Pennsylvania
Department of Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

Southeast Regional Office
Hazardous Sites Cleanup Program
2 E. Main Street
Norristown, PA 19401

FIRST ADDENDUM TO THE SEPTEMBER 19, 2024 SAMPLING EVALUATION REPORT

Alliance 51st Street/Bartram's Mile Trail
City of Philadelphia
Pennsylvania

Prepared By: Christine McCarthy
Project Officer

December 10, 2024

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1.0 INTRODUCTION

1.1 Objective

The Pennsylvania Department of Environmental Protection (DEP), Hazardous Sites Cleanup Program (HSCA) conducted soil sampling along Bartram's Mile Trail immediately east of the Alliance 51st Street Site on October 24, 2024. The purpose of this sampling effort was to evaluate the presence or absence of hexavalent chromium (Cr(VI)) and other potential contaminants of concern in an area of the trail that receives stormwater runoff from the Alliance 51st Street property. This October 2024 sampling effort is a follow up to previous DEP sampling efforts on July 22, 2024 and August 13, 2024 and to cleanup efforts conducted by the Alliance 51st Street Property owner. Previous DEP investigation and sampling efforts are described in the September 19, 2024 Sampling Evaluation Report. This document is the first addendum to that report. October 2024 sampling activities were conducted in accordance with the DEP Sampling and Analysis Plans dated October 23, 2024 (***Appendix A***).

1.2 Executive Summary

The Alliance 51st Street property (Site) is an industrial parcel owned by Alliance 51st Street, LLC (Alliance) and located at 1630 - 1646 S 51st Street in Philadelphia. The Site is bordered by a railroad to the south and the Schuylkill Banks/Bartram's Mile Trail to the east. Bartram's Garden is south of the Site. Parcels north of the Site are owned by the Philadelphia Authority for Industrial Development. The Schuylkill River is immediately east of the Site.

On April 5, 2024, an incident was reported to the National Response Center. The caller reported that "strange looking water is leaching from a former refinery… The material looks greenish." On May 30, 2024, Arcadis U.S., Inc. (Arcadis) on behalf of Alliance collected groundwater samples from monitoring wells on the Site and the results revealed the presence of total and dissolved chromium and Cr(VI) in the groundwater. On June 10, 2024, Arcadis reported these results to DEP.

Investigation and sampling efforts that followed are described in the September 19, 2024 Sampling Evaluation Report. This document is the first addendum to that report and describes DEP's October 2024 sampling activity.

DEP's October 2024 sampling activity found that Cr(VI) was detected in soil along the section of Bartram's Mile Trail shown in ***Figures 1 and 2*** at seven of eight locations sampled. All October 2024 Cr(VI) detections were below the current published residential screening value of 37 mg/kg. DEP's October 2024 sampling activity found that lead was detected in all locations sampled and two locations exceeded the current published residential screening value of 450 mg/kg. Alliance continues to move forward with the cleanup of the property located at 1630 - 1646 S 51st Street in Philadelphia under Act 2.

2.0 INVESTIGATION OF RELEASE

2.1 Recent Sampling and Cleanup Activity

In July 2024, DEP received formal consent to access Bartram's Mile Trail to sample in the area indicated in ***Figure 1***.

On August 13, 2024, DEP collected confirmatory soil samples in the locations along the trail which exceeded Act 2 MSCs on July 22, 2024, and additional soil samples from the surrounding area. Four of the ten locations sampled had detections of Cr(VI). Of the detections, two locations exceeded the Act 2 Residential MSC of 37mg/kg for Cr(VI).

On September 16, 2024, Alliance completed cleanup activities in the four locations with August 2024 Cr(VI) detections and collected additional samples. On October 18, 2024, Alliance provided the sample results to DEP. No results exceeded the current published residential screening value of 37 mg/kg. A summary table of the results, a map of the sample locations and pictures of the sample locations and cleanup activities are available in ***Appendix B***.

2.2 October 2024 DEP Soil Sampling

On October 24, 2024, DEP collected soil samples from eight (8) locations along Bartram's Mile Trail. Sampling activities were conducted in accordance with the October 23, 2024 Sampling and Analysis Plan (***Appendix A***).

October 2024 DEP soil sample locations are shown in ***Figure 2***. Sample locations S3, S5, S6, and S8A are the four locations with August 13, 2024 Cr(VI) detections. Alliance completed cleanup activities at these four locations in September 2024. DEP collected samples from these locations in October 2024 to evaluate the cleanup efforts. Sample locations S16A and S21 are approximate locations sampled by Arcadis in September 2024. DEP collected a duplicate sample at the S21 location for quality control purposes. Sample locations S24 and S25 are on the east side of the trail, up gradient from the area of the trail which receives stormwater runoff from the Alliance property. Additional descriptions of each location can be found in the October 24, 2024 Narrative Report (***Appendix C***). All October 2024 sample locations were chosen based on their proximity of exposure to trail users.

DEP soil samples were analyzed by Eurofins Lancaster Laboratories Environmental for Total Metals TAL List by 6020B, Cr(VI) by 7196A, Cr(III) by Lab Calculation[1], and Mercury by 7471B. DEP soil sample results are summarized in ***Table 1*** below. The laboratory data package is included in ***Appendix D***.

Soil sample results were compared to the Act 2 Residential MSCs for regulated substances in soil that were published at the time of the sampling activity. The Residential MSCs are

[1] Cr(III) is the calculated difference of Total Chromium and Cr(VI).

applicable because the trail is a recreational area accessible by the public. Either the Direct Contact[2] or the Soil to Groundwater standard was used, whichever was more stringent.

Sample locations S3, S5, S6, S8A, S16, S21, S24, and the duplicate sample at S21 had detections of Cr(VI) ranging from 0.88 mg/kg to 32 mg/kg. No results exceeded the current published residential screening value of 37 mg/kg. Photos and descriptions of the sample locations are available in the October 24, 2024 Narrative Report.

Location S5 had the highest detection of Cr(VI) with a concentration of 32 mg/kg. The S5 location is directly behind the drainage port on the trail which received storm water runoff from the property. Alliance completed cleanups in this area in September 2024, then demonstrated that new sediment and debris were deposited in this area following high tide. Additional sediment and debris were observed in this area during the October 24, 2024 sample collection. The location is also directly below the train bridge. It is therefore unknown if the Cr(VI) concentration in this area is a direct or exclusive result of stormwater runoff from the Alliance property.

The S21 sample and its duplicate had Cr(VI) detections of 22 mg/kg and 14 mg/kg, respectively. Soil at this location is at a height equivalent to or slightly higher than the height of the concrete retaining wall along the trail and would not be exposed to stormwater runoff from the trail. It is located directly below the train bridge, and near a pile of broken pottery, which appears as if it is being used to create mosaic artwork on the concrete retaining wall along the trail.

The S3 sample is located in the cleanup area outside of the Alliance property fence line which directly received runoff from the property. DEP removed rock and sampled the first encountered soil at this location. Cr(VI) was detected at this location with a concentration of 21 mg/kg. Cr(VI) therefore remains at this location in spite of soil removal efforts, but at concentrations below published residential screening values.

S16A was not easily accessed for sampling in July or August 2024 due to thick vegetation covering the exposed soil. Vegetation was likely cut back in September 2024. The October 2024 DEP sample had a Cr(VI) concentration of 0.88mg/kg. Staining on the asphalt trail shows that runoff from the Alliance property may have crossed the trail before reaching this area.

Locations S24 and S25 are piles of soil/fill along the trail and are within easy reach of trail users but are upgradient from stormwater runoff leaving the Alliance property. Cr(VI) was detected at S24 with a concentration of 5.6 mg/kg. It is not likely that the S24 and S25 locations received direct runoff from the Alliance property.

Lead was detected at all eight October 2024 sample locations, ranging from 83 mg/kg to 1,300 mg/kg. Two sample locations exceeded the 450 mg/kg residential MSC for lead. The S5

[2] Residential Direct Contact MSC, 0-15ft.

location had a concentration of 490mg/kg and the S25 location had a concentration of 1,300mg/kg.

3.0 CONCLUSIONS

DEP's October 2024 sampling activity found that Cr(VI) was detected in soil along the section of Bartram's Mile Trail shown in ***Figures 1 and 2*** at seven of eight locations sampled. All October 2024 Cr(VI) detections were below the current published residential screening value of 37 mg/kg. All October 2024 detections were below the highest detections found during DEP's July 2024 and August 2024 sampling efforts, which took place before the cleanup efforts completed by Alliance in September 2024.

In July 2024, PA Department of Health (DOH) completed a health evaluation of worker and recreational exposure to Cr(VI) in soil along the section of Bartram's Mile Trail shown in ***Figure 1***. The evaluation was based on the highest concentration of Cr(VI) found during DEP's July 2024 sampling activity (77 mg/kg). The PA DOH health evaluation concluded that there was no health hazard from ingestion or contact with Cr(VI) in soil for workers or recreators except for children aged 1-6 years that exhibit soil pica behavior. Additional information on PA DOH's health evaluation is available in the July 2024 Public Presentation.

DEP's October 2024 sampling activity found that lead was detected in all locations sampled and two locations exceeded the current published residential screening value of 450 mg/kg. PA DOH's July 2024 health evaluation stated that there is no established safe level of blood lead in children. The evaluation stated that lead exists throughout urban soil due to historical use of leaded gasoline, lead paint and dust, and other industrial sources, and a recent soil survey in Philadelphia found a range of 58mg/kg to 2567 mg/kg lead. Additional information on PA DOH's health evaluation is available in the July 2024 Public Presentation.

Based on the results of DEP's October 2024 sampling activity, the information provided by PA DOH's health evaluation in the July 2024 Public Presentation remains relevant. While concentrations of Cr(VI) and other metals remain in soil along Bartram's Mile Trail, DEP did not find concentrations of Cr(VI) above current published residential screening levels in October 2024. Alliance continues to move forward with the cleanup of the property located at 1630 - 1646 S 51st Street in Philadelphia under Act 2, in accordance with Notices of Intent to Remediate (NIRs) submitted to DEP on February 14, 2022 and July 30, 2024 and the Remedial Action Plan submitted to DEP on November 27, 2023. The NIRs include the cleanup of Cr(VI), lead, and other specified contaminants.

4.0 REFERENCES

1. City of Philadelphia Office of Property Assessment Property Search App, July 2024
2. Administration of the Land Recycling Program, Chapter 250, 25 Pa. Code §250.1 *et seq*.
3. February 14, 2022, Notice of Intent to Remediate, submitted by Arcadis US, Inc. on behalf of Alliance 51Street LLC.
4. November 27, 2023, Remedial Action Plan submitted by Arcadis US, Inc. on behalf of Alliance 51Street LLC.
5. July 30, 2024, Notice of Intent to Remediate, submitted by Arcadis US, Inc. on behalf of Alliance 51Street LLC.
6. July 31, 2024 DEP Public Presentation entitled "Status update on Bartram's Garden"
7. October 18, 2024 email to DEP from Alliance
8. October 24, 2024, DEP Environmental Cleanup and Brownfields Narrative Report

Tables

Table 1. October 24, 2024 DEP Soil Sample Results

2024.10.24 DEP Soil Sample Results - Bartram's Mile Trail, Philadelphia, PA			Result in mg/kg								
Analyte	CAS	DEP Act 2 Residential MSC (mg/kg)	DEP51-S3	DEP51-S5	DEP51-S6	DEP51-S8A	DEP51-S16	DEP51-S21	DUP (S21)	DEP51-S24	DEP51-S25
Mercury	7439-97-6	10	0.059	0.05	9	0.058	0.093	0.075	0.051	0.095	0.34
Cr (III)	16065-83-1	190000	930	450	220	330	110	1000	1000	670	41
Cr (VI)	18540-29-9	37	21	32	6.5	8.2	0.88	22	14	5.6	ND
Aluminum	7429-90-5	190000	13000	13000	4900	8600	10000	13000	14000	17000	14000
Antimony	7440-36-0	27	0.83	1.3	3.9	1.1	1.2	0.8	0.74	0.92	1.5
Arsenic	7440-38-2	12	9.2	6.9	10	6.2	7.5	9.1	8.7	7.6	9.5
Barium	7440-39-3	8200	120	130	52	78	110	130	120	150	540
Beryllium	7440-41-7	320	0.69	0.55	0.38	0.49	0.48	0.64	0.6	0.83	0.6
Cadmium	7440-43-9	38	0.38	0.33	0.27	0.28	0.37	0.44	0.4	0.51	2.4
Calcium	7440-70-2	NS	34000	19000	14000	11000	13000	32000	31000	21000	28000
Chromium	7440-47-3	NS	950	480	230	330	110	1000	1000	670	41
Cobalt	7440-48-4	45	13	12	9.3	9.4	7.7	15	16	17	8.3
Copper	7440-50-8	7200	37	42	200	84	43	40	40	49	28
Iron	7439-89-6	150000	24000	30000	71000	34000	18000	30000	27000	30000	22000
Lead	7439-92-1	450	88	490	290	320	140	84	83	290	1300
Magnesium	7439-95-4	NS	9200	7300	6200	4400	7100	6900	7500	7900	6400
Manganese	7439-96-5	2000	870	480	460	480	280	440	460	720	350
Nickel	7440-02-0	650	49	38	25	27	18	58	58	50	16
Potassium	7440-09-7	NS	4000	4800	1500	2400	3400	4400	5100	4600	4000
Selenium	7782-49-2	26	0.26	0.17	0.15	0.26	0.32	0.26	0.23	0.45	0.34
Silver	7440-22-4	84	0.11	0.08	0.055	0.082	0.12	0.1	0.083	0.18	0.2
Sodium	7440-23-5	NS	140	330	97	190	320	130	130	160	130
Thallium	7440-28-0	2.2	0.25	0.29	ND	0.15	0.2	0.26	0.3	0.28	0.21
Vanadium	7440-62-2	1100	49	37	26	42	28	62	52	47	34
Zinc	7440-66-6	12000	290	360	270	170	170	320	350	300	860

Metals

KEY	
1 mg/kg = 1 ppm	
Medium Specific Concentration	MSC
No Standard	NS
Exceeds Published Act 2 Residential MSC	
Act 2 Residential MSC uses Direct Contact or Soil to Groundwater Standard published at the time of sampling, whichever is more stringent.	

KEY	
Not Detected above the Laboratory Minimum Detection Limit (MDL)	ND
All detections above the MDL are shown. MDL does not exceed the MSC unless indicated.	
(<value) indicates sample was not detected above the MDL, but the MDL exceeds the MSC.	

Figures

Figure 1. General Site Location

Figure 2. October 24, 2024 DEP Soil Sample Locations

Appendix A

DEP Sampling and Analysis Plan dated October 23, 2024

Pennsylvania
Department of Environmental Protection

Alliance 51st Street
City of Philadelphia

SAMPLING AND ANALYSIS PLAN
October 23, 2024

Prepared by
Christine McCarthy, Project Officer, HSCA

I. Introduction

The Alliance 51st Street property (Site) is an industrial parcel located at 1630 - 1646 S 51st Street in Philadelphia. The Site is bordered by a railroad to the south and the Schuylkill Banks/Bartram's Mile Trail to the east. Bartram's Garden is south of the Site. Parcels north of the Site are owned by the Philadelphia Authority for Industrial Development. The Schuylkill River is immediately east of the Site (Figure 1).

II. Site History

The Site appears to have been used for the storage of lumber as early as 1923. Between 1923 and 1945, the Site was used to manufacture cardboard containers. Between 1951 and 2021, the Site was used as a fuel oil terminal, by Allied Oil Inc, Hess Oil and Chemical Corporation, Plains Product Terminals, LLC and PBF Logistics. Alliance 51st Street LLC (Alliance) purchased the property in December 2021.

In 2021, twelve regulated Aboveground Storage Tanks (ASTs), which stored petroleum products, were demolished and removed from the property. The facility ID number for the Site was 51-10420. On December 15, 2021, an AST closure report was submitted to the DEP by Stantec Consulting Services, Inc. on behalf of PBF Logistics Products Terminals LLC. On February 2, 2023, the November 2022 Site Characterization Report (SCR) submitted by Arcadis was disapproved. On June 27, 2023, a Revised SCR (RSCR) was submitted to the DEP by Arcadis and was approved on September 27, 2023. On November 27, 2023, a Remedial Action Plan was submitted by Arcadis and received by DEP. The plan stated that soil which exceeds applicable Act 2 MSCs would be addressed with engineering and institutional controls. Soil would be graded and moved beneath the proposed building and/or surrounding paved areas to prevent direct contact and mitigate leaching of contaminants to groundwater. Compounds investigated included those listed in the unleaded gasoline, diesel, and No. 2 fuel oil DEP shortlists. There would be a soil management plan created for any intrusive work at the site to protect the workers. Lead in soil and groundwater would be addressed concurrently through the Act 2 program.

On February 14, 2022, DEP received a Notice of Intent to Remediate (NIR) to address releases of contamination that are not regulated by the Storage Tank and Spill Prevention Act through the Land Recycling (Act 2) program. These contaminants include lead, volatile organic compounds (VOCs), and semi-volatile organic compounds. Historic fill and non-regulated features including a loading rack located outside of containment, may be contributing to exceeding concentrations of regulated DEP petroleum shortlist parameters in soil and groundwater. According to the NIR, soil borings in the former AST and piping area identified exceedances of the Non-Residential Direct Contact and/or Soil to Groundwater (GW) MSCs for petroleum hydrocarbons (incl. benzene, 1,2,4-trimethylbenzene), polycyclic aromatic hydrocarbons (incl. benzo(a)pyrene), and lead. Additionally, 1,2,4-trimethylbenzene in the soil exceeded the non-residential vapor intrusion screening values. Groundwater samples from

temporary wells had exceedances of the Non-Residential Used Aquifer GW MSCs for benzene, 1,2,4-trimethylbenzene, and lead.

On July 30, 2024, a revised NIR was provided by Alliance and received by DEP. The revised NIR added chromium and Hexavalent Chromium (Cr(VI)) to the list of compounds that will be addressed.

III. Previous Investigations

On April 5, 2024, an incident was reported to the National Response Center. The caller reported that "strange looking water is leaching from a former refinery… The material looks greenish."

On April 12, 2024, DEP inspected the Site. The inspection report described a drainage ditch located between the former tank containment area and the rail line. The report noted that "Discoloration was present on the soil at the bottom of the ditch, but flow in the ditch was clear and at a rate of app(sic) 5gpm. Flow in the ditch re-infiltrated into the soil before reaching the eastern fence line, but the discoloration extended past the fence and on to the edge of the adjacent River Trail." and that "the discoloration seems to be a chronic issue since a 5/10/23 Google Earth view of the site shows the phenomenon."

During a May 2, 2024 inspection, DEP personnel noted that soil berms had been constructed in the ditch to prevent surface flow from leaving the property.

On June 10, 2024, Arcadis, consultants working on behalf of Alliance, reported that soil berms had been constructed "across the low-lying area on the eastern portion of the site to prevent any discolored water from leaving the site." Results from monitoring well sampling conducted by Arcadis on May 30, 2024, revealed the presence of chromium in the groundwater in exceedance of the Non-Residential Used Aquifer MSC. Tests pits installed by Arcadis identified yellow-green stained soil. Analysis of the stained soil confirmed the presence of trivalent and hexavalent chromium (Cr(III)) and Cr(VI). The soil concentrations were below the Non-Residential Direct Contact MSCs but were above the Used Aquifer Non-Residential Soil to Groundwater MSCs.

On July 11, 2024, Arcadis indicated that five additional test pits were installed on the southern property boundary on July 3rd. The stained soil layer was encountered a few feet below grade and varied in thickness in each test pit.

On July 17, 2024, DEP personnel visited the Site to inspect the area of previously observed off-site discharge and determine DEP sampling locations. No active discharge was observed coming from the Site.

During a July 18, 2024 DEP inspection, DEP evaluated perimeter controls and berms within the Site and found several Chapter 102 violations including the failure to implement and/or maintain Erosion and Sedimentation Best Management Practices. A July 29, 2024 DEP follow up inspection found that many of the concerns identified on July 18 had been addressed and recommended that the large soil pile on Site be stabilized if there were no plans to disturb it within the following four (4) days.

The information in this section is for reference only. Additional information regarding DEP inspection observations and violations can be found in the respective and subsequent inspection reports.

IV. July 2024 Sampling Activity

On July 22, 2024, DEP collected soil samples from eleven (11) locations along Bartram's Mile Trail. Sampling activities were conducted in accordance with the July 19, 2024 Sampling and Analysis Plan. Soil sample locations were focused to the area of the trail that receives surface water runoff from the

Alliance 51st Street property (Figure 2). Descriptions of each location can be found in the July 22, 2024 Narrative Report.

Sample locations S1, S2, S3, S6 (duplicate), S7, S8, and S10 had detections of Cr(VI). Of the detections, locations S3, S7, S8, and S10 exceeded the Act 2 Residential MSC of 37mg/kg for Cr(VI). Exceedances ranged from 38 mg/kg at S3 to 77 mg/kg at S7. Sample location S6 and S10 exceeded the Act 2 Residential MSC of 12mg/kg for arsenic, with detections of 13mg/kg and 14mg/kg, respectively. Sample location S5 exceeded the Act 2 Residential MSC of 450mg/kg for lead, with a detection of 460mg/kg.

DEP collected surface water samples from four (4) locations in the Schuylkill River. No surface water was present on or around Bartram's Mile Trail. There were no detections of Cr(VI) in surface water. Surface Water samples did not exceed their respective Ch. 93 Water Quality Criteria or DRBC Stream Quality Objectives.

V. August 2024 Sampling Activity

On August 1, 2024, Arcadis notified DEP that cleanup efforts had been completed at locations which exceeded Cr(VI) MSCs as a result of the July 22, 2024 sampling.

On August 13, 2024, DEP collected confirmatory soil samples in the locations which exceeded Act 2 MSCs on July 22, 2024, and additional soil samples from the surrounding area. Sampling activities were conducted in accordance with the August 12, 2024 Sampling and Analysis Plan. DEP collected soil samples from ten (10) locations along Bartram's Mile Trail (Figure 3). Descriptions of each location can be found in the August 13, 2024 Narrative Report.

Sample locations S3, S5, S6, and S8A had detections of Cr(VI). Of the detections, locations S3 and S5 exceeded the Act 2 Residential MSC of 37mg/kg for Cr(VI) with detections of 57mg/kg and 62mg/kg, respectively. The S3 soil sample was collected immediately next to the stone that was placed outside of the Alliance property fence. The S8A soil sample was collected from the closest accumulation of soil to the July 22, 2024 S8 sample location. It is likely that not all the contaminated soil was removed from these areas during the cleanup effort in early August. DEP's July 22, 2024 sample results at S5 and S6 were non-detect, so no cleanup effort was completed in this area.

Sample locations S5 and S6 exceeded the Act 2 Residential MSC of 450mg/kg for lead, with detections of 610mg/kg and 670mg/kg, respectively (Figure 8).

VI. Objective

On September 19, 2024, Arcadis notified DEP via email that additional soil in the S3, S5, S6, and S8A locations had been removed. Under this sampling effort, DEP will collect soil samples in public areas to evaluate the presence or absence of hexavalent chromium and other potential contaminants of concern. This sampling effort will act as a confirmatory measure to verify the effectiveness of Arcadis' soil removal efforts. In addition, surface water samples will be collected from standing water on or near the trail, if feasible, to determine the presence or absence of potential contaminants of concern in surface runoff coming from the Alliance 51st St property.

VII. Sampling Plan

This Sampling and Analysis Plan is intended to document the procedures to be used by DEP field staff, and to ensure that this evaluation provides useful and reproducible information.

VIII. Sampling Locations

Soil samples will be collected from the same locations as those collected on August 13, 2024 which had Cr(VI) detections or Act 2 MSC exceedances, where feasible. If no soil remains in those locations, a

sample will be collected from the next closest accumulation of soil. Locations which were non-detect for Cr(VI) and other potential contaminants of concern will not be resampled. Additional soil sample locations may be chosen based on field observations to determine the presence or absence of potential contaminants of concern. Soil sampling locations are focused where surface water discharge has exited the Alliance 51st Street property and along the adjacent bike path. Surface water samples will be collected from any active discharge (if present) or standing surface water in the discharge area (if present). All proposed sampling locations are approximate and are subject to change based on field observations during the sampling event. Please refer to the July 22, 2024 and August 13, 2024 Narrative Reports for photos of previous sample locations with Cr(VI) Act 2 exceedances.

IX. Sampling Analyses

Samples will be sent to Eurofins Lancaster Laboratories Environment Testing, LLC (Eurofins) for the analyses identified in Table 1. Samples will be preserved in accordance with the laboratory's analytical method requirements. Reporting limits should be low enough to compare results to MSC standards and all required laboratory accreditation confirmed. A Level 2 data package will be requested for all analyses submitted.

Table 1. Sampling Analyses

Matrix	Method	Test Description	Preservative	Container	Volume required	Holding times
Soil	6020B	Total Metals TAL List	None	Soil jar 4oz - clear glass	15g	180-days
Soil	7196A	Hexavalent Chromium	None	Soil jar 4oz - clear glass	30g	30-days
Soil	7196A	Trivalent Chromium (Calculation)	None	No container	NA	NA
Water	6020B	Dissolved Metals TAL List	Nitric Acid	Plastic 250ml - w/nitric acid	100 ml	180-days
Water	7196A	Chromium, Hexavalent	None	Plastic 250ml –unpreserved	150 ml	24-Hours
Water	7196A	Trivalent Chromium (Calculation)	None	No container	NA	NA

QA/QC

Duplicates of two or more in-field soil samples will be collected to allow for the determination of sampling precision. See Collection of Soil Samples section below for sampling procedure.

X. Sampling Procedures

Health and Safety

Prior to commencing any sampling activities, DEP personnel should review the Site-Specific Health and Safety Plan provided in **Appendix A**.

Equipment Preparation and Staging

A full list of the equipment needed for this sampling event is available in Table 2. Street parking is available on S 51st Street near the corner with Botanic Ave and Bartram's Mile Trail. Equipment will be staged along the closed section of Bartram's Mile Trail near the discharge area for this sampling event.

Table 2. Equipment and Supplies

Item	Notes
Sampling and Analysis Plan	
Health and Safety Plan	
Employee ID	
Business Cards	
Mobile Phone	
Ultrafine Sharpie and Black ball-point pens	*Use pen on COC
Field Notebook	
Clip Board	
Nitrile Gloves	
Paper Towels	
Trash Bags	
Scissors	
DI Water squirt bottle	
Alconox squirt bottle	
Extra DI water (glass bottle)	
Bucket/Container for equipment	
Bucket for decontamination	
Shovel	
Flag markers	
Extra 500mL plastic bottles for sample transfer	
Disposable Scoops	
0.45 µm field filters	
Syringes	
Chain of Custody/sample labels	From lab kit
Bottleware (in lab kit)	Received from laboratory
Cooler(s)	
Ice	

General Sample Collection Procedures
The field sampling is scheduled to take one day.

Samples collected should be labeled according to laboratory instructions, with the following information at a minimum. The Sample ID Scheme presented in Table 3 will be used.

- the requested analysis
- the sampling location
- the date and time of collection
- name of preservative and sample matrix
- project name and organization (PA DEP)

Table 3. Proposed Sample ID Scheme

Proposed Sample ID	Matrix	Comments
DEP51-S#-YearMonthDay	Soil	Numbered locations form previous sampling events will be retained. Additional locations will be assigned the next sequential numbered ID or by adding a letter after the number (i.e. S8A). Date will be indicated via two-digit year, two-digit month, two-digit day.

Proposed Sample ID	Matrix	Comments
DEP51-W#-YearMonthDay	Surface Water	Numbered locations form previous sampling events will be retained. Additional locations will be assigned the next sequential numbered ID or by adding a letter after the number (i.e. W8A). Date will be indicated via two-digit year, two-digit month, two-digit day.

Samples collected will promptly be placed on ice in a cooler.

The sampling team shall take due care to leave the sampling area in the same condition as it was prior to sample collection, and to clean up any spill that occurs as well as diluting and cleaning any spills that may involve sample preservatives.

All samples will be kept cold at < 6˚C. The sample coolers will be picked by the Eurofins Courier the same afternoon prior to 3pm. Note that sample are expected to arrive at the lab within 2 hours of pick-up time and may arrive at temperatures > 6˚C. The lab may make a note on the final report indicating a temperature above specification because samples have just begun the process of cooling. This will have no impact on samples.

All used disposable items like PPE and sampling equipment will be placed in a trash bag and disposed after return to the office.

Collection of Soil Samples
Soil samples will be collected in accordance with laboratory instructions.

Prior to the collection of each sample, surface soil should be removed from the respective sample location, placed on plastic, and mixed with a disposable scoop or other dedicated tool. The DEP sample, duplicate (where applicable), and the Arcadis split sample should then be collected from the soil mixture. This collection practice is an attempt to minimize soil heterogeneity that may result from soils collected from varying depths. This practice would not eliminate soil heterogeneity.

For each unique sample location, the first occurrence of soil/sediment will be collected. A shovel may be used to access soil in desired sampling locations. Any reusable equipment will be decontaminated as necessary between samples using Alconox and DI water.

Collection of Surface Water Samples
Aqueous samples will be collected in accordance with laboratory instructions. Surface water will be collected with a syringe, with an unused 500 mL plastic sample bottle, or with a plastic bailer and then transferred into the preserved sample bottle. Transfer syringes, bottles, or bailers will be dedicated to each sample to prevent the need for equipment decontamination.

Aqueous metals and Cr(VI) samples will be field filtered using 0.45 µm filters. For each unique sample, filling several sample bottles may be required. Bottles should be filled concurrently (i.e. depositing small volumes in each bottle until all are filled, rather than filling each bottle separately).

Record Keeping
Observations and details of each sample collected will be recorded in the field notes. They will include, sample depth, and sample location (including latitude and longitude and/or measurements taken from fixed reference points on Site). A picture of each sample location will also be taken.

Samples collected will be listed on an analytical lab chain of custody (COC) form. COCs shall be filled completely with appropriate per Eurofins guidelines with information including but not limited to:

- sample collection times and dates
- preservation (HCl, MeOH, etc)
- laboratory methods and test parameters
- sample matrix (drinking water, surface water, soil)
- number of containers, type of samples (grab or composite)
- collector's name and signature, and any items required by the lab

Also list any comments that would inform the lab including but not limited to strong odors or sample color.

Field notes will be memorialized in a Field Activity Report following the sampling event. Chain of custody forms will be copied and placed in the site file and scanned into the site folder on the server. Photos and map will also be saved into the site folder.

XI. Reporting

Upon receipt of analytical results, DEP personnel will prepare a summary of the results in tabular format. The sample locations will be mapped using GIS Software. The requested laboratory turnaround time is a 5-day rush. Results and findings will be reported in a technical memorandum for the site file. The technical memorandum will be used as a reference in future DEP decision documents concerning possible further action at the Site.

XII. References

1. EPA Method 5030C (SW-846): Purge-and-Trap for Aqueous Samples
2. Method 6020B: Inductively Coupled Plasma - Mass Spectrometry, part of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (epa.gov)
3. Method 3005A: Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA or ICP Spectroscopy, part of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (epa.gov)
4. Method 7196A: Chromium, Hexavalent (Colorimetric), part of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (epa.gov)
5. Method 3060A: Alkaline Digestion for Hexavalent Chromium, part of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (epa.gov)

XIII. Figures

Figure 1. General Site Location

Figure 2. July 2024 DEP Soil Sample Locations

Figure 3. August 2024 DEP Soil Sample Locations

APPENDIX A: Site Specific Health and Safety Plan

HEALTH AND SAFETY PLAN

Alliance 51st Street
City of Philadelphia

A. SITE DESCRIPTION

The Alliance 51st Street property (Site) is an industrial parcel located at 1630 - 1646 S 51st Street in Philadelphia. The Site is bordered by a railroad to the south and the Schuylkill Banks/Bartram's Mile Trail to the east. Bartram's Gardens are south of the Site. Parcels north of the Site are owned by the Philadelphia Authority for Industrial Development. The Schuylkill River is immediately east of the Site.

SCOPE OF WORK

General Sampling

These areas are defined as open-air, non-enclosed locations where access is not restricted and the likelihood of encountering vapors, and their subsequent accumulation, is low. This would include locations as surface water drainage areas, surface soils and the Schuylkill River. DEP personnel conducting the training have received at a minimum the Hazwoper -24-hour Moderate Risk training for 29 CFR 1910.120 certification.

All work performed in these areas will be in Level "D" and will include protective gloves.

C. ON-SITE ORGANIZATION AND COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

Point of Contact	
Project Officer (PO) & Site Health & Safety Officer	Christine McCarthy
Alternate Contact & Geologist (PG)	Matthew Sabetta, P.G

Bonnie McClennen (HSCA Environmental Group Manager) will be available in the Southeast Regional Office as necessary 484-250-5719.

D. ON-SITE CONTROL AND SECURITY

1. DEP personnel will access public areas along the trail. On July 19, 2024, a Consent for Access and Right Of Entry to Property form was signed by Robert Allen the Director of Property and Concessions Management Department of Parks and Recreation on behalf of the City of Philadelphia, Bartram Gardens to grant DEP access for the purpose of collecting the samples.

2. All DEP personnel will display identification when working on site.

E. HAZARD EVALUATION

Site Hazards: Chemical

Hexavalent chromium is the primary contaminant of concern, other potential contaminants may include lead and volatile organic compounds from fuel oil #2 (Benzene and 1,2,4-trimethylbenzene). The Site Safety Officer will be available to make determinations and take appropriate actions to ensure personnel safety.

During completion of all site activities, personnel should attempt to minimize contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

On July 17, 2024 - the Fire Department inspected the site with what appears to be a PID. They found no issues. A MultiRae will be used to monitor contaminant levels in the ambient air.

The following substance(s) are known or suspected to be on site. The primary hazards of each substance are identified.

Primary Anticipated Substance(s) Involved

Substance	Concentration (If known)	Primary Hazards	Primary Control
Chromium (VI) CAS # 7440-47-3	Unknown	Inhalation, absorbed through skin, occupationally insignificant at site exposure levels. OSHA TWA 100 ppm in air	Avoid prolonged or repeated skin contact. Ventilate contained areas where raw water may be present.

Material Safety Data Sheets for contaminants of concern and sample preservatives are attached in Section L

Site Hazards: Physical

Physical hazards will be identified and secured, where possible.

Extreme heat and humidity may be a factor. Take frequent breaks and drink plenty of fluids to prevent heat exhaustion and heat stroke. If site conditions warrant, the Site Safety Officer may adjust the work hours to avoid the mid-day heat.

Sunblock will be worn by staff members to avoid sunburn.

When working outdoors, biting and stinging insects, poison ivy and oak, and snakes may all be present; therefore, use caution when inspecting confined areas and wear protective clothing.

Slip, trip and fall hazards may all be present. Personal should maintain a orderly work area to eliminate trip hazards from tools. Care should be exercised when wet surfaces are present. Water hazards may be present during sampling of surface water.

F. PERSONAL PROTECTIVE EQUIPMENT

Based upon evaluation of the potential hazards, the following personal protection has been designated for the applicable work areas or tasks:

Steel toe boots
Safety vests will be worn
Nitrile protective gloves for sampling

G. COMMUNICATION EQUIPMENT & PROCEDURES

A cell phone will be present at the site for offsite communication.

H. DECONTAMINATION PROCEDURES AND WASTE HANDLING

No personnel decontamination procedures are necessary.

Sampling equipment will be decontaminated as necessary using Alconox, as described in the Sampling and Analysis plan.

Disposable equipment/supplies will be used where available.

At the conclusion of the sampling event, all materials, including nitrile gloves and all disposable sampling supplies, and general litter will be removed for proper disposal.

J. EMERGENCY PROCEDURES

Injury to DEP Personnel

All injuries, including those requiring first aid only, are to be reported to the Project Manager as soon as possible. Work-related injuries to DEP personnel will be reported to their supervisor or other available supervisory personnel immediately.

A first aid kit will be maintained in all vehicles.

The Project Manager and the Manager in the office shall be notified of any of the emergencies listed here.

Emergency Phone Numbers

On-site cell phone(s): Christine's cell phone will be used.

Ambulance: 911
Fire: 911
Police: 911
State Police: 911
County EMS: 911

K. DIRECTIONS TO THE HOSPITAL

bing maps

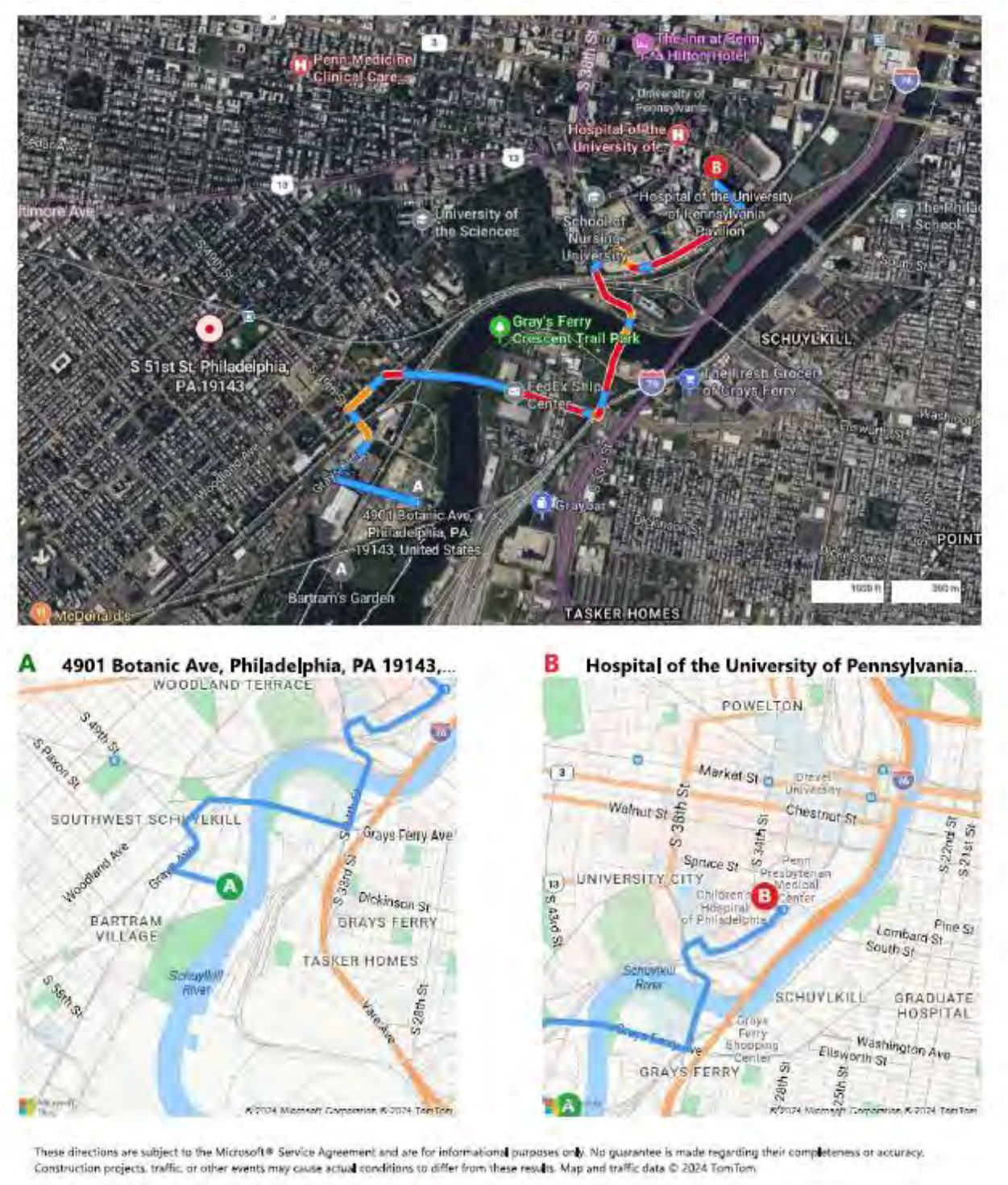
A 4901 Botanic Ave, Philadelphia, PA 19143, United States
B Hospital of the University of Pennsylvania - Pavilion, 1 Convention Avenue, Philadelphia, PA 19104

12 min, 2.4 miles
Moderate traffic
Via Grays Ferry Ave, Health Sciences Dr
- Local roads

A 4901 Botanic Ave, Philadelphia, PA 19143, United States

↑	1.	Head **west** on **S 51st St** toward Grays Ave	0.3 mi
↱	2.	Turn **right** onto **Grays Ave**	0.2 mi
↑	3.	Keep **straight** to get onto **S 49th St**	0.1 mi
↱	4.	Turn **right** onto **Paschall Ave**	0.1 mi
↱	5.	Bear **right** onto **Grays Ferry Ave**	0.6 mi
↰	6.	Turn **left** onto **S 34th St** Exxon on the corner ▲ Roadwork on THIRTYFOURTH ST / THIRTYEIGHTH ST / TWENTYSIXTH ST / UNIVERSITY AV northbound between GRAYS FERRY AV and 1 miles NORTH of Exit I-76 WEST SCHUYLKILL EXPRESSWAY. There is a traffic disruption.	0.3 mi
↑	7.	Road name changes to **University Ave**	0.2 mi
↱	8.	Turn **right** onto **Civic Center Blvd**	482 ft
↱	9.	Turn **right** onto **Health Sciences Dr**	0.3 mi
↑	10.	Continue on **Convention Ave**	459 ft
↰	11.	Turn **left**	495 ft
	12.	Arrive at your destination on the left The last intersection before your destination is Convention Ave	

B Hospital of the University of Pennsylvania - Pavilion



L. SAFETY DATA SHETS (SDS)

Preservatives: Nitric Acid

Contaminants of Concern: Hexavalent Chromium, Trivalent Chromium, Lead & Fuel Oil #2

SAFETY DATA SHEET

Revision Date 01-Apr-2024 **Revision Number** 3

1. Identification

Product Name **Hexavalent Chromium, standard solution, Specpure®, Cr(+6) 1000µg/ml**

Cat No. : **42234**

Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	99.76
Ammonium bichromate	7789-09-5	0.24

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Not combustible.

Unsuitable Extinguishing Media No information available

Flash Point No information available

Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
None reasonably foreseeable.

Hazardous Combustion Products
Nitrogen oxides (NOx). Ammonia. Chromium oxide.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	-

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional Ecological Information. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Ammonium bichromate	TWA: 0.0002 mg/m³ STEL: 0.0005 mg/m³ Skin	(Vacated) Ceiling: 0.1 mg/m³ Ceiling: 0.1 mg/m³	IDLH: 15 mg/m³ TWA: 0.0002 mg/m³	TWA: 0.05 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures	Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Organic gases and vapours filter. Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	4 (1%)
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	23 hPa @ 20 °C
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	(NH4)2 Cr2 O7 in H2 O

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nitrogen oxides (NOx), Ammonia, Chromium oxide

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Ammonium bichromate	LD50 = 48 mg/kg (Rat)	LD50 = 1860 mg/kg (Rabbit)	LC50 = 0.2 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Ammonium bichromate	7789-09-5	Group 1	Known	A1	X	A1

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects California Proposition 65. Reproductive toxicity.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Persistence and Degradability based on information available. May persist

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Ammonium bichromate	7789-09-5	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Ammonium bichromate	7789-09-5	Section 6

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400
Ammonium bichromate	7789-09-5	X	-	232-143-1	X	X	X	X	X	KE-01653

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Ammonium bichromate	7789-09-5	0.24	0.1 % 1.0 %	-

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ammonium bichromate	X	10 lb	X	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ammonium bichromate	X		-

OSHA - Occupational Safety and Health Administration — Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Ammonium bichromate	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Ammonium bichromate	10 lb	-	10 lb 4.54 kg

California Proposition 65 — This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Ammonium bichromate	7789-09-5	Carcinogen Developmental Female Reproductive Male Reproductive	-	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Ammonium bichromate	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security — This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade — No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Ammonium bichromate	7789-09-5	Carcinogenic Category 1B, Mutagenic Category 1B, Toxic for reproduction Category 1B Article 57 Application date: March 21, 2016 Sunset date: September 21, 2017 Exemption - None	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 47. (see link for restriction details) Use restricted. See item 65. (see link for restriction details)	SVHC Candidate list - 232-143-1 - Carcinogenic, Article 57a;Mutagenic, Article 57b;Toxic for reproduction, Article 57c

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links
https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Ammonium bichromate	7789-09-5	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Ammonium bichromate	7789-09-5	Not applicable	Not applicable	Not applicable	Annex I - Y21

16. Other information

Prepared By
Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

Revision Date 01-Apr-2024
Print Date 01-Apr-2024
Revision Summary New emergency telephone response service provider.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Lead Metal
Safety Data Sheet

Section 1: Identification

Product Name: Lead Metal
CAS No.: 7439-92-1
Chemical Formula: Pb
Other Names: Lead, Lead Block, Lead Wire, Lead Ingot, Pb, Plumbum, Pure Lead, Refined Lead, Sheet Lead, Soft Lead, Lead rod
Intended Use / Restrictions on Use:
For professional/industrial use only.

Contact Information:
Chemical Store Inc.
1059 Main Avenue,
Clifton, NJ 07011
Phone: 973-405-6248

Emergency Contact:
Chemical Store: 973-420-4972

Section 2: Hazard Identification

Classification:
Carcinogen 1B - H350

Label Elements:
Hazard Pictograms:

Signal Word: Danger
Hazard Statements: H350 – May cause cancer. H302 – Harmful if swallowed.
Precautionary Statements: P201 – Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 – Do not breathe dust/fume/gas/mist/vapors/spray. P264 – Wash skin thoroughly after handling. P273 – Avoid release to the environment. P280 - Wear eye protection, protective clothing, protective gloves. P308 +P313 – If exposed or concerned: Get medical advice/attention. P405 – Store locked up. P501 – Dispose of contents/container in accordance with local, regional, national and international regulations.
Other Hazards: Prevent particles from becoming airborne. Can cause thermal burns when molten.

Unknown Acute Toxicity Statement:
Not Applicable

Section 3: Composition / Information on Ingredients

Name: Lead Metal

Synonyms: Lead, Lead Block, Lead wire, Lead Ingot, Pb, Plumbum, Pure Lead, Refined Lead, Sheet Lead, Soft Lead

Chemical Name	CAS Number	% by Weight
Lead (Pb)	7439-92-1	>99

Mixture:

Not applicable

Section 4: First-Aid Measures

Required Treatment:

After inhalation, move to fresh air and rest in a position comfortable for breathing.
After skin contact, wash skin thoroughly. If contact with molten metal, cool skin rapidly and seek medical assistance.
After eye contact, remove contact lenses if applicable and flush eyes with water for at least 15 minutes.
After ingestion, do not induce vomiting. Call poison control center or doctor.

Important Symptoms & Effects, Acute & Delayed:

Lead poisoning can occur through acute or chronic doses. Symptoms include headaches, abdominal pain, memory loss, kidney failure, anemia, change in skin tone, reproductive problems, weakness, pain, or tingling.

Indication of Medical Attention:

If any acute or chronic symptoms arise or if feeling unwell after exposure, seek medical advice.

Section 5: Fire Fighting Measures

Extinguishing Techniques/Equipment:

Use extinguishing media appropriate for surrounding media. Do not use water if metal is hot as it may increase fire intensity.

Chemical Hazards from Fire:

Lead Metal is not flammable or explosive. May react violently with water in molten state.

Special Equipment and Precautions for Firefighters:

Exercise caution. Under fire conditions, fumes will be present. If entering fire area, wear proper protective equipment including respiratory protection.

Section 6: Accidental Release Measures

Emergency Procedures/Personal Protection:

Avoid all contact with skin, eyes, or clothing. Avoid breathing fumes and dust.
Evacuate all unnecessary personnel.

Protective Equipment:

Use appropriate personal protection equipment (PPE), as listed in section 8.

Methods of Containment & Cleanup:

Allow metal to cool and solidify if molten. Collect solid metal and clean up spill site, disposing of waste properly.

Section 7: Handling and Storage

Precautions for Safe Handling:
When molten, use safe furnace practices. When solid, practice good industrial hygiene and safety procedures. Wash exposed areas with soap and water.

Precautions for Safe Storage:
Store in cool, dry and well ventilated location. Seal containers. Keep away from incompatible materials such as strong acids, strong bases, and strong oxidizers. If molten, keep away from water.

Section 8: Exposure Controls / Personal Protection

Control Parameters:

USA ACGIH	ACGIH TWA (mg/m^3)	0.05 mg/m^3
USA NIOSH	NIOSH REL (TWA) (mg/m^3)	0.050 mg/m^3
USA IDLH	US IDLH (mg/m^3)	100 mg/m^3
USA OSHA	OSHA PEL (TWA) (mg/m^3)	50 $\mu g/m^3$

Engineering Controls:
Ensure adequate ventilation. Emergency eye wash stations and safety showers should be nearby any potential exposure. Ensure national/local regulations are observed.

Personal Protective Equipment:
Protective goggles, gloves and clothing. If insufficient ventilation, wear respiratory protection.
Materials for Protective Clothing: Wear chemically resistant materials and fabrics.
Hand Protection: Wear chemically resistant gloves. If working with molten or hot material, wear thermally resistant gloves.
Eye Protection: Chemical googles or safety glasses should be worn at all times. For furnace work, wear a face shield or safety glasses.
Respiratory Protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.
Thermal Hazard Protection: For furnace work, fire retardant clothing, gloves, and safety shoes should be worn.
Consumer Exposure Controls: Do not eat, drink, or smoke during use.

Section 9: Physical and Chemical Properties

Physical State: Solid (Metal)	**Evaporation Rate:** N/A
Color: Blueish-grey. Silvery	**Flammability:** N/A
Taste: N/A	**Upper/Lower Flammability Limits:** N/A
Molecular Weight: 207.21 g/mol	**Vapor Pressure:** 1 mm Hg @ 973°C (1783°F)
Odor: N/A	**Vapor Density:** N/A
Odor Threshold: N/A	**Specific Gravity (Relative Density):** 11.3
pH: N/A	**Solubility:** Insoluble in water
Melting Point: 327.43°C (621.4°F)	**Partition Coefficient:** N/A
Boiling Point: 1740 °C (3164°F)	**Auto-ignition Temperature:** N/A
Boiling Range: N/A	**Decomposition Temperature:** N/A
Flash Point: N/A	**Viscosity:** N/A

Section 10: Stability and Reactivity

Reactivity: May react violently with water in molten form.
Stability: Stable under proper handling and storage conditions.
Hazardous Reactions: Thermal reactions generate lead fumes.
Conditions to Avoid: Avoid incompatible materials. Avoid Moisture in molten form.
Incompatible Materials: Strong acids, strong bases, and strong oxidizers. If molten, water. **Hazardous Decomposition Products:** Melting produces lead fumes.

Section 11: Toxicological Information

Routes of Exposure
Inhalation of dust, fumes. Skin contact through physical contact. Eye contact through physical contact or dust and fumes. Ingestion through contamination of skin/surfaces.

Chronic and Acute Related Symptoms/Effects:
Inhalation of fumes or dust can cause respiratory irritation. Skin contact with molten metal can cause burns. Dust or fumes can cause eye irritation. Ingestion can cause harmful effects. Acute symptoms can include headaches, abdominal pain, memory loss, kidney failure, anemia, change in skin tone, reproductive problems, weakness, pain, or tingling. Chronic exposure may cause cancer or lead poisoning.

Measures of Toxicology:
Acute Toxicity: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/ Irritation: Not Classified
Respiratory or Skin Sensitization: Not Classified **Germ Cell Mutagenicity:** Not Classified **Reproductive Toxicity:** Not Classified **Carcinogenic Information:**
May cause cancer.
IARC Group: 2A
National Toxicology Program (NTP) Status: Reasonably anticipated to be a human carcinogen.

Section 12: Ecological Information

Ecotoxicity: Toxic to aquatic life and terrestrial environments
Persistence and Degradability: N/A
Bioaccumulative Potential: Bioaccumulates in animals and plants
Mobility in Soil: Accumulates in Soil but not particularly mobile
Other Adverse Effects:
Prevent entry to sewers and public waterways. Avoid release to the environment. Ensure accordance with national and local regulations.

Section 13: Disposal Considerations

Dispose of waste in accordance with all local, regional, national, and international regulations.

Section 14: Transportation Information

UN Number: 3077
UN Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Lead)
Class: 9
Packing Group: III
Environmental Hazards: Do not release to waterways.
Transportation in Bulk: N/A
Special Precautions: Wash skin after contact

Section 15: Regulatory Information

US Federal Regulations:
SARA Section 311/312 Hazard Classes – Delayed (chronic) Health Hazard
SARA Section 313 Emissions Reporting – 0.1%

US State Regulations:
California – Prop. 65 – Carcinogens List California –
Prop. 65 – Developmental Toxicity
California – Prop. 65 – Reproductive Toxicity Male/Female
Massachusetts – Right To Know List
Pennsylvania – Right To Know List (Environmental Hazard)
Pennsylvania – Right To Know List
New Jersey – Right To Know List (Hazardous Substance)

Section 16: Other Information

Date of Preparation: 05/20/15
Date of Revision: 05/07/18
Prepared in accordance with OSHA HCS 29 CFR 1910.1200.

SAFETY DATA SHEET

Creation Date 12-Mar-2009 **Revision Date** 24-Dec-2021 **Revision Number** 9

1. Identification

Product Name **Nitric acid (67 - 70%)**

Cat No. : **A467-1, A467-2, A467-250, A467-500**

CAS No 7697-37-2
Synonyms Azotic acid; Engraver's acid; Aqua fortis

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Oxidizing liquids	Category 3
Corrosive to metals	Category 1
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
May intensify fire; oxidizer
May be corrosive to metals
Causes severe skin burns and eye damage

Toxic if inhaled
Corrosive to the respiratory tract

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Keep only in original container
Wear respiratory protection
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Corrosive to the respiratory tract

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Nitric acid …% [C ≤ 70 %]	7697-37-2	65 - 70
Water	7732-18-5	30 - 35

4. First-aid measures

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in

attendance.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately.

Ingestion Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Most important symptoms and effects Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Oxidizing Properties Oxidizer

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products
Nitrogen oxides (NOx). Thermal decomposition can lead to release of irritating gases and vapors.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	0	OX

6. Accidental release measures

Personal Precautions Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment as required.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal. Wear self-contained breathing apparatus and protective suit.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe mist/vapors/spray. Keep away from clothing and other combustible materials.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Do not store in metal containers. Keep in properly labeled containers. Corrosives area. Incompatible Materials. Combustible material. Strong bases. Reducing Agent. Metals. Finely powdered metals. Organic materials. Aldehydes. Alcohols. Cyanides. Ammonia. Strong reducing agents.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Nitric acid …% [C ≤ 70 %]	TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m³ TWA: 2 ppm TWA: 5 mg/m³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m³ STEL: 4 ppm STEL: 10 mg/m³	TWA: 2 ppm STEL: 4 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wear suitable gloves and eye/face protection.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear Colorless, Light yellow
Odor	Strong Acrid
Odor Threshold	No information available
pH	< 1.0 (0.1M)
Melting Point/Range	-41 °C / -41.8 °F
Boiling Point/Range	Not applicable
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.94 kPa (20°C)
Vapor Density	No information available
Specific Gravity	1.40
Solubility	miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	HNO3
Molecular Weight	63.01

10. Stability and reactivity

Reactive Hazard Yes

Stability Oxidizer: Contact with combustible/organic material may cause fire.

Conditions to Avoid Incompatible products. Combustible material. Excess heat. Exposure to air or moisture over prolonged periods.

Incompatible Materials Combustible material, Strong bases, Reducing Agent, Metals, Finely powdered metals, Organic materials, Aldehydes, Alcohols, Cyanides, Ammonia, Strong reducing agents

Hazardous Decomposition Products Nitrogen oxides (NOx), Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50	Category 3. ATE = 1 - 5 mg/l. Category 4.
Vapor LC50	Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid …% [C ≤ 70 %]	Not listed	Not listed	LC50 = 2500 ppm. (Rat) 1h
Water	-	-	-

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Nitric acid …% [C ≤ 70 %]	7697-37-2	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Persistence and Degradability Miscible with water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Nitric acid …% [C ≤ 70 %]	-2.3

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

TDG
UN-No UN2031

Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

IATA

UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

IMDG/IMO

UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Nitric acid …% [C ≤ 70 %]	7697-37-2	X	ACTIVE	-
Water	7732-18-5	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Nitric acid …% [C ≤ 70 %]	7697-37-2	X	-	231-714-2	X	X	X	X	X	KE-25911
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Nitric acid …% [C ≤ 70 %]	7697-37-2	65 - 70	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid …% [C ≤ 70 %]	X	1000 lb	-	-

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Nitric acid …% [C ≤ 70 %]	-	TQ: 500 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nitric acid …% [C ≤ 70 %]	1000 lb	1000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitric acid …% [C ≤ 70 %]	X	X	X	X	X
Water	-	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitric acid …% [C ≤ 70 %]	Release STQs - 15000lb Theft STQs - 400lb

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Nitric acid …% [C ≤ 70 %]	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Nitric acid …% [C ≤ 70 %]	7697-37-2	Listed	Not applicable	Not applicable	Not applicable
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Nitric acid …% [C ≤ 70 %]	7697-37-2	Not applicable	Not applicable	Not applicable	Annex I - Y34
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	12-Mar-2009
Revision Date	24-Dec-2021
Print Date	24-Dec-2021
Revision Summary	SDS sections updated. 2. 11.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET
CHROMIUM HARD,TRIVALENT

1. Identification

Product identifier

Product name CHROMIUM HARD,TRIVALENT

Product number 2403

Recommended use of the chemical and restrictions on use

Application Industrial Use

Details of the supplier of the safety data sheet

Supplier

SIFCO Applied Surface Concepts
5708 E. Schaaf Road
Independence, Ohio 44131
U.S.A.
Tel.: +1 216-524-0099
Fax: +1 216-524-6331
E-Mail: info@sifcoasc.com

Emergency telephone number

Emergency telephone CHEMTREC (United States) (800) 424-9300; CHEMTREC (International) +1 703-527-3887

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335

Environmental hazards Aquatic Acute 3 - H402

Label elements

Pictogram

Signal word Danger

Hazard statements H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H402 Harmful to aquatic life.

CHROMIUM HARD,TRIVALENT

Precautionary statements

P260 Do not breathe vapor/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container in accordance with national regulations.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P310 If swallowed: Immediately call a poison center/ doctor.
P302+P352 If on skin: Wash with plenty of water.

Contains AMMONIUM FORMATE, CHROMIUM (III) SULPHATE, AMMONIA ...%

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

AMMONIUM FORMATE **25-30%**

CAS number: 540-69-2

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
STOT SE 3 - H335

AMMONIUM CHLORIDE **5-10%**

CAS number: 12125-02-9

Classification
Acute Tox. 4 - H302
Eye Irrit. 2 - H319

CHROMIUM (III) SULPHATE **5-10%**

CAS number: 10101-53-8

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Acute Tox. 4 - H332
Skin Corr. 1B - H314
Eye Dam. 1 - H318
STOT SE 3 - H335

CHROMIUM HARD,TRIVALENT

Potassium Sulfate	**1-5%**
CAS number: 7778-80-5	
Classification	
Not Classified	

AMMONIA ...%	**1-5%**
CAS number: 1336-21-6	
M factor (Acute) = 1	
Classification	
Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335 Aquatic Acute 1 - H400	

SODIUM BROMIDE	**<1%**
CAS number: 7647-15-6	
Classification	
Acute Tox. 4 - H312	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

Inhalation Move affected person to fresh air at once. Get medical attention.

Ingestion Get medical attention immediately. Do not induce vomiting.

Skin Contact Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.

Eye contact Remove affected person from source of contamination. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed

Inhalation Coughing, chest tightness, feeling of chest pressure.

Ingestion May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.

Skin contact May cause serious chemical burns to the skin.

Eye contact Causes severe burns. May cause serious eye damage.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

Special hazards arising from the substance or mixture

CHROMIUM HARD,TRIVALENT

Specific hazards Corrosive gases or vapors.

Advice for firefighters

Protective actions during firefighting Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.

Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.

Storage class Corrosive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Exposure controls

Protective equipment

Appropriate engineering controls As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.

Eye/face protection Tight-fitting safety glasses.

CHROMIUM HARD,TRIVALENT

Hand protection	It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures	Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Dark. Blue.
Odor	Acidic.
pH	pH (concentrated solution): 6.0-7.0
Initial boiling point and range	100°C/212°F @
Relative density	1.150-1.180
Other information	Not available.

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Under normal conditions of storage and use, no hazardous reactions will occur.
Conditions to avoid	Avoid excessive heat for prolonged periods of time.
Materials to avoid	None known.
Hazardous decomposition products	None at ambient temperatures.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 4,284.49

Acute toxicity - dermal

ATE dermal (mg/kg) 19,400.35

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 194.0

CHROMIUM HARD,TRIVALENT

Inhalation	Vapors irritate the respiratory system.
Ingestion	Causes severe burns. May cause chemical burns in mouth, esophagus and stomach.
Skin Contact	May cause serious chemical burns to the skin.
Eye contact	Causes serious eye damage. Immediate first aid is imperative.
Acute and chronic health hazards	May cause burns in mucous membranes, throat, esophagus and stomach.
Route of exposure	Ingestion Inhalation Skin and/or eye contact

Toxicological information on ingredients.

AMMONIUM FORMATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	2,250.0
Species	Mouse
ATE oral (mg/kg)	2,250.0

CHROMIUM (III) SULPHATE

Acute toxicity - oral

ATE oral (mg/kg)	500.0

Acute toxicity - dermal

ATE dermal (mg/kg)	1,100.0

Acute toxicity - inhalation

ATE inhalation (vapours mg/l)	11.0

Potassium Sulfate

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	6,600.0
Species	Rat
ATE oral (mg/kg)	6,600.0

AMMONIA ...%

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	350.0
Species	Rat

SODIUM BROMIDE

Acute toxicity - oral

CHROMIUM HARD,TRIVALENT

Acute toxicity oral (LD_{50} mg/kg)	3,500.0
Species	Rat
ATE oral (mg/kg)	3,500.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.0
Species	Rabbit
ATE dermal (mg/kg)	2,000.0

12. Ecological information

Ecotoxicity The product contains a substance which may have hazardous effects on the environment.

Toxicity No data available.

Ecological information on ingredients.

Potassium Sulfate

Acute aquatic toxicity

Acute toxicity - fish LC_{50}, 96 hour: 680 mg/l, Pimephales promelas (Fat-head Minnow)

AMMONIA ...%

Acute aquatic toxicity

$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC_{50}, 96 hours: 0.53 mg/l, Freshwater fish LC_{50}, 96 hours: 0.75 -3.4 mg/l, Freshwater fish LC_{50}, 96 hours: 8.2 mg/l, Freshwater fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 0.66 mg/l, Daphnia magna

SODIUM BROMIDE

Acute aquatic toxicity

Acute toxicity - fish	NOEC, 96 hour: 7800 mg/l, Oryzias latipes (Red killifish) LC_{50}, 96 hour: 160,000 mg/l, Poecilia reticulata (Guppy)
Acute toxicity - aquatic invertebrates	NOEC, 48 hour: 7800 mg/l, Daphnia magna EC_{50}, 48 hours: 5800 mg/l, Daphnia magna

Persistence and degradability

Persistence and degradability No data available.

Bioaccumulative potential

Bio-Accumulative Potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil

Mobility The product is soluble in water.

CHROMIUM HARD,TRIVALENT

Other adverse effects

Other adverse effects Not determined.

13. Disposal considerations

Waste treatment methods

General information Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

UN No. (International) Not applicable.

UN proper shipping name

Proper shipping name (International) Not applicable.

Proper shipping name (DOT) NOT RESTRICTED LIQUID

Transport hazard class(es)

Transport Labels (International) No transport warning sign required.

Packing group

Packing group (International) Not applicable.

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

National regulations The customer is advised to check if there are specific local or national regulations specifically applicable to the chemicals contained in the product. The hazards statement for this product is in accordance with international regulations, always observing the most stringent requirements.

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
Exempt.

CHROMIUM HARD,TRIVALENT

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Ammonium Chloride
Final CERCLA RQ: 5,000 lbs
Chromium Sulphate
Final CERCLA RQ: 1,000 lbs

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Exempt.

SARA 313 Emission Reporting

Chromium Sulphate

CAA Accidental Release Prevention

HAP
Chromium Sulphate

SARA (311/312) Hazard Categories

Acute
Chronic

OSHA Highly Hazardous Chemicals

Exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Chromium Sulphate

California Directors List of Hazardous Substances

Ammonium Chloride
Chromium Sulphate

Inventories

US - TSCA

All ingredients are present.

16. Other information

Classification abbreviations and acronyms	Acute Tox. = Acute toxicity Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Muta. = Germ cell mutagenicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Revision date	8/10/2018
Revision	3

CHROMIUM HARD,TRIVALENT

Hazard statements in full	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H402 Harmful to aquatic life.
NFPA - health hazard	Extremely hazardous, serious injury. (3)
NFPA - flammability hazard	Will not burn. (0)
NFPA - instability hazard	Normally stable. (0)

Safety Data Sheet

Material Name: Fuel Oil No. 2

SDS No. 0088
US GHS

Synonyms: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Acute Toxicity, Inhalation - Category 4
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2B
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes eye irritation.
Suspected of causing cancer.
Suspected of causing genetic defects.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking

Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing fume/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response
In case of fire: Use water spray, fog or foam.
If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage
Store in a well-ventilated place.
Keep cool. Store locked up.
Keep container tightly closed.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-30-2	Fuel oil No. 2	100
91-20-3	Naphthalene	<0.1

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers; Fluorel ®

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuel oil No. 2 (68476-30-2)

ACGIH: 0.2 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: 10 ppm TWA
15 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 10 ppm TWA; 50 mg/m3 TWA
NIOSH: 10 ppm TWA; 50 mg/m3 TWA
15 ppm STEL; 75 mg/m3 STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Red or reddish/orange colored (dyed)	**Odor:**	Mild, petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	**Vapor Density:**	>1.0
Boiling Point:	340 to 700 °F (171 to 371 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	AP 0.823-0871
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	100 °F (38 °C) minimum
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	7.5
Lower Flammability Limit (LFL):	0.6	**Burning Rate:**	ND
Auto Ignition:	494°F (257°C)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers; Fluorel ®

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Fuel oil No. 2 (68476-30-2)

Oral LD50 Rat 12 g/kg; Dermal LD50 Rabbit 4720 µL/kg; Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat 4.6 mg/L 4 h

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Product Mixture

Oral LD50 Rat 14.5 ml/kg; Dermal LD50 Rabbit >5 mL/kg; Guinea Pig Sensitization: negative; Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits); Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects. Material of similar composition has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Dermal carcinogenicity: positive - mice
Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

B: Component Carcinogenicity

Fuel oil No. 2 (68476-30-2)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuel oil No. 2 (68476-30-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Naphthalene (91-20-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]	
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]	
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]	
72 Hr EC50 Skeletonema costatum	0.4 mg/L	
48 Hr LC50 Daphnia magna	2.16 mg/L	
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]	
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]	

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information

Shipping Name: Fuel Oil, No. 2

UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

Placard:

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Naphthalene (91-20-3)

SARA 313: 0.1 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

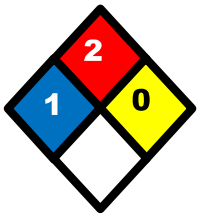
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Fuel oil No. 2	68476-30-2	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

NFPA® Hazard Rating

Health	1
Fire	2
Reactivity	0



HMIS® Hazard Rating

Health	1*	Slight
Fire	2	Moderate
Physical	0	Minimal
		*Chronic

Abbreviations:

AP = Approximately; < = Less than > = Greater than; N/A = Not Applicable; N/D = Not Determined; ppm = parts per million

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; API = American Petroleum Institute (202) 682-8000; IARC = International Agency for Research on Cancer; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

M. REFERENCES

HSCA Health and Safety Plan 2014

Appendix B

Alliance September 2024 Sample Location Map, Summary Table of Sample Results, and Photographs of Sample Locations and Cleanup Activities


2024.08.13 DEP Soil Sample Locations
Bartram's Mile Trail
Philadelphia, PA
S12
S3
S-16
S-21
S13
S5
S6
S-23
S-22
S7
S-19
S-18
S-20
S8A
S10A
S14
S15
Google Earth
70 ft
N

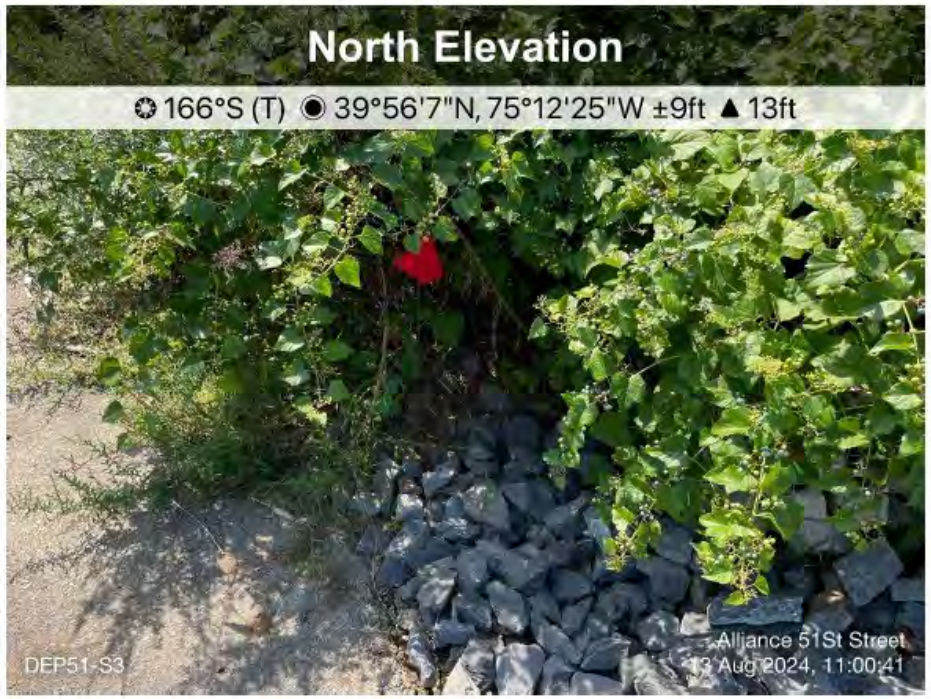
Table X
Summary of Soil Sampling Results- September 16, 2024
Alliance 51st Street LLC
1646 South 51st Street
Philadelphia, Pennsylvania

SAMPLE ID:	Pennsylvania Residential Direct Contact Soil MSCs	S-3		S-5		S-6		S-8A		S-16		S-18	
LAB ID:		410-188472-10		410-188472-11		410-188472-12		410-188472-1		410-188472-2		410-188472-3	
COLLECTION DATE:		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024	
SAMPLE MATRIX:		Soil		Soil		Soil		Soil		Soil		Soil	
ANALYTE	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
GENERAL CHEMISTRY													
Chromium, Trivalent*	190000	310		270		250		550		79		59	
Chromium, Hexavalent	37	ND	ND	24		5.8		16		ND		0.86	J
TOTAL METALS													
Chromium, Total	NS	5		300		250		560		79		60	

SAMPLE ID:	Pennsylvania Residential Direct Contact Soil MSCs	S-19		S-20		S-21		Dup-1		S-22		S-23	
LAB ID:		410-188472-4		410-188472-5		410-188472-6		410-188472-9		410-188472-7		410-188472-8	
COLLECTION DATE:		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024		9/16/2024	
SAMPLE MATRIX:		Soil		Soil		Soil		Soil		Soil		Soil	
ANALYTE	(mg/kg)	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
GENERAL CHEMISTRY													
Chromium, Trivalent*	190000	56		41						150		56	
Chromium, Hexavalent	37	ND		ND		32		7.7		3.9		ND	
TOTAL METALS													
Chromium, Total	NS	56		41		980		980		160		56	

NOTES:
MSC - Medium Specific Concentration
PADEP - Pennsylvania Department of Environmental Protection
Q - Qualifier
Conc - Concentration
* calculated based on the difference between detected total chromium and hexavalent chromium concentrations
U - Compound was undetected at the listed laboratory method detection limit.
Concentrations reported in miligrams per kilogram (mg/kg)

Before Cleanup



DEP51-S3 – Collected from soil next to placed stone.

After Clean Up (9/17)

Before Cleanup

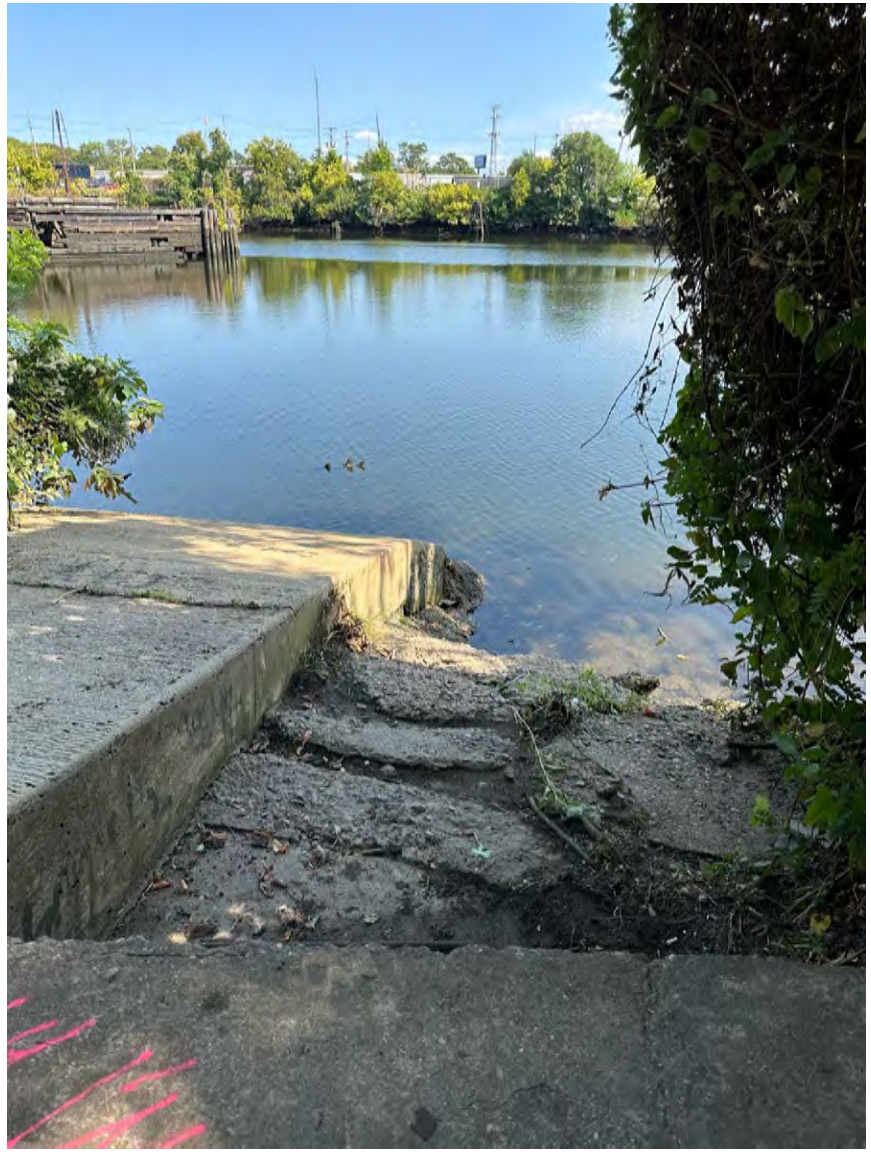
DEP51-S5 was collected from adjacent to the concrete wall and drainpipe. DEP51-S6 was collected closest to the river.

After Clean Up (9/17)

Before Cleanup

DEP51-S8A was collected from an area of accumulated soil downgradient of the original DEP51-S8 location.

After Clean Up (9/17)




WARNING
BURIED CABLE
1-800-242-1776
BEFORE EXCAVATING
Praise
dotter!
XOXO
ACAB

Appendix C

DEP Sampling Narrative dated October 24, 2024

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

Inspection Date: October 24, 2024	**Inspection Time:** 9:40 – 11:05	**Lat/Long:** 39.93496631230625, -75.20914844926827	
Inspecting Program:	☐ **Storage Tanks**	☒ **HSCA**	☒ **LRP**
Owner Name: Alliance 51st Street LLC	**Inspection Number:** N/A	**Site ID:** N/A	

Facility Location (911) Address: 1646 South 51st Street Philadelphia, PA	**Municipality:** Philadelphia **County:** Philadelphia
Responsible Official Name: Max Ryan **Responsible Official Title:** Director of Development and Construction – Alliance 51st Street LLC	**Responsible Official Address:** 40 Morris Avenue, Suite 230 Bryn Mawr, PA 19010
Responsible Official Telephone: 856-699-1105 **Responsible Official Fax:** Not Applicable	**Email Address:** mryan@alliancehsp.com

Narrative:

Attendee List

- PADEP – Matthew Sabetta, Christine McCarthy, and Jenna Kokoskie

Purpose of Visit

- DEP on site to collect confirmatory post cleanup soil analytical samples along the pedestrian bike path that runs along the east edge of the Alliance property boundary.

Discussion

- 9:40 – Department personnel arrive at the beginning of the Bartram's trail. There is no activity occurring on the Alliance property (i.e. no vehicles or personnel observed on the property). However, one of the gates to the Alliance property is noted as being open. The section of Bartram's trail is still closed. The weather is ~60°F, sunny and windy.
- 9:50 – Begin walking Bartram's trail to locate and mark out proposed sample locations.
- 10:10 – Finish marking out the locations and begin prepping to collect soil samples.
- Sampling is performed in accordance with the October 23, 2024 Sampling and Analysis Plan for the Site.
- Sediment socks are still in place on the trail in front of all drainpipes/ports. No accumulation of sediment or standing water is observed on the asphalt trail.

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725

Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.

Name of Person Interviewed	Signature of Person Interviewed	Title	Date: Telephone:

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: **Alliance 51st Street** **Primary Facility ID:** **855927**

- Samples are collected from the first occurrence of surface soil at each location using disposable scoops.
- A duplicate sample is collected from the DEP51-S21 location. Soil is placed on plastic and mixed prior to filling the sample and duplicate sample jars.
- 10:50 – Finish collecting soil samples. A total of eight sample locations with nine total samples are collected for the following analyses: Total Metals TAL List by 6020B, Hexavalent Chromium by 7196A, Trivalent Chromium Calculation by 7196A Lab Calculation, Mercury by 7471B, and Percent Moisture.
- 11:05 – Department personnel depart from the site.
- All samples (8 soil, 1 soil duplicate) are transported back to DEP office in Norristown for transfer to Eurofins courier. All samples transferred to Eurofins courier by 1500 for same day transport to Eurofins Lancaster Laboratories Environmental. A 5-day Rush Turn Around Time was ordered.

Table 1 – Summary of Soil Samples Collected on October 24, 2024

Location ID	Media	Latitude	Longitude	Sample Date	Sample Time	Description of Location
DEP51-S3	Soil	39.935354	-75.207100	10/24/2024	10:22	collected from original location underneath added stone
DEP51-S5	Soil	39.935191	-75.206825	10/24/2024	10:45	collected from downgradient side of drain pipe (i.e. river side). This is the first visible drain pipe that drains runoff from the trail
DEP51-S6	Soil	39.935211	-75.206853	10/24/2024	10:45	Located about 15ft downgradient of DEP51-S5 as close to the river as possible before concrete
DEP51-S8A	Soil	39.935079	-75.206838	10/24/2024	10:47	Collected riverside downgradient of second drain; collected ~5ft from drain and original location
DEP51-S16A	Soil	39.935311	-75.207040	10/24/2024	10:27	Collected 10ft south of the edge of the stone added to cleanup area

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.			
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BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: **Alliance 51st Street** **Primary Facility ID:** **855927**

DEP51-S21 DEP51-SDUP	Soil	39.935255	-75.206827	10/24/2024	10:36	Sample collected from an area not affected by the discharge of the site. This location sits ~3ft above the trail level with the concrete wall on the river side of the trail.
DEP51-S24	Soil	39.935473	-75.207023	10/24/2024	10:30	Collected from opposite side of the trail from the discharge area.
DEP51-S25	Soil	39.935556	-75.207086	10/24/2024	10:33	Collected about 30ft to the north of DEP51-S24.

DEP Representative Name	**DEP Representative Signature**	**Title**	**Date:** October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.			
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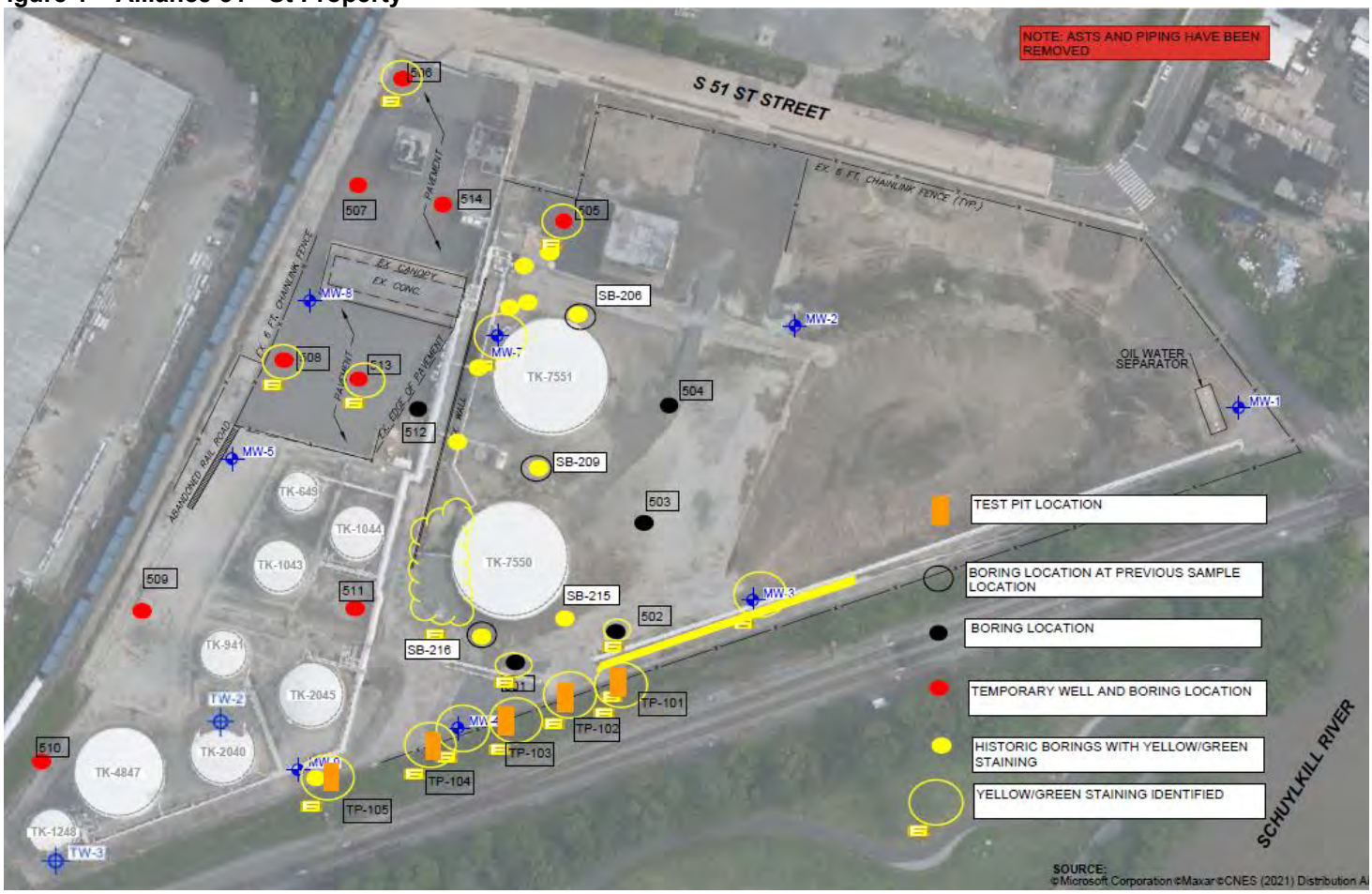
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

MAPS / PHOTOGRAPHS / ATTACHMENTS

Figure 1 – Alliance 51st St Property



DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	Telephone: 484-250-5788 484-250-5725
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NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

Figure 2 – 9/16/2024 Alliance/Arcadis Sample Locations. Samples were collected from S3, S5, S6, S8A, S16, S18, S19, S20, S21, S22, and S23.

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.			
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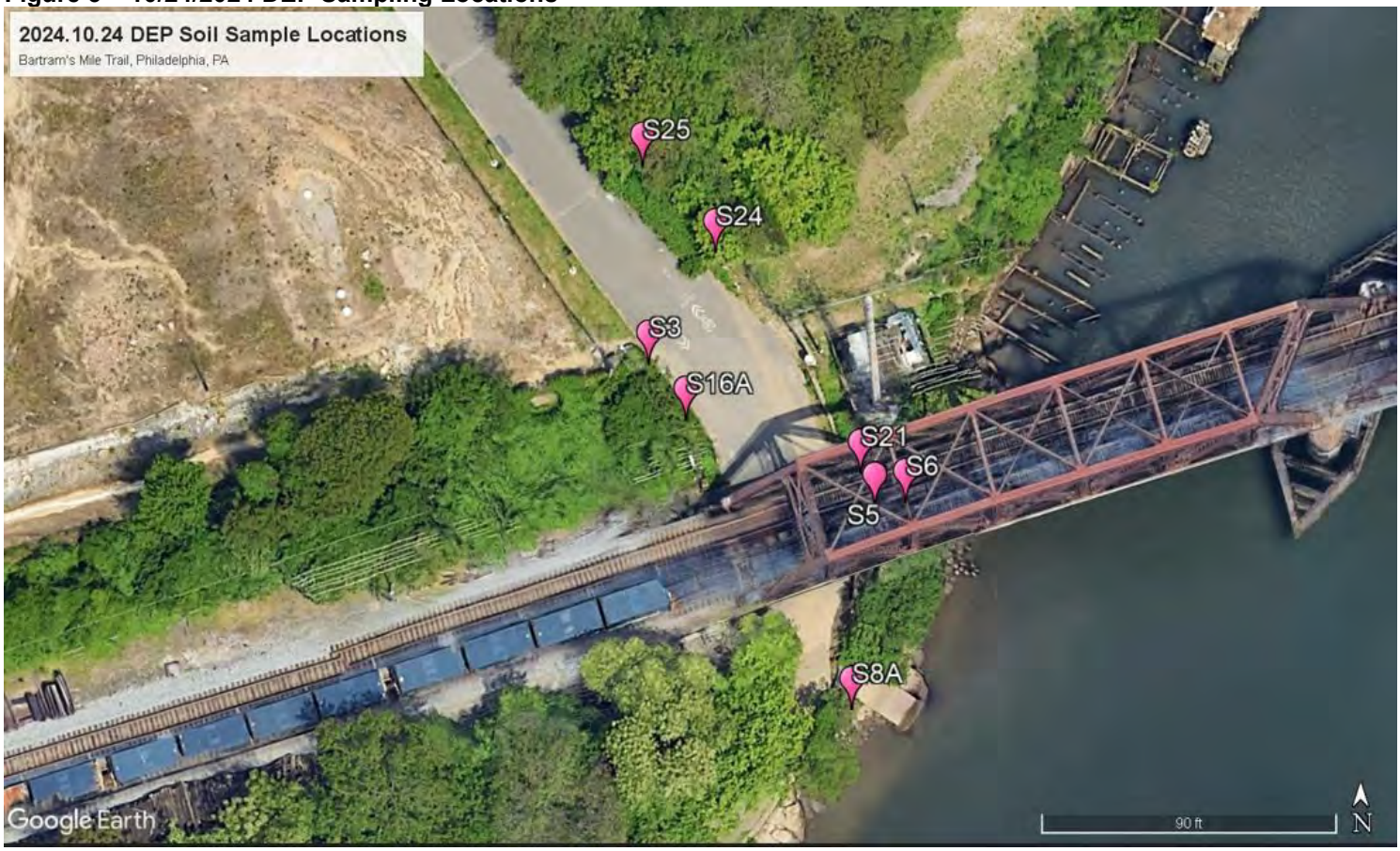
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

Figure 3 – 10/24/2024 DEP Sampling Locations



DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	Telephone: 484-250-5788 484-250-5725
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BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

Figure 4 – Octboer 2024 DEP Soil Sample Chain of Custody

Eurofins Lancaster Laboratories Environme
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Jenna Kokoske	Lab PM: Sachtleben, Kerri S	Carrier Tracking No(s):	COC No: 410-134203-38341.1
Client Contact: Glorinés Suárez Rivera	Phone: 484-250-5725	E-Mail: Kerri.Sachtleben@et.eurofinsus.com	State of Origin: PA	Page: Page 1 of 1
Company: Pennsylvania Dept of Env Protection	PWSID:	Analysis Requested		Job #:
Address: 2 East Main Street	Due Date Requested:			Preservation Codes:
City: Norristown	TAT Requested (days): 5 day rush			
State, Zip: PA, 19401	Compliance Project: Δ Yes ✗ No			
Phone: 484-250-5724(Tel)	PO #: 188260			
Email: gsuarezriv@pa.gov	WO #:			Other:
Project Name: PADEP 51st	Project #: 41020738			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	7199_CR3-Trivalent Chrom	6020B-Total Metals	7471B-Mercury	7196A-Hex Chrom	Moisture-% Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
DEP-51-S3-241024	10/24/24	1022	G	S			X	X	X	X	X	1	
DEP 51-S16-241024		1027											
DEP 51-S24-241024		1030											
DEP 51-S25-241024		1033											
DEP 51-S21-241024		1036											
DEP 51-S-DUP-241024		—											
DEP 51-S5-241024		1042											
DEP 51-S6-241024		1045											
DEP 51-S8A-241024	↓	1047	↓	↓			↓	↓	↓	↓	↓	↓	
~~DEP 51-5~~ JK 10/24/24													

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Christine McCarthy	10/24/24 1320	PA DEP			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 10/10/2024

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.			
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BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

View showing trail still closed.

Additional cleanup and soil removed near discharge area.

DEP51-S3 sample location. Soil sample was collected from beneath rocks.

DEP51-S5 sample location. Sample was collected from material as drain opening.

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
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BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927

DEP51-S6 sample location. Soil sample was collected from material at edge of concrete closest to the river.

DEP51-S8A sample location. Sample collected from accumulated soil in cracks.

DEP51-S16A sample location.

DEP51-S21 sample location.

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	Telephone: 484-250-5788 484-250-5725
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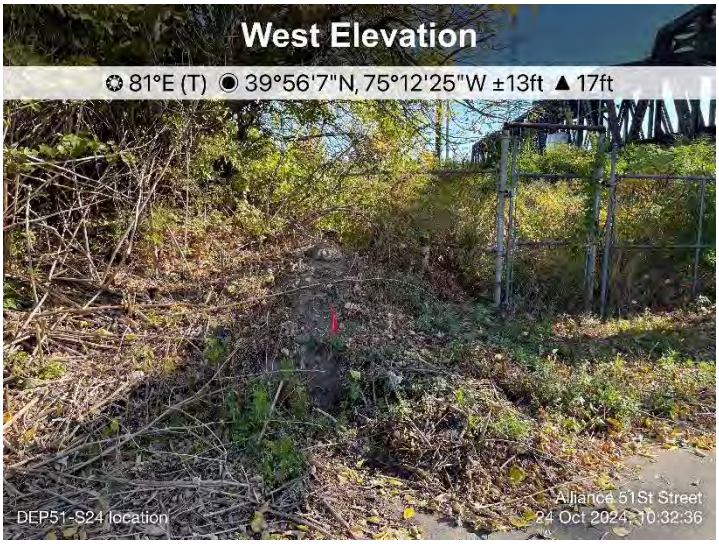
NARRATIVE REPORT FORM

Facility Name: Alliance 51st Street **Primary Facility ID:** 855927



DEP51-S24 sample location.

DEP51-S25 sample location.

Gate to Alliance property is left open with no personnel observed onsite.

DEP Representative Name	DEP Representative Signature	Title	Date: October 24, 2024
Matthew Sabetta Christine McCarthy	Matthew Sabetta Christine McCarthy	LPG Solid Waste Supervisor	**Telephone:** 484-250-5788 484-250-5725
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Name of Person Interviewed	**Signature of Person Interviewed**	**Title**	**Date:** **Telephone:**

Appendix D

DEP (Eurofins) Laboratory Data Package received November 1, 2024

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12 13 14

ANALYTICAL REPORT

PREPARED FOR

Attn: Glorinés Suárez Rivera
Pennsylvania Dept of Env Protection
2 East Main Street
Norristown, Pennsylvania 19401

Generated 11/1/2024 2:45:28 PM

JOB DESCRIPTION

PA DEP 51st

JOB NUMBER

410-193795-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
11/1/2024 2:45:28 PM

Authorized for release by
Kerri Sachtleben, Client Services Group Leader
Kerri.Sachtleben@et.eurofinsus.com
(717)556-7376

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Table of Contents

Definitions/Glossary

Client: Pennsylvania Dept of Env Protection
Job ID: 410-193795-1
Project/Site: PA DEP 51st

Qualifiers

Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
!	Laboratory is not accredited for this parameter.
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-193795-1 — Eurofins Lancaster Laboratories Environment

Job Narrative
410-193795-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/24/2024 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received. The COC is missing Sample Preservation. This does not meet regulatory requirements.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 7196A: The following sample was diluted due to the nature of the sample matrix: DEP-51-S16-241024 (410-193795-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Client Sample ID: DEP-51-S3-241024 — Lab Sample ID: 410-193795-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	13000		20	10	mg/Kg	2	☼	6020B	Total/NA
Antimony	0.83		0.20	0.082	mg/Kg	2	☼	6020B	Total/NA
Arsenic	9.2		0.41	0.14	mg/Kg	2	☼	6020B	Total/NA
Barium	120		0.41	0.19	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.69		0.10	0.024	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.38		0.10	0.041	mg/Kg	2	☼	6020B	Total/NA
Calcium	34000		200	100	mg/Kg	10	☼	6020B	Total/NA
Chromium	950		20	9.7	mg/Kg	100	☼	6020B	Total/NA
Cobalt	13		0.20	0.082	mg/Kg	2	☼	6020B	Total/NA
Copper	37		0.41	0.18	mg/Kg	2	☼	6020B	Total/NA
Iron	24000		100	47	mg/Kg	10	☼	6020B	Total/NA
Lead	88		0.20	0.077	mg/Kg	2	☼	6020B	Total/NA
Magnesium	9200		10	5.0	mg/Kg	2	☼	6020B	Total/NA
Manganese	870		0.41	0.20	mg/Kg	2	☼	6020B	Total/NA
Nickel	49		0.41	0.19	mg/Kg	2	☼	6020B	Total/NA
Potassium	4000		41	16	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.26	J	0.41	0.10	mg/Kg	2	☼	6020B	Total/NA
Silver	0.11		0.10	0.041	mg/Kg	2	☼	6020B	Total/NA
Sodium	140		51	24	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.25		0.10	0.040	mg/Kg	2	☼	6020B	Total/NA
Vanadium	49		0.82	0.20	mg/Kg	2	☼	6020B	Total/NA
Zinc	290		150	20	mg/Kg	10	☼	6020B	Total/NA
Mercury	0.059		0.059	0.020	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	21		0.45	0.15	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	930	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S16-241024 — Lab Sample ID: 410-193795-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	10000		20	10	mg/Kg	2	☼	6020B	Total/NA
Antimony	1.2		0.20	0.082	mg/Kg	2	☼	6020B	Total/NA
Arsenic	7.5		0.41	0.14	mg/Kg	2	☼	6020B	Total/NA
Barium	110		0.41	0.19	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.48		0.10	0.024	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.37		0.10	0.041	mg/Kg	2	☼	6020B	Total/NA
Calcium	13000		41	20	mg/Kg	2	☼	6020B	Total/NA
Chromium	110		0.41	0.19	mg/Kg	2	☼	6020B	Total/NA
Cobalt	7.7	^2	0.20	0.082	mg/Kg	2	☼	6020B	Total/NA
Copper	43		0.41	0.18	mg/Kg	2	☼	6020B	Total/NA
Iron	18000		20	9.4	mg/Kg	2	☼	6020B	Total/NA
Lead	140		0.20	0.078	mg/Kg	2	☼	6020B	Total/NA
Magnesium	7100		10	5.0	mg/Kg	2	☼	6020B	Total/NA
Manganese	280		0.41	0.20	mg/Kg	2	☼	6020B	Total/NA
Nickel	18		0.41	0.19	mg/Kg	2	☼	6020B	Total/NA
Potassium	3400		41	16	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.32	J	0.41	0.10	mg/Kg	2	☼	6020B	Total/NA
Silver	0.12		0.10	0.042	mg/Kg	2	☼	6020B	Total/NA
Sodium	320		51	25	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.20		0.10	0.040	mg/Kg	2	☼	6020B	Total/NA
Vanadium	28		0.82	0.20	mg/Kg	2	☼	6020B	Total/NA
Zinc	170		31	4.1	mg/Kg	2	☼	6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DEP-51-S16-241024 (Continued)

Lab Sample ID: 410-193795-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.093		0.061	0.020	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	0.88	J cn	2.1	0.71	mg/Kg	5	☼	7196A	Total/NA
Cr (III)	110	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S24-241024

Lab Sample ID: 410-193795-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	17000		19	9.4	mg/Kg	2	☼	6020B	Total/NA
Antimony	0.92		0.19	0.076	mg/Kg	2	☼	6020B	Total/NA
Arsenic	7.6		0.38	0.13	mg/Kg	2	☼	6020B	Total/NA
Barium	150		0.38	0.17	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.83		0.094	0.022	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.51		0.094	0.038	mg/Kg	2	☼	6020B	Total/NA
Calcium	21000		190	93	mg/Kg	10	☼	6020B	Total/NA
Chromium	670		1.9	0.90	mg/Kg	10	☼	6020B	Total/NA
Cobalt	17		0.19	0.076	mg/Kg	2	☼	6020B	Total/NA
Copper	49		0.38	0.17	mg/Kg	2	☼	6020B	Total/NA
Iron	30000		94	44	mg/Kg	10	☼	6020B	Total/NA
Lead	290		0.94	0.36	mg/Kg	10	☼	6020B	Total/NA
Magnesium	7900		9.4	4.6	mg/Kg	2	☼	6020B	Total/NA
Manganese	720		0.38	0.19	mg/Kg	2	☼	6020B	Total/NA
Nickel	50		0.38	0.18	mg/Kg	2	☼	6020B	Total/NA
Potassium	4600		38	15	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.45		0.38	0.094	mg/Kg	2	☼	6020B	Total/NA
Silver	0.18		0.094	0.038	mg/Kg	2	☼	6020B	Total/NA
Sodium	160		47	23	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.28		0.094	0.037	mg/Kg	2	☼	6020B	Total/NA
Vanadium	47		0.76	0.19	mg/Kg	2	☼	6020B	Total/NA
Zinc	300		140	19	mg/Kg	10	☼	6020B	Total/NA
Mercury	0.095		0.058	0.019	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	5.6		0.42	0.14	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	670	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S25-241024

Lab Sample ID: 410-193795-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	14000		17	8.2	mg/Kg	2	☼	6020B	Total/NA
Antimony	1.5		0.17	0.066	mg/Kg	2	☼	6020B	Total/NA
Arsenic	9.5		0.33	0.11	mg/Kg	2	☼	6020B	Total/NA
Barium	540		1.7	0.76	mg/Kg	10	☼	6020B	Total/NA
Beryllium	0.60		0.083	0.020	mg/Kg	2	☼	6020B	Total/NA
Cadmium	2.4		0.083	0.033	mg/Kg	2	☼	6020B	Total/NA
Calcium	28000		170	81	mg/Kg	10	☼	6020B	Total/NA
Chromium	41		0.33	0.16	mg/Kg	2	☼	6020B	Total/NA
Cobalt	8.3		0.17	0.066	mg/Kg	2	☼	6020B	Total/NA
Copper	28		0.33	0.15	mg/Kg	2	☼	6020B	Total/NA
Iron	22000		83	38	mg/Kg	10	☼	6020B	Total/NA
Lead	1300		8.3	3.2	mg/Kg	100	☼	6020B	Total/NA
Magnesium	6400		8.3	4.1	mg/Kg	2	☼	6020B	Total/NA
Manganese	350		0.33	0.17	mg/Kg	2	☼	6020B	Total/NA
Nickel	16		0.33	0.16	mg/Kg	2	☼	6020B	Total/NA
Potassium	4000		33	13	mg/Kg	2	☼	6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DEP-51-S25-241024 (Continued)

Lab Sample ID: 410-193795-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.34		0.33	0.083	mg/Kg	2	☼	6020B	Total/NA
Silver	0.20		0.083	0.034	mg/Kg	2	☼	6020B	Total/NA
Sodium	130		41	20	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.21		0.083	0.033	mg/Kg	2	☼	6020B	Total/NA
Vanadium	34		0.66	0.17	mg/Kg	2	☼	6020B	Total/NA
Zinc	860	J	1200	170	mg/Kg	100	☼	6020B	Total/NA
Mercury	0.34		0.056	0.019	mg/Kg	1	☼	7471B	Total/NA
Cr (III)	41	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S21-241024

Lab Sample ID: 410-193795-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	13000		20	10	mg/Kg	2	☼	6020B	Total/NA
Antimony	0.80		0.20	0.081	mg/Kg	2	☼	6020B	Total/NA
Arsenic	9.1		0.40	0.13	mg/Kg	2	☼	6020B	Total/NA
Barium	130		0.40	0.18	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.64		0.10	0.024	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.44		0.10	0.040	mg/Kg	2	☼	6020B	Total/NA
Calcium	32000		200	99	mg/Kg	10	☼	6020B	Total/NA
Chromium	1000		20	9.6	mg/Kg	100	☼	6020B	Total/NA
Cobalt	15		0.20	0.081	mg/Kg	2	☼	6020B	Total/NA
Copper	40		0.40	0.18	mg/Kg	2	☼	6020B	Total/NA
Iron	30000		100	46	mg/Kg	10	☼	6020B	Total/NA
Lead	84		0.20	0.077	mg/Kg	2	☼	6020B	Total/NA
Magnesium	6900		10	4.9	mg/Kg	2	☼	6020B	Total/NA
Manganese	440		0.40	0.20	mg/Kg	2	☼	6020B	Total/NA
Nickel	58		0.40	0.19	mg/Kg	2	☼	6020B	Total/NA
Potassium	4400		40	16	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.26	J	0.40	0.10	mg/Kg	2	☼	6020B	Total/NA
Silver	0.10		0.10	0.041	mg/Kg	2	☼	6020B	Total/NA
Sodium	130		50	24	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.26		0.10	0.039	mg/Kg	2	☼	6020B	Total/NA
Vanadium	62		0.81	0.20	mg/Kg	2	☼	6020B	Total/NA
Zinc	320		150	20	mg/Kg	10	☼	6020B	Total/NA
Mercury	0.075		0.058	0.019	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	22		0.43	0.14	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	1000	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S-DUP-241024

Lab Sample ID: 410-193795-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	14000		20	9.7	mg/Kg	2	☼	6020B	Total/NA
Antimony	0.74		0.20	0.078	mg/Kg	2	☼	6020B	Total/NA
Arsenic	8.7		0.39	0.13	mg/Kg	2	☼	6020B	Total/NA
Barium	120		0.39	0.18	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.60		0.098	0.023	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.40		0.098	0.039	mg/Kg	2	☼	6020B	Total/NA
Calcium	31000		200	96	mg/Kg	10	☼	6020B	Total/NA
Chromium	1000		20	9.3	mg/Kg	100	☼	6020B	Total/NA
Cobalt	16		0.20	0.078	mg/Kg	2	☼	6020B	Total/NA
Copper	40		0.39	0.18	mg/Kg	2	☼	6020B	Total/NA
Iron	27000		98	45	mg/Kg	10	☼	6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DEP-51-S-DUP-241024 (Continued)

Lab Sample ID: 410-193795-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	83		0.20	0.074	mg/Kg	2	☼	6020B	Total/NA
Magnesium	7500		9.8	4.8	mg/Kg	2	☼	6020B	Total/NA
Manganese	460		0.39	0.20	mg/Kg	2	☼	6020B	Total/NA
Nickel	58		0.39	0.19	mg/Kg	2	☼	6020B	Total/NA
Potassium	5100		39	16	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.23	J	0.39	0.098	mg/Kg	2	☼	6020B	Total/NA
Silver	0.083	J	0.098	0.040	mg/Kg	2	☼	6020B	Total/NA
Sodium	130		49	23	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.30		0.098	0.038	mg/Kg	2	☼	6020B	Total/NA
Vanadium	52		0.78	0.20	mg/Kg	2	☼	6020B	Total/NA
Zinc	350		150	20	mg/Kg	10	☼	6020B	Total/NA
Mercury	0.051	J	0.060	0.020	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	14		0.42	0.14	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	1000	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S5-241024

Lab Sample ID: 410-193795-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	13000		24	12	mg/Kg	2	☼	6020B	Total/NA
Antimony	1.3		0.24	0.095	mg/Kg	2	☼	6020B	Total/NA
Arsenic	6.9		0.48	0.16	mg/Kg	2	☼	6020B	Total/NA
Barium	130		0.48	0.22	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.55		0.12	0.028	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.33		0.12	0.048	mg/Kg	2	☼	6020B	Total/NA
Calcium	19000		48	23	mg/Kg	2	☼	6020B	Total/NA
Chromium	480		2.4	1.1	mg/Kg	10	☼	6020B	Total/NA
Cobalt	12	^2	0.24	0.095	mg/Kg	2	☼	6020B	Total/NA
Copper	42		0.48	0.21	mg/Kg	2	☼	6020B	Total/NA
Iron	30000		120	55	mg/Kg	10	☼	6020B	Total/NA
Lead	490		1.2	0.45	mg/Kg	10	☼	6020B	Total/NA
Magnesium	7300		12	5.8	mg/Kg	2	☼	6020B	Total/NA
Manganese	480		0.48	0.24	mg/Kg	2	☼	6020B	Total/NA
Nickel	38		0.48	0.23	mg/Kg	2	☼	6020B	Total/NA
Potassium	4800		48	19	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.17	J	0.48	0.12	mg/Kg	2	☼	6020B	Total/NA
Silver	0.080	J	0.12	0.048	mg/Kg	2	☼	6020B	Total/NA
Sodium	330		60	29	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.29		0.12	0.047	mg/Kg	2	☼	6020B	Total/NA
Vanadium	37		0.95	0.24	mg/Kg	2	☼	6020B	Total/NA
Zinc	360		180	24	mg/Kg	10	☼	6020B	Total/NA
Mercury	0.050	J	0.068	0.023	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	32		0.51	0.17	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	450	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S6-241024

Lab Sample ID: 410-193795-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	4900		20	10	mg/Kg	2	☼	6020B	Total/NA
Antimony	3.9		0.20	0.081	mg/Kg	2	☼	6020B	Total/NA
Arsenic	10		0.40	0.14	mg/Kg	2	☼	6020B	Total/NA
Barium	52		0.40	0.18	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.38		0.10	0.024	mg/Kg	2	☼	6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DEP-51-S6-241024 (Continued)

Lab Sample ID: 410-193795-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.27		0.10	0.040	mg/Kg	2	☼	6020B	Total/NA
Calcium	14000		40	20	mg/Kg	2	☼	6020B	Total/NA
Chromium	230		2.0	0.96	mg/Kg	10	☼	6020B	Total/NA
Cobalt	9.3	^2	0.20	0.081	mg/Kg	2	☼	6020B	Total/NA
Copper	200		2.0	0.91	mg/Kg	10	☼	6020B	Total/NA
Iron	71000		100	47	mg/Kg	10	☼	6020B	Total/NA
Lead	290		1.0	0.38	mg/Kg	10	☼	6020B	Total/NA
Magnesium	6200		10	5.0	mg/Kg	2	☼	6020B	Total/NA
Manganese	460		0.40	0.20	mg/Kg	2	☼	6020B	Total/NA
Nickel	25		0.40	0.19	mg/Kg	2	☼	6020B	Total/NA
Potassium	1500		40	16	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.15	J	0.40	0.10	mg/Kg	2	☼	6020B	Total/NA
Silver	0.055	J	0.10	0.041	mg/Kg	2	☼	6020B	Total/NA
Sodium	97		51	24	mg/Kg	2	☼	6020B	Total/NA
Vanadium	26		0.81	0.20	mg/Kg	2	☼	6020B	Total/NA
Zinc	270		150	20	mg/Kg	10	☼	6020B	Total/NA
Mercury	9.0		1.3	0.45	mg/Kg	20	☼	7471B	Total/NA
Cr (VI)	6.5		0.46	0.15	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	220	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

Client Sample ID: DEP-51-S8A-241024

Lab Sample ID: 410-193795-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	8600		22	11	mg/Kg	2	☼	6020B	Total/NA
Antimony	1.1		0.22	0.089	mg/Kg	2	☼	6020B	Total/NA
Arsenic	6.2		0.44	0.15	mg/Kg	2	☼	6020B	Total/NA
Barium	78		0.44	0.20	mg/Kg	2	☼	6020B	Total/NA
Beryllium	0.49		0.11	0.026	mg/Kg	2	☼	6020B	Total/NA
Cadmium	0.28		0.11	0.044	mg/Kg	2	☼	6020B	Total/NA
Calcium	11000		44	22	mg/Kg	2	☼	6020B	Total/NA
Chromium	330		2.2	1.1	mg/Kg	10	☼	6020B	Total/NA
Cobalt	9.4		0.22	0.089	mg/Kg	2	☼	6020B	Total/NA
Copper	84		0.44	0.20	mg/Kg	2	☼	6020B	Total/NA
Iron	34000		110	51	mg/Kg	10	☼	6020B	Total/NA
Lead	320		1.1	0.42	mg/Kg	10	☼	6020B	Total/NA
Magnesium	4400		11	5.4	mg/Kg	2	☼	6020B	Total/NA
Manganese	480		0.44	0.22	mg/Kg	2	☼	6020B	Total/NA
Nickel	27		0.44	0.21	mg/Kg	2	☼	6020B	Total/NA
Potassium	2400		44	18	mg/Kg	2	☼	6020B	Total/NA
Selenium	0.26	J	0.44	0.11	mg/Kg	2	☼	6020B	Total/NA
Silver	0.082	J	0.11	0.045	mg/Kg	2	☼	6020B	Total/NA
Sodium	190		55	27	mg/Kg	2	☼	6020B	Total/NA
Thallium	0.15		0.11	0.043	mg/Kg	2	☼	6020B	Total/NA
Vanadium	42		0.89	0.22	mg/Kg	2	☼	6020B	Total/NA
Zinc	170		33	4.4	mg/Kg	2	☼	6020B	Total/NA
Mercury	0.058	J	0.078	0.026	mg/Kg	1	☼	7471B	Total/NA
Cr (VI)	8.2		0.53	0.18	mg/Kg	1	☼	7196A	Total/NA
Cr (III)	330	!	0.011	0.0035	mg/Kg	1	☼	7196A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DEP-51-S3-241024

Lab Sample ID: 410-193795-1

Date Collected: 10/24/24 10:22
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 94.3

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		20	10	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Antimony	0.83		0.20	0.082	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Arsenic	9.2		0.41	0.14	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Barium	120		0.41	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Beryllium	0.69		0.10	0.024	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Cadmium	0.38		0.10	0.041	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Calcium	34000		200	100	mg/Kg	☼	10/28/24 22:00	10/31/24 08:19	10
Chromium	950		20	9.7	mg/Kg	☼	10/28/24 22:00	10/31/24 17:05	100
Cobalt	13		0.20	0.082	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Copper	37		0.41	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Iron	24000		100	47	mg/Kg	☼	10/28/24 22:00	10/31/24 08:19	10
Lead	88		0.20	0.077	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Magnesium	9200		10	5.0	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Manganese	870		0.41	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Nickel	49		0.41	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Potassium	4000		41	16	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Selenium	0.26	J	0.41	0.10	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Silver	0.11		0.10	0.041	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Sodium	140		51	24	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Thallium	0.25		0.10	0.040	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Vanadium	49		0.82	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:17	2
Zinc	290		150	20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:19	10

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.059		0.059	0.020	mg/Kg	☼	10/28/24 23:00	11/01/24 09:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	21		0.45	0.15	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	930	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:44	1
Percent Moisture (EPA Moisture)	5.7	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S16-241024

Lab Sample ID: 410-193795-2

Date Collected: 10/24/24 10:27
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 95.7

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	10000		20	10	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Antimony	1.2		0.20	0.082	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Arsenic	7.5		0.41	0.14	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Barium	110		0.41	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Beryllium	0.48		0.10	0.024	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Cadmium	0.37		0.10	0.041	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Calcium	13000		41	20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Chromium	110		0.41	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Cobalt	7.7	^2	0.20	0.082	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Copper	43		0.41	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Iron	18000		20	9.4	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2

Client Sample ID: DEP-51-S16-241024

Lab Sample ID: 410-193795-2

Date Collected: 10/24/24 10:27
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 95.7

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	140		0.20	0.078	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Magnesium	7100		10	5.0	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Manganese	280		0.41	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Nickel	18		0.41	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Potassium	3400		41	16	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Selenium	0.32	J	0.41	0.10	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Silver	0.12		0.10	0.042	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Sodium	320		51	25	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Thallium	0.20		0.10	0.040	mg/Kg	☼	10/28/24 22:00	10/31/24 16:57	2
Vanadium	28		0.82	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2
Zinc	170		31	4.1	mg/Kg	☼	10/28/24 22:00	10/31/24 07:47	2

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.093		0.061	0.020	mg/Kg	☼	10/28/24 23:00	11/01/24 09:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	0.88	J cn	2.1	0.71	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	5
Cr (III) (SW846 7196A)	110	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:44	1
Percent Moisture (EPA Moisture)	4.3	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S24-241024

Lab Sample ID: 410-193795-3

Date Collected: 10/24/24 10:30
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.0

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17000		19	9.4	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Antimony	0.92		0.19	0.076	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Arsenic	7.6		0.38	0.13	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Barium	150		0.38	0.17	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Beryllium	0.83		0.094	0.022	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Cadmium	0.51		0.094	0.038	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Calcium	21000		190	93	mg/Kg	☼	10/28/24 22:00	10/31/24 08:11	10
Chromium	670		1.9	0.90	mg/Kg	☼	10/28/24 22:00	10/31/24 08:11	10
Cobalt	17		0.19	0.076	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Copper	49		0.38	0.17	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Iron	30000		94	44	mg/Kg	☼	10/28/24 22:00	10/31/24 08:11	10
Lead	290		0.94	0.36	mg/Kg	☼	10/28/24 22:00	10/31/24 08:11	10
Magnesium	7900		9.4	4.6	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Manganese	720		0.38	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Nickel	50		0.38	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Potassium	4600		38	15	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Selenium	0.45		0.38	0.094	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Silver	0.18		0.094	0.038	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Sodium	160		47	23	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Thallium	0.28		0.094	0.037	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Vanadium	47		0.76	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:09	2
Zinc	300		140	19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:11	10

Client Sample ID: DEP-51-S24-241024

Lab Sample ID: 410-193795-3

Date Collected: 10/24/24 10:30
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.0

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.095		0.058	0.019	mg/Kg	☼	10/28/24 23:00	11/01/24 09:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	5.6		0.42	0.14	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	670	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:44	1
Percent Moisture (EPA Moisture)	2.0	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S25-241024

Lab Sample ID: 410-193795-4

Date Collected: 10/24/24 10:33
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.8

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		17	8.2	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Antimony	1.5		0.17	0.066	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Arsenic	9.5		0.33	0.11	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Barium	540		1.7	0.76	mg/Kg	☼	10/28/24 22:00	10/31/24 08:07	10
Beryllium	0.60		0.083	0.020	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Cadmium	2.4		0.083	0.033	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Calcium	28000		170	81	mg/Kg	☼	10/28/24 22:00	10/31/24 08:07	10
Chromium	41		0.33	0.16	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Cobalt	8.3		0.17	0.066	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Copper	28		0.33	0.15	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Iron	22000		83	38	mg/Kg	☼	10/28/24 22:00	10/31/24 08:07	10
Lead	1300		8.3	3.2	mg/Kg	☼	10/28/24 22:00	10/31/24 17:01	100
Magnesium	6400		8.3	4.1	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Manganese	350		0.33	0.17	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Nickel	16		0.33	0.16	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Potassium	4000		33	13	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Selenium	0.34		0.33	0.083	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Silver	0.20		0.083	0.034	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Sodium	130		41	20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Thallium	0.21		0.083	0.033	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Vanadium	34		0.66	0.17	mg/Kg	☼	10/28/24 22:00	10/31/24 08:05	2
Zinc	860	J	1200	170	mg/Kg	☼	10/28/24 22:00	10/31/24 17:01	100

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.34		0.056	0.019	mg/Kg	☼	10/28/24 23:00	11/01/24 09:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	ND		0.42	0.14	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	41	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:44	1
Percent Moisture (EPA Moisture)	1.2	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S21-241024

Lab Sample ID: 410-193795-5

Date Collected: 10/24/24 10:36
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.3

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		20	10	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Antimony	0.80		0.20	0.081	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Arsenic	9.1		0.40	0.13	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Barium	130		0.40	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Beryllium	0.64		0.10	0.024	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Cadmium	0.44		0.10	0.040	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Calcium	32000		200	99	mg/Kg	☼	10/28/24 22:00	10/31/24 08:15	10
Chromium	1000		20	9.6	mg/Kg	☼	10/28/24 22:00	10/31/24 17:03	100
Cobalt	15		0.20	0.081	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Copper	40		0.40	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Iron	30000		100	46	mg/Kg	☼	10/28/24 22:00	10/31/24 08:15	10
Lead	84		0.20	0.077	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Magnesium	6900		10	4.9	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Manganese	440		0.40	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Nickel	58		0.40	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Potassium	4400		40	16	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Selenium	0.26	J	0.40	0.10	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Silver	0.10		0.10	0.041	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Sodium	130		50	24	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Thallium	0.26		0.10	0.039	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Vanadium	62		0.81	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:13	2
Zinc	320		150	20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:15	10

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.075		0.058	0.019	mg/Kg	☼	10/28/24 23:00	11/01/24 09:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	22		0.43	0.14	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	1000	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:44	1
Percent Moisture (EPA Moisture)	1.7	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S-DUP-241024

Lab Sample ID: 410-193795-6

Date Collected: 10/24/24 00:00
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	14000		20	9.7	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Antimony	0.74		0.20	0.078	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Arsenic	8.7		0.39	0.13	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Barium	120		0.39	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Beryllium	0.60		0.098	0.023	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Cadmium	0.40		0.098	0.039	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Calcium	31000		200	96	mg/Kg	☼	10/28/24 22:00	10/31/24 08:29	10
Chromium	1000		20	9.3	mg/Kg	☼	10/28/24 22:00	10/31/24 17:07	100
Cobalt	16		0.20	0.078	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Copper	40		0.39	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Iron	27000		98	45	mg/Kg	☼	10/28/24 22:00	10/31/24 08:29	10

Client Sample ID: DEP-51-S-DUP-241024

Lab Sample ID: 410-193795-6

Date Collected: 10/24/24 00:00
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 98.5

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	83		0.20	0.074	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Magnesium	7500		9.8	4.8	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Manganese	460		0.39	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Nickel	58		0.39	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Potassium	5100		39	16	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Selenium	0.23	J	0.39	0.098	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Silver	0.083	J	0.098	0.040	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Sodium	130		49	23	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Thallium	0.30		0.098	0.038	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Vanadium	52		0.78	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:27	2
Zinc	350		150	20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:29	10

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.051	J	0.060	0.020	mg/Kg	☼	10/28/24 23:00	11/01/24 09:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	14		0.42	0.14	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	1000	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:47	1
Percent Moisture (EPA Moisture)	1.5	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S5-241024

Lab Sample ID: 410-193795-7

Date Collected: 10/24/24 10:42
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 82.3

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	13000		24	12	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Antimony	1.3		0.24	0.095	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Arsenic	6.9		0.48	0.16	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Barium	130		0.48	0.22	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Beryllium	0.55		0.12	0.028	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Cadmium	0.33		0.12	0.048	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Calcium	19000		48	23	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Chromium	480		2.4	1.1	mg/Kg	☼	10/28/24 22:00	10/31/24 07:57	10
Cobalt	12	^2	0.24	0.095	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Copper	42		0.48	0.21	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Iron	30000		120	55	mg/Kg	☼	10/28/24 22:00	10/31/24 07:57	10
Lead	490		1.2	0.45	mg/Kg	☼	10/28/24 22:00	10/31/24 07:57	10
Magnesium	7300		12	5.8	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Manganese	480		0.48	0.24	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Nickel	38		0.48	0.23	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Potassium	4800		48	19	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Selenium	0.17	J	0.48	0.12	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Silver	0.080	J	0.12	0.048	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Sodium	330		60	29	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Thallium	0.29		0.12	0.047	mg/Kg	☼	10/28/24 22:00	10/31/24 16:59	2
Vanadium	37		0.95	0.24	mg/Kg	☼	10/28/24 22:00	10/31/24 07:55	2
Zinc	360		180	24	mg/Kg	☼	10/28/24 22:00	10/31/24 07:57	10

Client Sample ID: DEP-51-S5-241024

Lab Sample ID: 410-193795-7

Date Collected: 10/24/24 10:42
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 82.3

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.050	J	0.068	0.023	mg/Kg	☼	10/28/24 23:00	11/01/24 09:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	32		0.51	0.17	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	450	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:47	1
Percent Moisture (EPA Moisture)	17.7	!	1.0	1.0	%			10/25/24 07:02	1

Client Sample ID: DEP-51-S6-241024

Lab Sample ID: 410-193795-8

Date Collected: 10/24/24 10:45
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 89.1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4900		20	10	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Antimony	3.9		0.20	0.081	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Arsenic	10		0.40	0.14	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Barium	52		0.40	0.18	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Beryllium	0.38		0.10	0.024	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Cadmium	0.27		0.10	0.040	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Calcium	14000		40	20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Chromium	230		2.0	0.96	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10
Cobalt	9.3	^2	0.20	0.081	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Copper	200		2.0	0.91	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10
Iron	71000		100	47	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10
Lead	290		1.0	0.38	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10
Magnesium	6200		10	5.0	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Manganese	460		0.40	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Nickel	25		0.40	0.19	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Potassium	1500		40	16	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Selenium	0.15	J	0.40	0.10	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Silver	0.055	J	0.10	0.041	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Sodium	97		51	24	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Thallium	ND		0.51	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10
Vanadium	26		0.81	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:51	2
Zinc	270		150	20	mg/Kg	☼	10/28/24 22:00	10/31/24 07:53	10

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	9.0		1.3	0.45	mg/Kg	☼	10/28/24 23:00	11/01/24 11:10	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	6.5		0.46	0.15	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	220	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:47	1
Percent Moisture (EPA Moisture)	10.9	!	1.0	1.0	%			10/25/24 07:02	1

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Client Sample ID: DEP-51-S8A-241024
Date Collected: 10/24/24 10:47
Date Received: 10/24/24 17:55

Lab Sample ID: 410-193795-9
Matrix: Solid
Percent Solids: 77.2

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	8600		22	11	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Antimony	1.1		0.22	0.089	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Arsenic	6.2		0.44	0.15	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Barium	78		0.44	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Beryllium	0.49		0.11	0.026	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Cadmium	0.28		0.11	0.044	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Calcium	11000		44	22	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Chromium	330		2.2	1.1	mg/Kg	☼	10/28/24 22:00	10/31/24 08:33	10
Cobalt	9.4		0.22	0.089	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Copper	84		0.44	0.20	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Iron	34000		110	51	mg/Kg	☼	10/28/24 22:00	10/31/24 08:33	10
Lead	320		1.1	0.42	mg/Kg	☼	10/28/24 22:00	10/31/24 08:33	10
Magnesium	4400		11	5.4	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Manganese	480		0.44	0.22	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Nickel	27		0.44	0.21	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Potassium	2400		44	18	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Selenium	0.26	J	0.44	0.11	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Silver	0.082	J	0.11	0.045	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Sodium	190		55	27	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Thallium	0.15		0.11	0.043	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Vanadium	42		0.89	0.22	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2
Zinc	170		33	4.4	mg/Kg	☼	10/28/24 22:00	10/31/24 08:31	2

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.058	J	0.078	0.026	mg/Kg	☼	10/28/24 23:00	11/01/24 09:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI) (SW846 7196A)	8.2		0.53	0.18	mg/Kg	☼	10/29/24 09:48	10/30/24 21:34	1
Cr (III) (SW846 7196A)	330	!	0.011	0.0035	mg/Kg	☼		10/25/24 10:47	1
Percent Moisture (EPA Moisture)	22.8	!	1.0	1.0	%			10/25/24 07:02	1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-568764/1-A ^2
Matrix: Solid
Analysis Batch: 570050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		20	9.9	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Antimony	ND		0.20	0.080	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Arsenic	ND		0.40	0.13	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Barium	ND		0.40	0.18	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Beryllium	ND		0.10	0.024	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Cadmium	ND		0.10	0.040	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Calcium	ND		40	20	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Chromium	ND		0.40	0.19	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Cobalt	ND		0.20	0.080	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Copper	ND		0.40	0.18	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Iron	ND		20	9.2	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Lead	ND		0.20	0.076	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Magnesium	ND		10	4.9	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Manganese	ND		0.40	0.20	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Nickel	ND		0.40	0.19	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Potassium	ND		40	16	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Selenium	ND		0.40	0.10	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Silver	ND		0.10	0.041	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Sodium	ND		50	24	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Thallium	ND		0.10	0.039	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Vanadium	ND		0.80	0.20	mg/Kg		10/28/24 22:00	10/31/24 07:43	2
Zinc	ND		30	4.0	mg/Kg		10/28/24 22:00	10/31/24 07:43	2

Lab Sample ID: LCS 410-568764/2-A ^2
Matrix: Solid
Analysis Batch: 570050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	500	515		mg/Kg		103	83 - 119
Antimony	10.0	10.3		mg/Kg		103	87 - 116
Arsenic	50.0	51.1		mg/Kg		102	87 - 114
Barium	50.0	52.2		mg/Kg		104	87 - 117
Beryllium	5.00	4.84		mg/Kg		97	80 - 120
Cadmium	5.00	5.11		mg/Kg		102	88 - 117
Calcium	500	547		mg/Kg		109	84 - 119
Chromium	50.0	51.4		mg/Kg		103	86 - 116
Cobalt	50.0	50.9		mg/Kg		102	85 - 115
Copper	50.0	50.6		mg/Kg		101	84 - 115
Iron	500	511		mg/Kg		102	87 - 117
Lead	5.00	5.07		mg/Kg		101	88 - 117
Magnesium	500	505		mg/Kg		101	83 - 119
Manganese	50.0	50.7		mg/Kg		101	87 - 116
Nickel	50.0	52.4		mg/Kg		105	87 - 115
Potassium	500	517		mg/Kg		103	83 - 118
Selenium	10.0	10.0		mg/Kg		100	87 - 115
Silver	5.00	5.35		mg/Kg		107	88 - 117
Sodium	500	502		mg/Kg		100	81 - 120
Thallium	10.0	10.1		mg/Kg		101	87 - 116
Vanadium	50.0	51.4		mg/Kg		103	86 - 115

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 410-568764/2-A ^2
Matrix: Solid
Analysis Batch: 570050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	50.0	50.8		mg/Kg		102	86 - 116

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 410-568783/1-A
Matrix: Solid
Analysis Batch: 570368

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568783

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.060	0.020	mg/Kg		10/28/24 23:00	11/01/24 08:52	1

Lab Sample ID: LCS 410-568783/2-A
Matrix: Solid
Analysis Batch: 570368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.167	0.156		mg/Kg		94	80 - 120

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 410-568963/1-A
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568963

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.42	0.14	mg/Kg		10/29/24 09:48	10/30/24 21:34	1

Lab Sample ID: LCS 410-568963/2-A
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568963

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cr (VI)	5.00	4.76		mg/Kg		95	80 - 120

Lab Sample ID: LCSI 410-568963/3-A
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568963

Analyte	Spike Added	LCSI Result	LCSI Qualifier	Unit	D	%Rec	%Rec Limits
Cr (VI)	798	729		mg/Kg		91	80 - 120

Lab Sample ID: 410-193795-1 MSI
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: DEP-51-S3-241024
Prep Type: Total/NA
Prep Batch: 568963

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec Limits
Cr (VI)	21		716	640		mg/Kg	☼	86	75 - 125

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 410-193795-1 MSS
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: DEP-51-S3-241024
Prep Type: Total/NA
Prep Batch: 568963

Analyte	Sample Result	Sample Qualifier	Spike Added	MSS Result	MSS Qualifier	Unit	D	%Rec	%Rec Limits
Cr (VI)	21		42.4	70.6		mg/Kg	☼	117	75 - 125

Lab Sample ID: 410-193795-1 DU
Matrix: Solid
Analysis Batch: 569757

Client Sample ID: DEP-51-S3-241024
Prep Type: Total/NA
Prep Batch: 568963

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	21		18.1		mg/Kg	☼	15	20

Metals

Prep Batch: 568764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	3050B	
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	3050B	
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	3050B	
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	3050B	
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	3050B	
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	3050B	
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	3050B	
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	3050B	
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	3050B	
MB 410-568764/1-A ^2	Method Blank	Total/NA	Solid	3050B	
LCS 410-568764/2-A ^2	Lab Control Sample	Total/NA	Solid	3050B	

Prep Batch: 568783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	7471B	
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	7471B	
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	7471B	
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	7471B	
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	7471B	
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	7471B	
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	7471B	
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	7471B	
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	7471B	
MB 410-568783/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 410-568783/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 570050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	6020B	568764
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	6020B	568764
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	6020B	568764
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	6020B	568764
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	6020B	568764
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	6020B	568764
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	6020B	568764
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	6020B	568764
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	6020B	568764
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	6020B	568764
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	6020B	568764
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	6020B	568764
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	6020B	568764
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	6020B	568764
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	6020B	568764
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	6020B	568764
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	6020B	568764
MB 410-568764/1-A ^2	Method Blank	Total/NA	Solid	6020B	568764
LCS 410-568764/2-A ^2	Lab Control Sample	Total/NA	Solid	6020B	568764

Analysis Batch: 570169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	6020B	568764

Metals (Continued)

Analysis Batch: 570169 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	6020B	568764
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	6020B	568764
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	6020B	568764
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	6020B	568764
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	6020B	568764

Analysis Batch: 570368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	7471B	568783
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	7471B	568783
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	7471B	568783
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	7471B	568783
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	7471B	568783
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	7471B	568783
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	7471B	568783
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	7471B	568783
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	7471B	568783
MB 410-568783/1-A	Method Blank	Total/NA	Solid	7471B	568783
LCS 410-568783/2-A	Lab Control Sample	Total/NA	Solid	7471B	568783

General Chemistry

Analysis Batch: 562776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	7196A	
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	7196A	
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	7196A	
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	7196A	
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	7196A	
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	7196A	
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	7196A	
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	7196A	
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	7196A	

Analysis Batch: 567743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	Moisture	
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	Moisture	
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	Moisture	
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	Moisture	
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	Moisture	
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	Moisture	
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	Moisture	
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	Moisture	
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	Moisture	

Prep Batch: 568963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	3060A	
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	3060A	
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	3060A	

General Chemistry (Continued)

Prep Batch: 568963 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	3060A	
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	3060A	
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	3060A	
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	3060A	
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	3060A	
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	3060A	
MB 410-568963/1-A	Method Blank	Total/NA	Solid	3060A	
LCS 410-568963/2-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSI 410-568963/3-A	Lab Control Sample	Total/NA	Solid	3060A	
410-193795-1 MSI	DEP-51-S3-241024	Total/NA	Solid	3060A	
410-193795-1 MSS	DEP-51-S3-241024	Total/NA	Solid	3060A	
410-193795-1 DU	DEP-51-S3-241024	Total/NA	Solid	3060A	

Analysis Batch: 569757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-193795-1	DEP-51-S3-241024	Total/NA	Solid	7196A	568963
410-193795-2	DEP-51-S16-241024	Total/NA	Solid	7196A	568963
410-193795-3	DEP-51-S24-241024	Total/NA	Solid	7196A	568963
410-193795-4	DEP-51-S25-241024	Total/NA	Solid	7196A	568963
410-193795-5	DEP-51-S21-241024	Total/NA	Solid	7196A	568963
410-193795-6	DEP-51-S-DUP-241024	Total/NA	Solid	7196A	568963
410-193795-7	DEP-51-S5-241024	Total/NA	Solid	7196A	568963
410-193795-8	DEP-51-S6-241024	Total/NA	Solid	7196A	568963
410-193795-9	DEP-51-S8A-241024	Total/NA	Solid	7196A	568963
MB 410-568963/1-A	Method Blank	Total/NA	Solid	7196A	568963
LCS 410-568963/2-A	Lab Control Sample	Total/NA	Solid	7196A	568963
LCSI 410-568963/3-A	Lab Control Sample	Total/NA	Solid	7196A	568963
410-193795-1 MSI	DEP-51-S3-241024	Total/NA	Solid	7196A	568963
410-193795-1 MSS	DEP-51-S3-241024	Total/NA	Solid	7196A	568963
410-193795-1 DU	DEP-51-S3-241024	Total/NA	Solid	7196A	568963

Lab Chronicle

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Client Sample ID: DEP-51-S3-241024
Lab Sample ID: 410-193795-1

Date Collected: 10/24/24 10:22
Matrix: Solid
Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:44
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S3-241024
Lab Sample ID: 410-193795-1

Date Collected: 10/24/24 10:22
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 94.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:17
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:19
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		100	570169	T8CQ	ELLE	10/31/24 17:05
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:28
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S16-241024
Lab Sample ID: 410-193795-2

Date Collected: 10/24/24 10:27
Matrix: Solid
Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:44
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S16-241024
Lab Sample ID: 410-193795-2

Date Collected: 10/24/24 10:27
Matrix: Solid
Date Received: 10/24/24 17:55
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 07:47
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570169	T8CQ	ELLE	10/31/24 16:57
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:30
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		5	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S24-241024

Lab Sample ID: 410-193795-3

Date Collected: 10/24/24 10:30

Matrix: Solid

Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:44
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S24-241024

Lab Sample ID: 410-193795-3

Date Collected: 10/24/24 10:30

Matrix: Solid

Date Received: 10/24/24 17:55

Percent Solids: 98.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:09
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:11
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:26
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S25-241024

Lab Sample ID: 410-193795-4

Date Collected: 10/24/24 10:33

Matrix: Solid

Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:44
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S25-241024

Lab Sample ID: 410-193795-4

Date Collected: 10/24/24 10:33

Matrix: Solid

Date Received: 10/24/24 17:55

Percent Solids: 98.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:05
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:07
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		100	570169	T8CQ	ELLE	10/31/24 17:01
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:14
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S21-241024 — **Lab Sample ID: 410-193795-5**
Date Collected: 10/24/24 10:36 — **Matrix: Solid**
Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:44
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S21-241024 — **Lab Sample ID: 410-193795-5**
Date Collected: 10/24/24 10:36 — **Matrix: Solid**
Date Received: 10/24/24 17:55 — **Percent Solids: 98.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:13
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:15
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		100	570169	T8CQ	ELLE	10/31/24 17:03
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:24
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S-DUP-241024 — **Lab Sample ID: 410-193795-6**
Date Collected: 10/24/24 00:00 — **Matrix: Solid**
Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:47
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S-DUP-241024 — **Lab Sample ID: 410-193795-6**
Date Collected: 10/24/24 00:00 — **Matrix: Solid**
Date Received: 10/24/24 17:55 — **Percent Solids: 98.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:27
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:29
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		100	570169	T8CQ	ELLE	10/31/24 17:07
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:32
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S5-241024

Lab Sample ID: 410-193795-7

Date Collected: 10/24/24 10:42

Matrix: Solid

Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:47
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S5-241024

Lab Sample ID: 410-193795-7

Date Collected: 10/24/24 10:42

Matrix: Solid

Date Received: 10/24/24 17:55

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 07:55
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 07:57
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570169	T8CQ	ELLE	10/31/24 16:59
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:23
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Client Sample ID: DEP-51-S6-241024

Lab Sample ID: 410-193795-8

Date Collected: 10/24/24 10:45

Matrix: Solid

Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:47
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S6-241024

Lab Sample ID: 410-193795-8

Date Collected: 10/24/24 10:45

Matrix: Solid

Date Received: 10/24/24 17:55

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 07:51
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 07:53
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		20	570368	HNC4	ELLE	11/01/24 11:10
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Lab Chronicle

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Client Sample ID: DEP-51-S8A-241024

Lab Sample ID: 410-193795-9

Date Collected: 10/24/24 10:47

Matrix: Solid

Date Received: 10/24/24 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	7196A		1	562776	MRD6	ELLE	10/25/24 10:47
Total/NA	Analysis	Moisture		1	567743	UVJN	ELLE	10/25/24 07:02

Client Sample ID: DEP-51-S8A-241024

Lab Sample ID: 410-193795-9

Date Collected: 10/24/24 10:47

Matrix: Solid

Date Received: 10/24/24 17:55

Percent Solids: 77.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		2	570050	LHF4	ELLE	10/31/24 08:31
Total/NA	Prep	3050B			568764	UAMX	ELLE	10/28/24 22:00
Total/NA	Analysis	6020B		10	570050	LHF4	ELLE	10/31/24 08:33
Total/NA	Prep	7471B			568783	UAMX	ELLE	10/28/24 23:00
Total/NA	Analysis	7471B		1	570368	HNC4	ELLE	11/01/24 09:34
Total/NA	Prep	3060A			568963	W2JF	ELLE	10/29/24 09:48
Total/NA	Analysis	7196A		1	569757	UDS7	ELLE	10/30/24 21:34

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Pennsylvania Dept of Env Protection
Job ID: 410-193795-1
Project/Site: PA DEP 51st

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	36-00037	01-31-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
7196A		Solid	Cr (III)
Moisture		Solid	Percent Moisture

Method Summary

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
7471B	Mercury (CVAA)	SW846	ELLE
7196A	Chromium, Hexavalent	SW846	ELLE
7196A	Chromium, Trivalent (Colorimetric)	SW846	ELLE
Moisture	Percent Moisture	EPA	ELLE
3050B	Preparation, Metals	SW846	ELLE
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	ELLE
7471B	Preparation, Mercury	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Pennsylvania Dept of Env Protection
Project/Site: PA DEP 51st

Job ID: 410-193795-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-193795-1	DEP-51-S3-241024	Solid	10/24/24 10:22	10/24/24 17:55
410-193795-2	DEP-51-S16-241024	Solid	10/24/24 10:27	10/24/24 17:55
410-193795-3	DEP-51-S24-241024	Solid	10/24/24 10:30	10/24/24 17:55
410-193795-4	DEP-51-S25-241024	Solid	10/24/24 10:33	10/24/24 17:55
410-193795-5	DEP-51-S21-241024	Solid	10/24/24 10:36	10/24/24 17:55
410-193795-6	DEP-51-S-DUP-241024	Solid	10/24/24 00:00	10/24/24 17:55
410-193795-7	DEP-51-S5-241024	Solid	10/24/24 10:42	10/24/24 17:55
410-193795-8	DEP-51-S6-241024	Solid	10/24/24 10:45	10/24/24 17:55
410-193795-9	DEP-51-S8A-241024	Solid	10/24/24 10:47	10/24/24 17:55

Eurofins Lancaster Laboratories Environme
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

410-193795 Chain of Custody

eurofins | Environment Testing

Client Information	Sampler: Jenna Kokoskie	Lab PM: Sachtleben, Kerri S	COC No: 410-134203-38341.1
Client Contact: Glorinés Suárez Rivera	Phone: 484-250-5725	E-Mail: Kerri.Sachtleben@et.eurofinsus.com	State of Origin: PA	Page: Page 1 of 1
Company: Pennsylvania Dept of Env Protection	PWSID:	Analysis Requested	Job #:
Address: 2 East Main Street	Due Date Requested:		Preservation Codes:
City: Norristown	TAT Requested (days): 5 day rush		
State, Zip: PA, 19401	Compliance Project: Δ Yes ✓ No		
Phone: 484-250-5724(Tel)	PO #: 188260		
Email: gsuarezriv@pa.gov	WO #:		
Project Name: PADEP 51ST	Project #: 41020738		
Site:	SSOW#:		Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	7199 - CR3 - Trivalent Chrom.	6020B - Total Metals	7471B - Mercury	7196A - Hex Chrom.	Moisture - % Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
DEP-51-S3-241024	10/24/24	1022	G	S			X	X	X	X	X	1	
DEP 51-S16-241024		1027											
DEP 51-S24-241024		1030											
DEP 51-S25-241024		1033											
DEP 51-S21-241024		1036											
DEP 51-S-DUP-241024		—											
DEP 51-S5-241024		1042											
DEP 51-S6-241024		1045											
DEP 51-S8A-241024		1047											
~~DEP 51-S~~ JK 10/24/24													

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, (II), III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Christine McCarthy	10/24/24 1320	PA DEP		10/24/24 1347	
2		10/24/24 1755				
3					10/24/24 1753	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 009578

Cooler Temperature(s) °C and Other Remarks: R: 3.9 C: 4.0

Ver: 10/10/2024

Login Sample Receipt Checklist

Client: Pennsylvania Dept of Env Protection

Job Number: 410-193795-1

Login Number: 193795

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Roth, Stephanie

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	Not present.
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	