+07	A	3/4/19	20	cpm	0.200	3.200	0.6	6.2	9.4E-15	1.0E-13	1.0%	1.7%	BS	CB	
AS-149	Perimeter	AMS-02	PE02	60	2/20/19 6:00	2/20/19 14:50	530	3.2E+07	A	3/4/19	20	cpm	0.050	4.100	0.1	8.7	2.0E-15	1.2E-13	0.2%	2.0%	BS	CB	
AS-150	Perimeter	AMS-07	PE03	50	2/20/19 7:15	2/20/19 16:00	525	2.6E+07	A	3/4/19	20	cpm	0.050	1.150	0.1	0.7	2.5E-15	1.2E-14	0.3%	0.2%	BS	CB	
AS-151	Perimeter	AMS-12	PE04	60	2/20/19 5:55	2/20/19 15:05	550	3.3E+07	A	3/4/19	20	cpm	0.100	3.350	0.3	6.6	3.9E-15	9.1E-14	0.4%	1.5%	BS	CB	
AS-152	Perimeter	EX # 1145 E	PE06	60	2/20/19 8:15	2/20/19 12:30	255	1.5E+07	A	3/4/19	20	cpm	0.200	3.100	0.6	6.0	1.7E-14	1.8E-13	1.9%	2.9%	BS	CB	
AS-153	Perimeter	AMS-01	PE01	50	2/21/19 5:45	2/21/19 14:13	508	2.5E+07	A	3/4/19	20	cpm	0.350	3.900	1.0	8.1	1.8E-14	1.4E-13	2.0%	2.4%	BS	CB	
AS-154	Perimeter	AMS-02	PE02	60	2/21/19 5:55	2/21/19 14:00	485	2.9E+07	A	3/4/19	20	cpm	0.200	3.100	0.6	6.0	8.9E-15	9.2E-14	1.0%	1.5%	BS	CB	
AS-155	Perimeter	AMS-07	PE03	50	2/21/19 7:20	2/21/19 15:50	510	2.5E+07	A	3/4/19	20	cpm	0.300	3.750	0.9	7.7	1.5E-14	1.4E-13	1.7%	2.3%	BS	CB	
AS-156	Perimeter	AMS-12	PE04	60	2/21/19 5:50	2/21/19 14:02	492	3.0E+07	A	3/4/19	20	cpm	0.050	4.050	0.1	8.5	2.2E-15	1.3E-13	0.2%	2.2%	BS	CB	
AS-157	Perimeter	EX # 1147 C	PE06	60	2/21/19 8:00	2/21/19 12:13	253	1.5E+07	A	3/4/19	20	cpm	0.150	4.150	0.4	8.8	1.3E-14	2.6E-13	1.4%	4.4%	BS	CB	
AS-158	Perimeter	AMS-01	PE01	50	2/25/19 7:33	2/25/19 16:05	512	2.6E+07	A	3/4/19	20	cpm	0.300	4.150	0.9	8.8	1.5E-14	1.5E-13	1.7%	2.6%	BS	CB	
AS-159	Perimeter	AMS-02	PE02	60	2/25/19 7:44	2/25/19 16:10	506	3.0E+07	A	3/4/19	20	cpm	0.000	3.800	0.0	7.9	0.0E+00	1.2E-13	0.0%	1.9%	BS	CB	
AS-160	Perimeter	AMS-07	PE03	50	2/25/19 7:52	2/25/19 16:25	513	2.6E+07	A	3/4/19	20	cpm	0.200	4.050	0.6	8.5	1.0E-14	1.5E-13	1.1%	2.5%	BS	CB	
AS-161	Perimeter	AMS-12	PE04	60	2/25/19 7:37	2/25/19 16:37	540	3.2E+07	A	3/4/19	20	cpm	0.300	3.400	0.9	6.8	1.2E-14	9.4E-14	1.3%	1.6%	BS	CB	
AS-162	Perimeter	AMS-01	PE01	50	2/26/19 7:15	2/26/19 15:20	485	2.4E+07	A	3/4/19	20	cpm	0.050	3.800	0.1	7.9	2.7E-15	1.5E-13	0.3%	2.4%	BS	CB	
AS-163	Perimeter	AMS-02	PE02	60	2/26/19 7:28	2/26/19 15:58	510	3.1E+07	A	3/4/19	20	cpm	0.150	2.650	0.4	4.7	6.4E-15	7.0E-14	0.7%	1.2%	BS	CB	
AS-164	Perimeter	AMS-01	PE01	50	2/27/19 7:53	2/27/19 15:55	482	2.4E+07	A	3/4/19	20	cpm	0.200	3.900	0.6	8.1	1.1E-14	1.5E-13	1.2%	2.5%	BS	CB	
AS-165	Perimeter	AMS-02	PE02	60	2/27/19 7:43	2/27/19 15:57	494	3.0E+07	A	3/4/19	20	cpm	0.200	4.800	0.6	10.6	8.8E-15	1.6E-13	1.0%	2.7%	BS	CB	
AS-166	Perimeter	AMS-07	PE03	50	2/27/19 7:26	2/27/19 16:00	514	2.6E+07	A	3/4/19	20	cpm	0.000	4.300	0.0	9.2	0.0E+00	1.6E-13	0.0%	2.7%	BS	CB	
AS-167	Perimeter	AMS-12	PE04	60	2/27/19 7:43	2/27/19 16:29	526	3.2E+07	A	3/4/19	20	cpm	0.100	3.700	0.3	7.6	4.1E-15	1.1E-13	0.5%	1.8%	BS	CB	
AS-168	Perimeter	AMS-01	PE01	50	2/28/19 7:31	2/28/19 16:21	530	2.6E+07	A	3/4/19	20	cpm	0.050	3.950	0.1	8.3	2.4E-15	1.4E-13	0.3%	2.3%	BS	CB	
AS-169	Perimeter	AMS-02	PE02	60	2/28/19 7:36	2/28/19 16:33	537	3.2E+07	A	3/4/19	20	cpm	0.200	4.300	0.6	9.2	8.1E-15	1.3E-13	0.9%	2.1%	BS	CB	
AS-170	Perimeter	AMS-07	PE03	50	2/28/19 7:22	2/28/19 16:07	525	2.6E+07	A	3/4/19	20	cpm	0.100	3.450	0.3	6.9	4.9E-15	1.2E-13	0.5%	2.0%	BS	CB	
AS-171	Perimeter	AMS-12	PE04	60	2/28/19 7:27	2/28/19 16:15	528	3.2E+07	A	3/4/19	20	cpm	0.100	3.950	0.3	8.3	4.1E-15	1.2E-13	0.5%	2.0%	BS	CB	