



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

# **AIR MONITORING SUMMARY REPORT**

## **MARCH 30 TO APRIL 12, 2019**

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

FORMER NAVAL STATION TREASURE ISLAND, SAN  
FRANCISCO, CA

May 2019

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DCN: GLBN-0005-F4239-027



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FRANCISCO, CA

**Prepared for:**



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## 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 <sup>3</sup>	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 <sup>3</sup>	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 March 30<sup>th</sup>, 2019 through April 12<sup>th</sup>, 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 excavated soil to the radiological screening yard, 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 PM<sub>10</sub>, 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 PM<sub>10</sub> 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 PM<sub>10</sub> 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 PM<sub>10</sub> dust action level of 50 microgram per cubic meter (ug/m<sup>3</sup>) 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/m<sup>3</sup> 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 PM<sub>10</sub>, in accordance with guidance provided by the San Francisco Bay Area Air Quality Management District (BAAQMD), which estimates that PM<sub>10</sub> 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 <sup>a</sup>	Action Level <sup>b</sup>	Action
PDR	Near Workers' Breathing Zones (typically on equipment)	Periodically <sup>c</sup>	<2.5 mg/m <sup>3</sup> >2.5 mg/m <sup>3</sup>	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 <sup>3</sup> >1.0 mg/m <sup>3</sup>	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.*

*<sup>a</sup> 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.*

*<sup>b</sup> 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.*

*<sup>c</sup> PDR will be monitored a minimum of three times a day.*

*< less than*

*> greater than*

*mg/m<sup>3</sup> milligram 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	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) <sup>b</sup>	TI Site 12 Dust Action Level
PCBs <sup>a</sup>	NA	TI Site 12 Dust Action Level
4,4'-DDD	200	TI Site 12 Dust Action Level
Dioxin <sup>a</sup>	1E+07	TI Site 12 Dust Action Level
Radiological (Ra-226)	10% of DAC <sup>c</sup>	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 March 30, 2019 to April 12, 2019 did not exceed the project-specific screening criteria presented in Table 2.

TSP analytical results from March 30, 2019 to April 12, 2019 did not exceed the project-specific screening criteria presented in Table 2, with the following exceptions:

- The results for AMS02 on April 10, 2019, which was reported at a delta between the downwind and upwind stations of 82.04 ug/m<sup>3</sup>. The highest PDR reading for the corresponding day (April 9, 2019) was 0.014 mg/m<sup>3</sup> at DM1, which would seem to indicate site activities were not the source of the exceedance.
- The results for AMS02 on April 11, 2019, which was reported at a delta between the downwind and upwind stations of 81.92 ug/m<sup>3</sup>. The highest PDR reading for the corresponding day (April 10, 2019) was 0.018 mg/m<sup>3</sup> at DM2, which would seem to indicate site activities were not the source of the exceedance.
- The results for AMS02 on April 12, 2019, which was reported at a delta between the downwind and upwind stations of 158.60 ug/m<sup>3</sup>. The highest PDR reading for the corresponding day (April 11, 2019) was 0.041 mg/m<sup>3</sup> at DM2, which would seem to indicate site activities were not the source of the exceedance.

Metals (chromium and lead), PAHs, total PCBs, and dioxin analytical results from March 30, 2019 to April 12, 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.

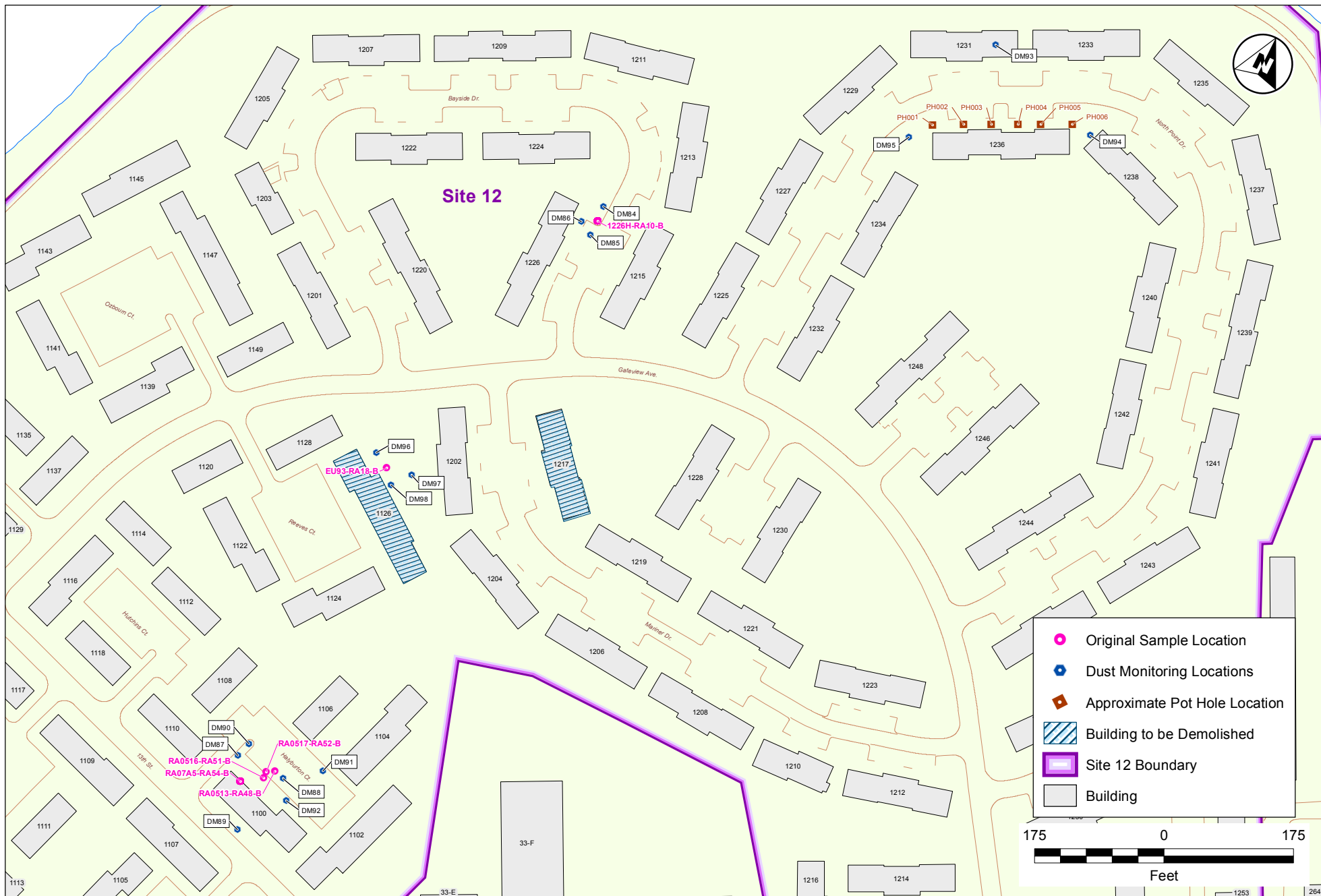
## **FIGURES**



**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

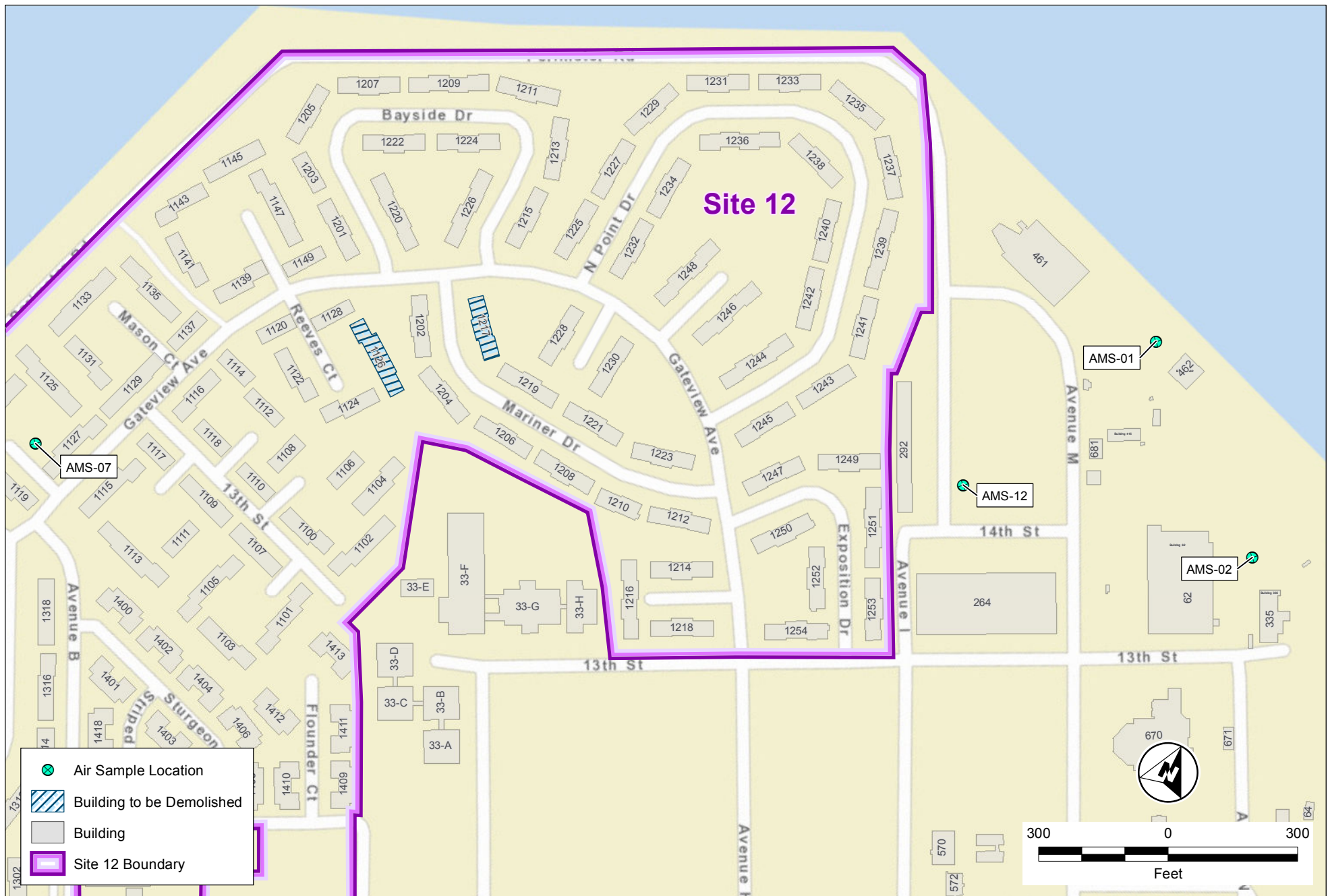




**IR Site 12 Non-SWDA Remedial Action/  
SWDA Removal Action**  
Former Naval Station Treasure Island  
San Francisco, CA

**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



## **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 <sup>3</sup> )	Average (mg/m <sup>3</sup> )	Delta Between Upwind and Downwind stations (mg/m <sup>3</sup> )	Below action level? (0.050 mg/m <sup>3</sup> ) (Yes/No)
DM1	Site 32	4/1/2019	0.019	0.014	NA	NA
DM2	Site 32		0.027	0.019	0.005	Yes
DM3	Site 32		0.017	0.014	0.000	Yes
DM84	Site 12		0.030	0.021	NA	NA
DM85	Site 12		0.016	0.011	-0.010	Yes
DM86	Site 12		0.022	0.015	-0.007	Yes
DM1	Site 32	4/2/2019	0.007	0.005	NA	NA
DM2	Site 32		0.006	0.004	-0.002	Yes
DM3	Site 32		0.008	0.005	-0.001	Yes
DM87	Site 12		0.002	0.001	NA	NA
DM88	Site 12		0.002	0.001	0.000	Yes
DM89	Site 12		0.003	0.002	0.001	Yes
DM1	Site 32	4/3/2019	0.005	0.003	NA	NA
DM2	Site 32		0.007	0.006	0.002	Yes
DM3	Site 32		0.005	0.004	0.001	Yes
DM90	Site 12		0.002	0.002	NA	NA
DM91	Site 12		0.007	0.004	0.002	Yes
DM92	Site 12		0.007	0.004	0.002	Yes
DM1	Site 32	4/4/2019	0.003	0.002	NA	NA
DM2	Site 32		0.013	0.007	0.005	Yes
DM3	Site 32		0.008	0.005	0.003	Yes
DM93	Site 12		0.004	0.002	NA	NA
DM94	Site 12		0.004	0.002	0.000	Yes
DM95	Site 12		0.004	0.003	0.000	Yes
DM1	Site 32	4/8/2019	0.014	0.011	NA	NA
DM2	Site 32		0.023	0.016	0.005	Yes
DM3	Site 32		0.012	0.010	-0.002	Yes
DM96	Site 12		0.010	0.005	NA	NA
DM97	Site 12		0.015	0.008	0.004	Yes
DM98	Site 12		0.014	0.007	0.002	Yes
DM1	Site 32	4/9/2019	0.014	0.008	NA	NA
DM2	Site 32		0.013	0.010	0.001	Yes
DM3	Site 32		0.011	0.006	-0.002	Yes
DM1	Site 32	4/10/2019	0.015	0.007	NA	NA
DM2	Site 32		0.018	0.011	0.004	Yes
DM3	Site 32		0.010	0.007	-0.001	Yes
DM1	Site 32	4/11/2019	0.017	0.013	NA	NA
DM2	Site 32		0.041	0.022	0.008	Yes
DM3	Site 32		0.020	0.013	0.000	Yes

## Notes:

**bold** = results above screening criteria

mg/m<sup>3</sup> = milligram per cubic meter

NA = not applicable

## AIR MONITORING LOG

Client Name NAVFAC

Date \_\_\_\_\_

4/1/19

Project No. J310000300

Page

7

0.

Logged by Mike Cox

Weather overcast

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
14	14
15	15
16	16
17	17
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94	94
95	95
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98	98
99	99
100	100

[illegible]





# AIR MONITORING LOG - Site 32

Client Name NAVFAC

Date 4/1/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather overcast

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	0.019	2714	No earth moving activities
7:40	DM2	DW site 32	0.017	2724	
7:46	DM3	DW site 32	0.014	0943	↓
0924	DM2	DW site 32	0.019	2724	Dump asphalt and concrete debris
0928	DM3	DW site 32	0.012	0943	" "
0935	DM1	UW site 32	0.011	2714	" "
1005	DM2		0.027		Dump soil from excavation
1007	DM3		0.017		" "
1011	DM1		0.016		" "
1041	DM2		0.019		" "
1043	DM3		0.013		" "
1047	DM1		0.014		" "
1101	DM2		0.020		Dump asphalt from excavation
1103	DM3		0.016		" "
1110	DM1		0.012		" "
1149	DM2		0.019		Dump soil from excavation
1151	DM3		0.014		" "
1155	DM1		0.012		" "
3:30	DM1		0.017		
↓	DM2		0.015		
↓	DM3		0.013		

## AIR MONITORING LOG

Client Name NAVFAC

Date 4/2/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather overcast/rainy 55°

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:37	DM1	UW site 32	0.007	2368	No earth moving activities
7:45	DM2	DW site 32	0.006	1649	↓
7:49	DM3	DW site 32	0.008	2714	
9:15	DM87	UW Discreet sample RA07-05	0.001	0943	Discreet sampling using drill rig
↓	DM88	DW Discreet sample RA07-05	0.002	3703	↓
↓	DM89	DW Discreet sample RA07-05	0.003	2724	
10:05	DM1		0.007		
↓	DM2		0.005		↓
↓	DM3		0.005		
11:30	DM87		0.001		
↓	DM88		0.001		↓
↓	DM89		0.001		
1:20	DM1		0.003		
↓	DM2		0.002		↓
↓	DM3		0.002		
2:40	DM87		0.002		
↓	DM88		0.001		↓
↓	DM89		0.002		
3:30	DM87		0.001		
↓	DM88		0.001		↓
↓	DM89		0.002		
4:40	DM1		0.003		
↓	DM2		0.001		↓
↓	DM3		0.003		





Date 4/3/19

Page 1 of 1

Weather Sunny

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

[illegible]

## AIR MONITORING LOG

Client Name NAVFAC

Date 4-4-19

Project No. J310000300

Page 1 of       

Logged by Scout Ahern

Weather 55°, overcast, rainy

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
0816	DM1	UW site 32	0.003	2368	No earth moving activities
0828	DM2	DW site 32	0.005	1649	↓
0900	DM3	DW site 32	0.004	2724	↓
0915	DM93	UW Northpoint potholing	0.002	0943	Pothole <del>3m</del> at Northpoint
↓	DM94	DW-E Northpoint potholing	0.004	2714	
↓	DM95	DW-W Northpoint potholing	0.003	3703	
1025	DM93		0.003		
↓	DM94		0.002		
↓	DM95		0.004		
12:00	DM1		0.003		
↓	DM2		0.013		
↓	DM3		0.004		
1:00	DM93		0.001		
	DM94		0.001		
	DM95		0.002		
2:45	DM93		0.002		
↓	DM94		0.002		
↓	DM95		0.002		
2:55	DM1		0.001		
↓	DM2		0.002		
↓	DM3		0.005		
3:30	DM93		0.004		
↓	DM94		0.001		
↓	DM95		0.002		

4:30 DM1 0.001  
↓ DM2 0.006  
DM3 0.008

**AIR MONITORING LOG**Client Name NAVFACDate 4/8/19Project No. J310000300Page 1 of 1Logged by Mike Cox

Weather \_\_\_\_\_

Instrument Type: Dust Trak IICalibration Standards Used Factory Calibrated

Time	Dust Monitoring Station Number	Location	Instrument Reading (mg/m3)	Unit Number	Activities, Remarks
7:35	DM1	UW site 32	0.012	2724	No earth moving activities
7:40	DM2	DW site 32	0.011	3703	↓
7:45	DM3	DW site 32	0.008	0943	
8:50	DM96	UW Backfill EU93	0.003	1649	Backfilling EU93 w/ clean soil
↓	DM97	DW backfill EU93	0.007	2714	
↓	DM98	DW backfill EU93	0.005	2368	
10:20	DM1		0.014		
↓	DM2		0.023		
↓	DM3		0.012		
10:30	DM96		0.010		
↓	DM97		0.015		
↓	DM98		0.014		
11:30	DM96		0.003		
↓	DM97		0.006		
↓	DM98		0.004		
1:45	DM1		0.009		
↓	DM2		0.013		
↓	DM3		0.009		
4:10	DM1		0.009		
↓	DM2		0.016		
↓	DM3		0.009		
4:30	DM96		0.003		
↓	DM97		0.005		
↓	DM98		0.004		



Date \_\_\_\_\_

4/9/19

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## Weather

Calibration Standards Used	Factory Calibrated
1	1
2	2
3	3
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97	97
98	98
99	99
100	100

[illegible]

## AIR MONITORING LOG

Client Name NAVFAC

Date 4/10/19

Project No. J310000300

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Logged by Mike Cox

## Weather

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

[illegible]



## AIR MONITORING LOG

Client Name NAVFAC

Date 4/11/19

Project No. J310000300

Page ( of )

Logged by Mike Cox

Weather \_\_\_\_\_

Instrument Type: Dust Trak II

Calibration Standards Used	Factory Calibrated
100% Control Solution	✓
80% Control Solution	✓
60% Control Solution	✓
40% Control Solution	✓
20% Control Solution	✓
Blank	✓
Water	✓
Other	✓

[illegible]

**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**

<b>Sample Date</b>	<b>Ambient Pressure (inches of Hg)</b>	<b>Ambient Temperature (°F)</b>	<b>Ambient Temperature (K)</b>
4/2/2019	30.11	56.72	286.88
4/3/2019	30.11	55.40	286.15
4/4/2019	30.21	55.40	286.15
4/5/2019	30.18	56.99	287.03
4/9/2019	30.39	57.49	287.31
4/10/2019	30.44	57.35	287.23
4/11/2019	30.44	57.53	287.33
4/12/2019	30.28	56.45	286.73

**Notes:**

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

°F = Degrees Fahrenheit

Hg = mercury

K = 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 <sup>3</sup> )	Delta between Downwind and Upwind Stations (ug/m <sup>3</sup> )	PM10 Exceedance? (Yes/No)
Screening Criteria					50
AMS01	24.82	4/2/2019	19	NA	NA
	24.77	4/3/2019	11	NA	NA
	25.22	4/4/2019	9.2	NA	NA
	22.75	4/5/2019	6.3	NA	NA
	25.13	4/9/2019	7.2	NA	NA
	24.37	4/10/2019	16	NA	NA
	24.65	4/11/2019	24	NA	NA
	23.87	4/12/2019	13	NA	NA
AMS02	23.76	4/2/2019	24	5	No
	23.71	4/3/2019	15	4	No
	24.09	4/4/2019	14	4.8	No
	23.72	4/5/2019	9.2	2.9	No
	23.84	4/9/2019	18	10.8	No
	23.36	4/10/2019	40	24	No
	23.74	4/11/2019	52	28	No
	22.52	4/12/2019	52	39	No
AMS07	23.81	4/2/2019	26	NA	NA
	23.68	4/3/2019	21	NA	NA
	24.22	4/4/2019	16	NA	NA
	23.82	4/5/2019	9.5	NA	NA
	17.88	4/9/2019	12	NA	NA
	4.27 *	4/10/2019	18	NA	NA
	21.48	4/11/2019	29	NA	NA
	22.36	4/12/2019	4.3	NA	NA
AMS12	23.97	4/2/2019	21	-5	No
	23.78	4/3/2019	12	-9	No
	24.35	4/4/2019	4.5	-11.5	No
	23.76	4/5/2019	7.3	-2.2	No
	24.25	4/9/2019	18	6	No
	23.49	4/10/2019	12	-6	No
	23.77	4/11/2019	23	-6	No
	23.03	4/12/2019	R	NA	NA

**Notes:**

R = rejected data; result unusable

NA = not applicable

PM10 = particulate matter less than 10 microns in diameter

ug/m<sup>3</sup> = microgram per cubic meter

\* = PM10 sampler malfunctioned

**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 <sup>3</sup> )	Delta Between Downwind and Upwind Stations (ug/m <sup>3</sup> )	TSP Exceedance? (Yes/No)
Screening Criteria					<b>50</b>
AMS01	24.82	4/2/2019	22.03	NA	NA
	24.69	4/3/2019	12.93	NA	NA
	25.26	4/4/2019	12.92	NA	NA
	24.83	4/5/2019	14.26	NA	NA
	25.17	4/9/2019	19.36	NA	NA
	24.35	4/10/2019	22.10	NA	NA
	22.71	4/11/2019	30.86	NA	NA
	23.87	4/12/2019	24.48	NA	NA
AMS02	23.75	4/2/2019	34.04	12.0	No
	23.65	4/3/2019	17.07	4.14	No
	24.13	4/4/2019	17.47	4.55	No
	23.69	4/5/2019	25.68	11.4	No
	23.81	4/9/2019	42.93	23.57	No
	23.33	4/10/2019	104.14	82.04	<b>Yes</b>
	23.78	4/11/2019	112.79	81.92	<b>Yes</b>
	22.49	4/12/2019	183.08	158.60	<b>Yes</b>
AMS07	23.83	4/2/2019	28.12	NA	NA
	23.68	4/3/2019	26.52	NA	NA
	24.25	4/4/2019	17.46	NA	NA
	23.83	4/5/2019	20.28	NA	NA
	17.88	4/9/2019	29.78	NA	NA
	4.33 *	4/10/2019	36.07	NA	NA
	21.59	4/11/2019	26.80	NA	NA
	22.34	4/12/2019	8.08	NA	NA
AMS12	23.96	4/2/2019	26.33	-1.79	No
	23.79	4/3/2019	14.72	-11.8	No
	24.39	4/4/2019	13.83	-3.63	No
	23.93	4/5/2019	14.59	-5.69	No
	24.27	4/9/2019	19.90	-9.87	No
	23.41	4/10/2019	24.41	-11.65	No
	23.80	4/11/2019	30.10	3.30	No
	23.08	4/12/2019	8.60	0.51	No

Notes:

NA = not applicable

TSP = total suspended particulate

**bold** = results above screening criteria

\* = TSP sampler malfunctioned

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 <sup>3</sup> )	Lead Exceedance? (Yes/No)	Chromium (ug/m <sup>3</sup> )	Chromium Exceedance? (Yes/No)
Screening Criteria				242	929	
AMS01	24.82	4/2/2019	0.00082 J	No	0.0045	No
	24.77	4/3/2019	0.0006 J	No	0.004	No
	25.22	4/4/2019	0.00039 J	No	0.0035	No
	22.75	4/5/2019	0.00085 J	No	0.0012 J	No
	25.13	4/9/2019	0.0008 J	No	0.00071 J	No
	24.37	4/10/2019	0.0005 J	No	0.0031	No
	24.65	4/11/2019	0.001	No	0.0036	No
	23.87	4/12/2019	0.0013	No	0.0035	No
AMS02	23.76	4/2/2019	0.0011	No	0.0044	No
	23.71	4/3/2019	0.00076 J	No	0.0043	No
	24.09	4/4/2019	0.00078 J	No	0.0042	No
	23.72	4/5/2019	0.0015	No	0.0013 J	No
	23.84	4/9/2019	0.0012	No	0.00096 J	No
	23.36	4/10/2019	0.0038	No	0.0049	No
	23.74	4/11/2019	0.0054	No	0.0051	No
	22.52	4/12/2019	0.0082	No	0.0066	No
AMS07	23.81	4/2/2019	0.0007 J	No	0.004	No
	23.68	4/3/2019	0.00046 J	No	0.0042	No
	24.22	4/4/2019	0.00065 J	No	0.004	No
	23.82	4/5/2019	0.00071 J	No	0.001 J	No
	17.88	4/9/2019	0.00064 J	No	0.0013 J	No
	4.27 *	4/10/2019	0.0023 J	No	0.021	No
	21.48	4/11/2019	0.0013	No	0.0042	No
	22.36	4/12/2019	0.0011	No	0.0042	No
AMS12	23.97	4/2/2019	0.00079 J	No	0.0043	No
	23.78	4/3/2019	0.0006 J	No	0.0041	No
	24.35	4/4/2019	0.00067 J	No	0.00093 J	No
	23.76	4/5/2019	0.00064 J	No	0.0012 J	No
	24.25	4/9/2019	0.00069 J	No	0.0048	No
	23.49	4/10/2019	0.00079 J	No	0.0043	No
	23.77	4/11/2019	0.0011	No	0.0036	No
	23.03	4/12/2019	0.0011	No	0.0037	No

**Notes:**

J = qualified as estimated

ug/m<sup>3</sup> = microgram per cubic meter

\* = sampler malfunction

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 <sup>3</sup> )	Acenaph-thene (ug/m <sup>3</sup> )	Acenaph-thylene (ug/m <sup>3</sup> )	Anthra-cene (ug/m <sup>3</sup> )	Benzo(a) anthra-cene (ug/m <sup>3</sup> )	Benzo(a) pyrene (ug/m <sup>3</sup> )	Benzo(b) fluoran-thene (ug/m <sup>3</sup> )	Benzo(g,h,i) perylene (ug/m <sup>3</sup> )	Benzo(k) fluoran-thene (ug/m <sup>3</sup> )	Chrysene (ug/m <sup>3</sup> )	Dibenz(a,h) anthra-cene (ug/m <sup>3</sup> )	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 <sup>1</sup>				50	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
AMS01	24.67	4/3/2019	No	0	< 0.001	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	0.00082 J	< 0.00051	< 0.00051
	25.10	4/9/2019	No	0	0.0068	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00042 J	< 0.0005	0.0041	0.00075	< 0.0005
	23.76	4/12/2019	No	0	0.0013	0.00037 J	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	< 0.00049	0.0003 J	< 0.00049	0.001	0.00058	< 0.00049
AMS02	23.61	4/3/2019	No	0	0.0037	0.00026 J	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	< 0.00048	0.00021 J	0.00056	< 0.00048	0.0062	0.0011	0.00036 J
	23.79	4/9/2019	No	0	0.0064	0.00041 J	0.00026 J	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	< 0.00046	0.00027 J	0.00065	< 0.00046	0.0098	0.0017	0.0008
	22.51	4/12/2019	No	0	0.0086	0.00073	0.00025 J	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	< 0.00052	0.00024 J	0.00063	< 0.00052	0.011	0.0012	0.0011
AMS07	23.77	4/3/2019	No	0	0.002	0.00032 J	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	0.0044	0.00087	0.00027 J
	17.83 *	4/9/2019	No	0	0.0012 J	0.0003 J	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	0.00029 J	< 0.00064	0.003	0.00075	< 0.00064
	22.34	4/12/2019	No	0	0.00099 J	0.00055	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	< 0.00051	0.00038 J	< 0.00051	0.0013	0.00064	< 0.00051
AMS12	23.75	4/3/2019	No	0	0.00099	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	0.00024 J	< 0.00038	0.0018	0.00053	< 0.00038
	24.83	4/9/2019	No	0	0.00052 J	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	< 0.00036	0.00017 J	< 0.00036	0.00083	0.00039	< 0.00036
	23.04	4/12/2019	No	0	< 0.00078	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	< 0.00039	0.00051 J	0.00017 J	< 0.00039

Notes:

<sup>1</sup> The screening criteria for BAP(Eq) is 50 ug/m<sup>3</sup> except for the area surrounding excavation KCH-1217-1 at which it will be 8 ug/m<sup>3</sup>.

NA = not applicable

ND = Not detected

NE = Not established

BAP(Eq) = Benzo(a) pyrene equivalency

J = estimated value

< = nondetected less than associated reporting limit

\* = PUF sampler malfunction

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 <sup>3</sup> )	PCB-1221 (Aroclor 1221) (ug/m <sup>3</sup> )	PCB-1232 (Aroclor 1232) (ug/m <sup>3</sup> )	PCB-1242 (Aroclor 1242) (ug/m <sup>3</sup> )	PCB-1248 (Aroclor 1248) (ug/m <sup>3</sup> )	PCB-1254 (Aroclor 1254) (ug/m <sup>3</sup> )	PCB-1260 (Aroclor 1260) (ug/m <sup>3</sup> )
Screening Criteria				NE							
AMS01	24.8	4/2/2019	NA	0	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071
	24.77	4/5/2019	NA	0	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	24.49	4/11/2019	NA	0	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
AMS02	23.78	4/2/2019	NA	0	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067	< 0.00067
	23.65	4/5/2019	NA	0	< 0.00066	< 0.00066	< 0.00066	< 0.00066	< 0.00066	< 0.00066	< 0.00066
	23.65	4/11/2019	NA	0	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068	< 0.00068
AMS07	23.83	4/2/2019	NA	0	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071	< 0.00071
	23.87	4/5/2019	NA	0	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064	< 0.00064
	23.26	4/11/2019	NA	0	< 0.00074	< 0.00074	< 0.00074	< 0.00074	< 0.00074	< 0.00074	< 0.00074
AMS12	23.94	4/2/2019	NA	0	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056	< 0.00056
	23.92	4/5/2019	NA	0	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053	< 0.00053
	23.73	4/11/2019	NA	0	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055

## Notes:

NE = none established

PCB = polychlorinated biphenyl

ug/m<sup>3</sup> = microgram per cubic meter

&lt; = 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 <sup>3</sup> )	Dioxin Exceedance? (Yes/No)
Screening Criteria				<b>10,000,000</b>
AMS01	23.82	4/4/2019	< 0.000000021	No
	24.25	4/10/2019	< 0.000000019	No
AMS02	24.11	4/4/2019	< 0.000000017	No
	23.32	4/10/2019	< 0.000000019	No
AMS07	24.29	4/4/2019	< 0.000000018	No
	4.38 *	4/10/2019	< 0.000000094	No
AMS12	24.32	4/4/2019	< 0.000000014	No
	23.42	4/10/2019	< 0.000000015	No

**Notes:**

\* = PUF sampler malfunction

ug/m<sup>3</sup> = microgram per cubic meter

&lt; = 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 March 18, 2018 and April 29, 2019		Value < MDC		Value < 0.1 x Effluent Conc					
									Radionuclide			Ra-226	Sr-90			< 72 hr decay time		Value > 0.1 x Effluent Conc					
									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	AMS-01	PE01	50	10/1/18 9:40	10/1/18 16:35	415	2.1E+07	A	10/15/18	20	cpm	0.700	3.150	2.0	6.1	4.4E-14	1.3E-13	4.9%	2.2%	CK	CB	
AS-002	Perimeter	AMS-02	PE02	60	10/1/18 10:00	10/1/18 16:30	390	2.3E+07	A	10/15/18	20	cpm	0.900	2.750	2.6	5.0	5.0E-14	9.7E-14	5.5%	1.6%	CK	CB	
AS-003	Perimeter	AMS-01	PE01	50	10/2/18 9:30	10/2/18 16:20	410	2.0E+07	A	10/15/18	20	cpm	0.150	3.400	0.4	6.8	9.5E-15	1.5E-13	1.1%	2.5%	CK	CB	
AS-004	Perimeter	AMS-02	PE02	60	10/2/18 8:30	10/2/18 16:15	465	2.8E+07	A	10/15/18	20	cpm	0.300	3.800	0.9	7.9	1.4E-14	1.3E-13	1.6%	2.1%	CK	CB	
AS-005	Perimeter	AMS-01	PE01	50	10/3/18 7:15	10/3/18 16:15	540	2.7E+07	A	10/15/18	20	cpm	0.050	2.600	0.1	4.6	2.4E-15	7.7E-14	0.3%	1.3%	CK	CB	
AS-006	Perimeter	AMS-02	PE02	60	10/3/18 7:20	10/3/18 16:30	550	3.3E+07	A	10/15/18	20	cpm	0.350	3.350	1.0	6.6	1.4E-14	9.1E-14	1.5%	1.5%	Ck	CB	
AS-007	Perimeter	AMS-01	PE01	50	10/9/18 8:20	10/9/18 16:25	485	2.4E+07	A	10/15/18	20	cpm	0.150	3.100	0.4	6.0	8.0E-15	1.1E-13	0.9%	1.8%	CK	CB	
AS-008	Perimeter	AMS-02	PE02	60	10/9/18 8:15	10/9/18 16:20	485	2.9E+07	A	10/15/18	20	cpm	0.100	3.950	0.3	8.3	4.5E-15	1.3E-13	0.5%	2.1%	CK	CB	
AS-009	Perimeter	AMS-01	PE01	50	10/10/18 7:25	10/10/18 16:10	525	2.6E+07	A	10/15/18	20	cpm	0.400	3.050	1.2	5.8	2.0E-14	1.0E-13	2.2%	1.7%	CK	CB	
AS-010	Perimeter	AMS-02	PE02	60	10/10/18 7:15	10/10/18 16:20	545	3.3E+07	A	10/15/18	20	cpm	0.450	2.650	1.3	4.7	1.8E-14	6.5E-14	2.0%	1.1%	CK	CB	
AS-011	Perimeter	AMS-01	PE01	50	10/11/18 7:35	10/11/18 16:00	505	2.5E+07	A	10/15/18	20	cpm	0.200	4.550	0.6	9.9	1.0E-14	1.8E-13	1.1%	2.9%	CK	CB	
AS-012	Perimeter	AMS-02	PE02	60	10/11/18 7:30	10/11/18 16:10	520	3.1E+07	A	10/15/18	20	cpm	0.200	3.700	0.6	7.6	8.3E-15	1.1E-13	0.9%	1.8%	CK	CB	
AS-013	Perimeter	AMS-01	PE01	50	10/15/18 7:50	10/15/18 15:50	480	2.4E+07	A	10/22/18	20	cpm	0.200	3.650	0.6	7.5	1.1E-14	1.4E-13	1.2%	2.3%	BS	CB	
AS-014	Perimeter	AMS-02	PE02	60	10/15/18 8:00	10/15/18 15:45	465	2.8E+07	A	10/22/18	20	cpm	0.150	3.150	0.4	6.1	7.0E-15	9.8E-14	0.8%	1.6%	BS	CB	
AS-015	Perimeter	AMS-01	PE01	50	10/16/18 6:35	10/16/18 14:25	470	2.4E+07	A	10/22/18	20	cpm	0.650	3.050	1.9	5.8	3.6E-14	1.1E-13	4.0%	1.9%	BS	CB	
AS-016	Perimeter	AMS-02	PE02	60	10/16/18 6:15	10/16/18 14:35	500	3.0E+07	A	10/22/18	20	cpm	0.750	3.050	2.2	5.8	3.2E-14	8.7E-14	3.6%	1.5%	BS	CB	
AS-017	Perimeter	AMS-01	PE01	50	10/17/18 6:15	10/17/18 14:50	515	2.6E+07	A	10/22/18	20	cpm	0.750	4.400	2.2	9.5	3.8E-14	1.7E-13	4.2%	2.8%	BS	CB	
AS-018	Perimeter	AMS-02	PE02	60	10/17/18 6:20	10/17/18 14:40	500	3.0E+07	A	10/22/18	20	cpm	0.650	3.650	1.9	7.5	2.8E-14	1.1E-13	3.1%	1.9%	BS	CB	
AS-019	Perimeter	AMS-01	PE01	50	10/18/18 5:44	10/18/18 14:10	506	2.5E+07	A	10/22/18	20	cpm	0.400	4.100	1.2	8.7	2.1E-14	1.5E-13	2.3%	2.6%	BS	CB	
AS-020	Perimeter	AMS-02	PE02	60	10/18/18 5:50	10/18/18 14:00	490	2.9E+07	A	10/22/18	20	cpm	0.700	4.100	2.0	8.7	3.1E-14	1.3E-13	3.4%	2.2%	BS	CB	
AS-021	Perimeter	AMS-01	PE01	50	10/22/18 6:00	10/22/18 14:30	510	2.5E+07	A	10/29/18	20	cpm	0.750	3.450	2.2	6.9	3.8E-14	1.2E-13	4.2%	2.0%	BS	CB	
AS-022	Perimeter	AMS-02	PE02	60	10/22/18 6:15	10/22/18 14:45	510	3.1E+07	A	10/29/18	20	cpm	0.950	3.900	2.7	8.1	4.0E-14	1.2E-13	4.5%	2.0%	BS	CB	
AS-023	Perimeter	AMS-01	PE01	50	10/23/18 5:45	10/23/18 14:30	525	2.6E+07	A	10/29/18	20	cpm	0.550	3.250	1.6	6.4	2.7E-14	1.1E-13	3.0%	1.8%	BS	CB	
AS-024	Perimeter	AMS-02	PE02	60	10/23/18 5:52	10/23/18 14:40	528	3.2E+07	A	10/29/18	20	cpm	0.700	4.050	2.0	8.5	2.9E-14	1.2E-13	3.2%	2.0%	BS	CB	
AS-025	Perimeter	AMS-01	PE01	50	10/24/18 5:30	10/24/18 14:20	530	2.6E+07	A	10/29/18	20	cpm	0.150	4.300	0.4	9.2	7.3E-15	1.6E-13	0.8%	2.6%	BS	CB	
AS-026	Perimeter	AMS-02	PE02	60	10/24/18 5:40	10/24/18 14:30	530	3.2E+07	A	10/29/18	20	cpm	0.150	2.750	0.4	5.0	6.1E-15	7.1E-14	0.7%	1.2%	BS	CB	
AS-027	Perimeter	AMS-01	PE01	50	10/25/18 5:30	10/25/18 13:30	480	2.4E+07	A	10/29/18	20	cpm	0.200	2.550	0.6	4.5	1.1E-14	8.4E-14	1.2%	1.4%	BS	CB	
AS-028	Perimeter	AMS-02	PE02	60	10/25/18 5:40	10/25/18 13:40	480	2.9E+07	A	10/29/18	20	cpm	0.050	3.150	0.1	6.1	2.3E-15	9.5E-14	0.3%	1.6%	BS	CB	





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 18, 2018 and April 29, 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: 5/3/2019									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-029	Perimeter	AMS-01	PE01	50	10/29/18 7:24	10/29/18 16:00	516	2.6E+07	A	11/6/18	20	cpm	0.250	4.300	0.7	9.2	1.3E-14	1.6E-13	1.4%	2.7%	BS	CB	
AS-030	Perimeter	AMS-02	PE02	60	10/29/18 7:40	10/29/18 16:15	515	3.1E+07	A	11/6/18	20	cpm	0.500	3.050	1.4	5.8	2.1E-14	8.5E-14	2.3%	1.4%	BS	CB	
AS-031	Perimeter	AMS-01	PE01	50	10/30/18 5:30	10/30/18 14:00	510	2.6E+07	A	11/6/18	20	cpm	0.350	3.150	1.0	6.1	1.8E-14	1.1E-13	2.0%	1.8%	BS	CB	
AS-032	Perimeter	AMS-02	PE02	60	10/30/18 5:40	10/30/18 14:10	510	3.1E+07	A	11/6/18	20	cpm	0.200	4.800	0.6	10.6	8.5E-15	1.6E-13	0.9%	2.6%	BS	CB	
AS-033	Perimeter	AMS-01	PE01	50	10/31/18 5:25	10/31/18 14:30	545	2.7E+07	A	11/6/18	20	cpm	0.150	4.950	0.4	11.0	7.1E-15	1.8E-13	0.8%	3.0%	BS	CB	
AS-034	Perimeter	AMS-02	PE02	60	10/31/18 5:40	10/31/18 14:40	540	3.2E+07	A	11/6/18	20	cpm	0.200	4.150	0.6	8.8	8.0E-15	1.2E-13	0.9%	2.0%	BS	CB	
AS-035	Perimeter	AMS-01	PE01	50	11/1/18 5:30	11/1/18 14:10	520	2.6E+07	A	11/6/18	20	cpm	0.150	4.150	0.4	8.8	7.5E-15	1.5E-13	0.8%	2.5%	BS	CB	
AS-036	Perimeter	AMS-02	PE02	60	11/1/18 5:35	11/1/18 14:20	525	3.1E+07	A	11/6/18	20	cpm	0.050	4.150	0.1	8.8	2.1E-15	1.3E-13	0.2%	2.1%	BS	CB	