



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

Air Monitoring Summary Report **February 1 to February 28, 2022**

Phase IV Non-Time Critical Removal Action, Solid Waste Disposal Area
Westside, Installation Restoration Site 12

Former Naval Station Treasure Island

San Francisco, CA
May 2022



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Table of Contents

1.0	Introduction	1-1
2.0	Monitoring Site Locations	2-1
2.1	Dust Monitoring.....	2-1
2.2	Air Monitoring.....	2-1
2.3	Radiological Air Monitoring	2-2
3.0	Sampling and Analytical Methods.....	3-1
3.1	Dust Samples	3-1
3.2	Air Samples	3-1
3.3	Radiological Air Samples.....	3-2
4.0	Dust Monitoring Results.....	4-1
5.0	Air Monitoring Results.....	5-1
6.0	References	6-1

List of Figures

Figure 1	Air and Dust Monitoring Locations IR Site 12 SWDA Westside
Figure 2	Wind Rose IR Site 12 SWDA Westside

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

Acronyms and Abbreviations

AMP	Air Monitoring Plan
BAAQMD	Bay Area Air Quality Management District
BAP(Eq)	benzo(a)pyrene equivalency
cfm	cubic feet per minute
CFR	Code of Federal Regulations
DAC	derived air concentration
DCP	Dust Control Plan
DTSC	Department of Toxic Substances Control
Gilbane	Gilbane Federal
HERO	Human and Ecological Risk Office
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, Phase IV Non-Time Critical Removal Action, Solid Waste Disposal Area Westside, 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 N6247317F5271. 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 *Phase IV Non-Time Critical Removal Action Work Plan, Solid Waste Disposal Area Westside, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California* (Work Plan; Gilbane, 2021).

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 from February 1st through February 28th, 2022 and compares the results with the established action levels included in the Work Plan (Gilbane, 2021). During this reporting period, the Site 12 air monitoring stations (AMSW1 and AMSW2) operated on February 1st, 2nd, 3rd, 4th, 7th, 8th, 9th, 10th, 11th, 14th, 15th, 16th, 17th, 21st, 22nd, 23rd, and 24th for earth-moving tasks involving potentially contaminated soil.

During the reporting period, personal data-logging real-time aerosol monitoring (PDR) dust data was collected. Air samples were collected and analyzed for lead, 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.

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2.0 Monitoring Site Locations

2.1 Dust Monitoring

During earthmoving activities, several 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. PDR stations are situated immediately adjacent to the current work area locations most likely to generate the greatest volume of airborne dust and are adjusted as necessary due to changes in wind direction and/or work location. Real-time dust monitoring ensures dust levels remain below action levels during fieldwork operations.

The general locations for dust monitors in IR Site 12 are shown on **Figure 1**. 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 at IR Site 12 (i.e., transportation of excavated soil to the radiological screening yard, excavation, and backfilling), one PDR serves as the upwind (background) location (DMW7, DMW13, DMW25) and two PDRs are placed in downwind perimeter locations (DMW8, DMW9, DMW14, DMW15, DMW26, DMW27).

2.2 Air Monitoring

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 the IR Site 12 air monitoring stations are shown on **Figure 1**. The locations of the air monitoring stations are determined based on the prevailing wind direction (typically from the southwest) and are modified as needed.

Weather forecasts including wind direction are checked daily with a weather station located at Building 572. The weather station records temperature, pressure, wind speed and direction, etc., every 30 minutes, 24 hours per day. Wind speed is also monitored near the work site during soil excavation and handling to ensure that work is stopped if sustained winds over 25 miles per hour are encountered. No work stoppages due to sustained wind speed exceedances were required during this reporting period. Wind speed and direction data gathered during work hours for this reporting period, presented on a wind rose diagram in **Figure 2**, generally depict the wind blowing between the South and West directions at 2-9 miles/hour with gusts up to 18 miles/hour. Detailed weather data is not reported in this document but can be provided upon request.

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 - collected daily
- PAHs, PCBs, and dioxin - 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. All AMS samplers run approximately 24 hours before the sample is collected however per FCR04 the final set of samples for the week will be collected on the last workday of the week once intrusive activities have finished for the day. These samples will have a runtime of 7-10 hours to cover the full work shift which meets the minimum 4-hour runtime required for lab analysis. Two sets of samples will be sent to the lab for examination on that final workday of the week. The results will be adjusted for the reduced runtime and fully comparable against project screening criteria.

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 weighed 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 in accordance with USEPA Method 6020 using inductively coupled mass spectrometry.

Air samples for PCBs, PAHs, and dioxin are collected and analyzed in accordance

with USEPA Methods TO-4A, TO-13, TO-9A, respectively, using TISCH 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* (Gilbane, 2016).

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 Monitoring Results

If dust (PDR) monitoring equipment alarms, 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.

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**.

On February 4th, 7th, 8th, 11th, and 14th PDR readings were observed above project screening criteria, however, the delta between the upwind and downwind monitors remained below action levels. On these days the field team documented foggy, hazy, and or thick low hanging marine layer conditions presented in **Attachment 1**. On the days mentioned above, elevated or high readings were noted during setup before any intrusive activities had begun. In conclusion, field work continued as field activities were not generating visible dust and onsite atmospheric conditions generated elevated PDR data.

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	<2.0 mg/m ³ >2.0 mg/m ³	<2.0 mg/m ³ continue work in Level D. Increase dust control (i.e., apply water or other suppression method) and/or upgrade to Level C if concentrations >2.0 mg/m ³ .
	Job Site Perimeter	Continuously	<1.0 mg/m ³ >1.0 mg/m ³	Continue work. STOP work, apply water or other dust suppression methods until levels decrease below 1.0 mg/m ³

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 milligrams per cubic meter
- PDR personal data-logging real-time aerosol monitor

Table 2: Air Monitoring Project Screening Criteria

Chemicals of Concern	Project Screening Criteria (Threshold Limit Value) µg/m³	Basis
Lead	1,575	TI Site 12 Subchronic Dust Action Level
TSP	50	TI Site 12 Dust Action Level
PM10	50	BAAQMD Ambient Air Quality Standard
BAP(Eq)	55,330	TI Site 12 Chronic Dust Action Level
PCBs ^a	NA	TI Site 12 Dust Action Level
Dioxin ^a	1E+07	TI Site 12 Chronic 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(Eq) action level will be ~55 mg/m³ for all excavations
- ^c Public air concentration limits are commonly referred to as DAC, but are actually Effluent Concentrations from Table 2 for 10 CFR Part 20.

BAAQMD	Bay Area Air Quality Management District
BAP(Eq)	benzo(a)pyrene equivalency
DAC	derived air concentration
mg/m ³	milligrams per cubic meter
PCBs	polychlorinated biphenyls
PM10	particulate matter smaller than 10 microns in diameter
Ra-226	radium-226
TSP	total suspended particulates
µg/m ³	micrograms per cubic meter

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5.0 Air Monitoring Results

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. Sub-chronic and chronic dust action levels as PM10 were calculated for lead, dioxin, benzo(a)pyrene (BAP) equivalency (Eq) by PAHs analysis, 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.

Based on HERO's recommendations, a PM10 dust action level of 50 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) will be implemented for all excavation areas at IR Site 12. 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.

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**. 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 2022 did not exceed the project-specific screening criteria presented in **Table 2-2**.

TSP analytical results from February 2022 are presented in **Table 2-3**. The following details any exceedances that occurred during the February reporting period.

- A one-day exceedance of the TSP screening criteria was observed on February 11th at $86.07 \mu\text{g}/\text{m}^3$. The associated PM10 reading ($12 \mu\text{g}/\text{m}^3$) and downwind PDR monitors ($-0.001 \text{ mg}/\text{m}^3$ and $0.004 \text{ mg}/\text{m}^3$) were below project limits.
- The field team's operation on February 11th consisted of screening/clearing soil for UXO at the laydown area shown in **Figure 1** along with a gamma drive over survey of the radiological screening area onsite. No dirt moving or hauling activities were present within the area of the downwind air monitoring station that would have generated any magnitude of dust. The appropriate parties were contacted when the contractor received the results and the field crew continues to maintain diligent dust control measures

- The field sampler who collected the February 11th air samples documented the AMSW2 TSP filter looking dirtier than normal and seemed to be covered in graphite from the brushes used to power the motor for the air monitoring station. A brush change was completed on this station the previous day however it was unsuccessful and a new motor was required and inserted. When the motor burns through the brushes quickly it is a clear sign a new motor is needed and in this process the graphite volatilizes and is inhaled through the AMS ultimately ending up on the sample filter.

Metals (lead), PAHs, total PCBs, and dioxin analytical results from February 2022, did not exceed the project-specific screening criteria presented in **Table 2-4** through **Table 2-7**.

6.0 References

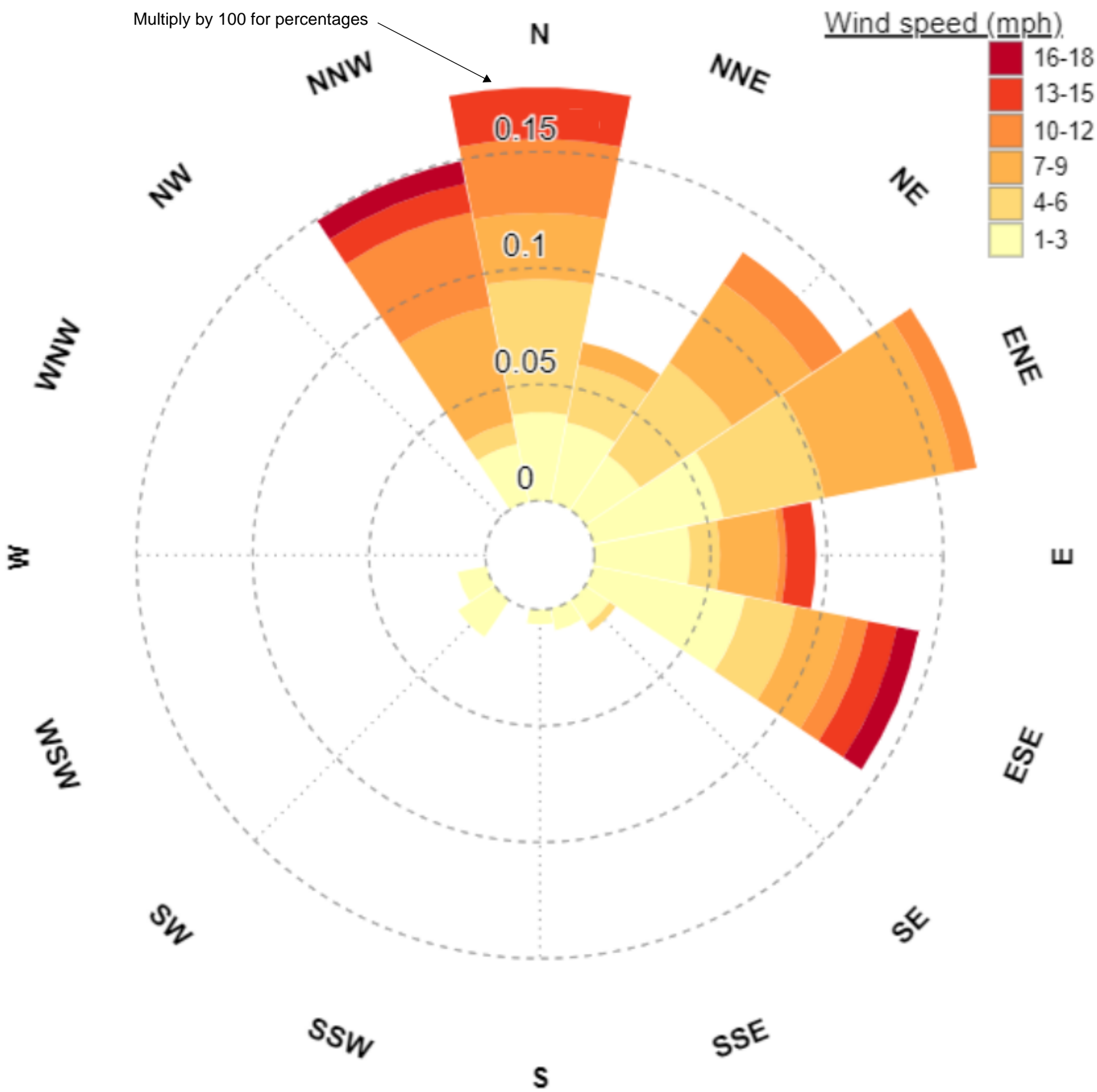
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FIGURES

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ATTACHMENT 1
PDR SUMMARY TABLE AND FIELD FORMS
(Provided on CD)

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Table 1-1: Personal Data-Logging Real-Time (PDR) Aerosol Monitoring Results

DustTrak Unit	IR Site	Date	Maximum ¹ (mg/m ³)	Average ¹ (mg/m ³)	Delta Between Upwind and Downwind Stations (mg/m ³)	Below action level? (0.050 mg/m ³) (Yes/No)
DMW25	Site 12	2/1/2022	0.010	0.004	NA	Yes
DMW26	Site 12		0.005	0.002	-0.002	Yes
DMW27	Site 12		0.017	0.006	0.002	Yes
DMW25	Site 12	2/2/2022	0.009	0.005	NA	Yes
DMW26	Site 12		0.013	0.005	0.000	Yes
DMW27	Site 12		0.009	0.006	0.001	Yes
DMW25	Site 12	2/3/2022	0.016	0.011	NA	Yes
DMW26	Site 12		0.018	0.010	-0.001	Yes
DMW27	Site 12		0.018	0.013	0.002	Yes
DMW25	Site 12	2/4/2022	0.103	0.082	NA	Yes
DMW26	Site 12		0.106	0.084	0.002	Yes
DMW27	Site 12		0.109	0.091	0.009	Yes
DMW25	Site 12	2/7/2022	0.061	0.048	NA	Yes
DMW26	Site 12		0.063	0.047	-0.001	Yes
DMW27	Site 12		0.069	0.046	-0.002	Yes
DMW25	Site 12	2/8/2022	0.053	0.036	NA	Yes
DMW26	Site 12		0.064	0.039	0.003	Yes
DMW27	Site 12		0.070	0.057	0.021	Yes
DMW25	Site 12	2/9/2022	0.032	0.018	NA	Yes
DMW26	Site 12		0.029	0.016	-0.002	Yes
DMW27	Site 12		0.038	0.019	0.001	Yes
DMW25	Site 12	2/10/2022	0.019	0.010	NA	Yes
DMW26	Site 12		0.032	0.012	0.002	Yes
DMW27	Site 12		0.027	0.013	0.003	Yes
DMW13	Site 12		0.014	0.010	NA	Yes
DMW14	Site 12		0.031	0.013	0.003	Yes
DMW15	Site 12		0.027	0.010	0.000	Yes
DMW25	Site 12	2/11/2022	0.099	0.052	NA	Yes
DMW26	Site 12		0.087	0.051	-0.001	Yes
DMW27	Site 12		0.090	0.056	0.004	Yes
DMW7	Site 12	2/14/2022	0.036	0.023	NA	Yes
DMW8	Site 12		0.052	0.029	0.006	Yes
DMW9	Site 12		0.037	0.023	0.000	Yes
DMW7	Site 12	2/15/2022	0.013	0.003	NA	Yes
DMW8	Site 12		0.014	0.004	0.001	Yes
DMW9	Site 12		0.012	0.003	0.000	Yes
DMW13	Site 12	2/16/2022	0.042	0.010	NA	Yes
DMW14	Site 12		0.022	0.010	0.000	Yes
DMW15	Site 12		0.048	0.010	0.000	Yes
DMW7	Site 12		0.028	0.020	NA	Yes
DMW8	Site 12		0.030	0.021	0.001	Yes
DMW9	Site 12		0.026	0.019	-0.001	Yes
DMW7	Site 12	2/17/2022	0.029	0.007	NA	Yes
DMW8	Site 12		0.030	0.009	0.002	Yes
DMW9	Site 12		0.012	0.008	0.001	Yes
DMW7	Site 12	2/21/2022	0.011	0.006	NA	Yes
DMW8	Site 12		0.016	0.006	0.000	Yes
DMW9	Site 12		0.021	0.007	0.001	Yes
DMW7	Site 12	2/22/2022	0.010	0.006	NA	Yes
DMW8	Site 12		0.013	0.006	0.000	Yes
DMW9	Site 12		0.008	0.006	0.000	Yes
DMW13	Site 12		0.011	0.009	NA	Yes
DMW14	Site 12		0.010	0.007	-0.002	Yes
DMW15	Site 12		0.011	0.008	-0.001	Yes
DMW7	Site 12	2/23/2022	0.008	0.004	NA	Yes
DMW8	Site 12		0.010	0.004	0.000	Yes
DMW9	Site 12		0.021	0.004	0.000	Yes
DMW7	Site 12	2/24/2022	0.020	0.013	NA	Yes
DMW8	Site 12		0.022	0.013	0.000	Yes
DMW9	Site 12		0.015	0.013	0.000	Yes
DMW7	Site 12	2/28/2022	0.026	0.017	NA	Yes
DMW8	Site 12		0.024	0.017	0.000	Yes
DMW9	Site 12		0.030	0.017	0.000	Yes

Notes:

bold = results above screening criteria

mg/m³ = milligrams per cubic meter

NA = not applicable

¹ Maximum and average dust readings from daily PDR data downloads. Data are available upon request.

LS 2/1/22

[illegible]



AIR MONITORING LOG

Client Name NAVFAC

Date

2/3/22

Project No. J310000800 SWDA Westside, Site 12, Treasure Island

Page 1 of 1

Logged by

Logan Schwinn

Weather

44°F-60°F. 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
0400	DMW25	low Building Rad Screening area	0.014	1280	Setup.
	DMW26	low Building Rad Screening area	0.014	2281	
	DMW27	low Building Rad Screening area	0.015	2341	
1230	DMW25		0.010		Lunch
	DMW26		0.017		
	DMW27		0.011		
1510	DMW25		0.010		Op closing for day.
	DMW26		0.009		
	DMW27		0.008		
LSS 2/3/22					

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

AIR MONITORING LOG

Client Name NAVFAC

Date _____

214/22

Project No. J310000800 SWDA Westside, Site 12, Treasure Island Page 1 of 1

Logged by Logan Schwiny

Weather 48°F-53°F, cloudy, slight AM Fog

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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ATTACHMENT 2
SUMMARY OF AIR MONITORING AND
AIR SAMPLING RESULTS
(Provided on CD)

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Table 2-1: Ambient Pressure and Temperature Monitoring Results

Sample Date	Ambient Pressure (inches of Hg)	Ambient Temperature (°F)	Ambient Temperature (°K)
2/1/2022	30.10	51.26	283.85
2/2/2022	30.10	55.33	286.11
2/3/2022	30.21	53.24	284.95
2/4/2022	30.30	51.55	284.01
2/4/2022	30.42	56.17	286.58
2/8/2022	30.31	52.66	284.63
2/9/2022	30.23	55.71	286.32
2/10/2022	30.16	59.50	288.43
2/11/2022	30.11	59.10	288.21
2/11/2022	30.12	59.82	288.61
2/15/2022	30.04	50.67	283.52
2/16/2022	29.99	54.80	285.82
2/17/2022	30.11	57.62	287.38
2/17/2022	30.30	60.92	289.22
2/22/2022	30.00	49.33	282.78
2/23/2022	29.98	45.95	280.90
2/24/2022	30.21	46.60	281.26
2/24/2022	30.32	49.91	283.10

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

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

Table 2-2: Particulate Matter Smaller than Ten Microns (PM10)

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
AMSW1	23.43	02/01/2022	16	NA	NA
	23.53	02/02/2022	15	NA	NA
	23.69	02/03/2022	15	NA	NA
	20.89	02/04/2022	19	NA	NA
	6.32	02/04/2022	40	NA	NA
	23.89	02/08/2022	20	NA	NA
	23.3	02/09/2022	17	NA	NA
	24.07	02/10/2022	23	NA	NA
	21.22	02/11/2022	20	NA	NA
	7.03	02/11/2022	32	NA	NA
	23.31	02/15/2022	5.5	NA	NA
	22.03	02/16/2022	7.3	NA	NA
	21.28	02/17/2022	12	NA	NA
	7.65	02/17/2022	11	NA	NA
	23.59	02/22/2022	7.9	NA	NA
	23.42	02/23/2022	1.9	NA	NA
	21.1	02/24/2022	13	NA	NA
	8.05	02/24/2022	14	NA	NA
AMSW2	24.00	02/01/2022	24	8	No
	23.95	02/02/2022	35	20	No
	24.05	02/03/2022	27	12	No
	21.33	02/04/2022	23	4	No
	6.34	02/04/2022	46	6	No
	24.5	02/08/2022	24	4	No
	23.57	02/09/2022	24	7	No
	24.65	02/10/2022	32	9	No
	21.64	02/11/2022	35	15	No
	7.15	02/11/2022	44	12	No
	23.82	02/15/2022	20	14.5	No
	24.41	02/16/2022	16	8.7	No
	11.28	02/17/2022	21	9	No
	7.77	02/17/2022	4.8	-6.2	No
	24.21	02/22/2022	15	7.1	No
	23.81	02/23/2022	8.1	6.2	No
	21.57	02/24/2022	19	6	No
	7.88	02/24/2022	20	6	No

Notes:

ug/m³ = micrograms per cubic meter

NA = Not applicable

PM10 = particulate matter less than 10 microns in diameter

* = generator/sampler malfunction

bold = result above screening criteria

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

Table 2-3: Total Suspended Particulates Monitoring Results

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
AMSW1	23.44	02/01/2022	30.9096	NA	NA
	23.55	02/02/2022	45.6472	NA	NA
	23.7	02/03/2022	30.9803	NA	NA
	20.9	02/04/2022	29.9991	NA	NA
	6.29	02/04/2022	67.9633	NA	NA
	23.93	02/08/2022	36.3987	NA	NA
	23.31	02/09/2022	31.8323	NA	NA
	24.08	02/10/2022	53.1794	NA	NA
	21.23	02/11/2022	42.6817	NA	NA
	6.99	02/11/2022	57.4544	NA	NA
	23.65	02/15/2022	27.5513	NA	NA
	23.95	02/16/2022	26.7392	NA	NA
	21.28	02/17/2022	42.6387	NA	NA
	7.72	02/17/2022	61.1811	NA	NA
	23.63	02/22/2022	19.1395	NA	NA
	23.42	02/23/2022	23.3888	NA	NA
	21.12	02/24/2022	21.2229	NA	NA
	8.02	02/24/2022	20.3972	NA	NA
AMSW2	23.99	02/01/2022	41.9333	11.0237	No
	23.96	02/02/2022	60.6099	14.9627	No
	24.04	02/03/2022	42.0889	11.1086	No
	21.34	02/04/2022	33.9161	3.917	No
	6.37	02/04/2022	69.9814	2.0181	No
	24.51	02/08/2022	38.2109	1.8122	No
	23.55	02/09/2022	36.41	4.5777	No
	24.66	02/10/2022	36.0505	-17.1289	No
	21.35	02/11/2022	31.9342	-10.7475	No
	7.18	02/11/2022	143.5307	86.0763	Yes
	23.8	02/15/2022	56.2721	28.7208	No
	24.4	02/16/2022	34.4974	7.7582	No
	21.79	02/17/2022	51.2539	8.6152	No
	7.76	02/17/2022	38.6789	-22.5022	No
	24.23	02/22/2022	25.9546	6.8151	No
	23.81	02/23/2022	24.7972	1.4084	No
	21.57	02/24/2022	29.6392	8.4163	No
	7.82	02/24/2022	33.6611	13.2639	No

Notes:

J = estimated value

ug/m³ = micrograms per cubic meter

NA = Not applicable

TSP = total suspended particulate

bold = results above screening criteria

* = generator/sampler malfunction

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

Table 2-4: Lead by EPA 6020 Monitoring Results

Location ID	Sampling Period (Hours)	Sample Date	Lead (ug/m ³)	Lead Exceedance? (Yes/No)
Screening Criteria				1,575
AMSW1	23.43	02/01/2022	0.0048	No
	23.53	02/02/2022	0.0016	No
	23.69	02/03/2022	0.0023	No
	20.89	02/04/2022	0.0014	No
	6.32	02/04/2022	0.0043	No
	23.89	02/08/2022	0.002	No
	23.3	02/09/2022	0.0045	No
	24.07	02/10/2022	0.0039	No
	21.22	02/11/2022	0.003	No
	7.03	02/11/2022	0.004	No
	23.31	02/15/2022	0.0004 J	No
	22.03	02/16/2022	0.0007 J	No
	21.28	02/17/2022	0.0014	No
	7.65	02/17/2022	0.0024	No
	23.59	02/22/2022	0.00069 J	No
	23.42	02/23/2022	0.0015	No
	21.1	02/24/2022	0.0019	No
	8.05	02/24/2022	0.0037	No
AMSW2	24	02/01/2022	0.0058	No
	23.95	02/02/2022	0.0066	No
	24.05	02/03/2022	0.004	No
	21.33	02/04/2022	0.0015	No
	6.34	02/04/2022	0.0052	No
	24.5	02/08/2022	0.0028	No
	23.57	02/09/2022	0.007	No
	24.65	02/10/2022	0.0051	No
	21.64	02/11/2022	0.0051	No
	7.15	02/11/2022	0.0048	No
	23.82	02/15/2022	0.0043	No
	24.41	02/16/2022	0.0024	No
	11.28	02/17/2022	0.0033	No
	7.77	02/17/2022	0.0031	No
	24.21	02/22/2022	0.0023	No
	23.81	02/23/2022	0.0023	No
	21.57	02/24/2022	0.0025	No
	7.88	02/24/2022	0.0041	No

Notes:

J = indicates an estimated value

ug/m³ = micrograms per cubic meter

* = generator/sampler malfunction

bold = results above screening criteria

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

Table 2-5: Polycyclic Aromatic Hydrocarbons by TO-13 Monitoring Results

Location ID	Sampling Period (Hours)	Sample Date	BAP(Eq) Exceed- ance? (Yes/No)	BAP(Eq)	2-Methyl- naph-thalene (ug/m³)	Acenaph- thene (ug/m³)	Acenaph- thylene (ug/m³)	Anthracene (ug/m³)	Benzo(a) anthracene (ug/m³)	Benzo(a) pyrene (ug/m³)	Benzo(b) fluoran- thene (ug/m³)	Benzo(g,h,i) perylene (ug/m³)	Benzo(k) fluoran- thene (ug/m³)	Chrysene (ug/m³)	Dibenz(a,h)anth racene (ug/m³)	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				55,330	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
AMSW1	23.63	02/03/2022	No	0	0.009	0.001	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	0.00031 J	0.00074	< 0.00056	0.018	0.001	0.00029 J
	23.93	02/08/2022	No	0	0.0055	0.00081	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	0.00033 J	0.00073	< 0.00055	0.011	0.0011	0.00023 J
	21.23	02/11/2022	No	0	0.0053	0.0012	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	0.0004 J	0.00099	< 0.00064	0.012	0.0014	0.00028 J
	23.64	02/16/2022	No	0	0.0027	0.00059	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	0.00024 J	0.00044 J	< 0.00055	0.0069	0.00074	0.00022 J
	23.63	02/22/2022	No	0	0.00064 J	0.00025 J	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	< 0.00054	0.0015	0.0003 J	< 0.00054
	7.94	02/24/2022	No	0	0.0032 J	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	0.0092	0.0008 J	< 0.0016
AMSW2	24.06	02/03/2022	No	0	0.007	0.00077	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	< 0.00047	0.00047	0.00069	< 0.00047	0.014	0.0017	0.00033 J
	24.51	02/08/2022	No	0	0.0049	0.00062	< 0.00046	0.00048	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	0.0013	0.0011	< 0.00046	0.011	0.0049	0.00077
	21.66	02/11/2022	No	0	0.0049	0.00076	< 0.00057	0.00026 J	< 0.00057	< 0.00057	< 0.00057	< 0.00057	< 0.00057	< 0.00057	< 0.00057	0.00077	0.00099	< 0.00057	0.011	0.0031	0.00052 J
	24.42	02/16/2022	No	0	0.0029	0.00071	< 0.00048	0.0002 J	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	0.00062	0.00072	< 0.00048	0.007	0.0025	0.00044 J
	24.23	02/22/2022	No	0	< 0.00097	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	0.00019 J	< 0.00048	0.00098	0.00063	< 0.00048
	7.94	02/24/2022	No	0	0.004	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	0.0086	0.0016	< 0.0014

Notes:

¹ The dust action level was adjusted by a factor of 10 to account for the short-term duration of the project.

NA = Not applicable

NE = None established

BAP(Eq) = Benzo(a)pyrene equivalency

J = estimated value

ug/m³ = micrograms per cubic meter

bold = results above screening criteria

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

Table 2-6: Polychlorinated Biphenyls by TO-4A Monitoring Results

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							
AMSW1	23.46	02/01/2022	NA	0	< 0.00073	< 0.00073	< 0.00073	< 0.00073	< 0.00073	< 0.00073	< 0.00073
	20.9	02/04/2022	NA	0	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084
	23.32	02/09/2022	NA	0	< 0.00089	< 0.00089	< 0.00089	< 0.00089	< 0.00089	< 0.00089	< 0.00089
	6.91	02/11/2022	NA	0	< 0.0028	< 0.0028	< 0.0028	< 0.0028	< 0.0028	< 0.0028	< 0.0028
	21.29	02/17/2022	NA	0	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084
	23.44	02/23/2022	NA	0	< 0.00081	< 0.00081	< 0.00081	< 0.00081	< 0.00081	< 0.00081	< 0.00081
AMSW2	24	02/01/2022	NA	0	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069
	21.33	02/04/2022	NA	0	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075	< 0.00075
	23.58	02/09/2022	NA	0	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067
	7.13	02/11/2022	NA	0	< 0.0023	< 0.0023	< 0.0023	< 0.0023	< 0.0023	< 0.0023	< 0.0023
	21.77	02/17/2022	NA	0	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076
	23.81	02/23/2022	NA	0	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071

Notes:

NA = Not applicable

NE = None established

PCB = polychlorinated biphenyl

ug/m³ = micrograms per cubic meter

< = nondetected less than associated reporting limit

J = estimated value

* = sampler/generator malfunction

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

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

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 ug/m³
AMSW1	23.56	02/02/2022	< 0.00000002	No
	6.23	02/04/2022	< 0.00000008	No
	23.58	02/10/2022	< 0.00000002	No
	23.66	02/15/2022	< 0.00000002	No
	7.73	02/17/2022	< 0.00000006	No
	21.12	02/24/2022	< 0.00000002	No
AMSW2	23.96	02/02/2022	< 0.00000002	No
	6.32	02/04/2022	< 0.00000007	No
	24.66	02/10/2022	< 0.00000002	No
	23.8	02/15/2022	< 0.00000002	No
	7.77	02/17/2022	< 0.00000006	No
	21.58	02/24/2022	< 0.00000002	No

Notes:

J = estimated value

ug/m³ = micrograms per cubic meter

< = nondetected less than associated reporting limit

bold = results above screening criteria

* = generator / sampler malfunction

Note: Air monitoring stations shutdown on days when import of clean soil was the only site activity

ATTACHMENT 3
RADIOLOGICAL AIR MONITORING RESULTS
(Provided on CD)

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Project Information						Effective as of: 06 May 2022					
Contract / Task Order Number: N62473-17-D-0005			Project Title / Location: IR Site 12 RD/RA, Treasure Island, SF, CA				Gilbane Project Number: J310000800				
Perimeter/Effluent Air Sampling Equipment					Breathing Zone Air Sampling Equipment						
Equip Number	Air Sampler Make/Model	Serial Number	Cal Due Date	Equip Number	Air Sampler Make/Model	Serial Number	Cal Due Date	Equip Number	Air Sampler Make/Model	Serial Number	Cal Due Date
PE01	LV-1	4532	5/20/21	BZ01				BZ01			
PE02	LV-1	4360	5/20/21	BZ02				BZ02			
PE03	LV-1	4352	4/20/22	BZ03				BZ03			
PE04	LV-1	4300	4/20/22	BZ04				BZ04			
PE05	LV-1	4299	6/9/22	BZ05				BZ05			
PE06	LV-1	4313	6/9/22	BZ06				BZ06			
PE07				BZ07				BZ07			
PE08				BZ08				BZ08			
PE09				BZ09				BZ09			
PE10				BZ10				BZ10			
PE11				BZ11				BZ11			
PE12				BZ12				BZ12			
PE13				BZ13				BZ13			
PE14				BZ14				BZ14			
PE15				BZ15				BZ15			
PE16				BZ16				BZ16			
PE17				BZ17				BZ17			
PE18				BZ18				BZ18			
PE19				BZ19				BZ19			
PE20				BZ20				BZ20			
Sample Counting Instruments											
Inst Number	Model Number	Serial Number	Cal Due Date	Count Time (min)		Background (cpm) ^a		Abs Ct Eff (cnts/dis) ^b		MDC (dpm/sample) ^c	
				Bkgrd	Source	Alpha	Beta	Alpha	Beta	Alpha	Beta
A	Protean	615068	9/15/21	1	1	0.0	1.1	0.352	0.355	15.4	29.0
B	Protean	9085100	10/5/21	1	1	0.0	1.2	0.356	0.352	15.2	29.9
C	Protean	9085100	10/1/22	1	1	0.0	1.2	0.359	0.355	15.1	29.6
D											
E											
Notes											
^a background values obtained from instrument set-up worksheet ^b absolute counting efficiency = 4π efficiency calculated as ratio of measured count rate and contained activity [total dpm] of source (see IN-RP-141, <i>Alpha/Beta Scaler Instrument Set-Up and Operation</i>) ^c MDC calculated using the Stapleton approximation (see IN-RP-141, <i>Alpha/Beta Scaler Instrument Set-Up and Operation</i>)											

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/IRA, Treasure Island, SF, CA			Gilbane Project Number: J310000800					Alpha		Beta		Air samples collected between 22 Mar 2021 and 20 Apr 2022		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: 06 May 2022										Effluent Conc (µCi/ml)	
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 Alpha Beta	Net dpm Alpha Beta	Activity (µCi/ml) Alpha Beta	*Effluent Conc (%) Alpha Beta	Count Tech	Data Reviewer			
AS-0355	Perimeter	Upwind	PE03	60	2/1/22 6:22	2/1/22 15:05	523	3.1E+07	C	2/16/22	1	cpm	0.45 4.35	1.3 8.9	1.8E-14 1.3E-13	2.0% 2.1%	DB	CB			
AS-0356	Perimeter	Downwind	PE04	60	2/1/22 6:17	2/1/22 15:00	523	3.1E+07	C	2/16/22	1	cpm	0.50 4.10	1.4 8.2	2.0E-14 1.2E-13	2.2% 2.0%	DB	CB			
AS-0357	Perimeter	Upwind	PE03	60	2/2/22 6:10	2/2/22 15:05	535	3.2E+07	C	2/16/22	1	cpm	0.10 3.95	0.3 7.7	3.9E-15 1.1E-13	0.4% 1.8%	DB	CB			
AS-0358	Perimeter	Downwind	PE04	60	2/2/22 6:15	2/2/22 15:10	535	3.2E+07	C	2/16/22	1	cpm	0.20 3.75	0.6 7.2	7.8E-15 1.0E-13	0.9% 1.7%	DB	CB			
AS-0359	Perimeter	Upwind	PE03	60	2/3/22 6:12	2/3/22 15:10	538	3.2E+07	C	2/16/22	1	cpm	0.25 3.85	0.7 7.5	9.7E-15 1.0E-13	1.1% 1.7%	DB	CB			
AS-0360	Perimeter	Downwind	PE04	60	2/3/22 6:18	2/3/22 15:05	527	3.2E+07	C	2/16/22	1	cpm	0.40 3.85	1.1 7.5	1.6E-14 1.1E-13	1.8% 1.8%	DB	CB			
AS-0361	Perimeter	Upwind	PE03	60	2/4/22 6:45	2/4/22 15:10	505	3.0E+07	C	2/16/22	1	cpm	0.35 5.20	1.0 11.3	1.4E-14 1.7E-13	1.6% 2.8%	DB	CB			
AS-0362	Perimeter	Downwind	PE04	60	2/4/22 6:40	2/4/22 15:15	515	3.1E+07	C	2/16/22	1	cpm	0.25 4.70	0.7 9.9	1.0E-14 1.4E-13	1.1% 2.4%	DB	CB			
AS-0363	Perimeter	Upwind	PE03	60	2/7/22 6:10	2/7/22 15:15	545	3.3E+07	C	2/16/22	1	cpm	0.10 4.75	0.3 10.0	3.8E-15 1.4E-13	0.4% 2.3%	DB	CB			
AS-0364	Perimeter	Downwind	PE04	60	2/7/22 6:15	2/7/22 15:20	545	3.3E+07	C	2/16/22	1	cpm	0.25 4.65	0.7 9.7	9.6E-15 1.3E-13	1.1% 2.2%	DB	CB			
AS-0365	Perimeter	Upwind	PE03	60	2/8/22 6:10	2/8/22 15:10	540	3.2E+07	C	2/16/22	1	cpm	0.25 4.70	0.7 9.9	9.7E-15 1.4E-13	1.1% 2.3%	DB	CB			
AS-0366	Perimeter	Downwind	PE04	60	2/8/22 6:15	2/8/22 15:15	540	3.2E+07	C	2/16/22	1	cpm	0.25 4.85	0.7 10.3	9.7E-15 1.4E-13	1.1% 2.4%	DB	CB			
AS-0367	Perimeter	Upwind	PE03	60	2/9/22 6:10	2/9/22 15:05	535	3.2E+07	C	2/16/22	1	cpm	0.15 5.30	0.4 11.5	5.9E-15 1.6E-13	0.7% 2.7%	DB	CB			
AS-0368	Perimeter	Downwind	PE04	60	2/9/22 6:15	2/9/22 15:00	525	3.2E+07	C	2/16/22	1	cpm	0.15 3.40	0.4 6.2	6.0E-15 8.9E-14	0.7% 1.5%	DB	CB			
AS-0369	Perimeter	Upwind	PE03	60	2/10/22 5:45	2/10/22 15:00	555	3.3E+07	C	2/16/22	1	cpm	0.35 4.10	1.0 8.2	1.3E-14 1.1E-13	1.5% 1.8%	DB	CB			
AS-0370	Perimeter	Downwind	PE04	60	2/10/22 5:50	2/10/22 15:05	555	3.3E+07	C	2/16/22	1	cpm	0.20 4.75	0.6 10.0	7.5E-15 1.4E-13	0.8% 2.3%	DB	CB			
AS-0371	Perimeter	Upwind	PE03	60	2/11/22 5:15	2/11/22 15:00	585	3.5E+07	C	2/16/22	1	cpm	0.05 5.40	0.1 11.8	1.8E-15 1.5E-13	0.2% 2.5%	DB	CB			
AS-0372	Perimeter	Downwind	PE04	60	2/11/22 5:20	2/11/22 15:05	585	3.5E+07	C	2/16/22	1	cpm	0.05 5.10	0.1 11.0	1.8E-15 1.4E-13	0.2% 2.3%	DB	CB			
AS-0373	Perimeter	Upwind	PE03	60	2/14/22 6:05	2/14/22 17:00	655	3.9E+07	C	3/8/22	1	cpm	0.10 4.80	0.3 10.1	3.2E-15 1.2E-13	0.4% 1.9%	DB	CB			
AS-0374	Perimeter	Downwind	PE04	60	2/14/22 6:00	2/14/22 17:05	665	4.0E+07	C	3/8/22	1	cpm	0.15 4.95	0.4 10.6	4.7E-15 1.2E-13	0.5% 2.0%	DB	CB			
AS-0375	Perimeter	Upwind	PE03	60	2/15/22 5:30	2/15/22 16:45	675	4.1E+07	C	3/8/22	1	cpm	0.25 4.30	0.7 8.7	7.7E-15 9.7E-14	0.9% 1.6%	DB	CB			
AS-0376	Perimeter	Downwind	PE04	60	2/15/22 5:35	2/15/22 16:50	675	4.1E+07	C	3/8/22	1	cpm	0.20 4.75	0.6 10.0	6.2E-15 1.1E-13	0.7% 1.9%	DB	CB			
AS-0377	Perimeter	Upwind	PE03	60	2/16/22 5:25	2/16/22 16:55	690	4.1E+07	C	3/8/22	1	cpm	0.15 4.05	0.4 8.0	4.5E-15 8.7E-14	0.5% 1.5%	DB	CB			
AS-0378	Perimeter	Downwind	PE04	60	2/16/22 5:20	2/16/22 17:00	700	4.2E+07	C	3/8/22	1	cpm	0.35 3.60	1.0 6.8	1.0E-14 7.3E-14	1.2% 1.2%	DB	CB			
AS-0379	Perimeter	Upwind	PE03	60	2/17/22 5:15	2/17/22 15:00	585	3.5E+07	C	3/8/22	1	cpm	0.20 3.35	0.6 6.1	7.1E-15 7.8E-14	0.8% 1.3%	DB	CB			
AS-0380	Perimeter	Downwind	PE04	60	2/17/22 5:20	2/17/22 15:05	585	3.5E+07	C	3/8/22	1	cpm	0.30 3.45	0.8 6.3	1.1E-14 8.1E-14	1.2% 1.4%	DB	CB			
AS-0381	Perimeter	Upwind	PE03	60	2/21/22 5:15	2/21/22 14:30	555	3.3E+07	C	3/8/22	1	cpm	0.40 4.25	1.1 8.6	1.5E-14 1.2E-13	1.7% 1.9%	DB	CB			
AS-0382	Perimeter	Downwind	PE04	60	2/21/22 5:20	2/21/22 14:35	555	3.3E+07	C	3/8/22	1	cpm	0.15 4.30	0.4 8.7	5.7E-15 1.2E-13	0.6% 2.0%	DB	CB			
AS-0383	Perimeter	Upwind	PE03	60	2/22/22 5:15	2/22/22 16:45	690	4.1E+07	C	3/8/22	1	cpm	0.10 3.90	0.3 7.5	3.0E-15 8.3E-14	0.3% 1.4%	DB	CB			
AS-0384	Perimeter	Downwind	PE04	60	2/22/22 5:20	2/22/22 16:40	690	4.1E+07	C	3/8/22	1	cpm	0.20 4.80	0.6 10.1	6.2E-15 1.1E-13	0.7% 1.9%	DB	CB			
AS-0385	Perimeter	Upwind	PE03	60	2/23/22 5:25	2/23/22 17:00	695	4.2E+07	C	3/8/22	1	cpm	0.10 3.95	0.3 7.7	3.0E-15 8.4E-14	0.3% 1.4%	DB	CB			
AS-0386	Perimeter	Downwind	PE04	60	2/23/22 5:30	2/23/22 16:55	685	4.1E+07	C	3/8/22	1	cpm	0.10 3.60	0.3 6.8	3.1E-15 7.4E-14	0.3% 1.2%	DB	CB			
AS-0387	Perimeter	Upwind	PE03	60	2/24/22 6:15	2/24/22 16:50	635	3.8E+07	C	3/8/22	1	cpm	0.15 4.45	0.4 9.2	4.9E-15 1.1E-13	0.5% 1.8%	DB	CB			
AS-0388	Perimeter	Downwind	PE04	60	2/24/22 6:20	2/24/22 16:45	625	3.7E+07	C	3/8/22	1	cpm	0.15 5.00	0.4 10.7	5.0E-15 1.3E-13	0.6% 2.1%	DB	CB			
AS-0389	Perimeter	Upwind	PE03	60	2/28/22 5:40	2/28/22 16:45	665	4.0E+07	C	3/8/22	1	cpm	0.30 5.30	0.8 11.5	9.4E-15 1.3E-13	1.0% 2.2%	DB	CB			
AS-0390	Perimeter	Downwind	PE04	60	2/28/22 5:45	2/28/22 16:50	665	4.0E+07	C	3/8/22	1	cpm	0.45 4.95	1.3 10.6	1.4E-14 1.2E-13	1.6% 2.0%	DB	CB			

CFM to LPM Converter

1 cfm = 28.316846592 lpm	
Enter cfm:	2.1
lpm:	60.0

Sample Types

Perimeter	
Effluent	

Counting Units

cnts	
cpm	

10 CFR 20 Appendix B Table 2 Effluent Concentrations
(listed in order of most to least restrictive radionuclide)

Column 1		
Alpha-Emitting Radionuclide	Retention Class	Air (µCi/ml)
Th-232	W	4 E-15
Pu-239/240	W	2 E-14
Am-241	W	2 E-14
U-233/234	Y	5 E-14
U-235	Y	6 E-14
U-238	Y	6 E-14
Ra-226	W	9 E-13
(TBD)	(TBD)	(TBD)

Column 1		
Beta-Emitting Radionuclide	Retention Class	Air (µCi/ml)
Sr-90	Y	6 E-12
Eu-152	W	3 E-11
Eu-154	W	3 E-11
Co-60	Y	5 E-11
Cs-137	D	2 E-10
(TBD)	(TBD)	(TBD)

Color Legend	
No exceedance above regulatory criteria	
Elevated however no exceedance above regulatory criteria	
Exceedance above regulatory criteria	

* Effluent concentration is a regulatory number from the NRC considered protective of the public