



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

## **AIR MONITORING SUMMARY REPORT**

### **MARCH 2 TO MARCH 15, 2019**

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

FORMER NAVAL STATION TREASURE ISLAND, SAN  
FRANCISCO, CA

April 2019

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DCN: GLBN-0005-F4239-025



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FRANCISCO, CA

Prepared for:



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## TABLE OF CONTENTS

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

## LIST OF FIGURES

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

## LIST OF TABLES

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

## LIST OF ATTACHMENTS

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

## LIST OF ABBREVIATIONS AND ACRONYMS

|                   |   |
|-------------------|---|
| 4,4'-DDD          | 4,4-dichlorodiphenyldichloroethane  |
| AMP               | Air Monitoring Plan   |
| BAAQMD            | Bay Area Air Quality Management District  |
| BAP               | benzo(a)pyrene  |
| cfm               | cubic feet per minute   |
| CFR               | Code of Federal Regulations   |
| DAC               | derived air concentration   |
| DTSC              | Department of Toxic Substances Control  |
| HERO              | Human and Ecological Risk Office  |
| Gilbane           | Gilbane Federal   |
| DCP               | Dust Control Plan   |
| IR                | Installation Restoration  |
| mg/m <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 2<sup>nd</sup>, 2019 through March 15<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><br>>2.5 mg/m <sup>3</sup> | Continue work.<br>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><br>>1.0 mg/m <sup>3</sup> | Continue work.<br>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<br>(Threshold Limit Value)<br>$\mu\text{g}/\text{m}^3$ | 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 2, 2019 to March 15, 2019 did not exceed the project-specific screening criteria presented in Table 2.

TSP analytical results from March 2, 2019 to March 15, 2019 did not exceed the project-specific screening criteria presented in Table 2, with the exception of the results for AMS02 on March 13, 2019 reported at a delta between the downwind and upwind stations of 80.2 ug/m<sup>3</sup>. The highest PDR reading for the corresponding day (March 12, 2019) was 0.039 mg/m<sup>3</sup> at DM1, the upwind location at IR Site 32, 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 2, 2019 to March 15, 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.

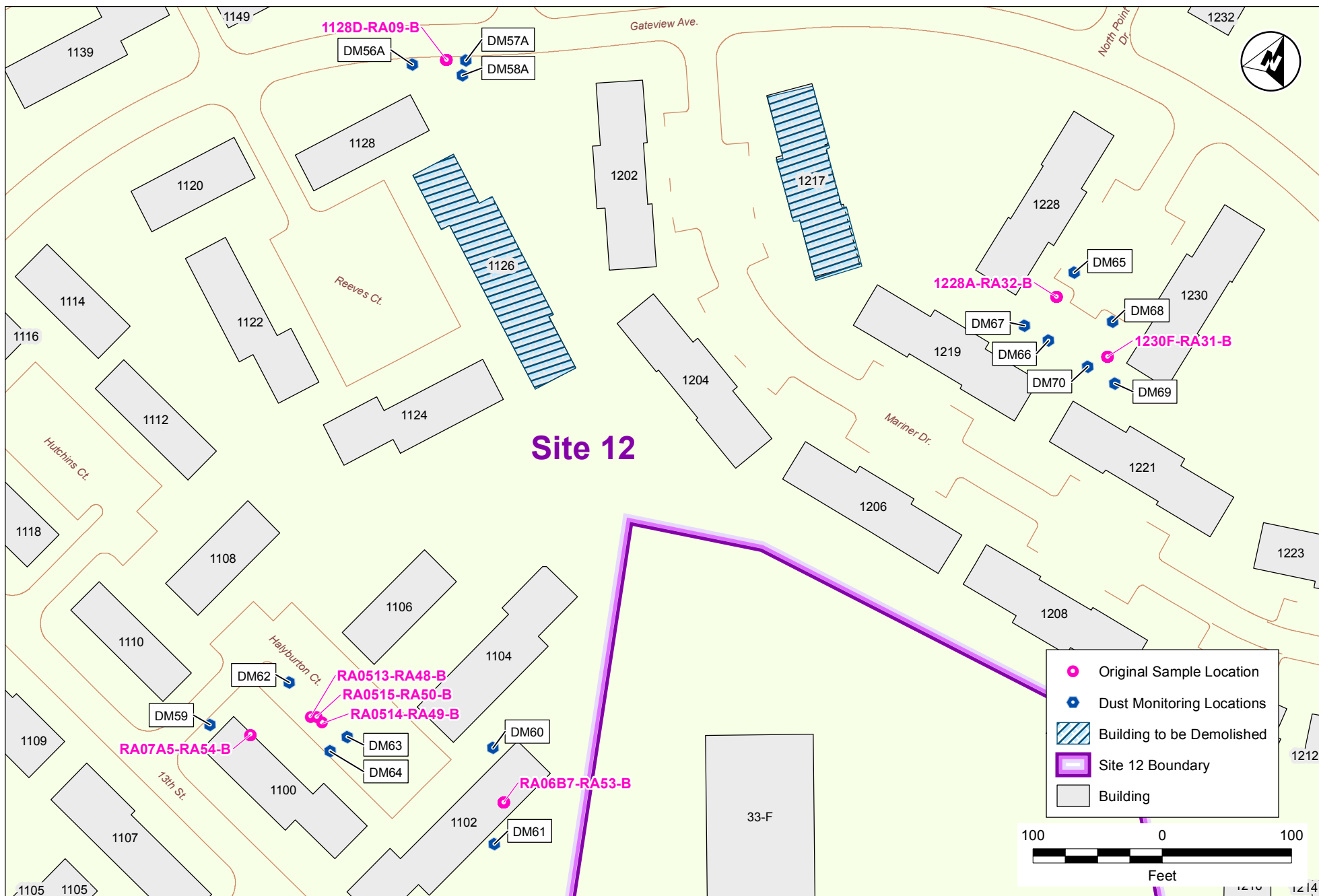
HERO, 2018. *Dust Action Levels for Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*. September.

## **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

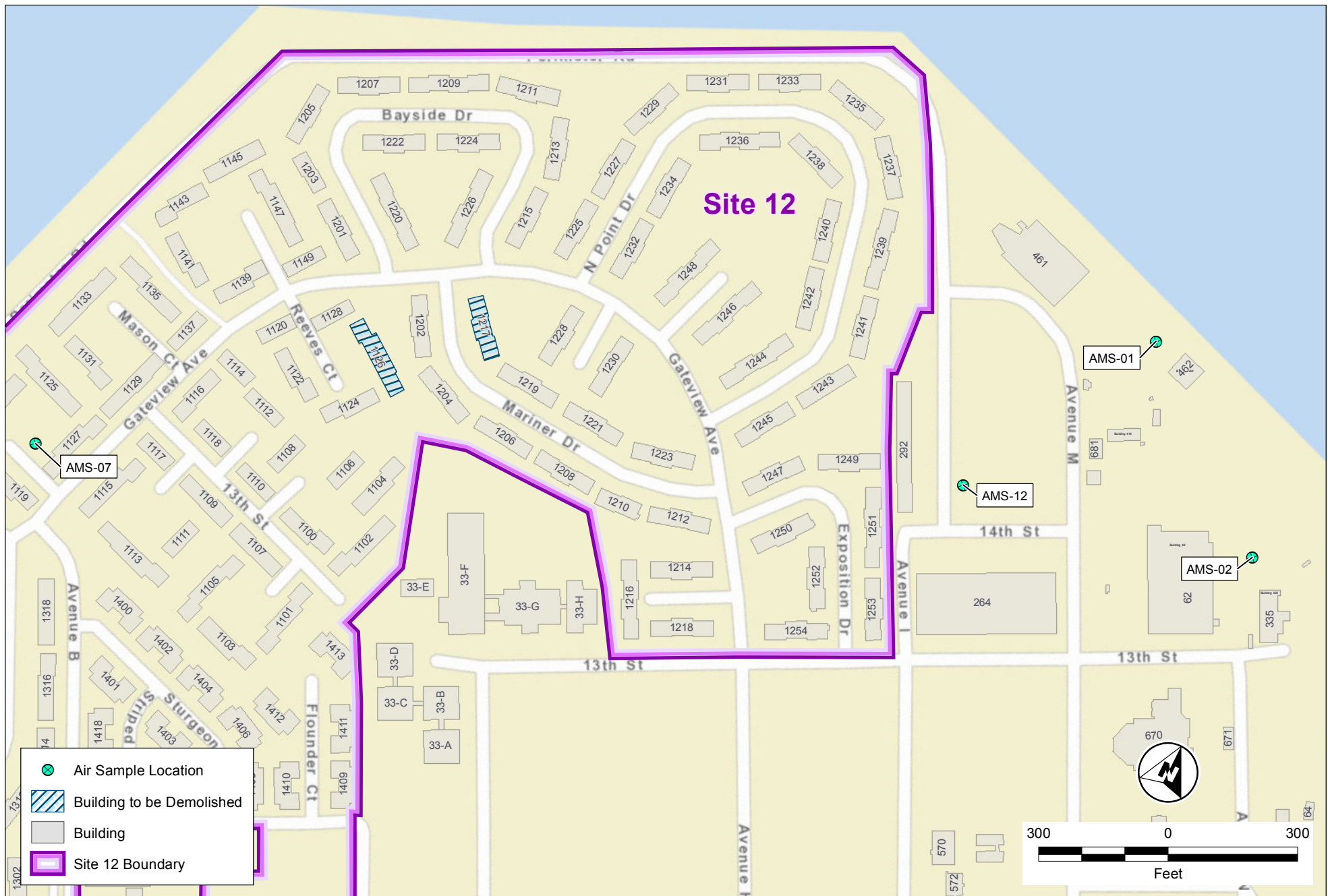


**IR Site 12 Non-SWDA Remedial Action/  
SWDA Removal Action**  
Former Naval Station Treasure Island  
San Francisco, CA

**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 | 3/4/2019  | 0.007                        | 0.006                        | NA  | NA  |
| DM2           | Site 32 |           | 0.012                        | 0.009                        | 0.004   | Yes   |
| DM3           | Site 32 |           | 0.015                        | 0.014                        | 0.008   | Yes   |
| DM56A         | Site 12 |           | 0.008                        | 0.006                        | NA  | NA  |
| DM57A         | Site 12 |           | 0.007                        | 0.006                        | -0.001  | Yes   |
| DM58A         | Site 12 |           | 0.006                        | 0.005                        | -0.001  | Yes   |
| DM1           | Site 32 | 3/5/2019  | 0.034                        | 0.016                        | NA  | NA  |
| DM2           | Site 32 |           | 0.021                        | 0.013                        | -0.003  | Yes   |
| DM3           | Site 32 |           | 0.029                        | 0.014                        | -0.002  | Yes   |
| DM59          | Site 12 |           | 0.020                        | 0.014                        | NA  | NA  |
| DM60          | Site 12 |           | 0.028                        | 0.018                        | 0.003   | Yes   |
| DM61          | Site 12 |           | 0.018                        | 0.014                        | -0.001  | Yes   |
| DM1           | Site 32 | 3/6/2019  | 0.007                        | 0.005                        | NA  | NA  |
| DM2           | Site 32 |           | 0.016                        | 0.010                        | 0.005   | Yes   |
| DM3           | Site 32 |           | 0.021                        | 0.011                        | 0.006   | Yes   |
| DM1           | Site 32 | 3/7/2019  | 0.007                        | 0.004                        | NA  | NA  |
| DM2           | Site 32 |           | 0.009                        | 0.008                        | 0.004   | Yes   |
| DM3           | Site 32 |           | 0.007                        | 0.006                        | 0.001   | Yes   |
| DM62          | Site 12 |           | 0.002                        | 0.002                        | NA  | NA  |
| DM63          | Site 12 |           | 0.003                        | 0.002                        | 0.000   | Yes   |
| DM64          | Site 12 |           | 0.002                        | 0.002                        | -0.001  | Yes   |
| DM1           | Site 32 | 3/11/2019 | 0.008                        | 0.005                        | NA  | NA  |
| DM2           | Site 32 |           | 0.019                        | 0.015                        | 0.010   | Yes   |
| DM3           | Site 32 |           | 0.015                        | 0.011                        | 0.006   | Yes   |
| DM1           | Site 32 | 3/12/2019 | 0.036                        | 0.014                        | NA  | NA  |
| DM2           | Site 32 |           | 0.030                        | 0.011                        | -0.003  | Yes   |
| DM3           | Site 32 |           | 0.028                        | 0.012                        | -0.002  | Yes   |
| DM65          | Site 12 |           | 0.016                        | 0.006                        | NA  | NA  |
| DM66          | Site 12 |           | 0.011                        | 0.005                        | -0.001  | Yes   |
| DM67          | Site 12 |           | 0.018                        | 0.007                        | 0.001   | Yes   |
| DM1           | Site 32 | 3/13/2019 | 0.014                        | 0.007                        | NA  | NA  |
| DM2           | Site 32 |           | 0.009                        | 0.005                        | -0.002  | Yes   |
| DM3           | Site 32 |           | 0.007                        | 0.005                        | -0.002  | Yes   |
| DM68          | Site 12 |           | 0.007                        | 0.004                        | NA  | NA  |
| DM69          | Site 12 |           | 0.006                        | 0.004                        | -0.001  | Yes   |
| DM70          | Site 12 |           | 0.006                        | 0.004                        | -0.001  | Yes   |
| DM1           | Site 32 | 3/14/2019 | 0.007                        | 0.004                        | NA  | NA  |
| DM2           | Site 32 |           | 0.005                        | 0.003                        | -0.001  | Yes   |
| DM3           | Site 32 |           | 0.011                        | 0.006                        | 0.001   | 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 3/4/19

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           | 0.007                      | 3204        | No earth moving activities<br>↓ |
| 7:42  | DM2                            | DW site 32           | 0.008                      | 2724        |                                 |
| 7:45  | DM3                            | DW site 32           | 0.012                      | 3703        |                                 |
| 8:47  | DM56A                          | UW excavation 1128-D | 0.006                      | 2368        |                                 |
| 8:48  | DM57A                          | DW excavation 1128-D | 0.007                      | 1649        |                                 |
| 8:49  | DM58A                          | DW excavation 1128-D | 0.006                      | 2714        | ↓<br>Excavation in progress     |
| 10:11 | DM1                            |                      | 0.005                      | 3204        |                                 |
| 10:13 | DM2                            |                      | 0.008                      | 2724        |                                 |
| 10:15 | DM3                            |                      | 0.015                      | 3703        |                                 |
| 10:22 | DM56A                          |                      | 0.005                      | 2368        |                                 |
| 10:23 | DM57A                          |                      | 0.005                      | 1649        |                                 |
| 10:24 | DM58A                          |                      | 0.004                      | 2714        |                                 |
| 12:00 | DM56A                          |                      | 0.005                      |             |                                 |
| ↓     | DM57A                          |                      | 0.005                      |             |                                 |
| ↓     | DM58A                          |                      | 0.005                      |             |                                 |
| 1:18  | DM1                            |                      | 0.007                      |             | Backfill w/ clean soil          |
| ↓     | DM2                            |                      | 0.012                      |             |                                 |
| ↓     | DM3                            |                      | 0.015                      |             |                                 |
| 3:00  | DM56A                          |                      | 0.008                      |             |                                 |
| ↓     | DM57A                          |                      | 0.005                      |             |                                 |
| ↓     | DM58A                          |                      | 0.005                      |             |                                 |
| 4:15  | DM1                            |                      | 0.004                      |             |                                 |
| ↓     | DM2                            |                      | 0.009                      |             |                                 |
| ↓     | DM3                            |                      | 0.012                      |             |                                 |

WJA  
4-3-19



# AIR MONITORING LOG

Client Name NAVFAC

Date 3/5/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather Rainy 52°

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               | 0.020                      | 3703        | No earth moving activities   |
| 7:39  | DM2                            | DW site 32               | 0.018                      | 3204        |                              |
| 7:47  | DM3                            | DW site 32               | 0.015                      | 2724        |                              |
| 8:37  | DM59                           | UW Discreet Sample RA06B | 0.013                      | 1649        | Discreet Sampling RA06B      |
| 8:40  | DM60                           | DW Discreet Sample RA06B | 0.013                      | 2368        |                              |
| 8:41  | DM61                           | DW Discreet Sample RA06B | 0.015                      | 2714        |                              |
| 9:50  | DM59                           |                          | 0.018                      |             |                              |
| 9:55  | DM60                           |                          | 0.028                      |             |                              |
| 9:56  | DM61                           |                          | 0.016                      |             |                              |
| 10:34 | DM59                           | UW Discreet Sample RA07A | 0.020                      | 1649        | change sample location RA07A |
| 10:36 | DM60                           | DW Discreet Sample RA07A | 0.024                      | 2368        |                              |
| 10:37 | DM61                           | DW Discreet Sample RA07A | 0.018                      | 2714        |                              |
| 11:07 | DM1                            |                          | 0.034                      | 3703        |                              |
| 11:10 | DM2                            |                          | 0.021                      | 3204        |                              |
| 11:11 | DM3                            |                          | 0.029                      | 2724        |                              |
| 2:15  | DM59                           |                          | 0.006                      | 1649        |                              |
| 2:16  | DM60                           |                          | 0.005                      | 2368        |                              |
| 2:17  | DM61                           |                          | 0.005                      | 2714        |                              |
| 2:30  | DM1                            |                          | 0.006                      | 3703        | Sample complete              |
| 2:38  | DM2                            |                          | 0.009                      | 3204        |                              |
| 2:39  | DM3                            |                          | 0.005                      | 2724        |                              |
| 4:00  | DM1                            |                          | 0.002                      | 3703        | No earth moving activities   |
| 4:03  | DM2                            |                          | 0.002                      | 3204        |                              |
| 4:05  | DM3                            |                          | 0.005                      | 2724        |                              |



[illegible]



# AIR MONITORING LOG

Client Name NAVFAC

Date 3/7/19

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          |
|-------|--------------------------------|----------------------------|----------------------------|-------------|------------------------------|
| 7:28  | DM1                            | UW site 32                 | 0.005                      | 3204        | No earth moving activities   |
| 7:33  | DM2                            | DW site 32                 | 0.009                      | 2724        |                              |
| 7:35  | DM3                            | DW site 32                 | 0.007                      | 3703        |                              |
| 10:00 | DM1                            |                            | 0.007                      |             |                              |
| 10:05 | DM2                            |                            | 0.008                      |             |                              |
| 10:06 | DM3                            |                            | 0.003                      |             |                              |
| 12:15 | DM1                            |                            | 0.003                      |             |                              |
| 12:19 | DM2                            |                            | 0.009                      |             |                              |
| 12:21 | DM3                            |                            | 0.007                      |             | Discreet sample w/ drill rig |
| 12:33 | DM62                           | UW Discreet sample RA05-15 | 0.002                      | 2368        |                              |
| 12:36 | DM63                           | DW Discreet sample RA05-15 | 0.001                      | 1649        |                              |
| 12:37 | DM64                           | DW Discreet sample RA05-15 | 0.002                      | 2714        |                              |
| 2:18  | DM62                           |                            | 0.002                      |             |                              |
| 2:19  | DM63                           |                            | 0.003                      |             |                              |
| 2:20  | DM64                           |                            | 0.001                      |             |                              |
| 2:33  | DM1                            |                            | 0.004                      |             |                              |
| 2:40  | DM2                            |                            | 0.007                      |             |                              |
| 2:42  | DM3                            |                            | 0.006                      |             |                              |
| 4:05  | DM1                            |                            | 0.003                      |             |                              |
| 4:08  | DM2                            |                            | 0.008                      |             |                              |
| 4:12  | DM3                            |                            | 0.006                      |             |                              |
|       |                                |                            |                            |             |                              |
|       |                                |                            |                            |             |                              |
|       |                                |                            |                            |             |                              |



[illegible]



# AIR MONITORING LOG

Client Name NAVFAC

Date 3/12/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather Clear 50°

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

| Time  | Dust Monitoring Station Number | Location             | Instrument Reading (mg/m3) | Unit Number | Activities, Remarks                     |
|-------|--------------------------------|----------------------|----------------------------|-------------|---|
| 7:35  | DM1                            | UW site 32           | 0.036                      | 3703        | No earth moving activities              |
| 7:41  | DM2                            | DW site 32           | 0.030                      | 3204        |   |
| 7:43  | DM3                            | DW site 32           | 0.028                      | 2724        |   |
| 9:00  | DM65                           | UW excavation 1228-A | 0.016                      | 1649        |   |
| 9:02  | DM66                           | DW excavation 1228-A | 0.011                      | 2724        |   |
| 9:03  | DM67                           | DW excavation 1228-A | <del>0.004</del> 0.018     | 2368        |   |
| 10:08 | DM1                            |                      | 0.011                      |             | Dumping soil from excavation in Site 32 |
| 10:10 | DM2                            |                      | 0.007                      |             |   |
| 10:12 | DM3                            |                      | 0.011                      |             |   |
| 10:24 | DM65                           |                      | 0.007                      |             | excavating                              |
| 10:26 | DM66                           |                      | 0.007                      |             |   |
| 10:28 | DM67                           |                      | 0.008                      |             |   |
| 11:52 | DM65                           |                      | 0.001                      |             |   |
| ↓     | DM66                           |                      | 0.002                      |             |   |
| ↓     | DM67                           |                      | 0.001                      |             |   |
| 12:04 | DM1                            |                      | 0.004                      |             |   |
| 12:05 | DM2                            |                      | 0.002                      |             |   |
| 12:06 | DM3                            |                      | 0.003                      |             |   |
| 15:09 | DM65                           |                      | 0.003                      |             | Backfilling                             |
| 15:10 | DM66                           |                      | 0.003                      |             |   |
| 15:13 | DM67                           |                      | 0.006                      |             |   |
| 15:30 | DM1                            |                      | 0.005                      |             |   |
| 15:32 | DM2                            |                      | 0.004                      |             |   |
| 15:33 | DM3                            |                      | 0.007                      |             |   |
| 16:25 | DM65                           |                      | 0.004                      |             | Finish backfill                         |
| ↓     | DM66                           |                      | 0.004                      |             |   |
| ↓     | DM67                           |                      | 0.004                      |             |   |

Site 12  
↓



# AIR MONITORING LOG

Client Name NAVFAC

Date 3/13/19

Project No. J310000300

Page 1 of 1

Logged by Mike Cox

Weather Sunny 50°

Instrument Type: Dust Trak II

Calibration Standards Used Factory Calibrated

| Time  | Dust Monitoring Station Number | Location                       | Instrument Reading (mg/m3) | Unit Number | Activities, Remarks        |
|-------|--------------------------------|--------------------------------|----------------------------|-------------|----------------------------|
| 7:23  | DM1                            | <del>DW</del> site 32          | 0.004                      | 3204        | No earth moving activities |
| 7:32  | DM2                            | DW site 32                     | 0.003                      | 2724        | ↓                          |
| 7:34  | DM3                            | DW site 32                     | 0.007                      | 3703        |                            |
| 8:53  | DM68                           | DW excavation <sup>1230F</sup> | 0.007                      | 2368        |                            |
| ↓     | DM69                           | DW excavation 1230-F           | 0.002                      | 2714        |                            |
| ↓     | DM70                           | DW excavation 1230-F           | 0.003                      | 1649        | ↓                          |
| 10:00 | DM1                            |                                | 0.014                      |             | excavating 1230F           |
| ↓     | DM2                            |                                | 0.004                      |             | ↓                          |
| ↓     | DM3                            |                                | 0.002                      |             |                            |
| 11:20 | DM68                           |                                | 0.001                      |             |                            |
| ↓     | DM69                           |                                | 0.003                      |             |                            |
| ↓     | DM70                           |                                | 0.003                      |             | ↓                          |
| 12:00 | DM1                            |                                | 0.004                      |             |                            |
| 12:02 | DM2                            |                                | 0.004                      |             |                            |
| 12:03 | DM3                            |                                | 0.003                      |             |                            |
| 4:16  | DM68                           |                                | 0.005                      |             | Backfill clean soil        |
| ↓     | DM69                           |                                | 0.006                      |             | ↓                          |
| ↓     | DM70                           |                                | 0.005                      |             |                            |
| 4:30  | DM1                            |                                | 0.005                      |             |                            |
| ↓     | DM2                            |                                | 0.009                      |             |                            |
| ↓     | DM3                            |                                | 0.007                      |             | ↓                          |
|       |                                |                                |                            |             |                            |
|       |                                |                                |                            |             |                            |
|       |                                |                                |                            |             |                            |



Date 3/14/19

Page 1 of 1

Weather Sunny 50°

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                    |

[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> |
|--------------------|--|---------------------------------|---------------------------------|
| 3/5/2019           | 30.24                                  | 51.97                           | 284.24                          |
| 3/6/2019           | 29.96                                  | 54.01                           | 285.38                          |
| 3/7/2019           | 29.99                                  | 53.24                           | 284.95                          |
| 3/8/2019           | 30.19                                  | 50.09                           | 283.20                          |
| 3/12/2019          | 30.19                                  | 51.36                           | 283.91                          |
| 3/13/2019          | 30.17                                  | 51.96                           | 284.24                          |
| 3/14/2019          | 30.39                                  | 52.13                           | 284.33                          |
| 3/15/2019          | 30.43                                  | 52.86                           | 284.74                          |

## Notes:

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

°F = Degrees Fahrenheit

Hg = mercury

°K = Degrees Kelvin

**Table 2-2**  
**Particulate Matter Smaller than Ten Microns (PM10)**  
**Remedial Action/NTCRA IR Site 12**  
**Former Naval Station Treasure Island, San Francisco, California**



| Location ID        | Sampling Period (Hours) | Sample Date | Particulate Matter Less Than 10 Microns in Diameter (ug/m <sup>3</sup> ) | Delta between Downwind and Upwind Stations (ug/m <sup>3</sup> ) | PM10 Exceedance? (Yes/No) |
|--------------------|-------------------------|-------------|--|---|---------------------------|
| Screening Criteria |                         |             |  |   | 50                        |
| AMS01              | 25.19                   | 03/05/2019  | 15   | NA  | NA                        |
|                    | 24.94                   | 03/06/2019  | 13   | NA  | NA                        |
|                    | 24.51                   | 03/07/2019  | 11   | NA  | NA                        |
|                    | 25.38                   | 03/08/2019  | 7.3  | NA  | NA                        |
|                    | 24.61                   | 03/12/2019  | 18   | NA  | NA                        |
|                    | 25.38                   | 03/13/2019  | 12   | NA  | NA                        |
|                    | 24.52                   | 03/14/2019  | 11   | NA  | NA                        |
|                    | 24.57                   | 03/15/2019  | 8  | NA  | NA                        |
| AMS02              | 24.08                   | 03/05/2019  | 18   | 3   | No                        |
|                    | 23.75                   | 03/06/2019  | 13   | 0   | No                        |
|                    | 23.49                   | 03/07/2019  | 13   | 2   | No                        |
|                    | 24.22                   | 03/08/2019  | 12   | 4.7   | No                        |
|                    | 23.46                   | 03/12/2019  | 16   | -2  | No                        |
|                    | 24.36                   | 03/13/2019  | 29   | 17  | No                        |
|                    | 23.49                   | 03/14/2019  | 19   | 8   | No                        |
|                    | 23.61                   | 03/15/2019  | 18   | 10  | No                        |
| AMS07              | 24.10                   | 03/05/2019  | 18   | NA  | NA                        |
|                    | 23.66                   | 03/06/2019  | 10   | NA  | NA                        |
|                    | 23.34                   | 03/07/2019  | 19   | NA  | NA                        |
|                    | 24.39                   | 03/08/2019  | 9.2  | NA  | NA                        |
|                    | 24.81                   | 03/12/2019  | 14   | NA  | NA                        |
|                    | 22.84                   | 03/13/2019  | 12   | NA  | NA                        |
|                    | 23.92                   | 03/14/2019  | 15   | NA  | NA                        |
|                    | 23.69                   | 03/15/2019  | 10   | NA  | NA                        |
| AMS12              | 24.17                   | 03/05/2019  | 16   | -2.0  | No                        |
|                    | 23.96                   | 03/06/2019  | 12   | 2.0   | No                        |
|                    | 23.66                   | 03/07/2019  | 3.5  | -15.5   | No                        |
|                    | 24.53                   | 03/08/2019  | 5.9  | -3.3  | No                        |
|                    | 23.60                   | 03/12/2019  | 12   | -2.0  | No                        |
|                    | 24.22                   | 03/13/2019  | 11   | -1.0  | No                        |
|                    | 23.77                   | 03/14/2019  | 10   | -5.0  | No                        |
|                    | 23.83                   | 03/15/2019  | 6.6  | -3.4  | No                        |

Notes:

NA = not applicable

PM10 = particulate matter less than 10 microns in diameter

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

Table 2-3

## Total Suspended Particulates Monitoring Results

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



| Location ID        | Sampling Period (Hours) | Sample Date | Total Suspended Particulate (ug/m <sup>3</sup> ) | Delta Between Downwind and Upwind Stations (ug/m <sup>3</sup> ) | TSP Exceedance? (Yes/No) |
|--------------------|-------------------------|-------------|--|---|--------------------------|
| Screening Criteria |                         |             |  |   | <b>50</b>                |
| AMS01              | 25.17                   | 03/05/2019  | 11.73 J  | NA  | NA                       |
|                    | 24.76                   | 03/06/2019  | 10.96 J  | NA  | NA                       |
|                    | 24.55                   | 03/07/2019  | 10.04 J  | NA  | NA                       |
|                    | 25.41                   | 03/08/2019  | 11.56  | NA  | NA                       |
|                    | 24.63                   | 03/12/2019  | 20.78  | NA  | NA                       |
|                    | 25.37                   | 03/13/2019  | 19.51  | NA  | NA                       |
|                    | 24.56                   | 03/14/2019  | 13.29  | NA  | NA                       |
|                    | 24.69                   | 03/15/2019  | 12.86  | NA  | NA                       |
| AMS02              | 24.11                   | 03/05/2019  | 12.72 J  | 1.0   | No                       |
|                    | 23.73                   | 03/06/2019  | 9.84 J   | -1.1  | No                       |
|                    | 23.48                   | 03/07/2019  | 13.44 J  | 3.4   | No                       |
|                    | 24.25                   | 03/08/2019  | 20.58  | 9.0   | No                       |
|                    | 23.51                   | 03/12/2019  | 21.14  | 0.4   | No                       |
|                    | 24.27                   | 03/13/2019  | 99.73  | 80.2  | <b>Yes</b>               |
|                    | 23.52                   | 03/14/2019  | 26.62  | 13.3  | No                       |
|                    | 23.55                   | 03/15/2019  | 44.28  | 31.4  | No                       |
| AMS07              | 24.09                   | 03/05/2019  | 18.47 J  | NA  | NA                       |
|                    | 23.66                   | 03/06/2019  | 9.17 J   | NA  | NA                       |
|                    | 23.37                   | 03/07/2019  | 20.39 J  | NA  | NA                       |
|                    | 24.45                   | 03/08/2019  | 12.48  | NA  | NA                       |
|                    | 24.63                   | 03/12/2019  | 20.70  | NA  | NA                       |
|                    | 22.84                   | 03/13/2019  | 19.19  | NA  | NA                       |
|                    | 24.05                   | 03/14/2019  | 14.85  | NA  | NA                       |
|                    | 23.82                   | 03/15/2019  | 16.58  | NA  | NA                       |
| AMS12              | 24.23                   | 03/05/2019  | 14.95 J  | -3.52   | No                       |
|                    | 23.98                   | 03/06/2019  | 1.54 J   | -7.63   | No                       |
|                    | 23.72                   | 03/07/2019  | 13.31 J  | -7.08   | No                       |
|                    | 24.53                   | 03/08/2019  | 12.76  | 0.28  | No                       |
|                    | 25.67                   | 03/12/2019  | 12.10  | -8.60   | No                       |
|                    | 22.32                   | 03/13/2019  | 21.98  | 2.79  | No                       |
|                    | 23.75                   | 03/14/2019  | 13.64  | -1.21   | No                       |
|                    | 23.81                   | 03/15/2019  | 14.35  | -2.23   | No                       |

## Notes:

J = estimated value

NA = not applicable

TSP = total suspended particulate

**bold** = results above screening criteria



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              | 25.19                   | 03/05/2019  | 0.00076 J                 | No                        | 0.0039                        | No                            |
|                    | 24.94                   | 03/06/2019  | 0.00091                   | No                        | 0.0037                        | No                            |
|                    | 24.51                   | 03/07/2019  | 0.0005 J                  | No                        | 0.0039                        | No                            |
|                    | 25.38                   | 03/08/2019  | 0.00044 J                 | No                        | 0.0035                        | No                            |
|                    | 24.61                   | 03/12/2019  | 0.0031                    | No                        | 0.0045                        | No                            |
|                    | 25.38                   | 03/13/2019  | 0.0014 J+                 | No                        | 0.0014 J                      | No                            |
|                    | 24.52                   | 03/14/2019  | ND < 0.00085 U            | No                        | 0.00092 J                     | No                            |
|                    | 24.57                   | 03/15/2019  | 0.00089 J+                | No                        | 0.004                         | No                            |
| AMS02              | 24.08                   | 03/05/2019  | 0.0016                    | No                        | 0.0041                        | No                            |
|                    | 23.75                   | 03/06/2019  | 0.00091                   | No                        | 0.0043                        | No                            |
|                    | 23.49                   | 03/07/2019  | 0.0011                    | No                        | 0.0044                        | No                            |
|                    | 24.22                   | 03/08/2019  | 0.0011                    | No                        | 0.0039                        | No                            |
|                    | 23.46                   | 03/12/2019  | 0.004                     | No                        | 0.0048                        | No                            |
|                    | 24.36                   | 03/13/2019  | 0.0042                    | No                        | 0.0023                        | No                            |
|                    | 23.49                   | 03/14/2019  | 0.0014 J+                 | No                        | 0.0045                        | No                            |
|                    | 23.61                   | 03/15/2019  | 0.0025                    | No                        | 0.0051                        | No                            |
| AMS07              | 24.1                    | 03/05/2019  | 0.00083 J                 | No                        | 0.0042                        | No                            |
|                    | 23.66                   | 03/06/2019  | 0.00096                   | No                        | 0.0043                        | No                            |
|                    | 23.34                   | 03/07/2019  | 0.001                     | No                        | 0.0041                        | No                            |
|                    | 24.39                   | 03/08/2019  | 0.00051 J                 | No                        | 0.0039                        | No                            |
|                    | 24.81                   | 03/12/2019  | 0.0027                    | No                        | 0.0044                        | No                            |
|                    | 22.84                   | 03/13/2019  | ND < 0.00092 U            | No                        | 0.0011 J                      | No                            |
|                    | 23.92                   | 03/14/2019  | 0.0011 J+                 | No                        | 0.0042                        | No                            |
|                    | 23.69                   | 03/15/2019  | 0.0011 J+                 | No                        | 0.0042                        | No                            |
| AMS12              | 24.17                   | 03/05/2019  | 0.00088                   | No                        | 0.0041                        | No                            |
|                    | 23.96                   | 03/06/2019  | 0.00095                   | No                        | 0.004                         | No                            |
|                    | 23.66                   | 03/07/2019  | 0.016                     | No                        | 0.0039                        | No                            |
|                    | 24.53                   | 03/08/2019  | 0.00054 J                 | No                        | 0.0036                        | No                            |
|                    | 23.6                    | 03/12/2019  | 0.0025                    | No                        | 0.0017 J                      | No                            |
|                    | 24.22                   | 03/13/2019  | 0.0016 J+                 | No                        | 0.0013 J                      | No                            |
|                    | 23.77                   | 03/14/2019  | ND < 0.00088 U            | No                        | 0.004                         | No                            |
|                    | 23.83                   | 03/15/2019  | 0.0013 J+                 | No                        | 0.0041                        | No                            |

## Notes:

J = qualified as estimated

J+ = qualified as estimated with a high bias

NA = not applicable

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

U = qualified as nondetected at the associated reporting limit

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/m³) | Acenaph-thene (ug/m³) | Acenaph-thylene (ug/m³) | Anthra-cene (ug/m³) | Benzo(a) anthra-cene (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) anthra-cene (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 <sup>1</sup> |                         |             |                               | 50      | NE                            | NE                    | NE                      | NE                  | NE                           | NE                      | NE                             | NE                            | NE                             | NE               | NE                              | NE                    | NE               | NE                                | NE                   | NE                    | NE             |
| AMS01                           | 24.46                   | 03/07/2019  | No                            | 0       | 0.0021                        | < 0.0005              | < 0.0005                | < 0.0005            | < 0.0005                     | < 0.0005                | < 0.0005                       | < 0.0005                      | < 0.0005                       | < 0.0005         | < 0.0005                        | < 0.0005              | 0.0002 J         | < 0.0005                          | 0.0027               | 0.00033 J             | < 0.0005       |
|                                 | 25.38                   | 03/13/2019  | No                            | 0       | 0.002                         | 0.00018 J             | < 0.00046               | < 0.00046           | < 0.00046                    | < 0.00046               | < 0.00046                      | < 0.00046                     | < 0.00046                      | < 0.00046        | < 0.00046                       | < 0.00046             | 0.00031 J        | < 0.00046                         | 0.0024               | 0.00051               | < 0.00046      |
| AMS02                           | 22.58                   | 03/07/2019  | No                            | 0       | 0.0023                        | 0.00018 J             | < 0.00045               | < 0.00045           | < 0.00045                    | < 0.00045               | < 0.00045                      | < 0.00045                     | < 0.00045                      | < 0.00045        | < 0.00045                       | < 0.00045             | 0.00032 J        | < 0.00045                         | 0.0049               | 0.00069               | 0.00019 J      |
|                                 | 24.27                   | 03/13/2019  | No                            | 0       | 0.0057                        | 0.00054               | < 0.00046               | < 0.00046           | < 0.00046                    | < 0.00046               | < 0.00046                      | < 0.00046                     | < 0.00046                      | < 0.00046        | < 0.00046                       | < 0.00046             | 0.00063          | < 0.00046                         | 0.0099               | 0.00097               | 0.00045 J      |
| AMS07                           | 23.38                   | 03/07/2019  | No                            | 0       | 0.0018                        | 0.00031 J             | < 0.00053               | < 0.00053           | < 0.00053                    | < 0.00053               | < 0.00053                      | < 0.00053                     | < 0.00053                      | < 0.00053        | < 0.00053                       | < 0.00053             | 0.00042 J        | < 0.00053                         | 0.0053               | 0.001                 | < 0.00053      |
|                                 | 22.76                   | 03/13/2019  | No                            | 0       | 0.00076 J                     | 0.00028 J             | < 0.00047               | < 0.00047           | < 0.00047                    | < 0.00047               | < 0.00047                      | < 0.00047                     | < 0.00047                      | < 0.00047        | < 0.00047                       | < 0.00047             | 0.0003 J         | < 0.00047                         | 0.0018               | 0.00052               | < 0.00047      |
| AMS12                           | 23.67                   | 03/07/2019  | No                            | 0       | 0.0011                        | < 0.00041             | < 0.00041               | < 0.00041           | < 0.00041                    | < 0.00041               | < 0.00041                      | < 0.00041                     | < 0.00041                      | < 0.00041        | < 0.00041                       | < 0.00041             | 0.00016 J        | < 0.00041                         | 0.0018               | 0.0003 J              | < 0.00041      |
|                                 | 24.42                   | 03/13/2019  | No                            | 0       | 0.00082                       | < 0.00037             | < 0.00037               | < 0.00037           | < 0.00037                    | < 0.00037               | < 0.00037                      | < 0.00037                     | < 0.00037                      | < 0.00037        | < 0.00037                       | < 0.00037             | < 0.00037        | < 0.00037                         | 0.002                | 0.00025 J             | < 0.00037      |

Notes:

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

NE = Not established

BAP(Eq) = Benzo(a) pyrene equivalency

J = estimated value

< = nondetected less than associated reporting limit

**Table 2-6**  
**Polychlorinated Biphenyls by TO-4A Monitoring Results**  
**Remedial Action/NTCRA IR Site 12**  
**Former Naval Station Treasure Island, San Francisco, California**



| Location ID        | Sampling Period (Hours) | Sample Date | Total PCB Exceedance? (Yes/No) | Total PCB | PCB-1016 (Aroclor 1016) (ug/m <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              | 24.79                   | 03/06/2019  | NA                             | 0         | < 0.00071                                    | < 0.00071                                    | < 0.00071                                    | < 0.00071                                    | < 0.00071                                    | < 0.00071                                    | < 0.00071                                    |
|                    | 24.51                   | 03/12/2019  | NA                             | 0         | < 0.00067                                    | < 0.00067                                    | < 0.00067                                    | < 0.00067                                    | < 0.00067                                    | < 0.00067                                    | < 0.00067                                    |
|                    | 24.59                   | 03/15/2019  | NA                             | 0         | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    |
| AMS02              | 23.72                   | 03/06/2019  | NA                             | 0         | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    |
|                    | 23.49                   | 03/12/2019  | NA                             | 0         | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    | < 0.00061                                    |
|                    | 23.54                   | 03/15/2019  | NA                             | 0         | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    | < 0.00064                                    |
| AMS07              | 23.71                   | 03/06/2019  | NA                             | 0         | < 0.00068                                    | < 0.00068                                    | < 0.00068                                    | < 0.00068                                    | < 0.00068                                    | < 0.00068                                    | < 0.00068                                    |
|                    | 24.76                   | 03/12/2019  | NA                             | 0         | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    |
|                    | 23.9                    | 03/15/2019  | NA                             | 0         | < 0.00055                                    | < 0.00055                                    | < 0.00055                                    | < 0.00055                                    | < 0.00055                                    | < 0.00055                                    | < 0.00055                                    |
| AMS12              | 23.87                   | 03/06/2019  | NA                             | 0         | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    | < 0.00054                                    |
|                    | 23.6                    | 03/12/2019  | NA                             | 0         | < 0.00052                                    | < 0.00052                                    | < 0.00052                                    | < 0.00052                                    | < 0.00052                                    | < 0.00052                                    | < 0.00052                                    |
|                    | 23.76                   | 03/15/2019  | NA                             | 0         | < 0.0005                                     | < 0.0005                                     | < 0.0005                                     | < 0.0005                                     | < 0.0005                                     | < 0.0005                                     | < 0.0005                                     |

Notes:

NA = Not applicable

NE = none established

PCB = polychlorinated biphenyl

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

< = nondetected less than associated reporting limit

Table 2-7

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

Remedial Action/NTCRA IR Site 12

Former Naval Station Treasure Island, San Francisco, California



| Location ID        | Sampling Period (Hours) | Sample Date | 2,3,7,8-Tetrachlorodibenzo-p-dioxin (ug/m <sup>3</sup> ) | Dioxin Exceedance? (Yes/No) |
|--------------------|-------------------------|-------------|--|-----------------------------|
| Screening Criteria |                         |             |  | <b>10,000,000</b>           |
| AMS01              | 25.13                   | 03/05/2019  | < 0.000000018  | No                          |
|                    | 16.45                   | 03/08/2019* | < 0.000000025  | No                          |
|                    | 24.47                   | 03/14/2019  | < 0.000000017  | No                          |
| AMS02              | 24.12                   | 03/05/2019  | < 0.000000017  | No                          |
|                    | 24.96                   | 03/08/2019  | < 0.000000016  | No                          |
|                    | 23.43                   | 03/14/2019  | < 0.000000018  | No                          |
| AMS07              | 24.09                   | 03/05/2019  | < 0.000000016  | No                          |
|                    | 24.52                   | 03/08/2019  | < 0.000000015  | No                          |
|                    | 24.2                    | 03/14/2019  | < 0.000000016  | No                          |
| AMS12              | 24.22                   | 03/05/2019  | < 0.000000015  | No                          |
|                    | 22.38                   | 03/08/2019  | < 0.000000015  | No                          |
|                    | 23.73                   | 03/14/2019  | < 0.000000014  | 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:<br>N62473-17-D-0005 |             | Project Title / Location:<br>IR Site 12 RD/RA, Treasure Island, SF, CA |          |                     | Gilbane Project Number:<br>J310000300 |               |                    |             |                            |            | Alpha      | Beta           | Air samples collected<br>between March 4, 2019<br>and March 14, 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: 4/1/2019             |             |  |          |                     |                                       |               |                    |             | 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-172  | Perimeter   | AMS-01   | PE01     | 50                  | 3/4/19 7:30                           | 3/4/19 16:00  | 510                | 2.5E+07     | A                          | 3/12/19    | 20         | cpm            | 0.250  | 4.450           | 0.7                | 9.6  | 1.3E-14                     | 1.7E-13     | 1.4%              | 2.8% | BS         | CB            |  |
| AS-173  | Perimeter   | AMS-02   | PE02     | 60                  | 3/4/19 7:55                           | 3/4/19 16:15  | 500                | 3.0E+07     | A                          | 3/12/19    | 20         | cpm            | 0.200  | 3.950           | 0.6                | 8.3  | 8.7E-15                     | 1.2E-13     | 1.0%              | 2.1% | BS         | CB            |  |
| AS-174  | Perimeter   | AMS-07   | PE03     | 50                  | 3/4/19 7:20                           | 3/4/19 15:40  | 500                | 2.5E+07     | A                          | 3/12/19    | 20         | cpm            | 0.150  | 4.250           | 0.4                | 9.1  | 7.8E-15                     | 1.6E-13     | 0.9%              | 2.7% | BS         | CB            |  |
| AS-175  | Perimeter   | AMS-12   | PE04     | 60                  | 3/4/19 7:40                           | 3/4/19 16:25  | 525                | 3.2E+07     | A                          | 3/12/19    | 20         | cpm            | 0.000  | 3.950           | 0.0                | 8.3  | 0.0E+00                     | 1.2E-13     | 0.0%              | 2.0% | BS         | CB            |  |
| AS-176  | Perimeter   | EX #1128 D   | PE07     | 50                  | 3/4/19 8:45                           | 3/4/19 15:15  | 390                | 1.9E+07     | A                          | 3/12/19    | 20         | cpm            | 0.250  | 3.600           | 0.7                | 7.3  | 1.7E-14                     | 1.7E-13     | 1.8%              | 2.8% | BS         | CB            |  |
| AS-177  | Perimeter   | AMS-01   | PE01     | 50                  | 3/5/19 5:30                           | 3/5/19 15:34  | 604                | 3.0E+07     | A                          | 3/12/19    | 20         | cpm            | 0.100  | 4.550           | 0.3                | 9.9  | 4.3E-15                     | 1.5E-13     | 0.5%              | 2.5% | BS         | CB            |  |
| AS-178  | Perimeter   | AMS-02   | PE02     | 60                  | 3/5/19 5:45                           | 3/5/19 15:26  | 581                | 3.5E+07     | A                          | 3/12/19    | 20         | cpm            | 0.100  | 3.600           | 0.3                | 7.3  | 3.7E-15                     | 9.5E-14     | 0.4%              | 1.6% | BS         | CB            |  |
| AS-179  | Perimeter   | AMS-07   | PE03     | 50                  | 3/5/19 7:20                           | 3/5/19 15:44  | 504                | 2.5E+07     | A                          | 3/12/19    | 20         | cpm            | 0.200  | 4.000           | 0.6                | 8.4  | 1.0E-14                     | 1.5E-13     | 1.1%              | 2.5% | BS         | CB            |  |
| AS-180  | Perimeter   | AMS-12   | PE04     | 60                  | 3/5/19 5:35                           | 3/5/19 15:32  | 597                | 3.6E+07     | A                          | 3/12/19    | 20         | cpm            | 0.150  | 4.150           | 0.4                | 8.8  | 5.4E-15                     | 1.1E-13     | 0.6%              | 1.8% | BS         | CB            |  |
| AS-181  | Perimeter   | AMS-01   | PE01     | 50                  | 3/6/19 5:30                           | 3/6/19 15:40  | 610                | 3.1E+07     | A                          | 3/12/19    | 20         | cpm            | 0.050  | 3.200           | 0.1                | 6.2  | 2.1E-15                     | 9.2E-14     | 0.2%              | 1.5% | BS         | CB            |  |
| AS-182  | Perimeter   | AMS-02   | PE02     | 60                  | 3/6/19 5:45                           | 3/6/19 15:45  | 600                | 3.6E+07     | A                          | 3/12/19    | 20         | cpm            | 0.200  | 4.650           | 0.6                | 10.2 | 7.2E-15                     | 1.3E-13     | 0.8%              | 2.1% | BS         | CB            |  |
| AS-183  | Perimeter   | AMS-07   | PE03     | 50                  | 3/6/19 0:00                           | 3/6/19 15:22  | 922                | 4.6E+07     | A                          | 3/12/19    | 20         | cpm            | 0.100  | 3.300           | 0.3                | 6.5  | 2.8E-15                     | 6.4E-14     | 0.3%              | 1.1% | BS         | CB            |  |
| AS-184  | Perimeter   | AMS-12   | PE04     | 60                  | 3/6/19 5:35                           | 3/6/19 15:38  | 603                | 3.6E+07     | A                          | 3/12/19    | 20         | cpm            | 0.200  | 3.550           | 0.6                | 7.2  | 7.2E-15                     | 8.9E-14     | 0.8%              | 1.5% | BS         | CB            |  |
| AS-185  | Perimeter   | AMS-01   | PE01     | 50                  | 3/7/19 5:45                           | 3/7/19 15:00  | 555                | 2.8E+07     | A                          | 3/12/19    | 20         | cpm            | 0.350  | 3.800           | 1.0                | 7.9  | 1.6E-14                     | 1.3E-13     | 1.8%              | 2.1% | BS         | CB            |  |
| AS-186  | Perimeter   | AMS-02   | PE02     | 60                  | 3/7/19 6:00                           | 3/7/19 15:10  | 550                | 3.3E+07     | A                          | 3/12/19    | 20         | cpm            | 0.000  | 3.800           | 0.0                | 7.9  | 0.0E+00                     | 1.1E-13     | 0.0%              | 1.8% | BS         | CB            |  |
| AS-187  | Perimeter   | AMS-07   | PE03     | 50                  | 3/7/19 7:15                           | 3/7/19 15:30  | 495                | 2.5E+07     | A                          | 3/12/19    | 20         | cpm            | 0.150  | 3.300           | 0.4                | 6.5  | 7.9E-15                     | 1.2E-13     | 0.9%              | 2.0% | BS         | CB            |  |
| AS-188  | Perimeter   | AMS-12   | PE04     | 60                  | 3/7/19 5:50                           | 3/7/19 14:30  | 520                | 3.1E+07     | A                          | 3/12/19    | 20         | cpm            | 0.250  | 4.450           | 0.7                | 9.6  | 1.0E-14                     | 1.4E-13     | 1.2%              | 2.3% | BS         | CB            |  |
| AS-189  | Perimeter   | AMS-01   | PE01     | 50                  | 3/11/19 5:55                          | 3/11/19 15:55 | 600                | 3.0E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 3.950           | 0.4                | 8.3  | 6.5E-15                     | 1.2E-13     | 0.7%              | 2.1% | BS         | CB            |  |
| AS-190  | Perimeter   | AMS-02   | PE02     | 60                  | 3/11/19 6:10                          | 3/11/19 15:20 | 550                | 3.3E+07     | A                          | 3/18/19    | 20         | cpm            | 0.250  | 3.850           | 0.7                | 8.0  | 9.8E-15                     | 1.1E-13     | 1.1%              | 1.8% | BS         | CB            |  |
| AS-191  | Perimeter   | AMS-07   | PE03     | 50                  | 3/11/19 7:10                          | 3/11/19 15:40 | 510                | 2.6E+07     | A                          | 3/18/19    | 20         | cpm            | 0.300  | 3.600           | 0.9                | 7.3  | 1.5E-14                     | 1.3E-13     | 1.7%              | 2.2% | BS         | CB            |  |
| AS-192  | Perimeter   | AMS-12   | PE04     | 60                  | 3/11/19 6:00                          | 3/11/19 15:50 | 590                | 3.5E+07     | A                          | 3/18/19    | 20         | cpm            | 0.300  | 4.200           | 0.9                | 8.9  | 1.1E-14                     | 1.1E-13     | 1.2%              | 1.9% | BS         | CB            |  |
| AS-193  | Perimeter   | AMS-01   | PE01     | 50                  | 3/12/19 5:00                          | 3/12/19 16:00 | 660                | 3.3E+07     | A                          | 3/18/19    | 20         | cpm            | 0.100  | 3.750           | 0.3                | 7.7  | 3.9E-15                     | 1.1E-13     | 0.4%              | 1.8% | BS         | CB            |  |
| AS-194  | Perimeter   | AMS-02   | PE02     | 60                  | 3/12/19 5:15                          | 3/12/19 15:30 | 615                | 3.7E+07     | A                          | 3/18/19    | 20         | cpm            | 0.100  | 3.450           | 0.3                | 6.9  | 3.5E-15                     | 8.4E-14     | 0.4%              | 1.4% | BS         | CB            |  |
| AS-195  | Perimeter   | AMS-07   | PE03     | 50                  | 3/12/19 7:15                          | 3/12/19 15:50 | 515                | 2.6E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 2.800           | 0.4                | 5.1  | 7.6E-15                     | 9.0E-14     | 0.8%              | 1.5% | BS         | CB            |  |
| AS-196  | Perimeter   | AMS-12   | PE04     | 60                  | 3/12/19 5:05                          | 3/12/19 16:05 | 660                | 4.0E+07     | A                          | 3/18/19    | 20         | cpm            | 0.200  | 3.200           | 0.6                | 6.2  | 6.6E-15                     | 7.1E-14     | 0.7%              | 1.2% | BS         | CB            |  |
| AS-197  | Perimeter   | EX # 1228 A  | PE07     | 50                  | 3/12/19 8:30                          | 3/12/19 15:55 | 445                | 2.2E+07     | A                          | 3/18/19    | 20         | cpm            | 0.250  | 4.200           | 0.7                | 8.9  | 1.5E-14                     | 1.8E-13     | 1.6%              | 3.0% | BS         | CB            |  |
| AS-198  | Perimeter   | AMS-01   | PE01     | 50                  | 3/13/19 5:25                          | 3/13/19 16:00 | 635                | 3.2E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 3.400           | 0.4                | 6.8  | 6.1E-15                     | 9.6E-14     | 0.7%              | 1.6% | BS         | CB            |  |



AIR SAMPLE RESULTS - PUBLIC EXPOSURE MONITORING

| Project Information                               |             |                 |  |                     |                |                                       |                    |             | Effluent Air Concentration |            |            |                |  | Sampling Period |         |      |                    | Color Codes |                             |      |            |               |  |
|---|-------------|-----------------|--|---------------------|----------------|---------------------------------------|--------------------|-------------|----------------------------|------------|------------|----------------|--|-----------------|---------|------|--------------------|-------------|-----------------------------|------|------------|---------------|--|
| Contract / Task Order Number:<br>N62473-17-D-0005 |             |                 | Project Title / Location:<br>IR Site 12 RD/RA, Treasure Island, SF, CA |                     |                | Gilbane Project Number:<br>J310000300 |                    |             |                            |            | Alpha      | Beta           | Air samples collected<br>between March 4, 2019<br>and March 14, 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: 4/1/2019             |             |                 |  |                     |                |                                       |                    |             | 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-199  | Perimeter   | AMS-02          | PE02   | 60                  | 3/13/19 5:15   | 3/13/19 16:15                         | 660                | 4.0E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 3.950           | 0.4     | 8.3  | 4.9E-15            | 9.4E-14     | 0.5%                        | 1.6% | BS         | CB            |  |
| AS-200  | Perimeter   | AMS-07          | PE03   | 50                  | 3/13/19 7:15   | 3/13/19 16:30                         | 555                | 2.8E+07     | A                          | 3/18/19    | 20         | cpm            | 0.100  | 3.650           | 0.3     | 7.5  | 4.7E-15            | 1.2E-13     | 0.5%                        | 2.0% | BS         | CB            |  |
| AS-201  | Perimeter   | AMS-12          | PE04   | 50                  | 3/13/19 5:30   | 3/13/19 16:05                         | 635                | 3.2E+07     | A                          | 3/18/19    | 20         | cpm            | 0.200  | 3.050           | 0.6     | 5.8  | 8.2E-15            | 8.3E-14     | 0.9%                        | 1.4% | BS         | CB            |  |
| AS-202  | Perimeter   | EX # 1230 F     | PE07   | 50                  | 3/13/19 8:00   | 3/13/19 16:10                         | 490                | 2.4E+07     | A                          | 3/18/19    | 20         | cpm            | 0.250  | 4.300           | 0.7     | 9.2  | 1.3E-14            | 1.7E-13     | 1.5%                        | 2.8% | BS         | CB            |  |
| AS-203  | Perimeter   | AMS-01          | PE01   | 50                  | 3/14/19 5:30   | 3/14/19 15:45                         | 615                | 3.1E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 3.050           | 0.4     | 5.8  | 6.3E-15            | 8.5E-14     | 0.7%                        | 1.4% | BS         | CB            |  |
| AS-204  | Perimeter   | AMS-02          | PE02   | 60                  | 3/14/19 5:45   | 3/14/19 15:30                         | 585                | 3.5E+07     | A                          | 3/18/19    | 20         | cpm            | 0.150  | 4.150           | 0.4     | 8.8  | 5.5E-15            | 1.1E-13     | 0.6%                        | 1.9% | BS         | CB            |  |
| AS-205  | Perimeter   | AMS-07          | PE03   | 50                  | 3/14/19 6:00   | 3/14/19 16:00                         | 600                | 3.0E+07     | A                          | 3/18/19    | 20         | cpm            | 0.250  | 3.450           | 0.7     | 6.9  | 1.1E-14            | 1.0E-13     | 1.2%                        | 1.7% | BS         | CB            |  |
| AS-206  | Perimeter   | AMS-12          | PE04   | 50                  | 3/14/19 5:35   | 3/14/19 15:40                         | 605                | 3.0E+07     | A                          | 3/18/19    | 20         | cpm            | 0.100  | 3.700           | 0.3     | 7.6  | 4.3E-15            | 1.1E-13     | 0.5%                        | 1.9% | BS         | CB            |  |