



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

Air Monitoring Summary Report

March 10 to March 31, 2021

Phase IV Non-Time Critical Removal Action, Solid Waste
Disposal Area Westside, Installation Restoration Site 12
Former Naval Station Treasure Island
San Francisco, CA
April 2021

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Acronyms and Abbreviations

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, 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 March 10th through March 31st, 2021 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 March 10th, 11th, and 12th, to establish background conditions, and on March 23rd, 24th, 25th, 26th, 30th, and 31st, 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 (DMW1, DMW4, or DMW7) and two PDRs are placed in downwind perimeter locations (DMW2 and DMW3, DMW5 and DMW6, or DMW8 and DMW9). 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. Detailed weather data is not reported in this document but can be provided upon request.

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 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 - 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 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 dioxins 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 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, 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.

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 excavations 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.

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**.

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	Continue work in Level D. Increase dust control (i.e., apply water or other suppression method) and/or upgrade to Level C until concentrations are reduced below 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) $\mu\text{g}/\text{m}^3$	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	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 action level will be $\sim 55 \text{ mg}/\text{m}^3$ for all excavations
- 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.

BAAQMD	Bay Area Air Quality Management District
BAP	benzo(a)pyrene
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
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter

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5.0 Air 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.

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 March 10 to March 31, 2021 did not exceed the project-specific screening criteria presented in **Table 2**.

TSP analytical results from March 10 to March 31, 2021 did not exceed the project-specific screening criteria presented in **Table 2**.

There were no exceedances recorded for the PDR results on the corresponding dust monitoring days (March 22nd through 31st, 2021).

Metals (lead), PAHs, total PCBs, and dioxin analytical results from March 10 to March 31, 2021 did not exceed the project-specific screening criteria presented in **Table 2**.

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

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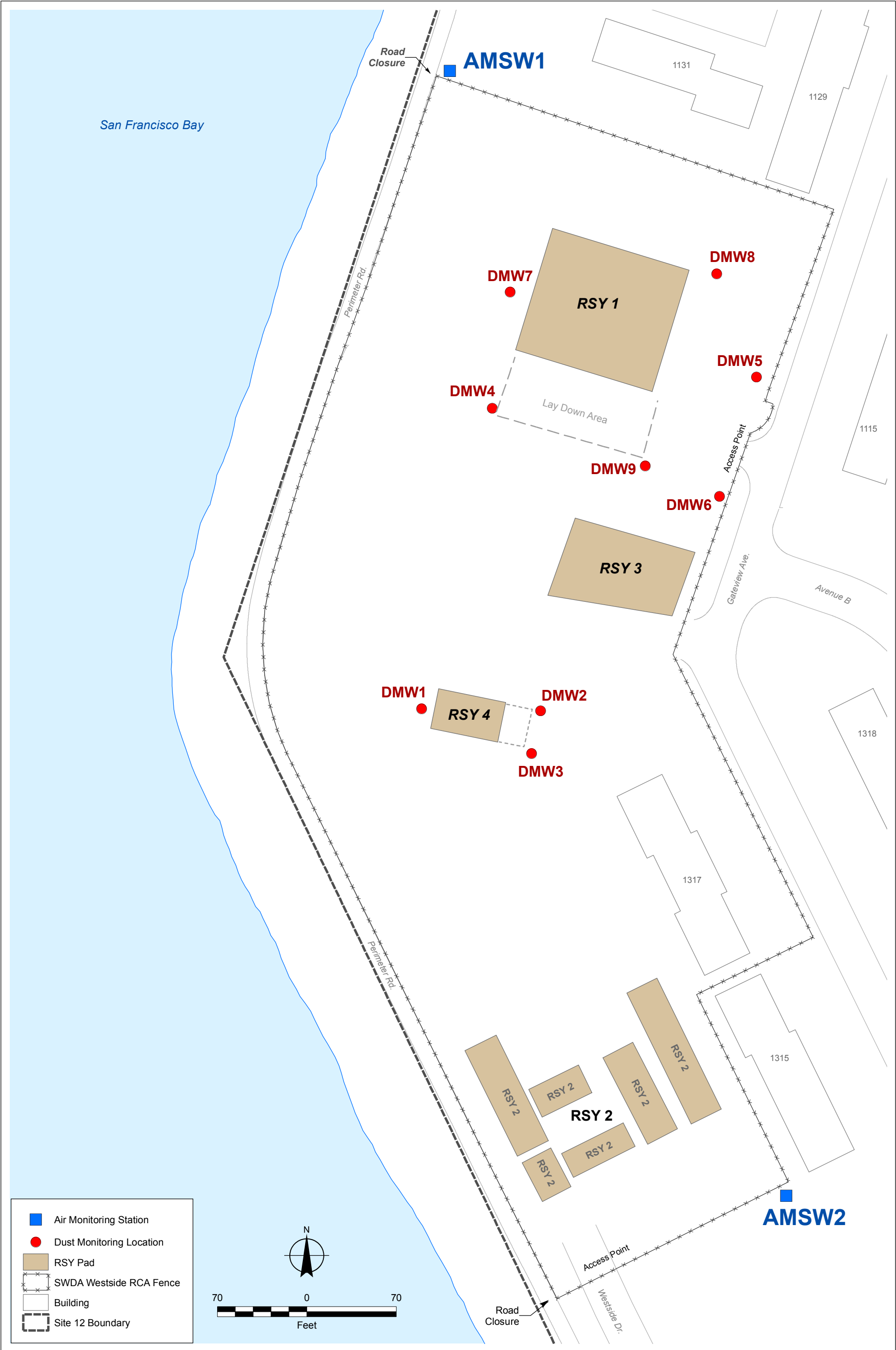
6.0 References

- Gilbane, 2016. *Radiological Procedure PR-RP-150 Radiological Survey and Sampling*. January.
- Gilbane, 2021. *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*. March.
- Gilbane, 2021. *Phase IV Non-Time Critical Removal Action Work Plan, Air Monitoring Plan, Solid Waste Disposal Area Westside, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. March.
- Gilbane, 2021. *Phase IV Non-Time Critical Removal Action Work Plan, Dust Control Plan, Solid Waste Disposal Area Westside, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. March.
- HERO, 2018. *Dust Action Levels for Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

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FIGURES

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Air Monitoring Report
Phase IV Non-Time Critical Removal Action
Solid Waste Disposal Area Westside, IR Site 12
Former Naval Station Treasure Island
San Francisco, CA

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

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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 (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)
DMW1	Site 12	3/22/2021	0.028	0.022	NA	Yes
DMW2	Site 12		0.023	0.020	0.002	Yes
DMW3	Site 12		0.021	0.015	0.007	Yes
DMW1	Site 12	3/23/2021	0.012	0.008	NA	Yes
DMW2	Site 12		0.009	0.007	0.001	Yes
DMW3	Site 12		0.011	0.007	0.001	Yes
DMW1	Site 12	3/24/2021	0.030	0.019	NA	Yes
DMW2	Site 12		0.026	0.019	0.000	Yes
DMW3	Site 12		0.033	0.021	0.002	Yes
DMW1	Site 12	3/25/2021	0.015	0.012	NA	Yes
DMW2	Site 12		0.011	0.009	0.003	Yes
DMW3	Site 12		0.018	0.011	0.001	Yes
DMW4	Site 12	3/29/2021	0.031	0.015	NA	Yes
DMW5	Site 12		0.019	0.018	0.003	Yes
DMW6	Site 12		0.015	0.011	0.004	Yes
DMW7	Site 12	3/30/2021	0.015	0.012	NA	Yes
DMW8	Site 12		0.020	0.014	0.002	Yes
DMW9	Site 12		0.021	0.016	0.004	Yes
DMW7	Site 12	3/31/2021	0.012	0.009	NA	Yes
DMW8	Site 12		0.010	0.009	0.000	Yes
DMW9	Site 12		0.012	0.001	0.008	Yes

Notes:

mg/m³ = milligrams per cubic meter

NA = not applicable

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AIR MONITORING LOG

Client Name NAVFAC

Date _____

03/25/2021

Project / No. T.I. Westside Phase IV NTCRA / J310000800

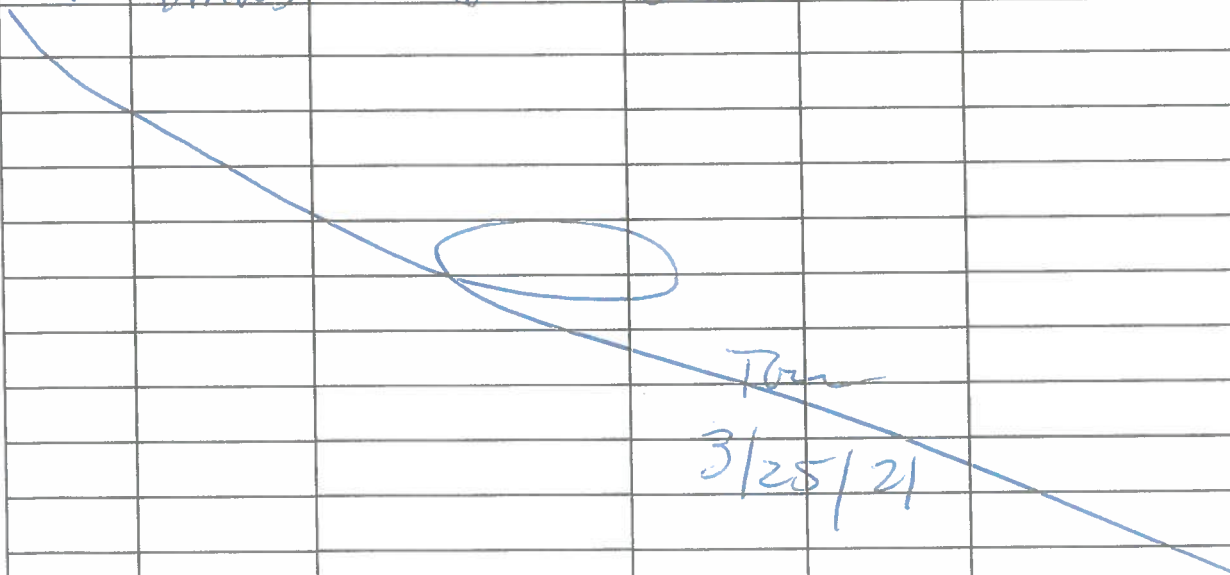
Page 1 of 1

Logged by Teresa Riva

Weather Sunny 65°F

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
0920	DmW1	upwind SP4	0.006	2341	intrusive work @ SP4
↓	DmW2	downwind SP4	0.004	2726	
↓	DmW3	downwind SP4	0.004	2845	
1220	DmW1		0.015		
↓	DmW2		0.010		
↓	DmW3		0.018		
1430	DmW1		0.011		
↓	DmW2		0.011		
↓	DmW3		0.012		
1500	DmW1		0.014		finished w/ intrusive work
↓	DmW2		0.011		
↓	DmW3		0.009		
					
<div style="text-align: right;"> TBM 3/25/21 </div>					

AIR MONITORING LOG

Client Name NAVFAC

Date 3/29/21

Project / No. T.I. Westside Phase IV NTCRA / J310000800

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Logged by Logan Schwing

Weather 57°F Sunny

Instrument Type: Dust Trak II

Calibration Standards Used	Factory Calibrated
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
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90	90
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92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m ³)	Unit Number	Activities, Remarks
1020	DMW4	upwind RSY1 Ramp Construction	0.031	2845	• Soil movement present.
↓	DMW5	downwind RSY1 Ramp Construction	0.016	2341	• to build ramp onto RSY1 clean soil
↓	DMW6	downwind RSY1 Ramp Construction	0.015	2726	• Ramps built on South side of RSY1.
1345	DMW4		0.010		• Connex Box movement around RSY1 present during reading.
↓	DMW5		0.019		
↓	DMW6		0.007		
1700	DMW4		0.005		
↓	DMW5		0.019		
↓	DMW6		0.012		
LSS 3/29/21					

Date _____

3/30/21

Page 1 of 1

Weather 69°F Sunny

Instrument Type: Dust Trak II

Calibration Standards Used	Factory Calibrated
1000 mg	1000 mg
500 mg	500 mg
250 mg	250 mg
100 mg	100 mg
50 mg	50 mg
25 mg	25 mg
10 mg	10 mg
5 mg	5 mg
2 mg	2 mg
1 mg	1 mg
0.5 mg	0.5 mg
0.2 mg	0.2 mg
0.1 mg	0.1 mg
0.05 mg	0.05 mg
0.02 mg	0.02 mg
0.01 mg	0.01 mg
0.005 mg	0.005 mg
0.002 mg	0.002 mg
0.001 mg	0.001 mg
0.0005 mg	0.0005 mg
0.0002 mg	0.0002 mg
0.0001 mg	0.0001 mg
0.00005 mg	0.00005 mg
0.00002 mg	0.00002 mg
0.00001 mg	0.00001 mg
0.000005 mg	0.000005 mg
0.000002 mg	0.000002 mg
0.000001 mg	0.000001 mg
0.0000005 mg	0.0000005 mg
0.0000002 mg	0.0000002 mg
0.0000001 mg	0.0000001 mg
0.00000005 mg	0.00000005 mg
0.00000002 mg	0.00000002 mg
0.00000001 mg	0.00000001 mg
0.000000005 mg	0.000000005 mg
0.000000002 mg	0.000000002 mg
0.000000001 mg	0.000000001 mg
0.0000000005 mg	0.0000000005 mg
0.0000000002 mg	0.0000000002 mg
0.0000000001 mg	0.0000000001 mg
0.00000000005 mg	0.00000000005 mg
0.00000000002 mg	0.00000000002 mg
0.00000000001 mg	0.00000000001 mg
0.000000000005 mg	0.000000000005 mg
0.000000000002 mg	0.000000000002 mg
0.000000000001 mg	0.000000000001 mg
0.0000000000005 mg	0.0000000000005 mg
0.0000000000002 mg	0.0000000000002 mg
0.0000000000001 mg	0.0000000000001 mg
0.00000000000005 mg	0.00000000000005 mg
0.00000000000002 mg	0.00000000000002 mg
0.00000000000001 mg	0.00000000000001 mg
0.000000000000005 mg	0.000000000000005 mg
0.000000000000002 mg	0.000000000000002 mg
0.000000000000001 mg	0.000000000000001 mg
0.0000000000000005 mg	0.0000000000000005 mg
0.0000000000000002 mg	0.0000000000000002 mg
0.0000000000000001 mg	0.0000000000000001 mg
0.00000000000000005 mg	0.00000000000000005 mg
0.00000000000000002 mg	0.00000000000000002 mg
0.00000000000000001 mg	0.00000000000000001 mg
0.000000000000000005 mg	0.000000000000000005 mg
0.000000000000000002 mg	0.000000000000000002 mg
0.000000000000000001 mg	0.000000000000000001 mg
0.0000000000000000005 mg	0.0000000000000000005 mg
0.0000000000000000002 mg	0.0000000000000000002 mg
0.0000000000000000001 mg	0.0000000000000000001 mg
0.00000000000000000005 mg	0.00000000000000000005 mg
0.00000000000000000002 mg	0.00000000000000000002 mg
0.00000000000000000001 mg	0.00000000000000000001 mg
0.000000000000000000005 mg	0.000000000000000000005 mg
0.000000000000000000002 mg	0.000000000000000000002 mg
0.000000000000000000001 mg	0.000000000000000000001 mg
0.0000000000000000000005 mg	0.0000000000000000000005 mg
0.0000000000000000000002 mg	0.0000000000000000000002 mg
0.0000000000000000000001 mg	0.0000000000000000000001 mg
0.00000000000000000000005 mg	0.00000000000000000000005 mg
0.00000000000000000000002 mg	0.00000000000000000000002 mg
0.00000000000000000000001 mg	0.00000000000000000000001 mg
0.000000000000000000000005 mg	0.000000000000000000000005 mg
0.000000000000000000000002 mg	0.000000000000000000000002 mg
0.000000000000000000000001 mg	0.000000000000000000000001 mg
0.0000000000000000000000005 mg	0.0000000000000000000000005 mg
0.0000000000000000000000002 mg	0.0000000000000000000000002 mg
0.0000000000000000000000001 mg	0.000000000

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m ³)	Unit Number	Activities, Remarks
0815	DMW7	• upwind RSY1 pad	0.008	2726	• soil movement from the laydown area
↓	DMW8	• downwind RSY1 pad	0.020	2845	is not underway yet.
↓	DMW9	• downwind RSY1 pad	0.017	2341	
1230	DMW7		0.015		• no intrusive work when reading
↓	DMW8		0.008		was collected
↓	DMW9		0.010		
1705	DMW7		0.013		• operation wrapping up
↓	DMW8		0.015		
↓	DMW9		0.021		
LSS 3/30/21					



Date _____

3/31/21

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Logged by Logan Schwing

Weather 75°F Sunny

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

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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)
3/10/2021	29.94	49.28	282.75
3/11/2021	29.96	47.21	281.60
3/12/2021	30.08	49.97	283.13
3/23/2021	30.07	54.05	285.40
3/24/2021	30.03	58.51	287.88
3/25/2021	29.90	53.97	285.36
3/26/2021	29.82	52.46	284.52
3/30/2021	29.95	53.50	285.09
3/31/2021	30.01	59.8	288.59

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)

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	24.34	3/10/2021	13	NA	NA
	23.57	3/11/2021	5	NA	NA
	24.18	3/12/2021	11	NA	NA
	23.83	3/23/2021	14	NA	NA
	24.75	3/24/2021	13	NA	NA
	23.52	3/25/2021	18	NA	NA
	22.39	3/26/2021	22	NA	NA
	24.44	3/30/2021	25	NA	NA
	23.79	3/31/2021	28	NA	NA
AMSW2	23.98	3/10/2021	21	8	No
	23.66	3/11/2021	4.2	-0.8	No
	23.77	3/12/2021	9.9	-1.1	No
	23.76	3/23/2021	8.2	-5.8	No
	24.62	3/24/2021	8.6	-4.4	No
	24.01	3/25/2021	15	-3	No
	22.33	3/26/2021	17	-5	No
	24.48	3/30/2021	22	-3	No
	23.92	3/31/2021	26	-2	No

Notes:

ug/m3 = micrograms per cubic meter

NA = Not applicable

PM10 = particulate matter less than 10 microns in diameter

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	24.41	3/10/2021	13.25	NA	NA
	23.60	3/11/2021	10.05	NA	NA
	24.19	3/12/2021	18.99	NA	NA
	23.84	3/23/2021	25.37	NA	NA
	24.77	3/24/2021	31.17	NA	NA
	23.50	3/25/2021	30.26	NA	NA
	22.36	3/26/2021	34.29	NA	NA
	24.42	3/30/2021	40.44	NA	NA
	23.79	3/31/2021	46.00	NA	NA
AMSW2	23.97	3/10/2021	17.24	3.99	No
	23.64	3/11/2021	8.82	-1.23	No
	23.75	3/12/2021	20.49	1.50	No
	23.78	3/23/2021	18.74	-6.63	No
	24.61	3/24/2021	23.46	-7.71	No
	24.03	3/25/2021	26.93	-3.33	No
	22.33	3/26/2021	29.77	-4.52	No
	24.49	3/30/2021	33.80	-6.64	No
	23.93	3/31/2021	46.82	0.82	No

Notes:

ug/m³ = micrograms per cubic meter

NA = Not applicable

TSP = total suspended particulate

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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	24.34	3/10/2021	0.001	No
	23.57	3/11/2021	0.00037 J	No
	24.18	3/12/2021	0.001	No
	23.83	3/23/2021	0.0009	No
	24.75	3/24/2021	0.00091	No
	23.52	3/25/2021	0.00039 J	No
	22.39	3/26/2021	0.00057 J	No
	24.44	3/30/2021	0.0008	No
	23.79	3/31/2021	0.0011	No
AMSW2	23.98	3/10/2021	0.0054	No
	23.66	3/11/2021	0.00051 J	No
	23.77	3/12/2021	0.00098	No
	23.76	3/23/2021	0.00089	No
	24.62	3/24/2021	0.0013	No
	24.01	3/25/2021	0.00055 J	No
	22.33	3/26/2021	0.0009	No
	24.48	3/30/2021	0.00072	No
	23.92	3/31/2021	0.00095	No

Notes:

J = indicates an estimated value

ug/m³ = micrograms per cubic meter

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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	23.57	3/11/2021	No	0	0.0022	0.00087	< 0.00059	0.00056 J	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	0.00084	0.0019	< 0.00059	0.0046	0.0056	0.00053 J
	24.78	3/24/2021	No	0	0.0024	0.0011	< 0.00059	0.00026 J	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	< 0.00059	0.00054 J	0.0013	< 0.00059	0.0041	0.0037	0.00036 J
	24.44	3/30/2021	No	0	0.002	0.0004 J	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	0.00062	0.00042 J	< 0.00052	0.0049	0.0012	0.00042 J
AMSW2	23.65	3/11/2021	No	0	0.0025	0.00057 J	<0.00086	<0.00086	<0.00086	<0.00086	<0.00086	<0.00086	<0.00086	<0.00086	<0.00086	0.0009	0.00063 J	<0.00086	0.0055	0.0017	0.00064 J
	24.62	3/24/2021	No	0	0.0023	0.00048 J	< 0.00085	<0.00085	< 0.00085	< 0.00085	< 0.00085	< 0.00085	< 0.00085	< 0.00085	< 0.00085	0.0011	0.00066 J	< 0.00085	0.0045	0.0026	0.00069 J
	24.48	3/30/2021	No	0	0.0039	0.0013	< 0.00076	0.002	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076	< 0.00076	0.0033	0.0042	< 0.00076	0.0078	0.017	0.002

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

< = nondetected less than associated reporting limit

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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	24.98	3/10/2021	NA	0	< 0.00087	< 0.00087	< 0.00087	< 0.00087	< 0.00087	< 0.00087	< 0.00087
	23.83	3/23/2021	NA	0	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	22.37	3/26/2021	NA	0	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
AMSW2	23.96	3/10/2021	NA	0	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	23.77	3/23/2021	NA	0	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011
	22.33	3/26/2021	NA	0	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013

Notes:

NA = Not applicable

NE = None established

PCB = polychlorinated biphenyl

ug/m³ = micrograms 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

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	24.19	3/12/2021	< 0.000000023	No
	23.52	3/25/2021	< 0.000000024	No
	23.79	3/31/2021	< 0.00000002	No
AMSW2	23.76	3/12/2021	< 0.000000033	No
	24.02	3/25/2021	< 0.000000032	No
	23.92	3/31/2021	< 0.000000029	No

Notes:

ug/m³ = micrograms per cubic meter

< = nondetected less than associated reporting limit

ATTACHMENT 3
RADIOLOGICAL AIR MONITORING RESULTS
(Provided on CD)

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AIR SAMPLING EQUIPMENT

Project Information								Effective as of: 5/3/2021			
Contract / Task Order Number:				Project Title / Location:				Gilbane Project Number:			
N62473-17-D-0005				IR Site 12 RD/RA, Treasure Island, SF, CA				J310000300			
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				
PE01	LV-1	4532	5/20/21	BZ01							
PE02	LV-1	4360	5/20/21	BZ02							
PE03				BZ03							
PE04				BZ04							
PE05				BZ05							
PE06				BZ06							
PE07				BZ07							
PE08				BZ08							
PE09				BZ09							
PE10				BZ10							
PE11				BZ11							
PE12				BZ12							
PE13				BZ13							
PE14				BZ14							
PE15				BZ15							
PE16				BZ16							
PE17				BZ17							
PE18				BZ18							
PE19				BZ19							
PE20				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											
C											
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>)											

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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 March 22, 2021 and April 23, 2021		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: 5/3/2021									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-001	Perimeter	AS-0001	PE01	60	3/22/21 9:10	3/22/21 17:35	505	3.0E+07	A	4/27/21	1	cpm	0.10	3.90	0.3	7.9	4.2E-15	1.2E-13	0.5%	2.0%	IH	CB
AS-002	Perimeter	AS-0002	PE02	60	3/22/21 9:00	3/22/21 17:30	510	3.1E+07	A	4/27/21	1	cpm	0.25	3.25	0.7	6.1	1.0E-14	8.9E-14	1.2%	1.5%	IH	CB
AS-003	Perimeter	AS-0003	PE01	60	3/23/21 8:10	3/23/21 16:45	515	3.1E+07	A	4/27/21	1	cpm	0.20	4.40	0.6	9.3	8.3E-15	1.4E-13	0.9%	2.3%	IH	CB
AS-004	Perimeter	AS-0004	PE02	60	3/23/21 8:05	3/23/21 16:30	505	3.0E+07	A	4/27/21	1	cpm	0.10	3.80	0.3	7.6	4.2E-15	1.1E-13	0.5%	1.9%	IH	CB
AS-005	Perimeter	AS-0005	PE02	60	3/24/21 8:00	3/24/21 17:01	541	3.2E+07	A	4/27/21	1	cpm	0.15	3.55	0.4	6.9	5.9E-15	9.6E-14	0.7%	1.6%	IH	CB
AS-006	Perimeter	AS-0006	PE01	60	3/24/21 7:59	3/24/21 17:05	546	3.3E+07	A	4/27/21	1	cpm	0.20	3.85	0.6	7.7	7.8E-15	1.1E-13	0.9%	1.8%	IH	CB
AS-007	Perimeter	AS-0007	PE01	60	3/25/21 8:05	3/25/21 17:38	573	3.4E+07	A	4/27/21	1	cpm	0.05	4.20	0.1	8.7	1.9E-15	1.1E-13	0.2%	1.9%	IH	CB
AS-008	Perimeter	AS-0008	PE02	60	3/25/21 8:00	3/25/21 17:25	565	3.4E+07	A	4/27/21	1	cpm	0.10	3.60	0.3	7.0	3.8E-15	9.4E-14	0.4%	1.6%	IH	CB
AS-009	Perimeter	AS-0009	PE02	60	3/29/21 8:02	3/29/21 17:03	541	3.2E+07	A	4/27/21	1	cpm	0.30	3.45	0.9	6.6	1.2E-14	9.2E-14	1.3%	1.5%	IH	CB
AS-010	Perimeter	AS-0010	PE01	60	3/29/21 7:57	3/29/21 16:58	541	3.2E+07	A	4/27/21	1	cpm	0.05	3.20	0.1	5.9	2.0E-15	8.2E-14	0.2%	1.4%	IH	CB
AS-011	Perimeter	AS-0011	PE02	60	3/30/21 7:51	3/30/21 17:01	550	3.3E+07	A	4/27/21	1	cpm	0.25	3.90	0.7	7.9	9.7E-15	1.1E-13	1.1%	1.8%	IH	CB
AS-012	Perimeter	AS-0012	PE01	60	3/30/21 8:10	3/30/21 17:10	540	3.2E+07	A	4/27/21	1	cpm	0.25	4.65	0.7	10.0	9.9E-15	1.4E-13	1.1%	2.3%	IH	CB
		AS-0013	PE01	60	3/31/21 7:57	3/31/21 17:08	551	3.3E+07	A	4/27/21	1	cpm	0.05	4.55	0.1	9.7	1.9E-15	1.3E-13	0.2%	2.2%	IH	CB
		AS-0014	PE02	60	3/31/21 8:00	3/31/21 17:20	560	3.4E+07	A	4/27/21	1	cpm	0.10	4.75	0.3	10.3	3.8E-15	1.4E-13	0.4%	2.3%	IH	CB
		AS-0015	PE02	60	4/1/21 7:57	4/1/21 17:10	553	3.3E+07	A	4/27/21	1	cpm	0.20	3.95	0.6	8.0	7.7E-15	1.1E-13	0.9%	1.8%	IH	CB
		AS-0016	PE01	60	4/1/21 8:03	4/1/21 17:03	540	3.2E+07	A	4/27/21	1	cpm	0.00	4.80	0.0	10.4	0.0E+00	1.4E-13	0.0%	2.4%	IH	CB
		AS-0017	PE02	60	4/2/21 7:57	4/2/21 17:13	556	3.3E+07	A	4/27/21	1	cpm	0.05	3.60	0.1	7.0	1.9E-15	9.5E-14	0.2%	1.6%	IH	CB
		AS-0018	PE01	60	4/2/21 7:50	4/2/21 17:08	558	3.3E+07	A	4/27/21	1	cpm	0.25	2.75	0.7	4.6	9.6E-15	6.3E-14	1.1%	1.0%	IH	CB
		AS-0019	PE01	60	4/5/21 7:59	4/5/21 16:51	532	3.2E+07	A	4/27/21	1	cpm	0.05	4.15	0.1	8.6	2.0E-15	1.2E-13	0.2%	2.0%	IH	CB
		AS-0020	PE02	60	4/5/21 7:45	4/5/21 16:58	553	3.3E+07	A	4/27/21	1	cpm	0.10	4.65	0.3	10.0	3.9E-15	1.4E-13	0.4%	2.3%	IH	CB
		AS-0021	PE01	60	4/6/21 8:10	4/6/21 17:10	540	3.2E+07	A	4/27/21	1	cpm	0.20	4.10	0.6	8.5	7.9E-15	1.2E-13	0.9%	2.0%	IH	CB
		AS-0022	PE02	60	4/6/21 7:53	4/6/21 17:03	550	3.3E+07	A	4/27/21	1	cpm	0.20	3.50	0.6	6.8	7.8E-15	9.2E-14	0.9%	1.5%	IH	CB
		AS-0023	PE02	60	4/7/21 8:00	4/7/21 17:13	553	3.3E+07	A	4/27/21	1	cpm	0.10	3.75	0.3	7.5	3.9E-15	1.0E-13	0.4%	1.7%	IH	CB
		AS-0024	PE01	60	4/7/21 8:30	4/7/21 17:00	510	3.1E+07	A	4/27/21	1	cpm	0.00	3.90	0.0	7.9	0.0E+00	1.2E-13	0.0%	1.9%	IH	CB
		AS-0025	PE02	60	4/9/21 7:55	4/9/21 17:15	560	3.4E+07	A	4/27/21	1	cpm	0.30	4.80	0.9	10.4	1.1E-14	1.4E-13	1.3%	2.3%	IH	CB
		AS-0026	PE01	60	4/9/21 7:45	4/9/21 17:20	575	3.4E+07	A	4/27/21	1	cpm	0.20	4.35	0.6	9.2	7.4E-15	1.2E-13	0.8%	2.0%	IH	CB
		AS-0027	PE01	60	4/12/21 8:00	4/12/21 17:05	545	3.3E+07	A	4/27/21	1	cpm	0.05	3.35	0.1	6.3	2.0E-15	8.7E-14	0.2%	1.5%	IH	CB
		AS-0028	PE02	60	4/12/21 8:05	4/12/21 17:15	550	3.3E+07	A	4/27/21	1	cpm	0.10	4.05	0.3	8.3	3.9E-15	1.1E-13	0.4%	1.9%	IH	CB
		AS-0029	PE01	60	4/13/21 6:43	4/13/21 17:07	624	3.7E+07	A	4/27/21	1	cpm	0.10	3.40	0.3	6.5	3.4E-15	7.8E-14	0.4%	1.3%	IH	CB
		AS-0030	PE02	60	4/13/21 6:53	4/13/21 17:15	622	3.7E+07	A	4/27/21	1	cpm	0.20	4.60	0.6	9.9	6.9E-15	1.2E-13	0.8%	2.0%	IH	CB
		AS-0031	PE01	60	4/14/21 6:47	4/14/21 17:09	622	3.7E+07	A	4/27/21	1	cpm	0.15	4.50	0.4	9.6	5.1E-15	1.2E-13	0.6%	1.9%	IH	CB
		AS-0032	PE02	60	4/14/21 6:51	4/14/21 17:13	622	3.7E+07	A	4/27/21	1	cpm	0.15	4.00	0.4	8.2	5.1E-15	9.9E-14	0.6%	1.6%	IH	CB
		AS-0033	PE01	60	4/15/21 6:50	4/15/21 17:03	613	3.7E+07	A	4/27/21	1	cpm	0.05	4.85	0.1	10.6	1.7E-15	1.3E-13	0.2%	2.2%	IH	CB
		AS-0034	PE02	60	4/15/21 6:45	4/15/21 17:10	625	3.8E+07	A	4/27/21	1	cpm	0.10	4.55	0.3	9.7	3.4E-15	1.2E-13	0.4%	1.9%	IH	CB
		AS-0035	PE01	60	4/16/21 7:00	4/16/21 17:10	610	3.7E+07	A	4/27/21	1	cpm	0.10	4.20	0.3	8.7	3.5E-15	1.1E-13	0.4%	1.8%	IH	CB
		AS-0036	PE02	60	4/16/21 6:45	4/16/21 17:15	630	3.8E+07	A	4/27/21	1	cpm	0.00	4.25	0.0	8.9	0.0E+00	1.1E-13	0.0%	1.8%	IH	CB

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