



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

**Air Monitoring Summary Report
August-December 2022**

Remedial Action Parcel E-2, Phase III
Hunters Point Naval Shipyard
San Francisco, CA

February 2023



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Prepared for:



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Contract Number: N69450-14-D-0018; Task Order No. 0002

1.0 INTRODUCTION

This Air Monitoring Summary Report (AMSR) was prepared by KEMRON Environmental Services, Inc. (KEMRON), for the United States Department of the Navy (Navy) under Southwest Environmental Multiple Award Contract (EMAC) Number N69450-14-D-0018, Contract Task Order (CTO)-0002.

This AMSR documents the Parcel E-2 air monitoring activities conducted by KEMRON and Leisnoi KEMRON Joint Venture (LKJV) at Hunters Point Naval Shipyard (HPNS) in accordance with the Final Dust Control Plan (DCP), included as Appendix D of the *Remedial Action Work Plan, Final Cover, Wetlands, and Landfill Gas Control and Containment System Remedial Action Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California* (KEMRON, 2018). The Remedial Action Work Plan (RAWP) incorporated the requirements from the *Final Design Basis Report, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California* (ERRG, 2014).

This AMSR includes the air monitoring activities conducted from 1 August 2022 to 22 December 2022. During this period, KEMRON installed clean imported soil cover over the new liner and compacted this soil. In addition, trenches for water drainage pipe were excavated and gas extraction wells were constructed. This report provides the following:

- Air monitoring locations
- Equipment and test methods used to analyze air monitoring samples
- Air monitoring sample result comparison criteria

2.0 AIR MONITORING LOCATIONS

Air monitoring stations were established in upwind and downwind location relative to active earthmoving activities. Based on meteorological data, the prevalent wind direction at HPNS is predominantly from west to the east. Locations of the air monitoring stations are presented on Figure 1.

Wind direction was monitored daily during the reporting period presented in this report using a wind sock. Atmospheric parameters were recorded at the beginning and end of each work day and included in KEMRON's daily quality control reports. Monitoring stations remained stationary while sampling was conducted.

3.0 EQUIPMENT AND ANALYTICAL METHODS

Each air monitoring station included three different pieces of equipment as follows:

1. Asbestos was sampled using SKC Quick Take 30 sample pump.

2. Particulate matter less than 10 microns in diameter (PM10) was sampled using Tisch Environmental High Volume Air Sampler, Model 6070V.
3. Total Suspended Particulates (TSP), which was also analyzed for arsenic, lead and manganese, was sampled using Tisch Environmental High Volume Air Sampler, Model 5170V.
4. Radionuclides of concern (ROCs) were analyzed onsite using a calibrated Ludlum Model 3030 alpha/beta sample counter.

During this period, liner installation activities were conducted on clean imported fill soil as well as in radiologically controlled areas (RCAs) around the anchor trenches. Therefore, samples for radionuclides were also collected during this reporting per the approved DCP. Analytical methods used were in accordance with the Final DCP/RAWP (KEMRON, 2018) and Field Change Request 002 (FCR-002, KEMRON, 2020).

Asbestos was analyzed in accordance with National Institute for Occupational Safety and Health (NIOSH) Method 7400, from the *NIOSH Manual of Analytical Methods* (NIOSH, 1994). Method 7400 requires that samples were collected on three-piece cellulose ester filters fitted with conductive cowlings at a sampling rate of between 0.5 liters per minute (L/min) and 16 L/min. Each sample was collected over a period not to exceed 24 hours.

PM10 was sampled in accordance with the U.S. Environmental Protection Agency (EPA) reference sampling method for PM10, described in 40 CFR 50, Subpart J. Each sample was collected on a filter over a period not to exceed 24 hours. The filter was then weighted to determine the amount of PM10 collected.

TSP was sampled with a high-volume (39 to 60 cubic feet per minute [cfm]) air sampler in accordance with EPA reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50, Subpart B. Each sample was collected on a filter over a period not to exceed 24 hours. The filter was then weighted to determine the amount of TSP collected. Once the filter weight was determined, the sample was analyzed for manganese, arsenic, and lead in accordance with SW-846 Method 6020 per FCR-002 (KEMRON 2020).

Radionuclides of concern (ROCs), Radium-226, Strontium-90, Cesium-137, and Cobalt-60 were sampled and analyzed per the revised Radiation Protection Plan (RPP) submitted as Field Change Request 004 (FCR-004, KEMRON, 2022).

4.0 EVALUATION OF AIR MONITORING DATA

Analytical results from air monitoring samples were compared with the threshold criteria provided below:

- 0.5 milligrams per cubic meter (mg/m³) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).

- 200 micrograms per cubic meter (ug/m^3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- $5 \text{ ug}/\text{m}^3$ for arsenic (Cal/OSHA).
- $1.5 \text{ ug}/\text{m}^3$ for lead, 30-day time-weighted average (TWA) (California Ambient Air Quality Standard).
- $50 \text{ ug}/\text{m}^3$ for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).
- ROC air monitoring of total activity was calculated and compared to the most restrictive derived airborne concentration (DAC) values presented in the RPP.

The downwind air results are compared to the upwind results to identify the contribution of site activities to the threshold criteria.

5.0 AIR MONITORING RESULTS

Remediation action activities conducted during this reporting period did not result in site contributions in excess of the established threshold criteria. Refer to the attached tables for asbestos, metals, PM10 and TSP results and Attachment 1 for the results of the ROCs.

6.0 REFERENCES

ERRG, 2014. *Final Design Basis Report, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California*. August.

KEMRON Environmental Services, Inc., 2018. *Final Remedial Action Work Plan, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California*. December.

KEMRON Environmental Services, Inc., 2020. *Field Change Request 002, Hunters Point Naval Shipyard Parcel E-2 Remedial Action, San Francisco, California*. December.

KEMRON Environmental Services, Inc., 2022. *Field Change Request 004, Radiation Control Plan, Hunters Point Naval Shipyard Parcel E-2 Remedial Action, San Francisco, California*. August.

Figure 1



- Potential Downwind Air Sampling Location
 - Potential Upwind Air Sampling Location
 - ▲ Wind Sock
- Proposed Hot Spot Excavation by Tier:**
- Tier 1 - Soil concentrations 10 times > remediation goals at near-shore locations (within tidally influenced zone) with corresponding groundwater concentrations consistently exceeding aquatic water quality goals
 - Tier 2 - Soil concentrations 10 times > remediation goals at near-shore locations (within tidally influenced zone) with corresponding grab groundwater concentrations exceeding aquatic water quality goals
 - Tier 3 - Soil concentrations 100 times > remediation goals
 - Tier 4 - Grab groundwater concentrations (within Panhandle Area tidally influenced zone) exceeding aquatic water quality goals at locations with no corresponding soil data
 - Tier 5 - Source of volatile organic compounds that impact groundwater in adjacent Parcel E
- Other Site Features:**
- East Adjacent Area
 - Panhandle Area
 - Shoreline Area
 - Landfill Area
- Previous Excavated Areas:**
- Metal Slag
 - PCB Hot Spot Area, Phase 1 (completed, 2005-2007)
 - PCB Hot Spot Area, Phase 2 (completed, 2010-2012)
 - Ship Shielding Area (completed, 2012)
 - Radiological Screening Area
 - Storm Line (Above Groundwater)
 - Storm Lin (Below Groundwater)
 - Groundwater Flow
 - Area with Temporary BMPs
 - Nearshore Slurry Wall
 - Catch Basin Discharge Point
 - ▲ Meteorological Station
 - HDPE Barrier Wall and Extraction Trench
 - Grouted Section of HDPE Barrier Wall
 - Sheet Pile Wall
 - UCSF Property
 - Parcel E-2
 - Other Parcel Boundary
 - Building
 - Road



Parcel E-2 Final Cover Installation
 Hunters Point Naval Shipyard
 San Francisco, California

Figure 1
 Air Monitoring Locations

Tables

	Sample Date	8/1/2022		8/1/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.003	U J	0.0037	U	0.001	5
Manganese	ug/m3	0.037	J	0.019		-0.018	200
Lead	ug/m3	0.012	J	0.0078		-0.004	1.5
Particulate Matter as PM 10	ug/m3	29		18		-11.000	50
Total Suspended Particulates	mg/m3	0.0545		0.0418		-0.013	0.5

	Sample Date	8/2/2022		8/2/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.001	J	0.0037	U	0.003	5
Manganese	ug/m3	0.063		0.038		-0.025	200
Lead	ug/m3	0.018		0.021		0.003	1.5
Particulate Matter as PM 10	ug/m3	36		22		-14.000	50
Total Suspended Particulates	mg/m3	0.1022		0.0711		-0.031	0.5

	Sample Date	8/3/2022		8/3/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.0037	U	0.001	5
Manganese	ug/m3	0.044		0.03		-0.014	200
Lead	ug/m3	0.017		0.011		-0.006	1.5
Particulate Matter as PM 10	ug/m3	34		21		-13.000	50
Total Suspended Particulates	mg/m3	0.0656		0.0573		-0.008	0.5

	Sample Date	8/4/2022		8/4/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0007	J	0.0034	U	0.003	5
Manganese	ug/m3	0.06		0.033		-0.027	200
Lead	ug/m3	0.019		0.0085		-0.011	1.5
Particulate Matter as PM 10	ug/m3	62		30		-32.000	50
Total Suspended Particulates	mg/m3	0.1004		0.0662		-0.034	0.5

	Sample Date	8/5/2022		8/5/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0071	U	0.0085	U	0.001	5
Manganese	ug/m3	0.019		0.016		-0.003	200
Lead	ug/m3	0.0062		0.0043		-0.002	1.5
Particulate Matter as PM 10	ug/m3	18		11		-7.000	50
Total Suspended Particulates	mg/m3	0.0126		0.016		0.003	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	8/8/2022		8/8/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0008	J	0.0038	U	0.003	5
Manganese	ug/m3	0.052		0.047		-0.005	200
Lead	ug/m3	0.017		0.0099		-0.007	1.5
Particulate Matter as PM 10	ug/m3	56		28		-28.000	50
Total Suspended Particulates	mg/m3	0.0845		0.0825		-0.002	0.5

	Sample Date	8/9/2022		8/9/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0008	J	0.000	5
Manganese	ug/m3	0.041		0.048		0.007	200
Lead	ug/m3	0.014		0.012		-0.002	1.5
Particulate Matter as PM 10	ug/m3	42		19		-23.000	50
Total Suspended Particulates	mg/m3	0.0623		0.0791		0.017	0.5

	Sample Date	8/10/2022		8/10/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0034	U	0.001	5
Manganese	ug/m3	0.042		0.038		-0.004	200
Lead	ug/m3	0.012		0.0087		-0.003	1.5
Particulate Matter as PM 10	ug/m3	38		19		-19.000	50
Total Suspended Particulates	mg/m3	0.0619		0.0673		0.005	0.5

	Sample Date	8/11/2022		8/11/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0008	J	0.000	5
Manganese	ug/m3	0.052		0.05		-0.002	200
Lead	ug/m3	0.014		0.014		0.000	1.5
Particulate Matter as PM 10	ug/m3	51		19		-32.000	50
Total Suspended Particulates	mg/m3	0.0924		0.0896		-0.003	0.5

	Sample Date	8/15/2022		8/15/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0008	J	0.0031	U	0.002	5
Manganese	ug/m3	0.04		0.021		-0.019	200
Lead	ug/m3	0.0091		0.0095		0.000	1.5
Particulate Matter as PM 10	ug/m3	51		25		-26.000	50
Total Suspended Particulates	mg/m3	0.0766		0.0422		-0.034	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	8/16/2022		8/16/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.003	U	0.000	5
Manganese	ug/m3	0.023		0.016		-0.007	200
Lead	ug/m3	0.0079		0.0051		-0.003	1.5
Particulate Matter as PM 10	ug/m3	39		21		-18.000	50
Total Suspended Particulates	mg/m3	0.0468		0.0317		-0.015	0.5

	Sample Date	8/17/2022		8/17/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0007	J	0.0009	J	0.000	5
Manganese	ug/m3	0.038		0.038		0.000	200
Lead	ug/m3	0.0099		0.013		0.003	1.5
Particulate Matter as PM 10	ug/m3	35		9.7		-25.300	50
Total Suspended Particulates	mg/m3	0.0654		0.0655		0.000	0.5

	Sample Date	8/18/2022		8/18/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0008	J	0.0034	U	0.003	5
Manganese	ug/m3	0.048		0.028		-0.020	200
Lead	ug/m3	0.012		0.011		-0.001	1.5
Particulate Matter as PM 10	ug/m3	56		10		-46.000	50
Total Suspended Particulates	mg/m3	0.0761		0.0532		-0.023	0.5

	Sample Date	8/22/2022		8/22/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U J	0.0029	U	0.000	5
Manganese	ug/m3	0.037		0.017		-0.020	200
Lead	ug/m3	0.011	J	0.006		-0.005	1.5
Particulate Matter as PM 10	ug/m3	200		25		-175.000	50
Total Suspended Particulates	mg/m3	0.0674		0.03		-0.037	0.5

	Sample Date	8/23/2022		8/23/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U	0.003	U	0.000	5
Manganese	ug/m3	0.021		0.0079		-0.013	200
Lead	ug/m3	0.0066		0.0033		-0.003	1.5
Particulate Matter as PM 10	ug/m3	0		11		11.000	50
Total Suspended Particulates	mg/m3	0.0382		0.0106		-0.028	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	8/24/2022		8/24/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0033	U	0.001	5
Manganese	ug/m3	0.029		0.028		-0.001	200
Lead	ug/m3	0.0081		0.0067		-0.001	1.5
Particulate Matter as PM 10	ug/m3	0		7.9		7.900	50
Total Suspended Particulates	mg/m3	0.0551		0.0511		-0.004	0.5

	Sample Date	8/25/2022		8/25/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U	0.0034	U	0.001	5
Manganese	ug/m3	0.02		0.025		0.005	200
Lead	ug/m3	0.0062		0.0049		-0.001	1.5
Particulate Matter as PM 10	ug/m3	110		9.9		-100.100	50
Total Suspended Particulates	mg/m3	0.0458		0.0481		0.002	0.5

	Sample Date	8/29/2022		8/29/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0007	J	0.0029	U	0.002	5
Manganese	ug/m3	0.043		0.034		-0.009	200
Lead	ug/m3	0.014		0.0068		-0.007	1.5
Particulate Matter as PM 10	ug/m3	57		16		-41.000	50
Total Suspended Particulates	mg/m3	0.0698		0.0775		0.008	0.5

	Sample Date	8/30/2022		8/30/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0029	U	0.002	5
Manganese	ug/m3	0.037		0.032		-0.005	200
Lead	ug/m3	0.01		0.0081		-0.002	1.5
Particulate Matter as PM 10	ug/m3	59		23		-36.000	50
Total Suspended Particulates	mg/m3	0.0789		0.0746		-0.004	0.5

	Sample Date	8/31/2022		8/31/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0007	J	0.0008	J	0.000	5
Manganese	ug/m3	0.045		0.04		-0.005	200
Lead	ug/m3	0.012		0.01		-0.002	1.5
Particulate Matter as PM 10	ug/m3	55		23		-32.000	50
Total Suspended Particulates	mg/m3	0.0798		0.0725		-0.007	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	9/1/2022		9/1/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.0033	U	0.000	5
Manganese	ug/m3	0.032		0.035		0.003	200
Lead	ug/m3	0.0076		0.0085		0.001	1.5
Particulate Matter as PM 10	ug/m3	36		13		-23.000	50
Total Suspended Particulates	mg/m3	0.0535		0.0583		0.005	0.5

	Sample Date	9/6/2022		9/6/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.0022	J	-0.001	5
Manganese	ug/m3	0.014		0.098		0.084	200
Lead	ug/m3	0.0046		0.016		0.011	1.5
Particulate Matter as PM 10	ug/m3	76		69		-7.000	50
Total Suspended Particulates	mg/m3	0.0814		0.1558		0.074	0.5

	Sample Date	9/7/2022		9/7/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0011	J	-0.002	5
Manganese	ug/m3	0.039		0.058		0.019	200
Lead	ug/m3	0.009		0.016		0.007	1.5
Particulate Matter as PM 10	ug/m3	60		41		-19.000	50
Total Suspended Particulates	mg/m3	0.0801		0.1097		0.030	0.5

	Sample Date	9/8/2022		9/8/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0012	J	0.0012	J	0.000	5
Manganese	ug/m3	0.061		0.056		-0.005	200
Lead	ug/m3	0.011		0.015		0.004	1.5
Particulate Matter as PM 10	ug/m3	81		42		-39.000	50
Total Suspended Particulates	mg/m3	0.0987		0.099		0.000	0.5

	Sample Date	9/9/2022		9/9/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0013	J	-0.001	5
Manganese	ug/m3	0.037		0.066		0.029	200
Lead	ug/m3	0.0099		0.02		0.010	1.5
Particulate Matter as PM 10	ug/m3	79		54		-25.000	50
Total Suspended Particulates	mg/m3	0.087		0.1475		0.061	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	9/12/2022		9/12/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0009	J	0.0025	J	0.002	5
Manganese	ug/m3	0.074		0.14		0.066	200
Lead	ug/m3	0.02		0.038		0.018	1.5
Particulate Matter as PM 10	ug/m3	92		57		-35.000	50
Total Suspended Particulates	mg/m3	0.1318		0.2746		0.143	0.5

	Sample Date	9/13/2022		9/13/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0013	J	0.001	5
Manganese	ug/m3	0.043		0.074		0.031	200
Lead	ug/m3	0.015		0.021		0.006	1.5
Particulate Matter as PM 10	ug/m3	48		25		-23.000	50
Total Suspended Particulates	mg/m3	0.0776		0.122		0.044	0.5

	Sample Date	9/14/2022		9/14/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0006	J	-0.002	5
Manganese	ug/m3	0.043		0.043		0.000	200
Lead	ug/m3	0.014		0.011		-0.003	1.5
Particulate Matter as PM 10	ug/m3	40		24		-16.000	50
Total Suspended Particulates	mg/m3	0.0696		0.0785		0.009	0.5

	Sample Date	9/15/2022		9/15/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0014	J	-0.001	5
Manganese	ug/m3	0.044		0.086		0.042	200
Lead	ug/m3	0.013		0.026		0.013	1.5
Particulate Matter as PM 10	ug/m3	55		48		-7.000	50
Total Suspended Particulates	mg/m3	0.0715		0.1424		0.071	0.5

	Sample Date	9/16/2022		9/16/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0		0.001	U	0.001	0.1
Arsenic	ug/m3	0.0031	U	0.0011	J	-0.002	5
Manganese	ug/m3	0.03		0.07		0.040	200
Lead	ug/m3	0.0083		0.02		0.012	1.5
Particulate Matter as PM 10	ug/m3	29		40		11.000	50
Total Suspended Particulates	mg/m3	0.0517		0.1084		0.057	0.5

Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	9/19/2022		9/19/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0034	U	0.0037	U	0.000	5
Manganese	ug/m3	0.0095		0.02		0.011	200
Lead	ug/m3	0.0032		0.0051		0.002	1.5
Particulate Matter as PM 10	ug/m3	15		15		0.000	50
Total Suspended Particulates	mg/m3	0.0206		0.0399		0.019	0.5

	Sample Date	9/20/2022		9/20/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0028	U	0.000	5
Manganese	ug/m3	0.015		0.022		0.007	200
Lead	ug/m3	0.0056		0.0067		0.001	1.5
Particulate Matter as PM 10	ug/m3	21		15		-6.000	50
Total Suspended Particulates	mg/m3	0.0314		0.0439		0.013	0.5

	Sample Date	9/21/2022		9/21/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0038	U	0.0042	U	0.000	5
Manganese	ug/m3	0.024		0.034		0.010	200
Lead	ug/m3	0.0068		0.0093		0.003	1.5
Particulate Matter as PM 10	ug/m3	17		13		-4.000	50
Total Suspended Particulates	mg/m3	0.0342		0.0672		0.033	0.5

	Sample Date	9/22/2022		9/22/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0008	J	-0.002	5
Manganese	ug/m3	0.021		0.048		0.027	200
Lead	ug/m3	0.0068		0.0092		0.002	1.5
Particulate Matter as PM 10	ug/m3	30		30		0.000	50
Total Suspended Particulates	mg/m3	0.0464		0.1037		0.057	0.5

	Sample Date	9/26/2022		9/26/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0009	J	-0.002	5
Manganese	ug/m3	0.03		0.051		0.021	200
Lead	ug/m3	0.0087		0.0085		0.000	1.5
Particulate Matter as PM 10	ug/m3	38		26		-12.000	50
Total Suspended Particulates	mg/m3	0.0472		0.1026		0.055	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	9/27/2022		9/27/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0025	U	0.0014	J	-0.001	5
Manganese	ug/m3	0.025		0.067		0.042	200
Lead	ug/m3	0.008		0.017		0.009	1.5
Particulate Matter as PM 10	ug/m3	31		37		6.000	50
Total Suspended Particulates	mg/m3	0.0429		0.12		0.077	0.5

	Sample Date	9/28/2022		9/28/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0025	U	0.0011	J	-0.001	5
Manganese	ug/m3	0.025		0.052		0.027	200
Lead	ug/m3	0.0077		0.0083		0.001	1.5
Particulate Matter as PM 10	ug/m3	23		25		2.000	50
Total Suspended Particulates	mg/m3	0.0424		0.0713		0.029	0.5

	Sample Date	9/29/2022		9/29/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0009	J	-0.002	5
Manganese	ug/m3	0.03		0.044		0.014	200
Lead	ug/m3	0.0071		0.0091		0.002	1.5
Particulate Matter as PM 10	ug/m3	14		28		14.000	50
Total Suspended Particulates	mg/m3	0.0563		0.0829		0.027	0.5

	Sample Date	10/3/2022		10/3/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.0032	U	0.000	5
Manganese	ug/m3	0.045		0.034		-0.011	200
Lead	ug/m3	0.013		0.0072		-0.006	1.5
Particulate Matter as PM 10	ug/m3	43		17		-26.000	50
Total Suspended Particulates	mg/m3	0.0689		0.0634		-0.006	0.5

	Sample Date	10/4/2022		10/4/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0031	U	0.002	5
Manganese	ug/m3	0.033		0.014		-0.019	200
Lead	ug/m3	0.011		0.0058		-0.005	1.5
Particulate Matter as PM 10	ug/m3	37		19		-18.000	50
Total Suspended Particulates	mg/m3	0.0564		0.0322		-0.024	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	10/5/2022		10/5/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.003	U	0.000	5
Manganese	ug/m3	0.018		0.026		0.008	200
Lead	ug/m3	0.006		0.011		0.005	1.5
Particulate Matter as PM 10	ug/m3	22		21		-1.000	50
Total Suspended Particulates	mg/m3	0.0278		0.0425		0.015	0.5

	Sample Date	10/6/2022		10/6/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.003	U	0.0032	U	0.000	5
Manganese	ug/m3	0.028		0.032		0.004	200
Lead	ug/m3	0.0081		0.014		0.006	1.5
Particulate Matter as PM 10	ug/m3	24		18		-6.000	50
Total Suspended Particulates	mg/m3	0.0401		0.0498		0.010	0.5

	Sample Date	10/10/2022		10/10/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.003	U	0.0032	U	0.000	5
Manganese	ug/m3	0.013		0.026		0.013	200
Lead	ug/m3	0.0037	Q	0.0063	Q	0.003	1.5
Particulate Matter as PM 10	ug/m3	11		10		-1.000	50
Total Suspended Particulates	mg/m3	0.0136		0.0433		0.030	0.5

	Sample Date	10/11/2022		10/11/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.003	U	0.0007	J	-0.002	5
Manganese	ug/m3	0.028		0.043		0.015	200
Lead	ug/m3	0.0086	Q	0.0078	Q	-0.001	1.5
Particulate Matter as PM 10	ug/m3	19		34		15.000	50
Total Suspended Particulates	mg/m3	0.0409		0.0853		0.044	0.5

	Sample Date	10/12/2022		10/12/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0008	J	-0.002	5
Manganese	ug/m3	0.029		0.044		0.015	200
Lead	ug/m3	0.01	Q	0.0086	Q	-0.001	1.5
Particulate Matter as PM 10	ug/m3	41		7.1		-33.900	50
Total Suspended Particulates	mg/m3	0.044		0.0837		0.040	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	10/13/2022		10/13/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U	0.003	U	0.000	5
Manganese	ug/m3	0.032		0.035		0.003	200
Lead	ug/m3	0.0098	Q	0.0048	Q	-0.005	1.5
Particulate Matter as PM 10	ug/m3	72		6.8		-65.200	50
Total Suspended Particulates	mg/m3	0.0466		0.0706		0.024	0.5

	Sample Date	10/17/2022		10/17/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0009	J	0.0007	J	0.000	5
Manganese	ug/m3	0.039		0.043		0.004	200
Lead	ug/m3	0.011	Q	0.0096	Q	-0.001	1.5
Particulate Matter as PM 10	ug/m3	50		24		-26.000	50
Total Suspended Particulates	mg/m3	0.0543		0.0687		0.014	0.5

	Sample Date	10/18/2022		10/18/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0009	J	-0.002	5
Manganese	ug/m3	0.025		0.076		0.051	200
Lead	ug/m3	0.006	Q	0.023	Q	0.017	1.5
Particulate Matter as PM 10	ug/m3	32		25		-7.000	50
Total Suspended Particulates	mg/m3	0.0421		0.0931		0.051	0.5

	Sample Date	10/19/2022		10/19/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0012	J	-0.001	5
Manganese	ug/m3	0.041		0.068		0.027	200
Lead	ug/m3	0.011	Q	0.015	Q	0.004	1.5
Particulate Matter as PM 10	ug/m3	48		41		-7.000	50
Total Suspended Particulates	mg/m3	0.0645		0.1078		0.043	0.5

	Sample Date	10/20/2022		10/20/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U	0.0007	J	-0.002	5
Manganese	ug/m3	0.031		0.036		0.005	200
Lead	ug/m3	0.0085	Q	0.0069	Q	-0.002	1.5
Particulate Matter as PM 10	ug/m3	34		31		-3.000	50
Total Suspended Particulates	mg/m3	0.0589		0.0639		0.005	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	10/24/2022		10/24/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0008	J	-0.002	5
Manganese	ug/m3	0.044		0.049		0.005	200
Lead	ug/m3	0.014		0.014		0.000	1.5
Particulate Matter as PM 10	ug/m3	50		39		-11.000	50
Total Suspended Particulates	mg/m3	0.0567		0.0731		0.016	0.5

	Sample Date	10/25/2022		10/25/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.001	J	-0.002	5
Manganese	ug/m3	0.038		0.049		0.011	200
Lead	ug/m3	0.013		0.0054		-0.008	1.5
Particulate Matter as PM 10	ug/m3	44		35		-9.000	50
Total Suspended Particulates	mg/m3	0.0666		0.0703		0.004	0.5

	Sample Date	10/26/2022		10/26/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0008	J	-0.002	5
Manganese	ug/m3	0.028		0.044		0.016	200
Lead	ug/m3	0.0085		0.009		0.000	1.5
Particulate Matter as PM 10	ug/m3	35		31		-4.000	50
Total Suspended Particulates	mg/m3	0.0491		0.09		0.041	0.5

	Sample Date	10/27/2022		10/27/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0028	U	0.0009	J	-0.002	5
Manganese	ug/m3	0.022		0.037		0.015	200
Lead	ug/m3	0.0051		0.0058		0.001	1.5
Particulate Matter as PM 10	ug/m3	32		25		-7.000	50
Total Suspended Particulates	mg/m3	0.0422		0.0715		0.029	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	10/31/2022		10/31/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0029	U	0.0007	J	-0.002	5
Manganese	ug/m3	0.03		0.043		0.013	200
Lead	ug/m3	0.0047		0.0072		0.003	1.5
Particulate Matter as PM 10	ug/m3	54		30		-24.000	50
Total Suspended Particulates	mg/m3	0.0663		0.1002		0.034	0.5

	Sample Date	11/1/2022		11/1/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.002		0.001	U	-0.001	0.1
Arsenic	ug/m3	0.0052	U	0.0055	U	0.000	5
Manganese	ug/m3	0.023		0.01		-0.013	200
Lead	ug/m3	0.0085		0.0031		-0.005	1.5
Particulate Matter as PM 10	ug/m3	7.9		5.8		-2.100	50
Total Suspended Particulates	mg/m3	0.0245		0.0196		-0.005	0.5

	Sample Date	11/2/2022		11/2/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0047	U	0.0049	U	0.000	5
Manganese	ug/m3	0.018		0.013		-0.005	200
Lead	ug/m3	0.0096		0.0039		-0.006	1.5
Particulate Matter as PM 10	ug/m3	22		12		-10.000	50
Total Suspended Particulates	mg/m3	0.0329		0.0274		-0.006	0.5

	Sample Date	11/3/2022		11/3/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	ReportingUnits	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0029	U	0.000	5
Manganese	ug/m3	0.013		0.011		-0.002	200
Lead	ug/m3	0.0048		0.0027		-0.002	1.5
Particulate Matter as PM 10	ug/m3	6.8		3.1		-3.700	50
Total Suspended Particulates	mg/m3	0.0182		0.0166		-0.002	0.5

	Sample Date	11/4/2022		11/4/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0011	J	0.0049	U	0.004	5
Manganese	ug/m3	0.058		0.017		-0.041	200
Lead	ug/m3	0.0068		0.0043		-0.003	1.5
Particulate Matter as PM 10	ug/m3	19		8.4		-10.600	50
Total Suspended Particulates	mg/m3	0.0766		0.0293		-0.047	0.5

- Notes:
 Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.
 E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location
 Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :
- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
 - 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
 - 5 ug/m3 for arsenic (Cal/OSHA).
 - 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
 - 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
 - 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	11/7/2022		11/7/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0053	U	0.0059	U	0.001	5
Manganese	ug/m3	0.018		0.0085		-0.010	200
Lead	ug/m3	0.0045		0.0019	J	-0.003	1.5
Particulate Matter as PM 10	ug/m3	150		38		-112.000	50
Total Suspended Particulates	mg/m3	0.0225		0.0091		-0.013	0.5

	Sample Date	11/11/2022		11/11/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.004	U	0.0043	U	0.000	5
Manganese	ug/m3	0.0089		0.012		0.003	200
Lead	ug/m3	0.0028		0.0033		0.001	1.5
Particulate Matter as PM 10	ug/m3	74		100		26.000	50
Total Suspended Particulates	mg/m3	0.0142		0.0198		0.006	0.5

	Sample Date	11/14/2022		11/14/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0027	U	0.0029	U	0.000	5
Manganese	ug/m3	0.014		0.028		0.014	200
Lead	ug/m3	0.0041		0.011		0.007	1.5
Particulate Matter as PM 10	ug/m3	11		7.8		-3.200	50
Total Suspended Particulates	mg/m3	0.0239		0.0446		0.021	0.5

	Sample Date	11/15/2022		11/15/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0028	U	0.000	5
Manganese	ug/m3	0.025		0.027		0.002	200
Lead	ug/m3	0.006		0.0055		-0.001	1.5
Particulate Matter as PM 10	ug/m3	19		23		4.000	50
Total Suspended Particulates	mg/m3	0.0373		0.0383		0.001	0.5

	Sample Date	11/16/2022		11/16/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0028	U	0.000	5
Manganese	ug/m3	0.023		0.029		0.006	200
Lead	ug/m3	0.0054		0.0079		0.003	1.5
Particulate Matter as PM 10	ug/m3	25		0		-25.000	50
Total Suspended Particulates	mg/m3	0.0268		0.0409		0.014	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	11/17/2022		11/17/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0007	J	-0.002	5
Manganese	ug/m3	0.009		0.023		0.014	200
Lead	ug/m3	0.0048		0.0066		0.002	1.5
Particulate Matter as PM 10	ug/m3	28		22		-6.000	50
Total Suspended Particulates	mg/m3	0.0181		0.0375		0.019	0.5

	Sample Date	11/18/2022		11/18/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0025	U	0.0007	J	-0.002	5
Manganese	ug/m3	0.014		0.015		0.001	200
Lead	ug/m3	0.0038		0.0043		0.001	1.5
Particulate Matter as PM 10	ug/m3	29		21		-8.000	50
Total Suspended Particulates	mg/m3	0.0312		0.0327		0.002	0.5

	Sample Date	11/21/2022		11/21/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0005	J	0.0026	U	0.002	5
Manganese	ug/m3	0.023		0.023		0.000	200
Lead	ug/m3	0.0092		0.013		0.004	1.5
Particulate Matter as PM 10	ug/m3	21		21		0.000	50
Total Suspended Particulates	mg/m3	0.0408		0.0443		0.004	0.5

	Sample Date	11/22/2022		11/22/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0008	J	0.0005	J	0.000	5
Manganese	ug/m3	0.032		0.029		-0.003	200
Lead	ug/m3	0.01		0.0088		-0.001	1.5
Particulate Matter as PM 10	ug/m3	32		33		1.000	50
Total Suspended Particulates	mg/m3	0.0562		0.0524		-0.004	0.5

	Sample Date	11/28/2022		11/28/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.0027	U	0.000	5
Manganese	ug/m3	0.024		0.029		0.005	200
Lead	ug/m3	0.012		0.011		-0.001	1.5
Particulate Matter as PM 10	ug/m3	76		39		-37.000	50
Total Suspended Particulates	mg/m3	0.0506		0.0571		0.007	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	11/29/2022		11/29/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0024	U	0.0027	U	0.000	5
Manganese	ug/m3	0.012		0.012		0.000	200
Lead	ug/m3	0.0023		0.0032		0.001	1.5
Particulate Matter as PM 10	ug/m3	11		8		-3.000	50
Total Suspended Particulates	mg/m3	0.017		0.0166		0.000	0.5

	Sample Date	11/30/2022		11/30/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0024	U	0.0027	U	0.000	5
Manganese	ug/m3	0.014		0.013		-0.001	200
Lead	ug/m3	0.0046		0.0033		-0.001	1.5
Particulate Matter as PM 10	ug/m3	17		15		-2.000	50
Total Suspended Particulates	mg/m3	0.0279		0.0219		-0.006	0.5

	Sample Date	12/8/2022		12/8/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.003	U	0.000	5
Manganese	ug/m3	0.0037		0.0058		0.002	200
Lead	ug/m3	0.0012	J	0.0018		0.001	1.5
Particulate Matter as PM 10	ug/m3	0.66	U	2.3		1.640	50
Total Suspended Particulates	mg/m3	0.0077		0.0104		0.003	0.5

	Sample Date	12/14/2022		12/14/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0024	U	0.0027	U	0.000	5
Manganese	ug/m3	0.0083		0.0037		-0.005	200
Lead	ug/m3	0.0028		0.0012	J	-0.002	1.5
Particulate Matter as PM 10	ug/m3	12		12		0.000	50
Total Suspended Particulates	mg/m3	0.0148		0.0006	U	-0.014	0.5

	Sample Date	12/15/2022		12/15/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0026	U	0.003	U	0.000	5
Manganese	ug/m3	0.012		0.0047		-0.007	200
Lead	ug/m3	0.0021		0.0018		0.000	1.5
Particulate Matter as PM 10	ug/m3	11		11		0.000	50
Total Suspended Particulates	mg/m3	0.0233		0.0068		-0.017	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	12/16/2022		12/16/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0024	U	0.0027	U	0.000	5
Manganese	ug/m3	0.013		0.0084		-0.005	200
Lead	ug/m3	0.0027		0.0027		0.000	1.5
Particulate Matter as PM 10	ug/m3	20		13		-7.000	50
Total Suspended Particulates	mg/m3	0.0245		0.0191		-0.005	0.5

	Sample Date	12/17/2022		12/17/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.003	U	0.0033	U	0.000	5
Manganese	ug/m3	0.0077		0.0067		-0.001	200
Lead	ug/m3	0.0028		0.0026		0.000	1.5
Particulate Matter as PM 10	ug/m3	17		14		-3.000	50
Total Suspended Particulates	mg/m3	0.0172		0.0164		-0.001	0.5

	Sample Date	12/19/2022		12/19/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0005	J	0.0027	U	0.002	5
Manganese	ug/m3	0.0099		0.014		0.004	200
Lead	ug/m3	0.0029		0.0034		0.001	1.5
Particulate Matter as PM 10	ug/m3	25		16		-9.000	50
Total Suspended Particulates	mg/m3	0.0282		0.0313		0.003	0.5

	Sample Date	12/20/2022		12/20/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0006	J	0.0008	J	0.000	5
Manganese	ug/m3	0.011		0.02		0.009	200
Lead	ug/m3	0.0037		0.0036		0.000	1.5
Particulate Matter as PM 10	ug/m3	36		29		-7.000	50
Total Suspended Particulates	mg/m3	0.0346		0.0543		0.020	0.5

	Sample Date	12/21/2022		12/21/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0007	J	0.0006	J	0.000	5
Manganese	ug/m3	0.022		0.016		-0.006	200
Lead	ug/m3	0.0048		0.0053		0.001	1.5
Particulate Matter as PM 10	ug/m3	34		21		-13.000	50
Total Suspended Particulates	mg/m3	0.0479		0.0353		-0.013	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

	Sample Date	12/22/2022		12/22/2022		Site Contribution (E2DW minus E2UW)	Limit
	StationName	E2UW		E2DW			
	Reporting Units	Result	Qualifier	Result	Qualifier		
Asbestos	fibers/cc	0.001	U	0.001	U	0.000	0.1
Arsenic	ug/m3	0.0008	J	0.014		0.013	5
Manganese	ug/m3	0.022		0.044		0.022	200
Lead	ug/m3	0.0054		0.014		0.009	1.5
Particulate Matter as PM 10	ug/m3	51		34		-17.000	50
Total Suspended Particulates	mg/m3	0.0578		0.0899		0.032	0.5

Notes:

Qualifier of U indicates nondetect. Qualifier of J indicates estimated concentration.

E2UW = Parcel E2, Upwind Location E2DW = Parcel E2, Downwind Location

Analytical results are compared to the following standards presented in the Dust Control Plan (KEMRON, 2018) :

- 0.5 milligrams per cubic meter (mg/m3) for TSP (the Basewide HPNS level chosen to minimize overall permissible dust releases from the site).
- 200 micrograms per cubic meter (ug/m3) for manganese (California Occupational Safety and Health Administration [Cal/OSHA] permissible exposure limit [PEL]).
- 5 ug/m3 for arsenic (Cal/OSHA).
- 1.5 ug/m3 time-weighted average (TWA) 30-days for lead (California Ambient Air Quality Standard).
- 50 ug/m3 for PM10, 24-hour TWA (California Ambient Air Quality Standard).
- 0.1 fiber/cubic centimeter for asbestos, 8-hour TWA (Cal/OSHA).

Attachment 1



February 15th, 2023

HPNS Parcel E-2

Subject: Radiological Air Sampling Summary December 2022

As required by the scope of work, continuous air monitoring for radiological ROCs was performed during intrusive activities at Parcel E-2. Sampling was performed at four (4) locations.

- Upwind on the Parcel, collocated with KEMRON Station E2UW
- Downwind on the Parcel, collocated with KEMRON Station E2DW
- One monitors on the upwind side of an RCA
- One monitors on the downwind side of an RCA

Samples were collected over the course of one work week while intrusive activities were being performed. Samples were analyzed onsite using a calibrated Ludlum Model 3030 alpha/beta sample counter. Daily stop/start times and flow rates were recorded. With that information, total activity was calculated and compared to the most restrictive DAC values presented in the Radiation Protection Plan.

The highest activity sample results observed over the duration are presented below:

Table 1: Maximum Sample Results

Sample ID	Location	Activity (µCi/ml)	Activity as Percent of DAC	MDC (µCi/ml)	MDC as Percent of DAC	Relevant DAC (µCi/ml)
AS-P1-221219	RCA Perimeter Downwind	1.91e-14	0.01%	4.37e-14	0.01%	Ra-226: 3e-10
AS-P4-221219	RCA Perimeter Upwind	2.27e-12	0.03%	9.93e-13	0.01%	Sr-90: 8e-9

Air sample summary table and complete radiological records of each sample are included as Attachment A.

Prepared By:

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 Health Physicist
 Perma-Fix Environmental Services Inc.
cwedderrmann@perma-fix.com



Attachment 1A
Air Sample Summary Tables
December 2022

Location: Downwind								
Sample ID	Alpha (Ra-226 DAC: 3E-10 µCi/ml)				Beta-Gamma (Sr-90 DAC: 8E-9 µCi/mL)			
	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff
AS-DW-221216	4.19E-15	0.0014%	2.27E-16	0.0001%	5.15E-15	0.0001%	1.02E-13	0.0013%
AS-DW-221222	3.08E-15	0.0010%	5.25E-15	0.0018%	5.66E-15	0.0001%	8.45E-14	0.0011%
Location: Perimeter #1 Downwind								
Sample ID	Alpha (Ra-226 DAC: 3E-10 µCi/ml)				Beta-Gamma (Sr-90 DAC: 8E-9 µCi/mL)			
	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff
AS-P1-221219	4.37E-14	0.0146%	1.91E-14	0.0064%	1.01E-12	0.0127%	1.32E-12	0.0165%
Location: Perimeter #4 Upwind								
Sample ID	Alpha (Ra-226 DAC: 3E-10 µCi/ml)				Beta-Gamma (Sr-90 DAC: 8E-9 µCi/mL)			
	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff
AS-P4-221219	4.28E-14	0.0143%	7.69E-15	0.0026%	9.93E-13	0.0124%	2.27E-12	0.0284%
Location: Upwind								
Sample ID	Alpha (Ra-226 DAC: 3E-10 µCi/ml)				Beta-Gamma (Sr-90 DAC: 8E-9 µCi/mL)			
	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff	MDC (µCi/mL)	MDC as a % of the DACeff	Activity (µCi/mL)	Activity as a % of the DACeff
AS-UW-221216	3.27E-15	0.0011%	2.96E-15	0.0010%	7.70E-14	0.0010%	1.78E-13	0.0022%
AS-UW-221222	2.93E-15	0.0010%	9.77E-15	0.0033%	7.91E-14	0.0010%	1.61E-13	0.0020%

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Downwind		Weekly Routine		12/8/2022	12/16/2022	S Burton	AS-DW-221216
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	LV-1	2824	9/26/2023	60		2640	

Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	12/21/2022			12/21/2022			
Gross Sample Counts	12			2247			
Sample Count Time (min)	60			60			
Gross Sample CPM	0.20			37.45			
Gross Background Counts	11			1970			
Background Count Time (min)	60			60			
Background CPM	0.18			32.83			
Net Sample CPM	0.02			4.62			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	1.58E+08			1.58E+08			
LLD (counts)	18			14			
MDC (µCi/mL)	4.19E-15			5.15E-15			
MDC as a % of the DACeff	0.0014%			0.0001%			
Activity (µCi/mL)	2.27E-16			1.02E-13			
Activity as a % of the DAC	0.0001%			0.0013%			
Estimated Weekly Dose [mrem]	7.58E-05			1.27E-03			

Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S Burton

Technician Performing 1st Recount _____

Technician Performing 2nd Recount _____

Reviewed By/Date Chris Weddermann 2/1/23

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time

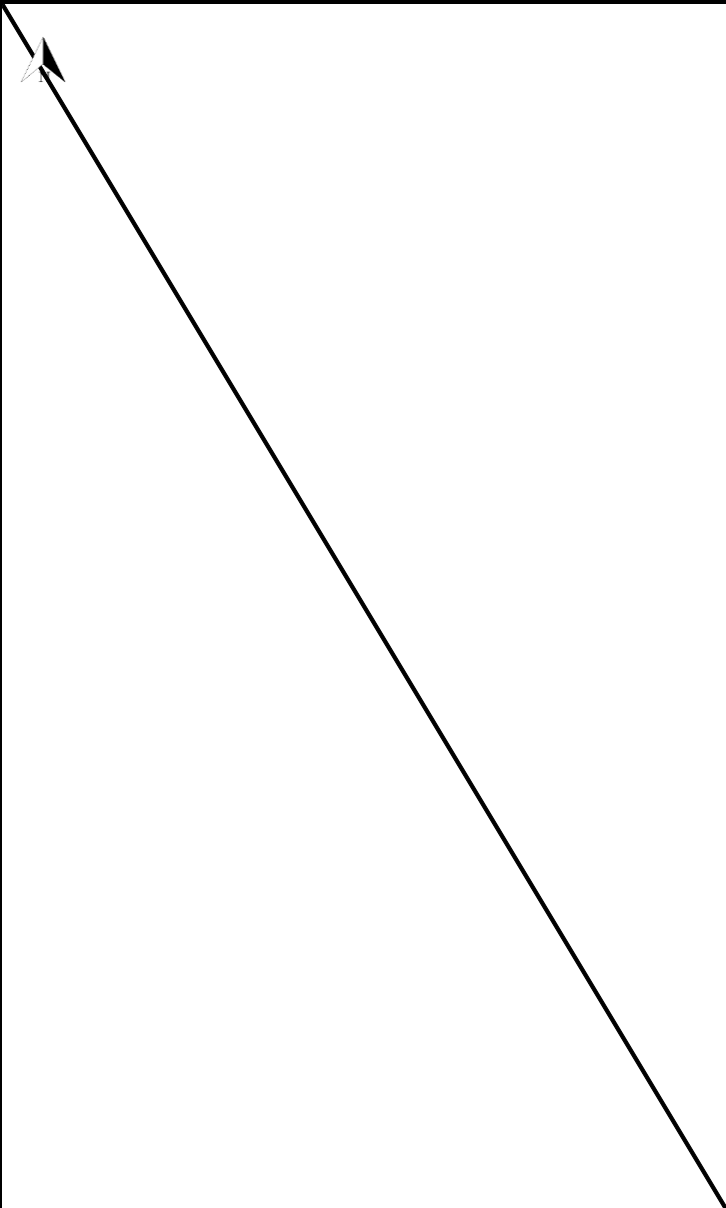
LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)

MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL

Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Downwind		Weekly Routine		12/19/2022	12/22/2022	S Burton	AS-DW-221222
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	LV-1	2824	9/26/2023	60		2400	


Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	2/9/2023			2/9/2023			
Gross Sample Counts	25			2102			
Sample Count Time (min)	60			60			
Gross Sample CPM	0.42			35.03			
Gross Background Counts	4			1893			
Background Count Time (min)	60			60			
Background CPM	0.07			31.55			
Net Sample CPM	0.35			3.48			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	1.44E+08			1.44E+08			
LLD (counts)	12			14			
MDC (µCi/mL)	3.08E-15			5.66E-15			
MDC as a % of the DACeff	0.0010%			0.0001%			
Activity (µCi/mL)	5.25E-15			8.45E-14			
Activity as a % of the DAC	0.0018%			0.0011%			
Estimated Weekly Dose [mrem]	1.75E-03			1.06E-03			

Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S Burton

Technician Performing 1st Recount _____

Technician Performing 2nd Recount _____

Reviewed By/Date Chris Weddermann 2/10/23 

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time

LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)

MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL

Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Perimeter #1 Downwind		Weekly Routine		12/14/2022	12/19/2022	BURTON	AS-P1-221219
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	Gil Air	20201001015	3/10/2023	3		2140	

Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	12/22/2022			12/22/2022			
Gross Sample Counts	19			4033			
Sample Count Time (min)	120			120			
Gross Sample CPM	0.16			33.61			
Gross Background Counts	61			18712			
Background Count Time (min)	600			600			
Background CPM	0.10			31.19			
Net Sample CPM	0.06			2.42			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	6.42E+06			6.42E+06			
LLD (counts)	16			223			
MDC (µCi/mL)	4.37E-14			1.01E-12			
MDC as a % of the DACeff	0.0146%			0.0127%			
Activity (µCi/mL)	1.91E-14			1.32E-12			
Activity as a % of the DAC	0.0064%			0.0165%			
Estimated Weekly Dose [mrem]	6.36E-03			1.65E-02			

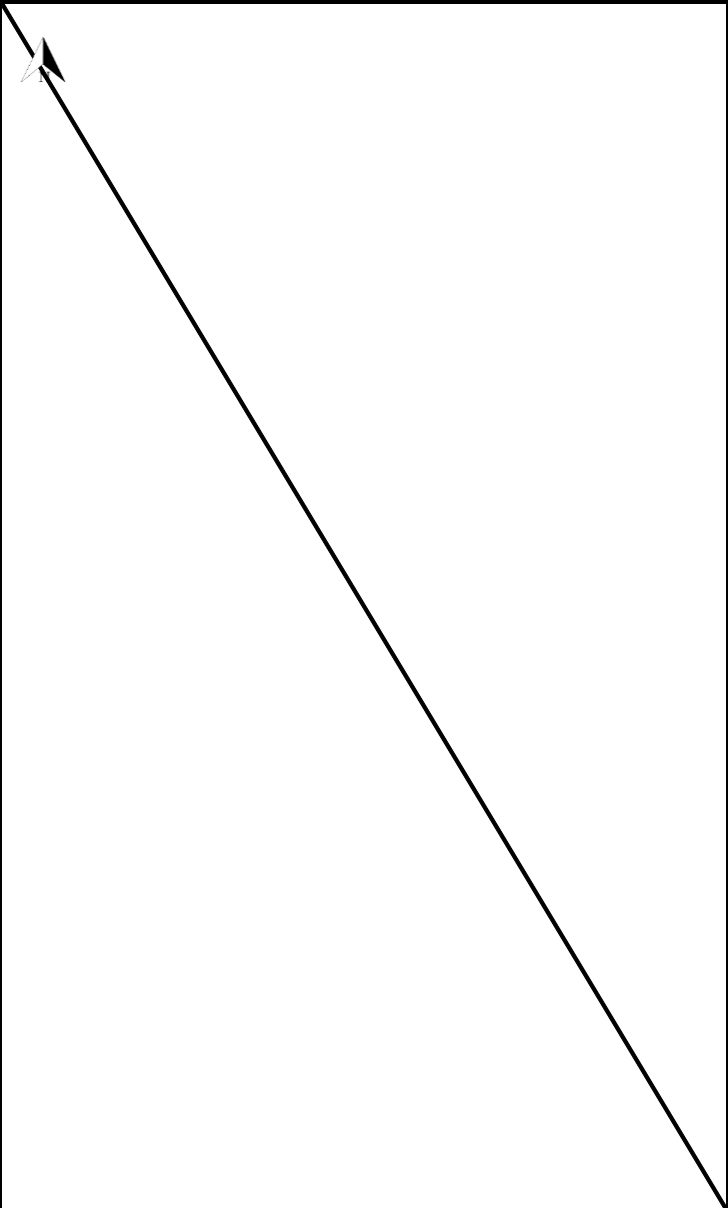
Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S. BURTON
 Technician Performing 1st Recount _____
 Technician Performing 2nd Recount _____
 Reviewed By/Date Chris Weddermann 2/1/23

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time
 LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)
 MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL
 Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Perimeter #4 Upwind		Weekly Routine		12/14/2022	12/19/2022	BURTON	AS-P4-221219
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	Gil Air	14280	3/10/2023	3		2185	


Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	12/22/2022			12/22/2022			
Gross Sample Counts	15			4253			
Sample Count Time (min)	120			120			
Gross Sample CPM	0.13			35.44			
Gross Background Counts	61			18712			
Background Count Time (min)	600			600			
Background CPM	0.10			31.19			
Net Sample CPM	0.02			4.26			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	6.56E+06			6.56E+06			
LLD (counts)	16			223			
MDC (µCi/mL)	4.28E-14			9.93E-13			
MDC as a % of the DACeff	0.0143%			0.0124%			
Activity (µCi/mL)	7.69E-15			2.27E-12			
Activity as a % of the DAC	0.0026%			0.0284%			
Estimated Weekly Dose [mrem]	2.56E-03			2.84E-02			

Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S. BURTON

Technician Performing 1st Recount _____

Technician Performing 2nd Recount _____

Reviewed By/Date Chris Weddermann 2/1/23 

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time

LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)

MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL

Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Upwind		Weekly Routine		12/8/2022	12/16/2022	S Burton	AS-UW-221216
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	LV-1	2770	9/26/2023	60		2640	

Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	12/20/2022			12/20/2022			
Gross Sample Counts	19			2451			
Sample Count Time (min)	60			60			
Gross Sample CPM	0.32			40.85			
Gross Background Counts	6			1966			
Background Count Time (min)	60			60			
Background CPM	0.10			32.77			
Net Sample CPM	0.22			8.08			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	1.58E+08			1.58E+08			
LLD (counts)	14			209			
MDC (µCi/mL)	3.27E-15			7.70E-14			
MDC as a % of the DACeff	0.0011%			0.0010%			
Activity (µCi/mL)	2.96E-15			1.78E-13			
Activity as a % of the DAC	0.0010%			0.0022%			
Estimated Weekly Dose [mrem]	9.85E-04			2.23E-03			

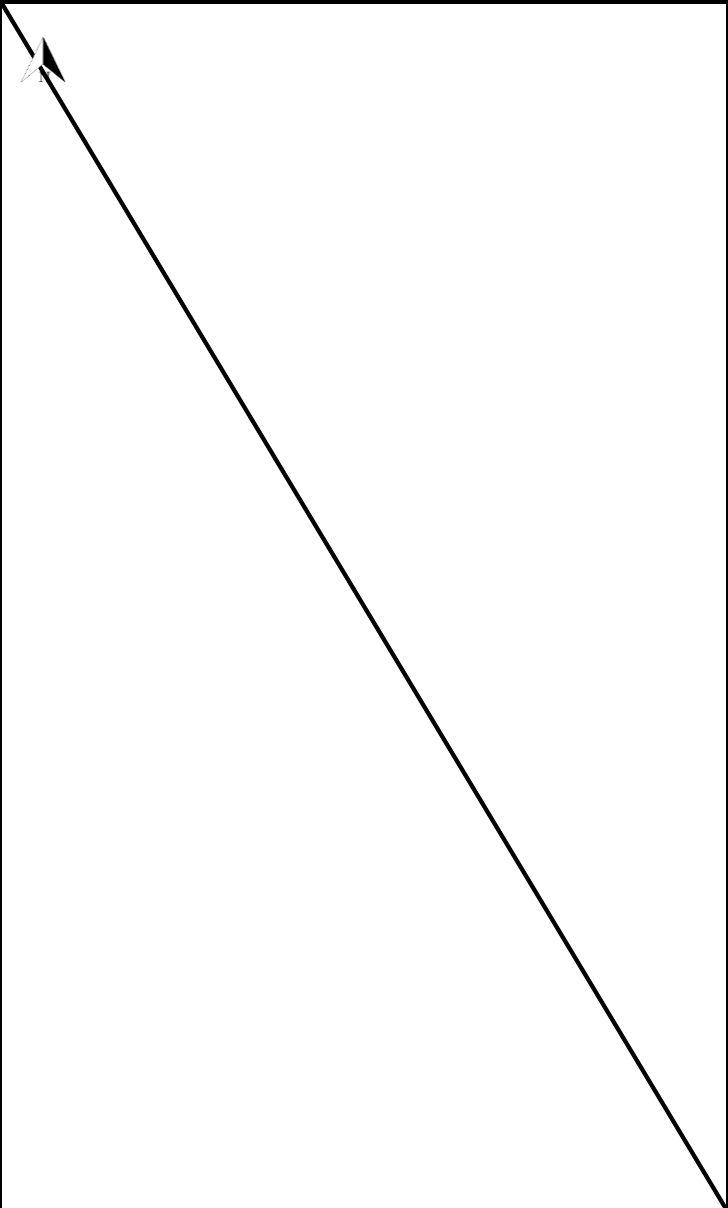
Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S Burton
 Technician Performing 1st Recount _____
 Technician Performing 2nd Recount _____
 Reviewed By/Date Chris Weddermann 2/1/23

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time
 LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)
 MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL
 Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL

Air Sampling Results Data Sheet

Air Sample Location		Activity		Start Date	End Date	Collected By	Sample ID
Parcel E-2 Upwind		Weekly Routine		12/19/2022	12/22/2022	S Burton	AS-UW-221222
Sample Type	Sampler Model	Sampler Number	Cal Due	Average Flow Rate (LPM)		Total Run Time (min)	
Single Location	LV-1	2770	9/26/2023	60		2520	


Counting Data	Alpha			Beta-Gamma			Approximate sampler location denoted below with
	Initial Count	Recount 1	Recount 2	Initial Count	Recount 1	Recount 2	
Counting System Instrument	3030			3030			
Instrument Serial Number	271337			271337			
Counting System Detector	NA			NA			
Detector Serial Number	NA			NA			
Cal Due Date	3/23/2023			3/23/2023			
Counting Date	2/9/2023			2/9/2023			
Gross Sample Counts	45			2310			
Sample Count Time (min)	60			60			
Gross Sample CPM	0.75			38.50			
Gross Background Counts	4			1893			
Background Count Time (min)	60			60			
Background CPM	0.07			31.55			
Net Sample CPM	0.68			6.95			
Counter Efficiency	29.84%			18.45%			
Volume (mL)	1.51E+08			1.51E+08			
LLD (counts)	12			205			
MDC (µCi/mL)	2.93E-15			7.91E-14			
MDC as a % of the DACeff	0.0010%			0.0010%			
Activity (µCi/mL)	9.77E-15			1.61E-13			
Activity as a % of the DAC	0.0033%			0.0020%			
Estimated Weekly Dose [mrem]	3.26E-03			2.01E-03			

Comments: Results below 10% of most conservative DACs.

Technician Performing Initial count S Burton

Technician Performing 1st Recount _____

Technician Performing 2nd Recount _____

Reviewed By/Date Chris Weddermann 2/10/23 

Volume = (Liters)(1.0e3) = mL TB = BKG Count Time TS = Sample Count Time

LLD = 3+3.29*SQRT(RB*TS)*(1+(TS/TB)) RB = BKG Count Rate FE = Filter Efficiency (0.7)

MDC = LLD/TS/Eff/Vol/2.22E6/FE/SAF SAF = Self Absorption Factor (0.998) **Sr90 DAC** 8E-09 µCi/mL

Activity µCi/mL = Net CPM/Counter Efficiency/Sample Volume/2.22E6/FE/SAF **Ra226 DAC** 3E-10 µCi/mL