



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

Interim

Air Sampling Summary Report No. 01

Data Date Range:

August 24, 2020 through September 11, 2020

Parcel G

Hunters Point Naval Shipyard, CA

December 2020

Approved for public release: distribution unlimited.



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DCN: APTM-0006-5065-0038

Prepared for:

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BRAC PMO West
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Acronyms and Abbreviations

APTIM	Aptim Federal Services, LLC
DMP	Final, Revision 1, Dust Management and Air Monitoring Plan
EPA	.....	U.S. Environmental Protection Agency
LCS	.....	laboratory control sample
LCSD	.....	laboratory control sample duplicate
MS	.....	matrix spike
MSD	.....	matrix spike duplicate
NIST	.....	National Institute of Standards and Technology
PM10	.....	particulate matter larger than 10 microns in size
ROC	.....	radionuclide of concern
RPD	.....	relative percent difference
SDG	.....	sample delivery group
TSP	.....	total suspended particulates

1.0 Introduction

Aptim Federal Services, LLC (APTIM) is providing environmental remediation services to the U.S. Department of the Navy under the Radiological Environmental Multiple Award Contract, Contract Number N62473-17-D-0006, Contract Task Order N6247318F5065. APTIM is performing air sampling of fugitive dust emissions in support of Parcel G removal activities in accordance with the Final, Revision 1, Dust Management and Air Monitoring Plan (DMP) (included as Appendix E of the *Final, Revision 1, Parcel G Removal Site Evaluation Work Plan Addendum, Hunters Point Naval Shipyard, San Francisco, California* [APTIM, 2020]). The DMP describes procedures to reduce fugitive dust during work activities and outlines air sampling procedures to ensure these procedures are effective. Air sampling ensures on-site worker safety and provides reasonable assurance of the protection of the surrounding residents and public receptors.

This summary report describes the following:

- Where and how air samples are collected
- What test methods are used to analyze air samples
- How air sampling data are evaluated

This summary report presents the air sampling analytical results from August 24, 2020 through September 11, 2020, and compares the results with the established action levels included in the DMP (APTIM, 2020 [Appendix E]).

2.0 Sampling Site Locations

Air sampling stations were mobilized to collect air samples upwind and downwind of work areas for the duration of the project. The predominant wind direction at Hunters Point Naval Shipyard is from the west or west-northwest. Figure 1 shows locations of air sampling stations and predominant wind direction. For the fieldwork performed during this period, APTIM used one upwind sampling location and two downwind sampling locations marked as follows:

- “Air Sampling Station 1 (Upwind)”
- “Air Sampling Station 17 (Downwind)”
- “Air Sampling Station 17A (Downwind)”

Air Sampling Station 17 or Air Sampling Station 17A were used based on the location of fieldwork; both sampling stations were not in use at the same time. A windsock installed on site was used to show wind direction and weather forecasts were checked daily at www.noaa.gov. Sampling stations remained stationary while sampling was conducted. Each sampling station included four separate air sampling systems for the following:

- Total suspended particulates (TSP) and metals (lead and manganese)
- Particulate matter larger than 10 microns in size (PM10)
- Asbestos
- Radionuclides of concern (ROCs)

3.0 Analytical Methods

TSP, Lead, and Manganese: TSP samples were collected with a high-volume (39 to 60 cubic feet per minute) air sampler in accordance with U.S. Environmental Protection Agency's (EPA's) reference sampling method for TSP, described in Title 40 Code of Federal Regulations, Part 50, Appendix B. Each sample was collected on a filter over the course of a period not to exceed 25 hours; the filter was then weighed to determine the amount of TSP collected. Once the amount of TSP was determined, the sample was analyzed for lead and manganese in accordance with one of the IO-3 methods identified in the *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air* (EPA, 1999). The equipment specifications and sampling procedures used, including the sampling apparatus, filters, equipment accuracy, equipment calibration, and quality assurance checks conformed to those specified in the analytical method. The TSP high-volume samplers were calibrated using a National Institute of Standards and Technology (NIST)-traceable flow controller to 40.0 cubic feet per minute on a monthly basis and flowrates were recorded daily and adjusted as needed to maintain the flowrates.

PM10: Air samples were collected and analyzed for PM10 in accordance with EPA's reference sampling method for PM10, described in 40 Code of Federal Regulations Part 50, Appendix J. Each sample was collected on a filter over the course of a period not to exceed 25 hours; the filter was then weighed to evaluate the concentrations of PM10 in ambient air. The PM10 high-volume samplers were calibrated using a NIST-traceable flow controller to 40.0 cubic feet per minute on a monthly basis and flowrates were recorded daily and adjusted as needed to maintain flowrates.

Asbestos: Air samples were collected and analyzed for asbestos in accordance with the National Institute for Occupational Safety and Health Method 7400, in the *NIOSH Manual of Analytical Methods* (1994). Method 7400 requires that samples be collected on three-piece cellulose ester filters, which are fitted with conductive cowlings, at a sampling rate of between 0.5 liter per minute and 16 liters per minute. Each sample was collected on a filter over the course of a period not to exceed 25 hours. The GilAir Plus pumps were calibrated using a NIST-traceable flow controller to 2.0 liters per minute on a monthly basis, and flowrates were recorded daily and adjusted as needed to maintain flowrates.

ROCs: Air samples were collected and analyzed for ROCs to demonstrate dust management controls were protective of worker health and public health for off-site receptors. Radiological air samples were collected using low-volume air samplers, F&J Specialty Products, Inc. Model LV-1D over 104 hours (Monday morning to Friday afternoon) to achieve the sample volume required to provide minimum detectable activities below the action levels. The samples were analyzed at the off-site laboratory for Gamma Spectroscopy (EPA 901.1/DOE EML HASL-300), gas flow proportional counting (EPA Method 905.0), and Alpha Spectroscopy.

4.0 Analysis of Air Sampling Data

Analytical results from air sampling samples were compared with the action levels listed in Table 4-1 and in accordance with the DMP (APTIM, 2020 [Appendix E]).

Table 4-1: Air Sampling Action Levels

Test Parameters	Action Level	Basis
PM10	50 µg/m ³	DTSC HERO developed action level (residents and public receptors) ^a
	5,000 µg/m ³ ^b	Cal/OSHA PEL (on-site workers)
TSP	500 µg/m ³	Basewide HPNS level chosen to minimize overall permissible dust release from sites (on-site workers)
Lead	50 µg/m ³	Cal/OSHA PEL (on-site workers)
Manganese	200 µg/m ³	Cal/OSHA PEL (on-site workers)
Asbestos	0.1 fiber/cm ³	Cal/OSHA PEL (on-site workers)
Cesium-137	4.00E-11 µCi/mL	10 CFR, Part 20, Appendix B, Table 2 Column 1 adjusted from 50 mrem per year to a maximum annual exposure of 10 mrem per year at the receptor (public receptor) ^c
Plutonium-239	4.00E-15 µCi/mL	
Radium-226	1.80E-13 µCi/mL	
Strontium-90	1.20E-12 µCi/mL	
Thorium-232	1.20E-15 µCi/mL	
Uranium-235	6.00E-13 µCi/mL	

Notes:

^a The DTSC HERO action level is based on the CSAAQS. The CSAAQS is designed to protect the general public from airborne particulates generated in the urban, suburban, and rural environments. The CSAAQS is not meant to be applied to general project-specific construction actions and related air quality. Rather, the standard is used to attain city- or regional-wide ambient air quality goals for the benefit of the general public. The current CSAAQS for PM10 is 50 µg/m³ average per 24-hour day. The City and County of San Francisco is currently a non-attainment area for the CSAAQS for PM10.

^b Cal/OSHA PEL for particulates not otherwise regulated (respiratory) used for PM10.

^c Results may be evaluated using 40 CFR Appendix E to Part 61 to demonstrate compliance with the National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).

µCi/mL microcurie per milliliter (activity)
 µg/m³ microgram per cubic meter
 Cal/OSHA California Occupational Safety and Health Administration
 CSAAQS California State ambient air quality standard
 CFR Code of Federal Regulations

DTSC	California Department of Toxic Substances Control
fiber/cm ³	fiber per cubic centimeter
HERO	Human and Ecological Risk Office
HPNS	Hunters Point Naval Shipyard
mrem	millirem
PEL	permissible exposure limit
PM10	particulate matter larger than 10 microns in diameter
TSP	total suspended particulates

5.0 Air Sampling Results

The tables included as Attachment 1 present weather information (including ambient pressure and temperature data) and air sampling results. Air sampling data were collected from the upwind sampling station and downwind sampling station (Section 2.0). Table 5-1 lists each interim air sampling report and the dates covered in each report.

Table 5-1: Air Sampling Report Summary

Interim Report Number	New Data Date Range
01	08/24/20 – 09/11/20

5.1 Report 01

There were no site-related exceedances above air sampling threshold criteria and action levels during this reporting period.

There were PM10 exceedances (above 50 $\mu\text{g}/\text{m}^3$) in both upwind and downwind samples on August 28, September 9, September 10, and September 11, 2020. PM10 concentrations were unusually high due to forest fires near the area and not related to site activities.

A summary of air sampling station downtime for the reporting period is as follows:

- August 24, 2020—The TSP sampler at the downwind air sampling station was down for approximately 1 hour. The generator was repaired on August 24 and replaced on August 25.
- August 27, 2020—While conducting daily filter changeouts, the air sampling technician noticed the upwind generator was shut off due to low fuel. The duration of shut off time is unknown. Generator was refueled and sampling was restarted at 0805.
- September 2, 2020—Downwind station was shut off for 15 minutes, from approximately 0830 to 0845. The generator exhaust was re-positioned downwind from the samplers to minimize pollutant contamination from the exhaust.

- September 8, 2020—Downwind sampling was shut off for approximately 1 hour, from 0922 to 1022. The station was relocated to Air Sampling Station 17A.

6.0 Data Quality Assessment

Laboratory data were reviewed by the APTIM chemist to verify that analytical results were received from the laboratory, that the results provided in the electronic data deliverable and hard copy forms were the same, and that standard laboratory procedures and protocols were followed. Analytical data for this project were assessed in terms of precision, accuracy, representativeness, completeness, and comparability based on the requirements of the published EPA analytical methods and laboratory standard operating procedures and as specified in the DMP (APTIM, 2020 [Appendix E]).

Accuracy is demonstrated by recovery of target analytes from fortified blank and sample matrices, laboratory control sample (LCS), laboratory control sample duplicate (LCSD), matrix spike (MS), and matrix spike duplicate (MSD), respectively. The recovery of target analytes from fortified samples is compared to acceptance criteria. When these criteria are not met, the data are flagged appropriately.

Precision is expressed as relative percent difference (RPD) between the results of laboratory replicate sample analyses: sample duplicates, LCSDs, and MSDs. When analyte RPDs exceed the acceptance criteria, the data are flagged appropriately.

Representativeness of the samples submitted for analysis is ensured by adherence to standard sampling techniques and protocols.

Comparability of sample results is ensured through the use of approved consistent sampling and analysis methods.

Completeness is expressed as a ratio of number of usable data to all analytical data collected.

Sensitivity of sample results is ensured through the use of appropriate sampling techniques and analytical methods with detection limits below decision levels.

The laboratory data packages were reviewed at EPA Level II. As applicable to referenced methodology, a Level II data review includes reviewing the following:

- Chain of custody/sample receipt
- Method blanks

- Field filter blanks
- Tracer compound recovery (ROCs)
- LCS/LCSD
- MS and MSD and sample duplicates
- Sensitivity
- Completeness (field and technical)

Table 6-1 lists samples collected, collection dates, analyses performed, and laboratory sample delivery groups (SDGs) that are discussed in the following subsections.

Table 6-1: Sample Delivery Group Summary

Date Range	SDG #	Analyses
08/24/20 through 08/28/20	J37375	PM10, TSP, Metals, Asbestos
08/24/20 through 08/28/20	J39364	ROCs
08/31/20 through 09/04/20	J37971	PM10, TSP, Metals, Asbestos
08/31/20 through 09/04/20	J39383	ROCs
09/08/20 through 09/11/20	J38566	PM10, TSP, Metals, Asbestos
09/08/20 through 09/11/20	J39450	ROCs

The data quality assessment discusses data review findings and their potential impact on the data quality and usability. Definitions of EPA qualifiers and reason codes applied to the affected sample results that are outside the established control requirements are presented as follows:

Qualifier	Definition
	No qualifier indicates that the data are acceptable both qualitatively and quantitatively.
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The analyte was analyzed for and was positively identified, but the reported numerical value is estimated. Although the data are considered usable and may be used as appropriate to meet project objectives. Results are qualitatively acceptable and quantitatively uncertain.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate.
R	The analyte was analyzed for, but the presence <u>or</u> absence of the analyte has not been verified. Qualifier denotes the data are unusable due to deficiencies in the ability to analyze the sample and meet quality control

Qualifier	Definition
	criteria. Results are rejected and data are <u>unusable</u> for project decisions.

6.1 Sample Receipt and Laboratory Narrative

As required by EPA, samples were received at the laboratory under chain-of-custody and were logged in for analysis. Minor log-in discrepancies, if noted by the laboratory were resolved with the Project Chemist prior to analysis. Analyses were completed within method specified holding times for applicable methods. Sample analysis deviations or discrepancies are described as follows:

SDG	Analysis	Anomaly/Issue	Resolution
J37971	Asbestos	PG-ASB090120-17DOWNWIND and PG-ASB090220-17DOWNWIND overloaded for asbestos (filters with particulate loading of greater than 50 percent cause potentially biased results)	Due to local forest fires, ash and smoke in the area affected sample collection. No asbestos results reported for 09/01/20 downwind and 09/02/20 downwind.
J38566	Asbestos	PG-ASB091020-1UPWIND and PG-ASB091020-17DOWNWIND overloaded for asbestos (filters with particulate loading of greater than 50 percent cause potentially biased results)	Due to local forest fires, ash and smoke in the area affected sample collection. No asbestos results reported for 09/10/20.

6.2 Blanks

Laboratory method blanks and field filter blanks were prepared and analyzed as recommended by the referenced methods and the DMP (APTIM, 2020 [Appendix E]). The concentration of target analytes in the laboratory blanks and field blanks were either not detected or below the limit of detection for SDGs with the exceptions noted as follows:

SDG	Sample Name	Analyte	Result (µCi/mL)
J39364	Method Blank (one prep batch all SDGs)	Radium-226	2.92E-15
J39383	0882020-BLANK (field filter blank)	Radium-226	7.86E-16
J39450	08282020-17/DOWNWIND	Radium-226	1.87E-15
	09042020-BLANK (field filter blank)	Radium-226	2.32E-15
	09042020-17/DOWNWIND	Radium-226	1.39E-15

SDG	Sample Name	Analyte	Result (µCi/mL)
	09042020-UPWIND	Radium-226	1.87E-15
	09112020-BLANK (field filter blank)	Radium-226	2.66E-15
	09112020-UPWIND	Radium-226	1.17E-15
	09112020-17/DOWNWIND	Radium-226	1.96E-15
J39364	Method Blank (one prep batch all SDGs)	Plutonium-239/240	6.58E-17
J39383	08282020-17/DOWNWIND	Plutonium-239/240	8.38E-17
J39450	09042020-17/DOWNWIND	Plutonium-239/240	1.01E-16
	09112020-1/UPWIND	Plutonium-239/240	1.24E-16
J39383	09042020-BLANK (field filter blank)	Strontium-90	1.76E-15
	09042020-UPWIND	Strontium-90	3.33E-15
J39450	09112020-BLANK (field filter blank)	Uranium-235/236	2.04E-16
	09112020-UPWIND	Uranium-235/236	1.96E-16
J39364	08282020-BLANK (field filter blank)	Thorium-232	2.44E-16
	08282020-UPWIND	Thorium-232	1.98E-16
	08282020-17/DOWNWIND	Thorium-232	3.19E-16
J3938	09042020-BLANK (field filter blank)	Thorium-232	1.20E-15
	09042020-17/DOWNWIND	Thorium-232	5.20E-16
	09042020-UPWIND	Thorium-232	4.93E-16
J39450	09112020-BLANK (field filter blank)	Thorium-232	3.86E-16
	09112020-UPWIND	Thorium-232	3.90E-16
	09112020-17A/DOWNWIND	Thorium-232	2.86E-16

Notes:
 µCi/mL microcurie per milliliter

Sample results are greater than the minimum detectable concentration but less than 10 times the associated blank results. Sample results were qualified as estimated (JB).

6.3 Laboratory Control Samples

LCSs were prepared and analyzed as required by the referenced methods. The percent recoveries for LCS, LCSD, and RPD were within control limits for all analytical batches containing the samples for this project.

6.4 Matrix Spikes/Matrix Spike Duplicates/Laboratory Duplicates

Laboratory quality control samples, MS/MSD, and laboratory duplicates were prepared using project samples. The percent recovery MS and MSD were all within the specified control limits, and the RPD between MS/MSD or sample/sample duplicate were within the specific precision control limit.

6.5 Tracers (ROCs)

A tracer is either an isotope of the same element as the isotope of interest, or an isotope of an element different from the element of the isotope of interest, but one that behaves chemically very similar to the isotope of interest. Tracers are added to both field samples and batch quality control samples prior to sample preparation. The percent recovery of the tracer is used to normalize the measured activity of the isotope of interest. The review indicated that tracer recoveries were within the established control limits.

6.6 Sensitivity

Reporting limits for results reported by the laboratory were sufficiently low enough for project decisions.

6.7 Completeness

The following subsections present a discussion of field and technical completeness for the sampling events.

Field completeness is based on the number of samples/analyses planned compared to the number of results obtained. Field completeness was 100 percent for TSP, PM10, metals and ROCs for the sampling between August 24 and September 11, 2020. The field completeness was 87.5 percent for asbestos due to sample loss (overload) caused by the forest fires.

Technical completeness is a quantitative measure of the data usability based on the number of rejected data compared to the total number of sample results. The technical-completeness calculation considers data that are not rejected to be usable. The technical-completeness objective is 90 percent. As discussed in the previous subsection, sample results were qualified as estimated (J/UJ) due to various laboratory quality control outliers. However, the degree of the quality control exceedances was small and did not affect the data usability. The technical completeness was 100 percent for all analyses.

6.8 Summary and Statement of Data Usability

Based on the above data review there were no significant systematic problems identified with the analytical method performance. Although some results were flagged as estimated due to deficiencies, the data usability was not affected. Data meet the quality objectives for the intended use.

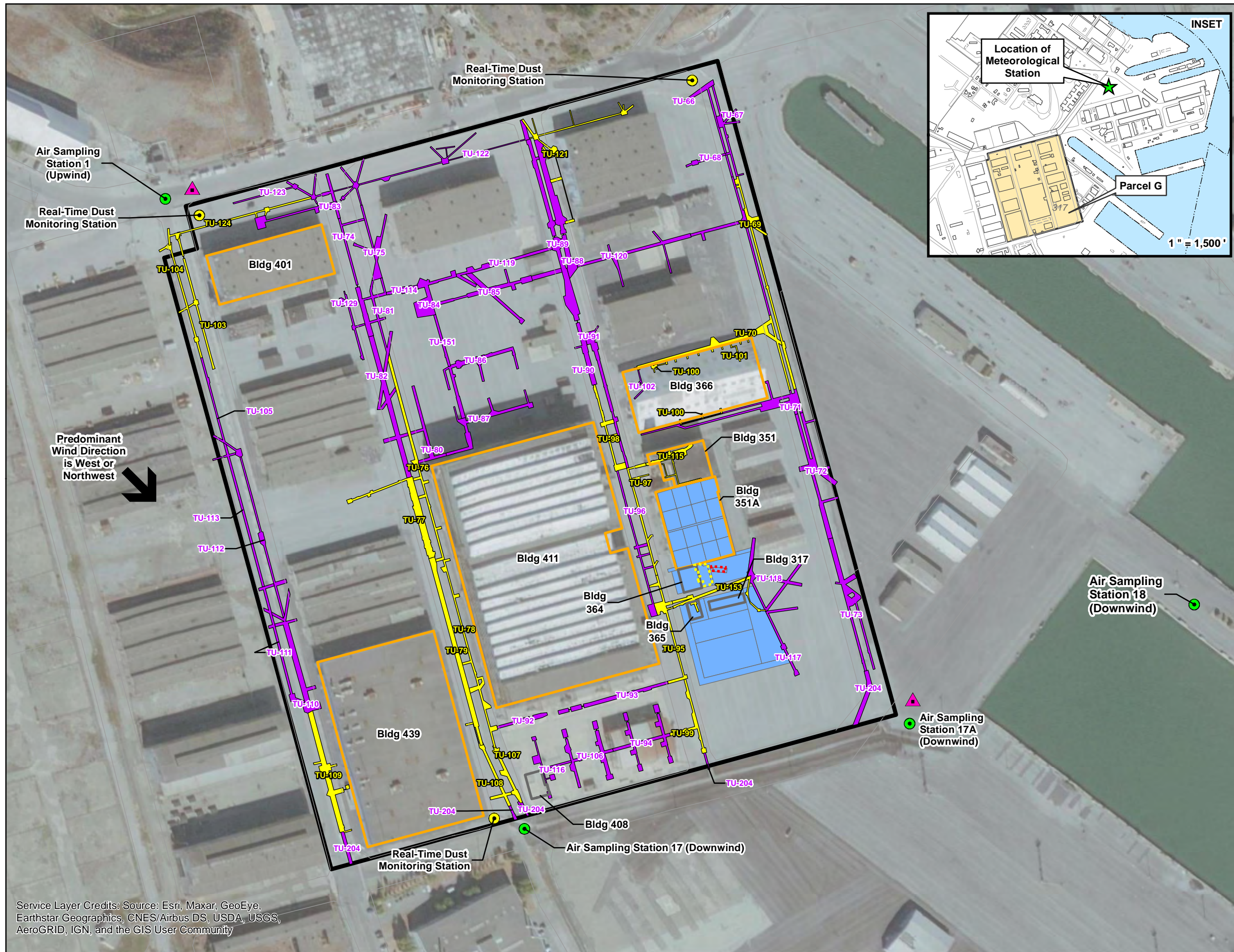
7.0 References

- Aptim Federal Services, LLC, 2020, *Final, Revision 1, Parcel G Removal Site Evaluation Work Plan Addendum, Hunters Point Naval Shipyard, San Francisco, California*, July.
- National Institute for Occupational Safety and Health, 1994, *NIOSH Manual of Analytical Methods*, Method 7400, August.
- U.S. Environmental Protection Agency, 1999, *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air*.

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Figure

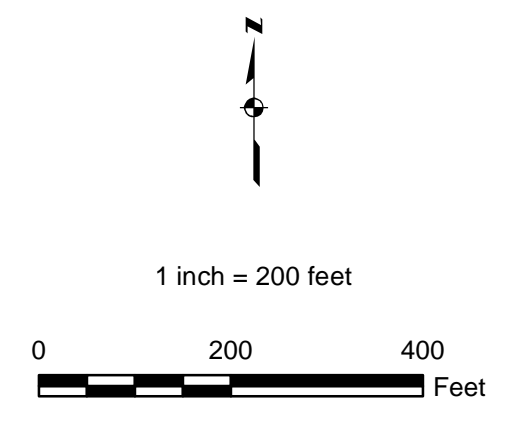
FIGURE



- Air Sampling Station (Worker Action Levels for COCs [Table 1] and Public Action Levels for ROCs [Table 2])
- Real-Time Dust Monitoring Station (Public Action Level for Dust [PM10] [Table 1])
- ▲ Windsock
- ROADS
- Parcel G Boundary
- Impacted Building
- Impacted Demolished Building
- Phase 1 Trench Unit
- Phase 2 Trench Unit
- Survey Unit
- Liquid Waste Transfer System Excavation Limits (to 10 ft bgs)
- Peanut Spill Excavation Limits (to 2 ft bgs)

Notes:

- 1) Air sampling will be performed at two stations, one upwind (Station 1) and one downwind (Station 17, 17A, or 18). Air sampling station locations represent potential locations and may be modified to accommodate changing site conditions and/or wind direction.
- 2) Additional dust monitoring locations may be established based on field activities.
- 3) COC - Chemical of Concern.
- 4) ROC - Radionuclide of Concern.



U.S. Department of the Navy
BRAC PMO West
San Diego, California

**FIGURE 1
PARCEL G
AIR SAMPLING AND DUST
MONITORING LOCATIONS**

INVESTIGATION, SURVEY, AND REPORTING AT PARCEL G
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Attachment 1

ATTACHMENT 1 AIR SAMPLING RESULTS

Attachment 1, Table 1: Ambient Pressure and Temperature Monitoring Results

Date	Ambient Pressure (in Hg)	Ambient Temperature (°C)	Wind Speed (mph)	Wind Direction
8/24/2020	29.83	62.80	11.3	WNW
8/25/2020	29.86	62.50	11.3	NW
8/26/2020	29.85	59.10	6.1	WSW
8/27/2020	29.82	59.00	5.8	SW
8/28/2020	29.81	59.70	6.1	WSW
8/31/2020	29.83	61.10	5.4	W
9/1/2020	29.94	62.10	5.4	W
9/2/2020	30.03	62.60	6.0	W
9/3/2020	30.03	60.60	5.2	WSW
9/4/2020	29.99	62.80	5.8	WSW
9/8/2020	29.68	63.70	5.0	W
9/9/2020	29.83	61.20	3.4	NW
9/10/2020	30.00	61.80	2.4	NW
9/11/2020	30.00	61.30	1.7	SSW

Notes:

Ambient pressure and ambient temperature data were gathered from KSFO, San Francisco, San Francisco International Airport

Wind data retrieved from onsite APTIM MET Station (8/26/20-8/28/20, 8/31/20-9/11/20)

Wind data retrieved from KSFO, San Francisco, San Francisco International Airport (8/24/20-8/25/20)

°C - degrees Celsius

in Hg - inches of mercury

Attachment 1, Table 2: TSP and Metals Sampling Results

Date	Sample Location	Sampling Period (hours)	TSP	TSP Exceedance? (Yes/No)	Lead	Lead Exceedance? (Yes/No)	Manganese	Manganese Exceedance? (Yes/No)
Action Level			500	--	50	--	200	--
Units			($\mu\text{g}/\text{m}^3$)		($\mu\text{g}/\text{m}^3$)		($\mu\text{g}/\text{m}^3$)	
24-Aug-20	1Upwind	23.5	46.0	No	0.01	No	0.04	No
24-Aug-20	17Downwind	24.3	47.4	No	0.04	No	0.04	No
25-Aug-20	1Upwind	23.9	54.5	No	0.01	No	0.05	No
25-Aug-20	17Downwind	24.3	41.7	No	0.01	No	0.01	No
26-Aug-20	1Upwind	24.1	37.8	No	0.01	No	0.03	No
26-Aug-20	17Downwind	24.1	55.9	No	0.01	No	0.02	No
27-Aug-20	1Upwind	24.1	31.0	No	0.01	No	0.02	No
27-Aug-20	17Downwind	24.1	41.6	No	0.01	No	0.02	No
28-Aug-20	1Upwind	7.3	117	No	0.02	No	0.06	No
28-Aug-20	17Downwind	7.1	105.0	No	0.08	No	0.03	No
31-Aug-20	1Upwind	23.8	50.0	No	<0.01	No	0.02	No
31-Aug-20	17Downwind	23.7	47.4	No	0.01	No	0.02	No
1-Sep-20	1Upwind	24.2	63.8	No	0.01	No	0.05	No
1-Sep-20	17Downwind	24.1	56.1	No	0.02	No	0.03	No
2-Sep-20	1Upwind	23.6	51.0	No	0.003	No	0.04	No
2-Sep-20	17Downwind	23.6	50.2	No	0.005	No	0.03	No
3-Sep-20	1Upwind	23.9	43.4	No	<0.01	No	0.03	No
3-Sep-20	17Downwind	23.9	33.3	No	<0.01	No	0.02	No
4-Sep-20	1Upwind	8.3	46.3	No	<0.02	No	0.03	No
4-Sep-20	17Downwind	8.1	50.8	No	<0.02	No	0.03	No
8-Sep-20	1Upwind	23.9	108	No	0.01	No	0.31	No
8-Sep-20	17ADownwind	24.1	106	No	0.01	No	0.49	No
9-Sep-20	1Upwind	23.9	59.0	No	0.002	No	0.11	No
9-Sep-20	17ADownwind	24.0	62.4	No	<0.01	No	0.08	No
10-Sep-20	1Upwind	24.3	169	No	0.01	No	0.27	No
10-Sep-20	17ADownwind	24.2	20.2	No	0.01	No	0.25	No
11-Sep-20	1Upwind	7.5	225	No	0.01	No	0.29	No
11-Sep-20	17ADownwind	7.2	204	No	0.01	No	0.18	No

Notes:

Note 1 - Sample not collected due to inclement conditions: Rain.

Sample locations are shown on Figure 1.

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

TSP - total suspended particulates

Attachment 1, Table 3: PM10 Air Sampling Results

Date	Sample Location	Sampling Period	PM10 Result	PM10 Exceedance? (Yes/No)	PM10 Exceedance? (Yes/No)
Action Level		≤ 25		5000^a	50^b
Units		hours	(µg/m³)	(µg/m³)	(µg/m³)
24-Aug-20	1Upwind	23.55	24.2	No	No
24-Aug-20	17Downwind	24.32	21.1	No	No
25-Aug-20	1Upwind	23.90	26.6	No	No
25-Aug-20	17Downwind	24.25	23.1	No	No
26-Aug-20	1Upwind	24.12	16.7	No	No
26-Aug-20	17Downwind	24.08	17.9	No	No
27-Aug-20	1Upwind	24.10	18.3	No	No
27-Aug-20	17Downwind	24.07	23.5	No	No
28-Aug-20	1Upwind	7.33	70.4	No	Yes (Note 1)
28-Aug-20	17Downwind	7.12	64.7	No	Yes (Note 1)
31-Aug-20	1Upwind	23.85	27.3	No	No
31-Aug-20	17Downwind	23.65	26.4	No	No
1-Sep-20	1Upwind	24.17	29.2	No	No
1-Sep-20	17Downwind	24.08	28.3	No	No
2-Sep-20	1Upwind	23.62	21.1	No	No
2-Sep-20	17Downwind	23.60	19.8	No	No
3-Sep-20	1Upwind	23.88	18.9	No	No
3-Sep-20	17Downwind	23.90	16.6	No	No
4-Sep-20	1Upwind	8.33	28.1	No	No
4-Sep-20	17Downwind	8.08	22.9	No	No
8-Sep-20	1Upwind	23.85	50.0	No	No
8-Sep-20	17ADownwind	24.15	47.8	No	No
9-Sep-20	1Upwind	23.93	131	No	Yes (Note 1)
9-Sep-20	17ADownwind	23.97	119	No	Yes (Note 1)
10-Sep-20	1Upwind	24.27	159	No	Yes (Note 1)
10-Sep-20	17ADownwind	24.20	161	No	Yes (Note 1)
11-Sep-20	1Upwind	7.45	192	No	Yes (Note 1)
11-Sep-20	17ADownwind	7.23	178	No	Yes (Note 1)

Attachment 1, Table 3: PM10 Air Sampling Results

Notes:

Sample locations are shown on Figure 1.

^a Cal/OSHA PEL (on-site workers)

^b DTSC HERO developed action level (residents and public receptors), based on the CSAAQS

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

BAAQMD - Bay Area Air Quality Management District

Cal/OSHA - California Occupational Safety and Health Administration

CSAAQS - California State ambient air quality standard

DTSC - California Department of Toxic Substances Control

HERO - Human and Ecological Risk Office

PEL - permissible exposure limit

PM10 - particulate matter smaller than 10 microns in diameter

Note 1: Elevated particulate matter levels observed regionally. This exceedance is likely not due to site activities.

BAAQMD implements the CSAAQS for the Bay Area. The CSAAQS is designed to protect the general public from airborne particulates generated in the urban, suburban, and rural environments. The CSAAQS is not meant to be applied to general project-specific construction actions and related air quality. Rather, the standard is used to attain city- or regional-wide ambient air quality goals for the benefit of the general public. The current CSAAQS for PM10 is $50 \mu\text{g}/\text{m}^3$ average per 24-hour day. The City and County of San Francisco is currently a non-attainment area for the CSAAQS for PM10.

Attachment 1, Table 4: Asbestos Sampling Results

Date	Sample Location	Sampling Period	Asbestos	Asbestos Exceedance? (Yes/No)
Action Level		≤ 25	0.1	--
Units		hours	(fibers/cm³)	
24-Aug-20	1Upwind	24.3	<0.0009	No
24-Aug-20	17Downwind	24.2	<0.0009	No
25-Aug-20	1Upwind	23.9	<0.0009	No
25-Aug-20	17Downwind	24.3	<0.0009	No
26-Aug-20	1Upwind	24.6	<0.0009	No
26-Aug-20	17Downwind	24.1	<0.0009	No
27-Aug-20	1Upwind	24.1	<0.0009	No
27-Aug-20	17Downwind	24.1	<0.0009	No
28-Aug-20	1Upwind	8.3	<0.0030	No
28-Aug-20	17Downwind	8.1	<0.0032	No
31-Aug-20	1Upwind	23.9	<0.0009	No
31-Aug-20	17Downwind	23.7	<0.0009	No
1-Sep-20	1Upwind	24.2	<0.0009	No
1-Sep-20	17Downwind	24.1	Note 2	No
2-Sep-20	1Upwind	23.6	<0.0010	No
2-Sep-20	17Downwind	23.6	Note 2	No
3-Sep-20	1Upwind	23.9	0.0019	No
3-Sep-20	17Downwind	23.9	0.0010	No
4-Sep-20	1Upwind	8.3	<0.0027	No
4-Sep-20	17Downwind	8.1	<0.0028	No
8-Sep-20	1Upwind	23.9	0.0014	No
8-Sep-20	17ADownwind	24.2	0.0010	No
9-Sep-20	1Upwind	23.9	<0.0009	No
9-Sep-20	17ADownwind	24.0	<0.0009	No
10-Sep-20	1Upwind	24.3	Note 2	No
10-Sep-20	17ADownwind	24.2	Note 2	No
11-Sep-20	1Upwind	7.5	<0.0030	No
11-Sep-20	17ADownwind	7.2	<0.0031	No

Notes:

Note 1 - Sample not collected due to inclement weather conditions: Rain.

Note 2 - Filter cartridge overloaded due to ash from forest fires

Sample locations are shown on Figure 1.

fibers/cm³ - fibers per cubic centimeter

Attachment 1, Table 5: Radionuclides of Concern Air Sampling Results

Date	Sample Location	Sampling Period	Cesium-137	Plutonium-239/240	Radium-226	Strontium-90	Thorium-232	Uranium-235/236	Exceedance? (Yes/No)
Action Level			4.00E-11	4.00E-15	1.80E-13	1.20E-12	1.20E-15	6.00E-13	--
Units		hours	μCi/mL	μCi/mL	μCi/mL	μCi/mL	μCi/mL	μCi/mL	
8/24/20 - 8/28/20	1Upwind	104	1.04E-14 U	4.08E-17 U	1.63E-16 U	1.22E-16 U	1.98E-16 JB	1.27E-16 U	No
8/24/20 - 8/28/20	17Downwind	104	-1.67E-14 U	8.38E-17 JB	1.87E-15 JB	-6.81E-16 U	3.19E-16 JB	8.04E-17 U	No
8/31/20 - 9/4/20	1Upwind	104	7.00E-15 U	0.00E+0 U	1.87E-15 JB	3.33E-15 JB	4.93E-16 JB	1.03E-16 JB	No
8/31/20 - 9/4/20	17Downwind	104	-5.00E-15 U	1.01E-16 JB	1.39E-15 JB	1.06E-15 U	5.20E-16 JB	1.98E-16 JB	No
9/08/20 - 9/11/20	1Upwind	80	-3.90E-14 U	1.24E-16 JB	1.17E-15 JB	2.00E-15 U	3.90E-16 JB	1.96E-16 JB	No
9/08/20 - 9/11/20	17ADownwind	79	-1.20E-14 U	0.00E+0 U	1.96E-15 JB	6.82E-16 U	2.86E-16 JB	-6.97E-17 U	No

Notes:

μCi/mL - microcurie per milliliter

Sample locations are shown on Figure 1.

U - not detected at specified reporting limit

JB - indicates the detected concentrations is estimated due to blank/background detections

Sampling period for week 9/08/20 - 9/11/20 is less than 104 hours due to the Labor Day holiday.