Phase II Environmental Site Assessment for the Caltech Submillimeter Observatory Decommissioning, Mauna Kea Mountain Summit, Hawaii Island

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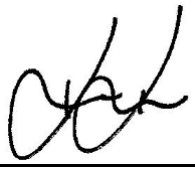
Prepared for: The California Institute of Technology
"Caltech"

January 2025

I have performed a Phase II Environmental Site Assessment for the Caltech Submillimeter Observatory Decommissioning Project, Mauna Kea Mountain, Hawaii Island, in conformance with the scope and limitations of ASTM Practice E1903-19: Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.

I certify that this document was prepared using the most accurate information available.

Signature of Preparer:



January 24, 2025

Kama Kobayashi *Date*
Environmental Professional

EXECUTIVE SUMMARY

This Phase II ESA was prepared in accordance with the State of Hawaii Department of Health (HDOH) Technical Guidance Manual (TGM) (HDOH, 2024), and *ASTM 1903-19: Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.*

Project Scope and Objective

This Phase II ESA investigation was conducted as part of the decommissioning process in accordance with a soil Sampling and Analysis Plan (SAP) written for the project site to further investigate a 2009 hydraulic fluid release that occurred at the project site. The SAP is required following facility decommissioning in order to determine if previously inaccessible areas under the facility have been impacted from the 2009 release (ENPRO, 2020). This Phase II ESA also documents a second release of hydraulic fluid, and subsequent cleanup that occurred at the project site during the decomissioning process.

Soil sampling activities followed applicable guidance from the HDOH Technical Guidance Manual (TGM) (HDOH, 2024). Sampling was conducted on May 31st, June 11th, June 18th , and June 19th, 2024. Soil samples were collected using a multi-increment (MI) sampling approach. MI sampling is a method used to obtain a representative sample that represents average concentrations of target analytes / chemicals of potential concern (COPCs) of a medium across a defined decision unit (DU).

Soil sample increments were collected in triplicate as a quality control measure in compliance with HDOH guidance. Concentrations of COPCs were compared to HDOH Unrestricted Tier 1 Environmental Action Levels (EALs) using the conceptual site model defined as: Unrestricted land use, site is a current drinking water resource; site located within 150 meters of a surface water body.

Results

Following the over-excavation and stockpiling of soil generated from the decommissioning spill area, no soil samples contained COPCs at or above their respective Unrestricted HDOH EALs in any of the sampled DUs.

Conclusions and Recommendations

Based on the analytical results from this Phase II ESA, no further action is recommended for the project site.

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ACRONYMS AND ABBREVIATIONS

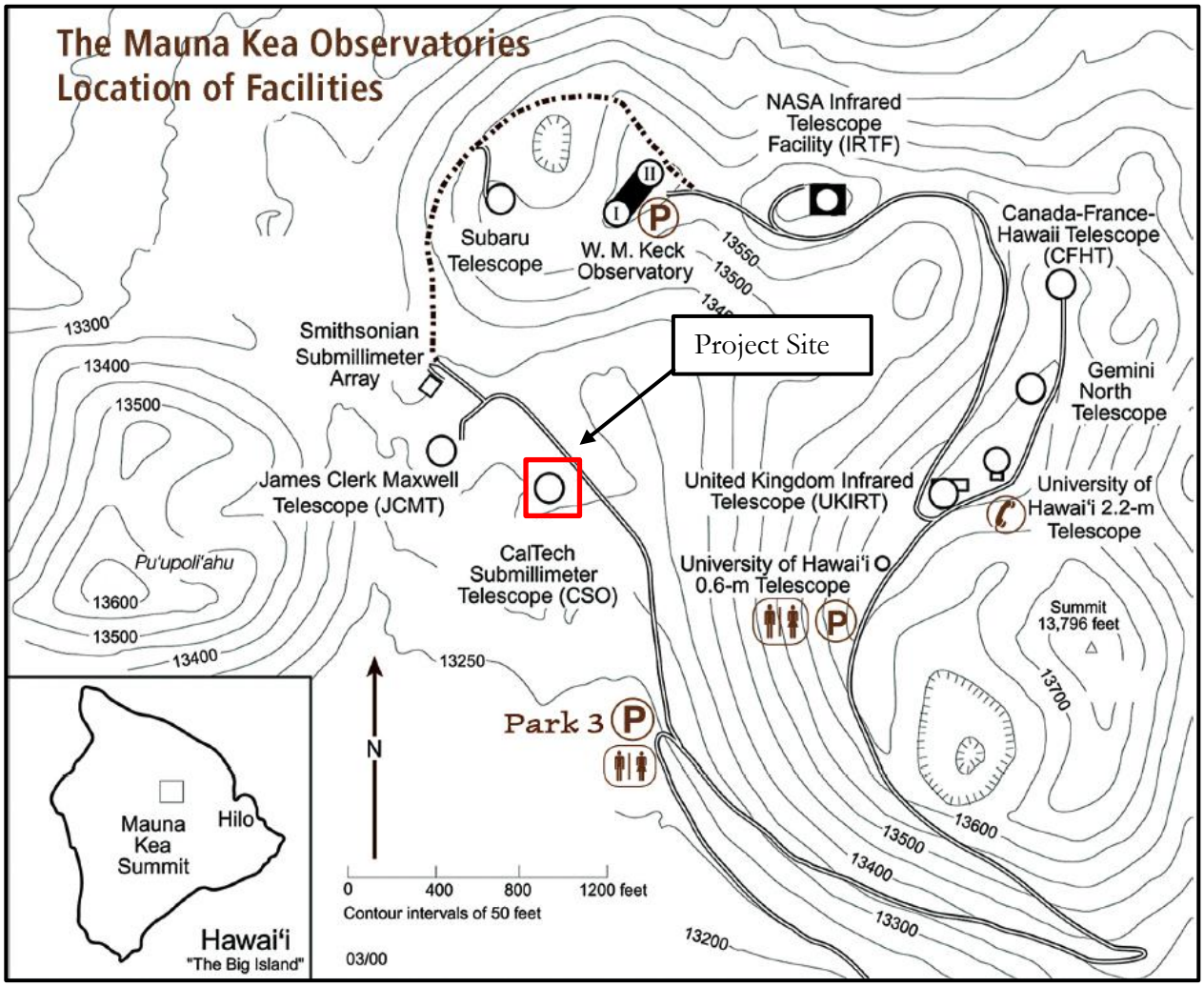
bgs	Below Ground Surface
Caltech	California Institute of Technology
COC	Chain of Custody
COPCs	Contaminants of Potential Concern
DU	Decision Unit
EAL	Environmental Action Level
ESA	Environmental Site Assessment
HDOH	State of Hawaii Department of Health
LCS	Lab Control Spike
LEI	Lehua Environmental Inc.
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MI	Multi-Incremental
MDL	Method Detection Limit
MRL	Method Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Analyte not detected at the listed reporting limit
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance and Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
TGM	Technical Guidance Manual

1. INTRODUCTION AND OBJECTIVES

This Phase II Environmental Site Assessment (ESA) was prepared by Lehua Environmental Inc. (LEI) for the California Institute of Technology (Caltech) to describe the methodology and results of soil investigation activities conducted at the former Caltech Submillimeter Observatory, within the Mauna Kea Science Reserve on Hawaii Island (herein referred to as the project site) (Figure 1).

This Phase II ESA investigation was conducted as part of the decommissioning process in accordance with a soil Sampling and Analysis Plan (SAP) written for the project site to further investigate a 2009 hydraulic fluid release that occurred at the project site. The SAP is required following facility decommissioning in order to determine if previously inaccessible areas under the facility have been impacted from the 2009 release (ENPRO, 2020). This Phase II ESA also documents a second release of hydraulic fluid, and subsequent cleanup that occurred at the project site during the decomissioning process.

Figure 1: Project Location Map



2. BACKGROUND

2.1 Site Description

The project site is located near the summit of Mauna Kea Mountain, within the Mauna Kea Science Reserve on Hawaii Island (Figure 1). The former Caltech Submillimeter observatory, pump house, single-story outbuilding, and cesspool were decomissioned and demolished in 2023 through 2024. The demolition included removing asphalt paving, slab-on-grade and below-grade foundations, and utility demolition. The land under the facilty structures was then graded to match the existing natural countours. No redevelopment is planned at the project site.

2.1.1 Climate, Soils, Geology, Hydrology

The project site is located near the summit of Mauna Kea Mountain at an elevation of approximately 13,000 feet above mean sea level (Figure 1). Mean minimum temperatures at the summit are around 0 degrees Celsius in the summer, and -4 degrees Celsius in the winter. The mean annual precipitation at the summit of Mauna Kea is 15 centimeters, most of which falls as snow during the winter (WRCC, 2024).

Soil at the project site includes Lava flows-Cinder land complex, 2 to 40 percent slopes, excessively drained gravels, cobbles and bedrock (USDA, 2024).

2.1.2 Surface Water

The closest surface water body is Lake Waiau, which is located approximately 0.75 miles south of the project site. Lake Waiau is a alpine glacier lake fed by snow melt from the mountain peaks. There are no other significant surface water features within the vicinity of the project site.

2.1.3 Groundwater

There is no ground water in proximity to the project site (Intera, 2019).

3. ENVIRONMENTAL INVESTIGATION BACKGROUND

This section describes documented releases that occurred at the project site and the subsequent environmental investigations to address the releases. The 2020 SAP for the project site was required due to a release of 22.7 gallons of hydraulic fluid beneath the observatory building slab, as reported in the State of Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office Release Notification dated January 15, 2016. The release was reported to have occurred on May 27, 2009. Excavation and removal/disposal of contaminated soil was completed following the discovery of the release, though there was remaining impacted soil under the slab believed to be from previous releases that was not accessible at the time due to the presence of the observatory and associated out building structures. Therefore, a no further action (NFA) designation is pending for the project site with HDOH following further testing of the soil under the observatory slab once it is accessible following the demolition of the facility and building slab (ENPRO, 2020).

A second hydraulic fluid release occurred at the project site on April 30, 2024 during the facility decommissioning process. Approximately 10-15 gallons of hydraulic fluid were released from the engine compartment of a hydraulic fluid hose on a high-reach excavator. The hydraulic fluid was released onto the asphalt surface on which the excavator was situated.

At the time of the April 30, 2024 spill, the excavator was immediately shut off and personnel began containment of the spill. Within one minute of the spill, absorbent "snakes" contained the perimeter of the spill, and within two minutes, absorbent materials had been spread over the entire spill area. Additional absorbent materials were added over the next several minutes, and the area stayed under close monitoring. The oil-absorbent mats and pillows were collected and additional granular absorbent was spread over the spill area, which was later collected once it had fully absorbed the residual fluid. The amount of fluid spilled, 10-15 gallons, was below the HDOH reporting requirement of 25 gallons. While the spill was contained, preexisting cracks in the asphalt motivated sampling of the soil under the asphalt later in the decommissioning process after the asphalt had been removed.

Approximately 40 cubic yards of soil was excavated in and around the spill area and stockpiled onsite following demolition of the asphalt surface and telescope cement foundation slab. The stockpile was formed on 10-mil thick plastic sheeting and covered with the same material. The soil covered stockpile was then weighted down to prevent erosion/migration of the impacted soil pending chemical characterization for disposal.

This Phase II ESA report documents the soil sampling activities to address the above evidence of hydraulic fluid releases at the project site.

4. FIELD INVESTIGATION AND SAMPLE COLLECTION

4.1 Sampling Approach

Soil sampling activities followed applicable guidance from the HDOH Technical Guidance Manual (TGM) (HDOH, 2024). Sampling was conducted on May 31st, June 11th, June 18th , and confirmation sampling on June 19th, 2024. Soil samples were collected using a multi-increment (MI) sampling approach. MI sampling is a method used to obtain a representative sample that represents average concentrations of target analytes / COPCs of a medium across a defined decision unit (DU). The size and shape of the DU are primarily controlled by the environmental factors posed by the contaminants present and the intended use of the site.

The following presents the DU locations, COPCs and number of increments collected in each of the two sampling events at the project site:

May 31st 2024 Sampling Event:

DU2: Abandoned Cesspool Walls

DU3: Abandoned Cesspool Base

75 increments were collected from each DU and analyzed for the following COPCs during the May 31st sampling event:

- Toxicity Characteristic Leaching Procedure (TCLP) test for cadmium, chromium, and lead
- Total cadmium, chromium, silver and lead
- Total petroleum hydrocarbons as gasoline, diesel and residual range organics
- VOCs
- Polynuclear aromatic hydrocarbons
- PCBs
- Cyanide

June 11th 2024 Sampling Event:

CSO DU-1A: Surface soil (0-6 inches below ground surface[bgs]) beneath the demolished observatory building slab. A triplicate sample was collected from CSO DU-1A as a quality control measure.

CSO DU-1B: Subsurface soil (6-12 inches bgs) beneath the demolished observatory building slab.

CSO DU-4: Surface soil (0-6 inches bgs) beneath the demolished asphalt driveway/parking area.

100 increments were collected from each of the DUs during the June 11th sampling event, and analyzed for the following COPCs:

CSO DU-1A & CSO DU-1B :

- Total petroleum hydrocarbons as gasoline, diesel and residual range organics
- PCBs
- Total Lead
- VOCs
- Polynuclear aromatic hydrocarbons

CSO-DU-4:

- Total 8 RCRA metals
- TCLP-lead
- Total petroleum hydrocarbons as gasoline, diesel and residual range organics
- VOCs
- PCBs

June 19th 2024 Sampling Event:

CSO DU-4A: Surface soil (0-6 inches bgs) confirmation sample within the over-excavated area following soil removal. A triplicate sample was collected from DU-4A as a quality control measure.

CSO DU-4 Stockpile: sampling of excavated soil stockpile excavated from the DU-4 spill area.

100 increments were collected from each of the DUs during the June 19th sampling event, and analyzed for the following COPCs:

CSO DU-4A:

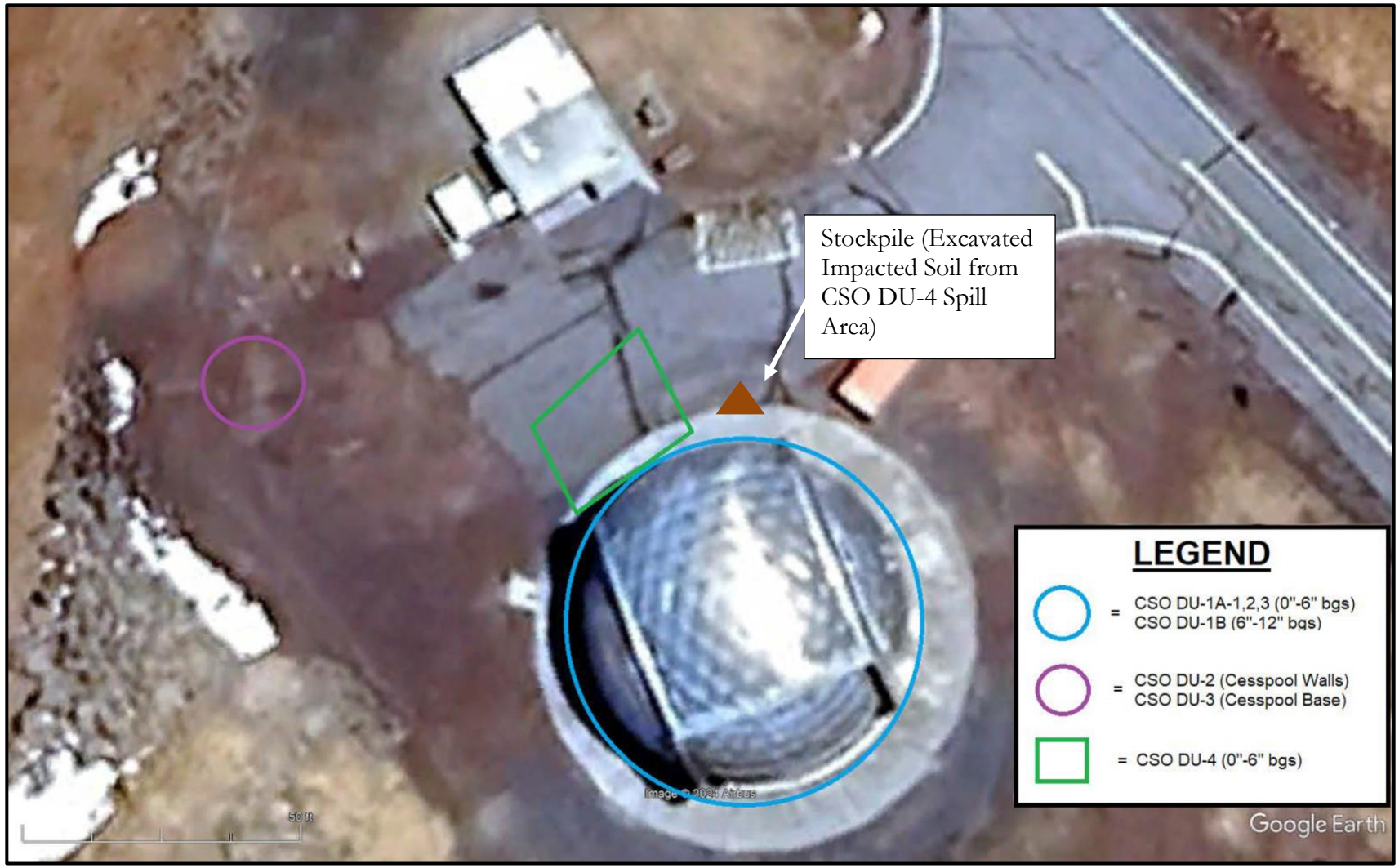
- Total petroleum hydrocarbons as diesel and residual range organics

CSO DU-4 Stockpile:

- Total petroleum hydrocarbons as diesel and residual range organics
- TCLP- barium
- TCLP - chromium

Figure 2 shows the DU locations sampled during the May and June 2024 soil sampling events.

Figure 2: DU Sampling Map



4.1.1 Quality Assurance / Quality Control Samples

Soil samples were collected in triplicate at a rate of 10% of primary samples, as specified by HDOH TGM Guidelines (HDOH, 2024).

4.2 Analytical Laboratory

Hawaii Analytical Laboratory in Honolulu, and their partner lab, Accu Laboratory in Washington, performed the analytical laboratory analysis for the project.

5. SAMPLE CONTROL PROCEDURES

5.1 Sample Containers and Preservation

Table 4-1 below summarizes sample containers used and preservation methods for the laboratory analyses.

Table 5-1: Sample Containers and Preservation

Media	Sample Bottles (per sample)		Analyses	Preservative
Soil	1	8oz. Glass Amber Jar	8260D (VOCs)	methanol & ice
	1	1 Gallon Ziploc	8015M (TPH Gasoline, Diesel and Residual Range Organics)	ice
			6010B (metals)	
			3010A/1311 (metals TCLP)	
			8082A (PCBs)	
			8270E (PAHs)	
			SM4500-CN-E201 (Cyanide)	

5.2 Sample Chain-of-Custody and Transportation

All samples were given a unique identification and marked on the sample labels and chain of custody (COC). Once collected, soil samples were placed immediately on ice in a sealed cooler and delivered to the analytical laboratory. The analytical laboratory marked receipt of the samples on the COC once they arrived. All samples were properly preserved at the correct temperature and arrived in good condition to the laboratory.

5.3 Laboratory Analytical Methods

The analytical laboratory performed internal Quality Assurance/Quality Control (QA/QC) procedures for soil samples, which included but were not limited to:

- Control sample and sample duplicates;
- Method blanks; and
- Surrogate recovery (Matrix Spike).

All laboratory QA/QC procedures were verified. More detailed results of laboratory QA/QC procedures are included in the laboratory analytical reports provided as Attachment B.

6. DATA QUALITY

6.1 Data Quality Objectives and Quality Assurance

The data quality objective (DQO) for the Phase II ESA is to obtain information regarding the presence of target analytes at the project site that is accurate and reproducible, consistent with scientific inquiry and the scientific method (ASTM, 2019). The purpose of the quality assurance/validation process is to evaluate the usability of data that are collected. Specific data quality objectives DQOs and assessment procedures are described below.

6.2 Field Data Validation

All field data were validated at the time of collection by following the QC checks outlined below:

- Sample location;
- Sample collection protocol;
- Sample preservation;
- QA/QC samples collected;
- Sample documentation protocols;
- COC protocol; and
- Sample shipment.

6.3 Chain of Custody Maintenance

A chain of custody (COC) was completed at the time the samples were released to the laboratory. Upon receipt at the laboratory, a designated sample custodian accepted custody of the samples, recorded cooler temperature, verified all information, and signed the COC. The laboratory followed their internal standard operating documentation procedures to document sample handling from time of receipt (sample log-in) to reporting. A copies of the COC is included in Attachment B.

6.4 Field Quality Control Checks

6.4.1 Field Replicates Collection

Triplicate soil samples were collected at a frequency of 10% of the primary samples for all sampling events.

6.4.2 Field Replicates Evaluation

Field soil replicates were submitted blindly to the analytical laboratory. The results of the replicates were compared to the primary sample using percent Relative Standard Deviation (RSD) for each tested chemical concentration. According to HDOH TGM

guidelines, if the RSD between the replicates is greater than 35%, a DU may need to be divided into several smaller units and each smaller unit sampled separately (HDOH, 2018).

None of the replicate samples exceeded the recommended 35 % range.

7. ANALYTICAL RESULTS

7.1 Soil Sampling Results

No COPCs were detected at or above their respective HDOH unrestricted EALs during the May 31st, June 11th or June 19th soil sampling events, except for total petroleum hydrocarbons in the residual range, which was detected in surface soil under the hydraulic fluid spill area (CSO DU-4) at a concentration above the unrestricted HDOH EAL, but below the commercial/industrial HDOH EAL during the June 11th sampling event. It is likely that COPCs were not detected from the impacted soil stockpile sample (CSO DU-4 Stockpile) since the excavated amount of soil was much greater in volume compared to the relatively small volume of soil that was impacted by the petroleum spill, resulting in dilution of the sample with clean native soil.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions and Recommendations

The following conclusions were drawn from the environmental sampling data results:

- Following the over-excavation and stockpiling of soil generated from the decommissioning spill area, no soil samples contained COPCs at or above their respective Unrestricted HDOH EALs in any of the sampled DUs. Therefore, no further action is recommended for the project site. Attachment A includes the Soil Sample Results Summary Tables, Attachment B includes the soil sample Laboratory Analytical Reports, and Attachment C includes the disposal documentation for the soil that was excavated from the project site and disposed at the West Hawaii Landfill.

9. REFERENCES

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Attachment A: Soil Sample Results Summary Tables

Table 1. Soil Sampling Summary for May 31, 2024 Sampling
CSO Decommissioning - Cesspool

			Descriptive Sample ID	CSO DU2			CSO DU3		
			Sample Description	Cesspool Walls			Cesspool Base		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
RCRA 8 Metals - Total									
Cadmium (Cd)	EPA 6010D	14	72	ND	0.54	Pass	ND	0.56	Pass
Chromium (Cr)	EPA 6010D	1100	1100	5.8	0.54	Pass	5.2	0.56	Pass
Lead (Pb)	EPA 6010D	200	800	ND	5.4	Pass	ND	5.6	Pass
Silver (Ag)	EPA 6010D	78	1000	ND	1.1	Pass	ND	1.1	Pass
RCRA 8 Metals - TCLP									
Cadmium (Cd)	EPA 1311/6010D	EPA Limit - 1.0 mg/L		ND	0.02	Pass	ND	0.02	Pass
Chromium (Cr)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.02	Pass	ND	0.02	Pass
Lead (Pb)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.2	Pass	ND	0.2	Pass
Silver (Ag)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.04	Pass	ND	0.04	Pass
Volatile Organic Compounds (VOCs)									
VOCs (See laboratory results for details)	EPA 8260D/SIM	Various	Various	ND	Various	Pass	ND	Various	Pass
Polychlorinated Biphenyls (PCBs)									
A1016	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1221	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1232	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1242	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1248	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1254	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
A1260	EPA 8082A	1.2	8.6	ND	0.054	Pass	ND	0.056	Pass
Total Petroleum Hydrocarbons (TPHs)									
TPH-Diesel	EPA 8015M	220	680	ND	27	Pass	ND	28	Pass
TPH-Oil	EPA 8015M	500	1000	ND	43	Pass	150	45	Pass
TPH-Gas	EPA 8015M	100	500	ND	9	Pass	ND	14	Pass
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	EPA 8270E/3550C	4.4	4.4	ND	0.0072	Pass	ND	0.0075	Pass
2-Methylnaphthalene	EPA 8270E/3550C	4.1	4.1	ND	0.0072	Pass	ND	0.0075	Pass
1-Methylnaphthalene	EPA 8270E/3550C	4.2	4.2	ND	0.0072	Pass	ND	0.0075	Pass
Acenaphthylene	EPA 8270E/3550C	100	100	ND	0.0072	Pass	ND	0.0075	Pass
Acenaphthene	EPA 8270E/3550C	120	120	ND	0.0072	Pass	ND	0.0075	Pass
Fluorene	EPA 8270E/3550C	93	93	ND	0.0072	Pass	ND	0.0075	Pass
Phenanthrene	EPA 8270E/3550C	460	500	ND	0.0072	Pass	ND	0.0075	Pass
Anthracene	EPA 8270E/3550C	4.2	4.2	ND	0.0072	Pass	ND	0.0075	Pass
Fluoranthene	EPA 8270E/3550C	120	120	ND	0.0072	Pass	ND	0.0075	Pass
Pyrene	EPA 8270E/3550C	44	44	ND	0.0072	Pass	ND	0.0075	Pass
Benzo(a)anthracene	EPA 8270E/3550C	10	10	ND	0.0072	Pass	ND	0.0075	Pass
Chrysene	EPA 8270E/3550C	30	30	ND	0.0072	Pass	ND	0.0075	Pass
Benzo(b)fluoranthene	EPA 8270E/3550C	11	21	ND	0.0072	Pass	ND	0.0075	Pass
Benzo(k)fluoranthene	EPA 8270E/3550C	39	39	ND	0.0072	Pass	ND	0.0075	Pass
Benzo(a)pyrene	EPA 8270E/3550C	3.6	1.5	ND	0.0072	Pass	ND	0.0075	Pass
Indeno(1,2,3-cd)pyrene	EPA 8270E/3550C	11	31	ND	0.0072	Pass	ND	0.0075	Pass
Dibenzo(a,h)anthracene	EPA 8270E/3550C	1.1	18	ND	0.0072	Pass	ND	0.0075	Pass
Benzo(ghi)perylene	EPA 8270E/3550C	35	35	ND	0.0072	Pass	ND	0.0075	Pass
Other									
Cyanide	SM4500-CN-E2011	4.8	30	ND	0.037	Pass	0.235	0.029	Pass

Notes:
ND = Not detected above the laboratory detection limit
DOH = State of Hawai'i Department of Health
EPA = Environmental Protection Agency
EAL = Environmental Action Level
mg/kg = Milligrams per kilogram
NA = Not available

Table 2. Soil Sampling Summary for June 11, 2024 Sampling
CSO Decommissioning - CSO Slab and Asphalt Driveway/Parking Area

			Descriptive Sample ID	CSO DU-1A-1			CSO DU-1A-2		
			Sample Description	Under CSO Slab (0"-6" bss)			Under CSO Slab (0"-6" bss)		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
RCRA 8 Metals - Total									
Arsenic	EPA 6010D/7471B	24	95	NA	NA	NA	NA	NA	NA
Barium	EPA 6010D/7471B	1000	2500	NA	NA	NA	NA	NA	NA
Cadmium	EPA 6010D/7471B	14	72	NA	NA	NA	NA	NA	NA
Chromium	EPA 6010D/7471B	1100	1100	NA	NA	NA	NA	NA	NA
Lead	EPA 6010D/7471B	200	800	ND	5.2	Pass	ND	5.2	Pass
Silver	EPA 6010D/7471B	78	1000	NA	NA	NA	NA	NA	NA
Selenium	EPA 6010D/7471B	78	1000	NA	NA	NA	NA	NA	NA
Mercury	EPA 6010D/7471B	4.7	61	NA	NA	NA	NA	NA	NA
RCRA Metals - TCLP									
Lead (Pb)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.2	Pass	ND	0.2	Pass
Volatile Organic Compounds (VOCs)									
VOCs (See laboratory results for details)	EPA 8260D/SIM	Various	Various	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls (PCBs)									
A1016	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1221	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1232	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1242	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1248	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1254	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1260	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
Total Petroleum Hydrocarbons (TPHs)									
TPH-Diesel	EPA 8015M	220	680	ND	26	Pass	ND	26	Pass
TPH-Oil	EPA 8015M	500	1000	ND	52	Pass	ND	52	Pass
TPH-Gas	EPA 8015M	100	500	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	EPA 8270E/3550C	4.4	4.4	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	EPA 8270E/3550C	4.1	4.1	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	EPA 8270E/3550C	4.2	4.2	NA	NA	NA	NA	NA	NA
Acenaphthylene	EPA 8270E/3550C	100	100	NA	NA	NA	NA	NA	NA
Acenaphthene	EPA 8270E/3550C	120	120	NA	NA	NA	NA	NA	NA
Fluorene	EPA 8270E/3550C	93	93	NA	NA	NA	NA	NA	NA
Phenanthrene	EPA 8270E/3550C	460	500	NA	NA	NA	NA	NA	NA
Anthracene	EPA 8270E/3550C	4.2	4.2	NA	NA	NA	NA	NA	NA
Fluoranthene	EPA 8270E/3550C	120	120	NA	NA	NA	NA	NA	NA
Pyrene	EPA 8270E/3550C	44	44	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	EPA 8270E/3550C	10	10	NA	NA	NA	NA	NA	NA
Chrysene	EPA 8270E/3550C	30	30	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	EPA 8270E/3550C	11	21	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	EPA 8270E/3550C	39	39	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	EPA 8270E/3550C	3.6	1.5	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	EPA 8270E/3550C	11	31	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	EPA 8270E/3550C	1.1	18	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	EPA 8270E/3550C	35	35	NA	NA	NA	NA	NA	NA
Other									
Cyanide	SM4500-CN	4.8	30	NA	NA	NA	NA	NA	NA

Notes:
ND = Not detected above the laboratory detection limit
DOH = State of Hawai'i Department of Health
EPA = Environmental Protection Agency
bss = below soil surface
EAL = Environmental Action Level
mg/kg = Milligrams per kilogram
NA = Not available

Table 2. Soil Sampling Summary for June 11, 2024 Sampling
CSO Decommissioning - CSO Slab and Asphalt Driveway/Parking Area

			Descriptive Sample ID	CSO DU-1A-3			CSO DU-1B		
			Sample Description	Under CSO Slab (0"-6" bss)			Under CSO Slab (6"-12" bss)		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
RCRA 8 Metals - Total									
Arsenic	EPA 6010D/7471B	24	95	NA	NA	NA	NA	NA	NA
Barium	EPA 6010D/7471B	1000	2500	NA	NA	NA	NA	NA	NA
Cadmium	EPA 6010D/7471B	14	72	NA	NA	NA	NA	NA	NA
Chromium	EPA 6010D/7471B	1100	1100	NA	NA	NA	NA	NA	NA
Lead	EPA 6010D/7471B	200	800	ND	5.2	Pass	ND	5.2	Pass
Silver	EPA 6010D/7471B	78	1000	NA	NA	NA	NA	NA	NA
Selenium	EPA 6010D/7471B	78	1000	NA	NA	NA	NA	NA	NA
Mercury	EPA 6010D/7471B	4.7	61	NA	NA	NA	NA	NA	NA
RCRA Metals - TCLP									
Lead (Pb)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.2	Pass	ND	0.2	Pass
Volatile Organic Compounds (VOCs)									
VOCs (See laboratory results for details)	EPA 8260D/SIM	Various	Various	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls (PCBs)									
A1016	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1221	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1232	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1242	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1248	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1254	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
A1260	EPA 8082A	1.2	8.6	ND	0.052	Pass	ND	0.052	Pass
Total Petroleum Hydrocarbons (TPHs)									
TPH-Diesel	EPA 8015M	220	680	ND	26	Pass	ND	26	Pass
TPH-Oil	EPA 8015M	500	1000	ND	52	Pass	ND	53	Pass
TPH-Gas	EPA 8015M	100	500	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	EPA 8270E/3550C	4.4	4.4	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	EPA 8270E/3550C	4.1	4.1	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	EPA 8270E/3550C	4.2	4.2	NA	NA	NA	NA	NA	NA
Acenaphthylene	EPA 8270E/3550C	100	100	NA	NA	NA	NA	NA	NA
Acenaphthene	EPA 8270E/3550C	120	120	NA	NA	NA	NA	NA	NA
Fluorene	EPA 8270E/3550C	93	93	NA	NA	NA	NA	NA	NA
Phenanthrene	EPA 8270E/3550C	460	500	NA	NA	NA	NA	NA	NA
Anthracene	EPA 8270E/3550C	4.2	4.2	NA	NA	NA	NA	NA	NA
Fluoranthene	EPA 8270E/3550C	120	120	NA	NA	NA	NA	NA	NA
Pyrene	EPA 8270E/3550C	44	44	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	EPA 8270E/3550C	10	10	NA	NA	NA	NA	NA	NA
Chrysene	EPA 8270E/3550C	30	30	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	EPA 8270E/3550C	11	21	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	EPA 8270E/3550C	39	39	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	EPA 8270E/3550C	3.6	1.5	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	EPA 8270E/3550C	11	31	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	EPA 8270E/3550C	1.1	18	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	EPA 8270E/3550C	35	35	NA	NA	NA	NA	NA	NA
Other									
Cyanide	SM4500-CN	4.8	30	NA	NA	NA	NA	NA	NA

Notes:
ND = Not detected above the laboratory detection limit
DOH = State of Hawai'i Department of Health
EPA = Environmental Protection Agency
bss = below soil surface
EAL = Environmental Action Level
mg/kg = Milligrams per kilogram
NA = Not available

Table 2. Soil Sampling Summary for June 11, 2024 Sampling
CSO Decommissioning - CSO Slab and Asphalt Driveway/Parking Area

			Descriptive Sample ID	CSO DU-4		
			Sample Description	Under Asphalt Driveway/ Parking Area (0"-6" bss)		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
RCRA 8 Metals - Total						
Arsenic	EPA 6010D/7471B	24	95	ND	10	Pass
Barium	EPA 6010D/7471B	1000	2500	120	2.6	Pass
Cadmium	EPA 6010D/7471B	14	72	ND	0.52	Pass
Chromium	EPA 6010D/7471B	1100	1100	6.6	0.52	Pass
Lead	EPA 6010D/7471B	200	800	ND	5.2	Pass
Silver	EPA 6010D/7471B	78	1000	ND	0.26	Pass
Selenium	EPA 6010D/7471B	78	1000	ND	10	Pass
Mercury	EPA 6010D/7471B	4.7	61	ND	1	Pass
RCRA Metals - TCLP						
Lead (Pb)	EPA 1311/6010D	EPA Limit - 5.0 mg/L		ND	0.2	Pass
Volatile Organic Compounds (VOCs)						
VOCs (See laboratory results for details)	EPA 8260D/SIM	Various	Various	ND	Various	Pass
Polychlorinated Biphenyls (PCBs)						
A1016	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1221	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1232	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1242	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1248	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1254	EPA 8082A	1.2	8.6	ND	0.052	Pass
A1260	EPA 8082A	1.2	8.6	ND	0.052	Pass
Total Petroleum Hydrocarbons (TPHs)						
TPH-Diesel	EPA 8015M	220	680	ND	83	Pass
TPH-Oil	EPA 8015M	500	1000	**540**	**53**	**Fail**
TPH-Gas	EPA 8015M	100	500	ND	9.5	Pass
Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	EPA 8270E/3550C	4.4	4.4	ND	0.007	Pass
2-Methylnaphthalene	EPA 8270E/3550C	4.1	4.1	ND	0.007	Pass
1-Methylnaphthalene	EPA 8270E/3550C	4.2	4.2	ND	0.007	Pass
Acenaphthylene	EPA 8270E/3550C	100	100	ND	0.007	Pass
Acenaphthene	EPA 8270E/3550C	120	120	ND	0.007	Pass
Fluorene	EPA 8270E/3550C	93	93	ND	0.007	Pass
Phenanthrene	EPA 8270E/3550C	460	500	0.0085	0.007	Pass
Anthracene	EPA 8270E/3550C	4.2	4.2	ND	0.007	Pass
Fluoranthene	EPA 8270E/3550C	120	120	ND	0.007	Pass
Pyrene	EPA 8270E/3550C	44	44	0.0076	0.007	Pass
Benzo(a)anthracene	EPA 8270E/3550C	10	10	ND	0.007	Pass
Chrysene	EPA 8270E/3550C	30	30	0.0073	0.007	Pass
Benzo(b)fluoranthene	EPA 8270E/3550C	11	21	ND	0.007	Pass
Benzo(k)fluoranthene	EPA 8270E/3550C	39	39	ND	0.007	Pass
Benzo(a)pyrene	EPA 8270E/3550C	3.6	1.5	ND	0.007	Pass
Indeno(1,2,3-cd)pyrene	EPA 8270E/3550C	11	31	ND	0.007	Pass
Dibenzo(a,h)anthracene	EPA 8270E/3550C	1.1	18	ND	0.007	Pass
Benzo(ghi)perylene	EPA 8270E/3550C	35	35	ND	0.007	Pass
Other						
Cyanide	SM4500-CN	4.8	30	NA	NA	NA

Notes:
ND = Not detected above the laboratory detection limit
DOH = State of Hawai'i Department of Health
EPA = Environmental Protection Agency
bss = below soil surface
EAL = Environmental Action Level
mg/kg = Milligrams per kilogram
NA = Not available

Table 1. Soil Sampling Summary for June 19, 2024 sampling
CSO Decommissioning

			Descriptive Sample ID	CSO DU-4A EXC (Primary)			CSO DU-4B EXC (Duplicate)			CSO DU-4C EXC (Triplicate)		
			Sample Description	Exposed soils within 1' depth excavation area			Exposed soils within 1' depth excavation area			Exposed soils within 1' depth excavation area		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
Total Petroleum Hydrocarbons (TPHs)												
TPH-Diesel	EPA 8015M	180	210	ND	50	Pass	ND	50	Pass	ND	50	Pass
TPH-Oil	EPA 8015M	500	1000	ND	100	Pass	ND	100	Pass	ND	100	Pass

			Descriptive Sample ID	CSO DU-4 Stockpile		
			Sample Description	Stockpiled soils from 1' depth excavation		
Analyte	**Laboratory Analytical Method**	**DOH EAL Unrestricted Land Use (mg/kg)**	**DOH EAL Commercial/ Industrial Land Use (mg/kg)**	**Result (mg/kg)**	**Practical Quantitation Limit (PQL) (mg/kg)**	**Pass/Fail**
Total Petroleum Hydrocarbons (TPHs)						
TPH-Diesel	EPA 8015M	180	210	ND	50	Pass
TPH-Oil	EPA 8015M	500	1000	ND	100	Pass
TCLP Metals						
TCLP Barium	EPA 6020B/2010A/ 1311	RCRA Limit = 100 mg/L		ND	MRL = 0.50 mg/L	Pass
TCLP Chromium	EPA 6020B/2010A/ 1311	RCRA Limit = 5.0 mg/L		ND	MRL = 0.10 mg/L	Pass

Notes:
ND = Not detected above the laboratory detection limit
DOH = State of Hawai'i Department of Health
EPA = Environmental Protection Agency
EAL = Environmental Action Level
mg/kg = Milligrams per kilogram
MRL = Method Reporting Limit
RCRA = Resource Conservation Recovery Act

Attachment B: Laboratory Analytical Reports

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 18, 2024

Kama Kobayashi
Lehua Environmental Inc.
P.O. Box 1018
Kamuela, HI 96743

Re: Analytical Data for Project 2024-243-2
Laboratory Reference No. 2406-162

Dear Kama:

Enclosed are the analytical results and associated quality control data for samples submitted on June 13, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

Case Narrative

Samples were collected on June 11, 2024 and received by the laboratory on June 13, 2024. Samples were shipped in a cooler packed with blue ice and arrived at a temperature of <6°C. They were maintained at the laboratory at a temperature of 2°C to 6°C. A copy of the cooler receipt form has been included with this report.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

All samples were processed in the laboratory following the multi-increment sampling procedures as outlined in the HEER-TGM. Additional notes will be addressed in appropriate sections as warranted.

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-1A-1**					
Laboratory ID:	06-162-01					
Diesel Range Organics	**ND**	26	EPA 8015M	6-17-24	6-17-24	
Residual Range Organics	**ND**	52	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				
Client ID:	**CSO DU-1A-2**					
Laboratory ID:	06-162-02					
Diesel Range Organics	**ND**	26	EPA 8015M	6-17-24	6-17-24	
Residual Range Organics	**ND**	52	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**CSO DU-1A-3**					
Laboratory ID:	06-162-03					
Diesel Range Organics	**ND**	26	EPA 8015M	6-17-24	6-17-24	
Residual Range Organics	**ND**	52	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				
Client ID:	**CSO DU-1B**					
Laboratory ID:	06-162-04					
Diesel Range Organics	**ND**	26	EPA 8015M	6-17-24	6-18-24	
Residual Range Organics	**ND**	53	EPA 8015M	6-17-24	6-18-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*55*	*50-150*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S1					
Diesel Range Organics	**ND**	25	EPA 8015M	6-17-24	6-17-24	
Residual Range Organics	**ND**	50	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-183-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Residual Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Surrogate:											
o-Terphenyl						*75*	*75*	*50-150*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

PCBs EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-1A-1**					
Laboratory ID:	06-162-01					
Aroclor 1016	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1221	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1232	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1242	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1248	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1254	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1260	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1262	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1268	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*91*	*40-134*				
Client ID:	**CSO DU-1A-2**					
Laboratory ID:	06-162-02					
Aroclor 1016	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1221	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1232	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1242	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1248	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1254	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1260	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1262	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1268	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*101*	*40-134*				
Client ID:	**CSO DU-1A-3**					
Laboratory ID:	06-162-03					
Aroclor 1016	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1221	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1232	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1242	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1248	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1254	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1260	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1262	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Aroclor 1268	**ND**	0.052	EPA 8082A	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*104*	*40-134*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

PCBs EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-1B**					
Laboratory ID:	06-162-04					
Aroclor 1016	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1221	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1232	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1242	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1248	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1254	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1260	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1262	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1268	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*83*	*40-134*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1221	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1232	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1242	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1248	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1254	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1260	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1262	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1268	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*102*	*40-134*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0617S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.394**	**0.452**	0.500	0.500	N/A	**79**	**90**	60-115	14	23	
Surrogate:											
DCB						*102*	*107*	*40-134*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

TOTAL LEAD
EPA 6010D

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-1A-1**					
Laboratory ID:	06-162-01					
Lead	**ND**	5.2	EPA 6010D	6-17-24	6-17-24	
Client ID:	**CSO DU-1A-2**					
Laboratory ID:	06-162-02					
Lead	**ND**	5.2	EPA 6010D	6-17-24	6-17-24	
Client ID:	**CSO DU-1A-3**					
Laboratory ID:	06-162-03					
Lead	**ND**	5.2	EPA 6010D	6-17-24	6-17-24	
Client ID:	**CSO DU-1B**					
Laboratory ID:	06-162-04					
Lead	**ND**	5.2	EPA 6010D	6-17-24	6-17-24	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

TOTAL LEAD
EPA 6010D
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617SM1					
Lead	**ND**	5.0	EPA 6010D	6-17-24	6-17-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-169-13										
	ORIG	DUP									
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	06-169-13										
	MS	MSD	MS	MSD		MS	MSD				
Lead	**240**	**237**	250	250	ND	**96**	**95**	75-125	1	20	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

TCLP LEAD
EPA 1311/6010D

Matrix: TCLP Extract
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-1A-1**					
Laboratory ID:	06-162-01					
Lead	**ND**	0.20	EPA 6010D	6-18-24	6-18-24	
Client ID:	**CSO DU-1A-2**					
Laboratory ID:	06-162-02					
Lead	**ND**	0.20	EPA 6010D	6-18-24	6-18-24	
Client ID:	**CSO DU-1A-3**					
Laboratory ID:	06-162-03					
Lead	**ND**	0.20	EPA 6010D	6-18-24	6-18-24	
Client ID:	**CSO DU-1B**					
Laboratory ID:	06-162-04					
Lead	**ND**	0.20	EPA 6010D	6-18-24	6-18-24	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

TCLP LEAD
EPA 1311/6010D
QUALITY CONTROL

Matrix: TCLP Extract
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618TM1					
Lead	**ND**	0.20	EPA 6010D	6-18-24	6-18-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-162-01										
	ORIG	DUP									
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	06-162-01										
	MS	MSD	MS	MSD		MS	MSD				
Lead	**10.7**	**10.7**	10.0	10.0	ND	**107**	**107**	75-125	0	20	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-162
Project: 2024-243-2

% MOISTURE
MULTI-INCREMENT SAMPLING

Client ID	Lab ID	% Moisture	Date Analyzed
CSO DU-1A-1	06-162-01	**4**	6-17-24
CSO DU-1A-2	06-162-02	**4**	6-17-24
CSO DU-1A-3	06-162-03	**4**	6-17-24
CSO DU-1B	06-162-04	**5**	6-17-24

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: LEHUA ENVIRONMENTAL INC.
Project Number: 2024-243-2
Project Name: CSO DECOMMISSIONING - CSO Slab
Project Manager: KAMA KOBAYASHI
Sampled by: CALVIN ARCA

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 06-162

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up) EPA 8015	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals Lead	Total MTCA Metals	TCLP Metals Lead	HEM (oil and grease) 1664A	Multi-incremental sample preparation Non-Volatile				% Moisture
1	CSO DU-1A-1	6-11-24		S	1				X						X				X		X		X				10
2	CSO DU-1A-2	6-11-24		↓	1				X						X				X		X		X				↓
3	CSO DU-1A-3	6-11-24			1				X						X				X		X		X				
4	CSO DU-1B	6-11-24			1				X						X				X		X		X				

	Signature	Company	Date	Time
Relinquished		LEHUA ENVIRONMENTAL INC.	6-12-24	12:00pm
Received		ONE	6/13/24	1000
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Sample/Cooler Receipt and Acceptance Checklist

Client: UEI

Client Project Name/Number: 2024-243-2

OnSite Project Number: 06-162

Initiated by: JMV

Date Initiated: 6/13/24

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	(No)	N/A	1 2 3 4	
1.2 Were the custody seals intact?	Yes	No	(N/A)	1 2 3 4	
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	(N/A)	1 2 3 4	
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No	N/A	1 2 3 4	
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	N/A	Temperature:	6
1.6 Have shipping bills (if any) been attached to the back of this form?	(Yes)	N/A			
1.7 How were the samples delivered?	Client	Courier	(UPS/FedEx)	OSE Pickup	Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	(Yes)	No		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	(Yes)	No		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	(No)		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	(N/A)	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	Yes	No	(N/A)	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		(N/A)	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 11, 2024

Kama Kobayashi
Lehua Environmental Inc.
P.O. Box 1018
Kamuela, HI 96743

Re: Analytical Data for Project 2024-243
Laboratory Reference No. 2406-039

Dear Kama:

Enclosed are the analytical results and associated quality control data for samples submitted on June 5, 2024.

Please note that the data for the subcontracted analyses will follow in the final report.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

July 1, 2024

Kama Kobayashi
Lehua Environmental Inc.
P.O. Box 1018
Kamuela, HI 96743

Re: Analytical Data for Project 2024-243
Laboratory Reference No. 2406-039

Dear Kama:

Enclosed are the analytical results and associated quality control data for samples submitted on June 5, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

Case Narrative

Samples were collected on May 31 and June 3, 2024 and received by the laboratory on June 5, 2024. Samples were shipped in a cooler packed with blue ice and arrived at a temperature of <6°C. They were maintained at the laboratory at a temperature of 2°C to 6°C. A copy of the cooler receipt form has been included with this report.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

All samples were processed in the laboratory following the multi-increment sampling procedures as outlined in the HEER-TGM. Additional notes will be addressed in appropriate sections as warranted.

Volatiles EPA 8260D Analysis

The percent recovery for Bromomethane is outside the control limits in the Spike Blank and Spike Blank Duplicate. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

GASOLINE RANGE ORGANICS
EPA 8015M

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Gasoline	**ND**	9.0	EPA 8015M	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*111*	*62-134*				
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Gasoline	**ND**	14	EPA 8015M	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*101*	*62-134*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

GASOLINE RANGE ORGANICS
EPA 8015M
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0606S1					
Gasoline	**ND**	5.0	EPA 8015M	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*62-134*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-039-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*111*	*117*	*62-134*			

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Diesel Range Organics	**ND**	27	EPA 8015M	6-11-24	6-11-24	
Residual Range Organics	**ND**	43	EPA 8015M	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*75*	*50-150*				
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Diesel Range Organics	**ND**	28	EPA 8015M	6-11-24	6-11-24	
Residual Range Organics	**150**	45	EPA 8015M	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*76*	*50-150*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0611S1					
Diesel Range Organics	**ND**	25	EPA 8015M	6-11-24	6-11-24	
Residual Range Organics	**ND**	40	EPA 8015M	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-090-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Residual Range Organics	**65.8**	**49.8**	NA	NA		NA		NA	28	40	
Surrogate:											
o-Terphenyl						*76*	*77*	*50-150*			

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Dichlorodifluoromethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Chloromethane	ND	0.45	EPA 8260D	6-6-24	6-6-24	
Vinyl Chloride (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
Bromomethane	ND	0.45	EPA 8260D	6-6-24	6-6-24	
Chloroethane	ND	0.45	EPA 8260D	6-6-24	6-6-24	
Trichlorofluoromethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Iodomethane	ND	0.91	EPA 8260D	6-6-24	6-6-24	
Methylene Chloride	ND	0.45	EPA 8260D	6-6-24	6-6-24	
(trans) 1,2-Dichloroethene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
2,2-Dichloropropane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
(cis) 1,2-Dichloroethene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Bromochloromethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Chloroform (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,1-Trichloroethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Carbon Tetrachloride	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloropropene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Benzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloroethane (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
Trichloroethene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloropropane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Dibromomethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Bromodichloromethane (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

VOLATILE ORGANICS EPA 8260D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
2-Chloroethyl Vinyl Ether	ND	0.64	EPA 8260D	6-6-24	6-6-24	
(cis) 1,3-Dichloropropene (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
Toluene	ND	0.45	EPA 8260D	6-6-24	6-6-24	
(trans) 1,3-Dichloropropene (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,2-Trichloroethane (SIM)	ND	0.0091	EPA 8260D/SIM	6-6-24	6-6-24	
Tetrachloroethene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,3-Dichloropropane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Dibromochloromethane (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dibromoethane (SIM)	ND	0.0045	EPA 8260D/SIM	6-6-24	6-6-24	
Chlorobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,1,1,2-Tetrachloroethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Ethylbenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
m,p-Xylene	ND	0.18	EPA 8260D	6-6-24	6-6-24	
o-Xylene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Bromoform	ND	0.45	EPA 8260D	6-6-24	6-6-24	
Bromobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,1,2,2-Tetrachloroethane	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,2,3-Trichloropropane (SIM)	ND	0.0091	EPA 8260D/SIM	6-6-24	6-6-24	
2-Chlorotoluene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
4-Chlorotoluene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,3-Dichlorobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,4-Dichlorobenzene (SIM)	ND	0.0091	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dichlorobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
1,2-Dibromo-3-chloropropane (SIM)	ND	0.013	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,4-Trichlorobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Hexachlorobutadiene (SIM)	ND	0.0091	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,3-Trichlorobenzene	ND	0.091	EPA 8260D	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*69-124*				
Toluene-d8	*108*	*80-118*				
4-Bromofluorobenzene	*92*	*75-123*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Dichlorodifluoromethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Chloromethane	ND	0.72	EPA 8260D	6-6-24	6-6-24	
Vinyl Chloride (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
Bromomethane	ND	0.72	EPA 8260D	6-6-24	6-6-24	
Chloroethane	ND	0.72	EPA 8260D	6-6-24	6-6-24	
Trichlorofluoromethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Iodomethane	ND	1.4	EPA 8260D	6-6-24	6-6-24	
Methylene Chloride	ND	0.72	EPA 8260D	6-6-24	6-6-24	
(trans) 1,2-Dichloroethene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
2,2-Dichloropropane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
(cis) 1,2-Dichloroethene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Bromochloromethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Chloroform (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,1-Trichloroethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Carbon Tetrachloride	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloropropene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Benzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloroethane (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
Trichloroethene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloropropane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Dibromomethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Bromodichloromethane (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	6-6-24	6-6-24	
(cis) 1,3-Dichloropropene (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
Toluene	ND	0.72	EPA 8260D	6-6-24	6-6-24	
(trans) 1,3-Dichloropropene (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,2-Trichloroethane (SIM)	ND	0.014	EPA 8260D/SIM	6-6-24	6-6-24	
Tetrachloroethene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,3-Dichloropropane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Dibromochloromethane (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dibromoethane (SIM)	ND	0.0072	EPA 8260D/SIM	6-6-24	6-6-24	
Chlorobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,1,1,2-Tetrachloroethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Ethylbenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
m,p-Xylene	ND	0.29	EPA 8260D	6-6-24	6-6-24	
o-Xylene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Bromoform	ND	0.72	EPA 8260D	6-6-24	6-6-24	
Bromobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,1,2,2-Tetrachloroethane	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,2,3-Trichloropropane (SIM)	ND	0.014	EPA 8260D/SIM	6-6-24	6-6-24	
2-Chlorotoluene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
4-Chlorotoluene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,3-Dichlorobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,4-Dichlorobenzene (SIM)	ND	0.014	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dichlorobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
1,2-Dibromo-3-chloropropane (SIM)	ND	0.020	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,4-Trichlorobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Hexachlorobutadiene (SIM)	ND	0.014	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,3-Trichlorobenzene	ND	0.14	EPA 8260D	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*88*	*69-124*				
Toluene-d8	*108*	*80-118*				
4-Bromofluorobenzene	*75*	*75-123*				

Date of Report: July 1, 2024
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Project: 2024-243

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0606S2					
Dichlorodifluoromethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Chloromethane	ND	0.25	EPA 8260D	6-6-24	6-6-24	
Vinyl Chloride (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
Bromomethane	ND	0.25	EPA 8260D	6-6-24	6-6-24	
Chloroethane	ND	0.25	EPA 8260D	6-6-24	6-6-24	
Trichlorofluoromethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Iodomethane	ND	0.50	EPA 8260D	6-6-24	6-6-24	
Methylene Chloride	ND	0.25	EPA 8260D	6-6-24	6-6-24	
(trans) 1,2-Dichloroethene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloroethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
2,2-Dichloropropane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
(cis) 1,2-Dichloroethene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Bromochloromethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Chloroform (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,1-Trichloroethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Carbon Tetrachloride	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,1-Dichloropropene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Benzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloroethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
Trichloroethene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,2-Dichloropropane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Dibromomethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Bromodichloromethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	

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QUALITY CONTROL
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0606S2					
2-Chloroethyl Vinyl Ether	ND	0.35	EPA 8260D	6-6-24	6-6-24	
(cis) 1,3-Dichloropropene (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
Toluene	ND	0.25	EPA 8260D	6-6-24	6-6-24	
(trans) 1,3-Dichloropropene (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
1,1,2-Trichloroethane (SIM)	ND	0.0050	EPA 8260D/SIM	6-6-24	6-6-24	
Tetrachloroethene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,3-Dichloropropane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Dibromochloromethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dibromoethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-6-24	6-6-24	
Chlorobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,1,1,2-Tetrachloroethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Ethylbenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
m,p-Xylene	ND	0.10	EPA 8260D	6-6-24	6-6-24	
o-Xylene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Bromoform	ND	0.25	EPA 8260D	6-6-24	6-6-24	
Bromobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,1,2,2-Tetrachloroethane	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,2,3-Trichloropropane (SIM)	ND	0.0050	EPA 8260D/SIM	6-6-24	6-6-24	
2-Chlorotoluene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
4-Chlorotoluene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,3-Dichlorobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,4-Dichlorobenzene (SIM)	ND	0.0050	EPA 8260D/SIM	6-6-24	6-6-24	
1,2-Dichlorobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
1,2-Dibromo-3-chloropropane (SIM)	ND	0.0070	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,4-Trichlorobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Hexachlorobutadiene (SIM)	ND	0.0050	EPA 8260D/SIM	6-6-24	6-6-24	
1,2,3-Trichlorobenzene	ND	0.050	EPA 8260D	6-6-24	6-6-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*92*	*69-124*				
Toluene-d8	*109*	*80-118*				
4-Bromofluorobenzene	*107*	*75-123*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
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VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0606S1									
	SB	SBD	SB	SBD	SB	SBD				
Dichlorodifluoromethane	**0.0487**	**0.0479**	0.0500	0.0500	97	96	24-162	2	24	
Chloromethane	**0.0508**	**0.0527**	0.0500	0.0500	102	105	41-143	4	22	
Vinyl Chloride	**0.0540**	**0.0551**	0.0500	0.0500	108	110	52-141	2	20	
Bromomethane	**0.0924**	**0.0888**	0.0500	0.0500	185	178	37-145	4	23	I,I
Chloroethane	**0.0619**	**0.0635**	0.0500	0.0500	124	127	54-148	3	19	
Trichlorofluoromethane	**0.0574**	**0.0588**	0.0500	0.0500	115	118	65-142	2	18	
1,1-Dichloroethene	**0.0588**	**0.0615**	0.0500	0.0500	118	123	74-133	4	16	
Iodomethane	**0.0487**	**0.0467**	0.0500	0.0500	97	93	36-133	4	31	
Methylene Chloride	**0.0471**	**0.0521**	0.0500	0.0500	94	104	60-135	10	23	
(trans) 1,2-Dichloroethene	**0.0581**	**0.0604**	0.0500	0.0500	116	121	74-131	4	15	
1,1-Dichloroethane	**0.0586**	**0.0597**	0.0500	0.0500	117	119	74-130	2	15	
2,2-Dichloropropane	**0.0589**	**0.0685**	0.0500	0.0500	118	137	74-137	15	16	
(cis) 1,2-Dichloroethene	**0.0571**	**0.0635**	0.0500	0.0500	114	127	71-136	11	15	
Bromochloromethane	**0.0436**	**0.0469**	0.0500	0.0500	87	94	78-128	7	15	
Chloroform	**0.0557**	**0.0578**	0.0500	0.0500	111	116	75-128	4	15	
1,1,1-Trichloroethane	**0.0574**	**0.0589**	0.0500	0.0500	115	118	73-129	3	15	
Carbon Tetrachloride	**0.0499**	**0.0547**	0.0500	0.0500	100	109	69-134	9	15	
1,1-Dichloropropene	**0.0554**	**0.0619**	0.0500	0.0500	111	124	73-127	11	15	
Benzene	**0.0577**	**0.0606**	0.0500	0.0500	115	121	75-126	5	15	
1,2-Dichloroethane	**0.0481**	**0.0519**	0.0500	0.0500	96	104	70-133	8	15	
Trichloroethene	**0.0545**	**0.0529**	0.0500	0.0500	109	106	80-130	3	15	
1,2-Dichloropropane	**0.0588**	**0.0610**	0.0500	0.0500	118	122	78-131	4	16	
Dibromomethane	**0.0456**	**0.0491**	0.0500	0.0500	91	98	72-136	7	28	
Bromodichloromethane	**0.0577**	**0.0583**	0.0500	0.0500	115	117	80-129	1	15	
(cis) 1,3-Dichloropropene	**0.0572**	**0.0621**	0.0500	0.0500	114	124	80-132	8	17	
Toluene	**0.0581**	**0.0590**	0.0500	0.0500	116	118	78-124	2	17	
(trans) 1,3-Dichloropropene	**0.0584**	**0.0600**	0.0500	0.0500	117	120	80-130	3	15	

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Laboratory Reference: 2406-039
Project: 2024-243

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
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Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0606S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1,2-Trichloroethane	**0.0465**	**0.0510**	0.0500	0.0500	93	102	80-123	9	15	
Tetrachloroethene	**0.0621**	**0.0612**	0.0500	0.0500	124	122	80-130	1	15	
1,3-Dichloropropane	**0.0522**	**0.0566**	0.0500	0.0500	104	113	80-122	8	15	
Dibromochloromethane	**0.0476**	**0.0486**	0.0500	0.0500	95	97	80-129	2	15	
1,2-Dibromoethane	**0.0443**	**0.0478**	0.0500	0.0500	89	96	80-125	8	15	
Chlorobenzene	**0.0496**	**0.0500**	0.0500	0.0500	99	100	80-119	1	15	
1,1,1,2-Tetrachloroethane	**0.0505**	**0.0533**	0.0500	0.0500	101	107	80-124	5	15	
Ethylbenzene	**0.0581**	**0.0593**	0.0500	0.0500	116	119	80-120	2	15	
m,p-Xylene	**0.117**	**0.117**	0.100	0.100	117	117	80-121	0	15	
o-Xylene	**0.0584**	**0.0591**	0.0500	0.0500	117	118	80-120	1	15	
Bromoform	**0.0477**	**0.0490**	0.0500	0.0500	95	98	79-132	3	15	
Bromobenzene	**0.0505**	**0.0504**	0.0500	0.0500	101	101	80-124	0	15	
1,1,2,2-Tetrachloroethane	**0.0446**	**0.0492**	0.0500	0.0500	89	98	75-128	10	19	
1,2,3-Trichloropropane	**0.0462**	**0.0511**	0.0500	0.0500	92	102	74-128	10	19	
2-Chlorotoluene	**0.0518**	**0.0519**	0.0500	0.0500	104	104	80-126	0	15	
4-Chlorotoluene	**0.0530**	**0.0508**	0.0500	0.0500	106	102	80-129	4	15	
1,3-Dichlorobenzene	**0.0541**	**0.0530**	0.0500	0.0500	108	106	80-125	2	15	
1,4-Dichlorobenzene	**0.0527**	**0.0521**	0.0500	0.0500	105	104	78-127	1	15	
1,2-Dichlorobenzene	**0.0510**	**0.0521**	0.0500	0.0500	102	104	79-127	2	15	
1,2-Dibromo-3-chloropropane	**0.0393**	**0.0426**	0.0500	0.0500	79	85	68-143	8	26	
1,2,4-Trichlorobenzene	**0.0557**	**0.0516**	0.0500	0.0500	111	103	77-142	8	19	
Hexachlorobutadiene	**0.0632**	**0.0614**	0.0500	0.0500	126	123	73-135	3	19	
1,2,3-Trichlorobenzene	**0.0497**	**0.0495**	0.0500	0.0500	99	99	77-139	0	19	
Surrogate:										
Dibromofluoromethane					*97*	*92*	*69-124*			
Toluene-d8					*110*	*107*	*80-118*			
4-Bromofluorobenzene					*96*	*109*	*75-123*			

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Naphthalene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
2-Methylnaphthalene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
1-Methylnaphthalene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthylene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Fluorene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Phenanthrene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Anthracene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Fluoranthene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Pyrene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]anthracene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Chrysene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[b]fluoranthene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo(j,k)fluoranthene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]pyrene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Dibenz[a,h]anthracene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[g,h,i]perylene	**ND**	0.0072	EPA 8270E/SIM	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*71*	*47-112*				
Pyrene-d10	*92*	*48-129*				
Terphenyl-d14	*88*	*51-114*				

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Laboratory Reference: 2406-039
Project: 2024-243

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Naphthalene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
2-Methylnaphthalene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
1-Methylnaphthalene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthylene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Fluorene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Phenanthrene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Anthracene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Fluoranthene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Pyrene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]anthracene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Chrysene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo(j,k)fluoranthene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[g,h,i]perylene	**ND**	0.0075	EPA 8270E/SIM	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*47-112*				
Pyrene-d10	*96*	*48-129*				
Terphenyl-d14	*93*	*51-114*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0611S1					
Naphthalene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthylene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Acenaphthene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Fluorene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Phenanthrene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Anthracene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Pyrene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270E/SIM	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*85*	*47-112*				
Pyrene-d10	*101*	*48-129*				
Terphenyl-d14	*93*	*51-114*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0611S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0727**	**0.0729**	0.0833	0.0833	87	88	64-115	0	15	
Acenaphthylene	**0.0720**	**0.0746**	0.0833	0.0833	86	90	68-118	4	15	
Acenaphthene	**0.0718**	**0.0750**	0.0833	0.0833	86	90	67-116	4	15	
Fluorene	**0.0724**	**0.0757**	0.0833	0.0833	87	91	69-120	4	15	
Phenanthrene	**0.0745**	**0.0772**	0.0833	0.0833	89	93	67-120	4	15	
Anthracene	**0.0918**	**0.0943**	0.0833	0.0833	110	113	71-118	3	15	
Fluoranthene	**0.0812**	**0.0828**	0.0833	0.0833	97	99	73-118	2	15	
Pyrene	**0.0814**	**0.0828**	0.0833	0.0833	98	99	71-118	2	15	
Benzo[a]anthracene	**0.0874**	**0.0914**	0.0833	0.0833	105	110	60-128	4	15	
Chrysene	**0.0773**	**0.0791**	0.0833	0.0833	93	95	70-121	2	15	
Benzo[b]fluoranthene	**0.0747**	**0.0836**	0.0833	0.0833	90	100	68-123	11	15	
Benzo(j,k)fluoranthene	**0.0804**	**0.0777**	0.0833	0.0833	97	93	73-123	3	17	
Benzo[a]pyrene	**0.0821**	**0.0860**	0.0833	0.0833	99	103	72-120	5	15	
Indeno(1,2,3-c,d)pyrene	**0.0838**	**0.0888**	0.0833	0.0833	101	107	64-122	6	15	
Dibenz[a,h]anthracene	**0.0824**	**0.0861**	0.0833	0.0833	99	103	72-120	4	15	
Benzo[g,h,i]perylene	**0.0794**	**0.0833**	0.0833	0.0833	95	100	71-117	5	15	
Surrogate:										
2-Fluorobiphenyl					*81*	*83*	*47-112*			
Pyrene-d10					*95*	*96*	*48-129*			
Terphenyl-d14					*94*	*93*	*51-114*			

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

PCBs EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Aroclor 1016	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1221	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1232	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1242	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1248	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1254	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1260	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1262	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Aroclor 1268	**ND**	0.054	EPA 8082A	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*104*	*40-151*				
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Aroclor 1016	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1221	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1232	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1242	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1248	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1254	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1260	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1262	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Aroclor 1268	**ND**	0.056	EPA 8082A	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*101*	*40-151*				

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0611S1					
Aroclor 1016	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1221	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1232	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1242	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1248	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1254	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1260	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1262	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Aroclor 1268	**ND**	0.025	EPA 8082A	6-11-24	6-11-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*122*	*40-151*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0611S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.456**	**0.437**	0.500	0.500	N/A	**91**	**87**	60-115	4	23	
Surrogate:											
DCB						*120*	*110*	*40-151*			

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

TOTAL METALS
EPA 6010D

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Cadmium	**ND**	0.54	EPA 6010D	6-7-24	6-7-24	
Chromium	**5.8**	0.54	EPA 6010D	6-7-24	6-7-24	
Lead	**ND**	5.4	EPA 6010D	6-7-24	6-7-24	
Silver	**ND**	1.1	EPA 6010D	6-7-24	6-7-24	
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Cadmium	**ND**	0.56	EPA 6010D	6-7-24	6-7-24	
Chromium	**5.2**	0.56	EPA 6010D	6-7-24	6-7-24	
Lead	**ND**	5.6	EPA 6010D	6-7-24	6-7-24	
Silver	**ND**	1.1	EPA 6010D	6-7-24	6-7-24	

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

TOTAL METALS
EPA 6010D
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0607SM2					
Cadmium	**ND**	0.50	EPA 6010D	6-7-24	6-7-24	
Chromium	**ND**	0.50	EPA 6010D	6-7-24	6-7-24	
Lead	**ND**	5.0	EPA 6010D	6-7-24	6-7-24	
Silver	**ND**	1.0	EPA 6010D	6-7-24	6-7-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-061-01									
	ORIG	DUP								
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**19.6**	**17.8**	NA	NA		NA	NA	10	20	
Lead	**6.58**	**7.36**	NA	NA		NA	NA	11	20	
Silver	**ND**	**ND**	NA	NA		NA	NA	NA	20	
MATRIX SPIKES										
Laboratory ID:	06-061-01									
	MS	MSD	MS	MSD		MS	MSD			
Cadmium	**44.6**	**44.4**	50.0	50.0	ND	**89**	**89**	75-125	0	20
Chromium	**110**	**108**	100	100	19.6	**90**	**88**	75-125	2	20
Lead	**236**	**235**	250	250	6.58	**92**	**91**	75-125	0	20
Silver	**19.2**	**19.3**	25.0	25.0	ND	**77**	**77**	75-125	0	20

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

TCLP METALS
EPA 1311/6010D

Matrix: TCLP Extract
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU2**					
Laboratory ID:	06-039-01					
Cadmium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Chromium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Lead	**ND**	0.20	EPA 6010D	6-11-24	6-11-24	
Silver	**ND**	0.040	EPA 6010D	6-11-24	6-11-24	
Client ID:	**CSO DU3**					
Laboratory ID:	06-039-02					
Cadmium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Chromium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Lead	**ND**	0.20	EPA 6010D	6-11-24	6-11-24	
Silver	**ND**	0.040	EPA 6010D	6-11-24	6-11-24	

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

TCLP METALS
EPA 1311/6010D
QUALITY CONTROL

Matrix: TCLP Extract
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0611TM1					
Cadmium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Chromium	**ND**	0.020	EPA 6010D	6-11-24	6-11-24	
Lead	**ND**	0.20	EPA 6010D	6-11-24	6-11-24	
Silver	**ND**	0.040	EPA 6010D	6-11-24	6-11-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-096-03									
	ORIG	DUP								
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Lead	**0.204**	**ND**	NA	NA		NA	NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA	NA	NA	20	
MATRIX SPIKES										
Laboratory ID:	06-096-03									
	MS	MSD	MS	MSD		MS	MSD			
Cadmium	**2.07**	**2.08**	2.00	2.00	ND	**103**	**104**	75-125	1	20
Chromium	**3.70**	**3.73**	4.00	4.00	ND	**93**	**93**	75-125	1	20
Lead	**9.54**	**9.63**	10.0	10.0	0.204	**93**	**94**	75-125	1	20
Silver	**0.893**	**0.900**	1.00	1.00	ND	**89**	**90**	75-125	1	20

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
CSO DU2	06-039-01	**10**	6-5-24
CSO DU3	06-039-02	**14**	6-5-24

Date of Report: July 1, 2024
Samples Submitted: June 5, 2024
Laboratory Reference: 2406-039
Project: 2024-243

% MOISTURE
MULTI-INCREMENT SAMPLING

Client ID	Lab ID	% Moisture	Date Analyzed
CSO DU2	06-039-01	**7**	6-7-24
CSO DU3	06-039-02	**11**	6-7-24

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

June 28, 2024

David Baumeister
14648 NE 95th ST
Redmond, WA 98052

Project: Onsite (Chem)
Project Number: 2024-243
Project Manager: David Baumeister
RE: Onsite (Chem)

Enclosed are the results of analyses for samples received by our laboratory on 6/10/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

Aaron Young
President

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

ANALYSIS REPORT

Professional Analytical Services

Date Received: 06/10/24
Date Reported: 06/28/24

OnSite Environmental Inc.
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister
Project Name: Onsite (Chem)
Project #: 2024-243

All results reported on an as received basis.

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24F0163-01	CSO DU2	Solid		05/31/2024	06/10/2024
A24F0163-02	CSO DU3	Solid		06/03/2024	06/10/2024

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

ANALYSIS REPORT

Professional Analytical Services

Date Received: 06/10/24
Date Reported: 06/28/24

OnSite Environmental Inc.
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister
Project Name: Onsite (Chem)
Project #: 2024-243

All results reported on an as received basis.

AMTEST Identification Number: A24F0163-01
Client Identification: CSO DU2
Sampling Date: 05/31/24 07:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cyanide	ND	mg/kg wet		0.037	SM 4500CN-E_2011	EZ	06/17/2024

AMTEST Identification Number: A24F0163-02
Client Identification: CSO DU3
Sampling Date: 06/03/24 07:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cyanide	**0.235**	mg/kg wet		0.029	SM 4500CN-E_2011	EZ	06/17/2024

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com

AMTEST LABORATORIES

Professional Analytical Services

ANALYSIS REPORT

Date Received: 06/10/24
Date Reported: 06/28/24

OnSite Environmental Inc.
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister
Project Name: Onsite (Chem)
Project #: 2024-243

All results reported on an as received basis.

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBF0094 - No Prep - WC Soil										
Blank (BBF0094-BLK1)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	ND		0.005	mg/kg wet						
LCS (BBF0094-BS1)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.054			mg/kg	0.05000		107	80-120		
Calibration Blank (BBF0094-CCB1)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.0002			mg/kg wet						
Calibration Blank (BBF0094-CCB2)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	-0.0009			mg/kg wet						
Calibration Check (BBF0094-CCV1)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.104			mg/kg	0.1000		104	85-115		
Calibration Check (BBF0094-CCV2)				Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.096			mg/kg	0.1000		96	85-115		
Duplicate (BBF0094-DUP1)		**Source: A24F0072-02**		Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.239		0.070	mg/kg dry		0.226			6	34
Matrix Spike (BBF0094-MS1)		**Source: A24F0072-02**		Prepared: 06/07/24 Analyzed: 06/17/24						
Cyanide	0.913		0.100	mg/kg dry	1.246	0.226	55	45-155		

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

A24F0163

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 - (425) 883-3881

Laboratory Reference #: 06-039

Laboratory: AmTest Laboratories

Attention: Aaron Young

13600 NE 126th Pl Kirkland, WA 98034

Phone Number: (425) 885-1664

Turnaround Request

1 Day 2 Day 3 Day

Standard

Other: 1 Week

Or Sooner if at all Possible Please - David

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 2024-243

Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
01	CSO DU2	5/31/24		S	1	Cyanide SM4500-CN
02	CSO DU3	6/3/24		S	1	Cyanide SM4500-CN

HAWAII SAMPLES REGULATED DISPOSAL PROCEDURE

	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	6/10/24	1:10 PM	
Received by: SF	AmTest	6/10/24	1310	7.3°C
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: LEHUA ENVIRONMENTAL INC.
Project Number: 2024-243
Project Name: CSO DECOMMISSIONING - CESSPOOL
Project Manager: KAMA KOBAYASHI
Sampled by: CALVIN ARCA/NICOLE GARAGANZA-TENGAN

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
~~☒~~ 2 Days ~~☑ 3 Days~~ DB.
~~☐ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 06-039

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx EPA 8015	NWTPH-Dx EPA 8015	Volatiles 8260C HVOCS + BTEX	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals Cadmium, Chromium, Silver, Lead	Total MTCA Metals	TCLP Metals Cadmium, Chromium, Silver, Lead	HEM (oil and grease) 1664A	Multi-incremental sample preparation Volatile and Non-Volatile	Cyanide SM4500-CN *			% Moisture
1	CSO DU2	5/31/24		S	14			X	X	X				X	X				X		X		X	X			X
2	CSO DU3	6/3/24		↓	14			X	X	X				X	X				X		X		X	X			X

	Signature	Company	Date	Time
Relinquished		LEHUA ENVIRONMENTAL INC.	6/4/24	10:00AM
Received		OSE	6/5/24	1100
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* 1 week TAT for Cyanide.

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Sample/Cooler Receipt and Acceptance Checklist

Client: _____

Client Project Name/Number: 2024-243

OnSite Project Number: 06-039

Initiated by: MV

Date Initiated: 6/5/24

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	(No)	N/A	1 2 3 4	
1.2 Were the custody seals intact?	Yes	No	(N/A)	1 2 3 4	
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	(N/A)	1 2 3 4	
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No	N/A	1 2 3 4	
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	N/A	Temperature:	4
1.6 Have shipping bills (if any) been attached to the back of this form?	(Yes)	N/A			
1.7 How were the samples delivered?	Client	Courier	(UPS/FedEx)	OSE Pickup	Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	(Yes)	No		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	(Yes)	No		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	(No)		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	(Yes)	No	(N/A)	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	(Yes)	No	N/A	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#	2	N/A	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

June 18, 2024

Kama Kobayashi
Lehua Environmental Inc.
P.O. Box 1018
Kamuela, HI 96743

Re: Analytical Data for Project 2024-243-3
Laboratory Reference No. 2406-163

Dear Kama:

Enclosed are the analytical results and associated quality control data for samples submitted on June 13, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

Case Narrative

Samples were collected on June 11, 2024 and received by the laboratory on June 13, 2024. Samples were shipped in a cooler packed with blue ice and arrived at a temperature of <6°C. They were maintained at the laboratory at a temperature of 2°C to 6°C. A copy of the cooler receipt form has been included with this report.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

All samples were processed in the laboratory following the multi-increment sampling procedures as outlined in the HEER-TGM. Additional notes will be addressed in appropriate sections as warranted.

Volatiles EPA 8260D Analysis

The percent recovery for Bromomethane and 1,1,2-Trichloroethane is outside the control limits in the Spike Blank. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Chloroethane, 1,1,2-Trichloroethane, 1,4-Dichlorobenzene and 1,2-Dichlorobenzene is outside the control limits for the Spike Blank/Spike Blank Duplicate. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

GASOLINE RANGE ORGANICS
EPA 8015M

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Gasoline	**ND**	9.5	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*62-134*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

GASOLINE RANGE ORGANICS
EPA 8015M
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S2					
Gasoline	**ND**	5.0	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*62-134*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-163-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*87*	*92*	*62-134*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Diesel Range Organics	**ND**	83	EPA 8015M	6-17-24	6-18-24	U1
Residual Range Organics	**540**	53	EPA 8015M	6-17-24	6-18-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*71*	*50-150*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

DIESEL AND HEAVY OIL RANGE ORGANICS
EPA 8015M
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S1					
Diesel Range Organics	**ND**	25	EPA 8015M	6-17-24	6-17-24	
Residual Range Organics	**ND**	50	EPA 8015M	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	06-183-02										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Residual Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Surrogate:											
o-Terphenyl						*75*	*75*	*50-150*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Dichlorodifluoromethane	ND	0.13	EPA 8260D	6-17-24	6-17-24	
Chloromethane	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Vinyl Chloride (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
Bromomethane	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Chloroethane	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Trichlorofluoromethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloroethene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Acetone	ND	0.95	EPA 8260D	6-17-24	6-17-24	
Iodomethane	ND	0.95	EPA 8260D	6-17-24	6-17-24	
Carbon Disulfide	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Methylene Chloride	ND	0.48	EPA 8260D	6-17-24	6-17-24	
(trans) 1,2-Dichloroethene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Methyl t-Butyl Ether	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloroethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Vinyl Acetate	ND	0.48	EPA 8260D	6-17-24	6-17-24	
2,2-Dichloropropane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
(cis) 1,2-Dichloroethene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
2-Butanone	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Bromochloromethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Chloroform (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
1,1,1-Trichloroethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Carbon Tetrachloride	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloropropene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Benzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,2-Dichloroethane (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
Trichloroethene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,2-Dichloropropane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Dibromomethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Bromodichloromethane (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
2-Chloroethyl Vinyl Ether	ND	0.48	EPA 8260D	6-17-24	6-17-24	
(cis) 1,3-Dichloropropene (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
Methyl Isobutyl Ketone	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Toluene	ND	0.48	EPA 8260D	6-17-24	6-17-24	
(trans) 1,3-Dichloropropene (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
1,1,2-Trichloroethane (SIM)	ND	0.0095	EPA 8260D/SIM	6-17-24	6-17-24	
Tetrachloroethene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,3-Dichloropropane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
2-Hexanone	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Dibromochloromethane (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
1,2-Dibromoethane (SIM)	ND	0.0048	EPA 8260D/SIM	6-17-24	6-17-24	
Chlorobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,1,1,2-Tetrachloroethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Ethylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
m,p-Xylene	ND	0.19	EPA 8260D	6-17-24	6-17-24	
o-Xylene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Styrene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Bromoform	ND	0.48	EPA 8260D	6-17-24	6-17-24	
Isopropylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Bromobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,1,2,2-Tetrachloroethane	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,2,3-Trichloropropane (SIM)	ND	0.0095	EPA 8260D/SIM	6-17-24	6-17-24	
n-Propylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
2-Chlorotoluene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
4-Chlorotoluene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,3,5-Trimethylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
tert-Butylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,2,4-Trimethylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
sec-Butylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,3-Dichlorobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
p-Isopropyltoluene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,4-Dichlorobenzene (SIM)	ND	0.0095	EPA 8260D/SIM	6-17-24	6-17-24	
1,2-Dichlorobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
n-Butylbenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
1,2-Dibromo-3-chloropropane (SIM)	ND	0.0095	EPA 8260D/SIM	6-17-24	6-17-24	
1,2,4-Trichlorobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Hexachlorobutadiene (SIM)	ND	0.0095	EPA 8260D/SIM	6-17-24	6-17-24	
Naphthalene	ND	0.48	EPA 8260D	6-17-24	6-17-24	
1,2,3-Trichlorobenzene	ND	0.095	EPA 8260D	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*91*	*69-124*				
Toluene-d8	*109*	*80-118*				
4-Bromofluorobenzene	*95*	*75-123*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S2					
Dichlorodifluoromethane	ND	0.070	EPA 8260D	6-17-24	6-17-24	
Chloromethane	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Vinyl Chloride (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
Bromomethane	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Chloroethane	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Trichlorofluoromethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloroethene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Acetone	ND	0.50	EPA 8260D	6-17-24	6-17-24	
Iodomethane	ND	0.50	EPA 8260D	6-17-24	6-17-24	
Carbon Disulfide	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Methylene Chloride	ND	0.25	EPA 8260D	6-17-24	6-17-24	
(trans) 1,2-Dichloroethene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Methyl t-Butyl Ether	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloroethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Vinyl Acetate	ND	0.25	EPA 8260D	6-17-24	6-17-24	
2,2-Dichloropropane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
(cis) 1,2-Dichloroethene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
2-Butanone	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Bromochloromethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Chloroform (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
1,1,1-Trichloroethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Carbon Tetrachloride	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,1-Dichloropropene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Benzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,2-Dichloroethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
Trichloroethene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,2-Dichloropropane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Dibromomethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Bromodichloromethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S2					
2-Chloroethyl Vinyl Ether	ND	0.25	EPA 8260D	6-17-24	6-17-24	
(cis) 1,3-Dichloropropene (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
Methyl Isobutyl Ketone	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Toluene	ND	0.25	EPA 8260D	6-17-24	6-17-24	
(trans) 1,3-Dichloropropene (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
1,1,2-Trichloroethane (SIM)	ND	0.0050	EPA 8260D/SIM	6-17-24	6-17-24	
Tetrachloroethene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,3-Dichloropropane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
2-Hexanone	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Dibromochloromethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
1,2-Dibromoethane (SIM)	ND	0.0025	EPA 8260D/SIM	6-17-24	6-17-24	
Chlorobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,1,1,2-Tetrachloroethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Ethylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
m,p-Xylene	ND	0.10	EPA 8260D	6-17-24	6-17-24	
o-Xylene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Styrene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Bromoform	ND	0.25	EPA 8260D	6-17-24	6-17-24	
Isopropylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Bromobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,1,2,2-Tetrachloroethane	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,2,3-Trichloropropane (SIM)	ND	0.0050	EPA 8260D/SIM	6-17-24	6-17-24	
n-Propylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
2-Chlorotoluene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
4-Chlorotoluene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,3,5-Trimethylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
tert-Butylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,2,4-Trimethylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
sec-Butylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,3-Dichlorobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
p-Isopropyltoluene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,4-Dichlorobenzene (SIM)	ND	0.0050	EPA 8260D/SIM	6-17-24	6-17-24	
1,2-Dichlorobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
n-Butylbenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
1,2-Dibromo-3-chloropropane (SIM)	ND	0.0050	EPA 8260D/SIM	6-17-24	6-17-24	
1,2,4-Trichlorobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Hexachlorobutadiene (SIM)	ND	0.0050	EPA 8260D/SIM	6-17-24	6-17-24	
Naphthalene	ND	0.25	EPA 8260D	6-17-24	6-17-24	
1,2,3-Trichlorobenzene	ND	0.050	EPA 8260D	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*96*	*69-124*				
Toluene-d8	*110*	*80-118*				
4-Bromofluorobenzene	*115*	*75-123*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
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Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0617S1									
	SB	SBD	SB	SBD	SB	SBD				
Dichlorodifluoromethane	**0.0385**	**0.0329**	0.0500	0.0500	77	66	24-162	16	24	
Chloromethane	**0.0465**	**0.0441**	0.0500	0.0500	93	88	41-143	5	22	
Vinyl Chloride	**0.0499**	**0.0453**	0.0500	0.0500	100	91	52-141	10	20	
Bromomethane	**0.0808**	**0.0720**	0.0500	0.0500	162	144	37-145	12	23	I
Chloroethane	**0.0617**	**0.0492**	0.0500	0.0500	123	98	54-148	23	19	L
Trichlorofluoromethane	**0.0578**	**0.0518**	0.0500	0.0500	116	104	65-142	11	18	
1,1-Dichloroethene	**0.0604**	**0.0592**	0.0500	0.0500	121	118	74-133	2	16	
Acetone	**0.0413**	**0.0313**	0.0500	0.0500	83	63	50-159	28	38	
Iodomethane	**0.0491**	**0.0461**	0.0500	0.0500	98	92	36-133	6	31	
Carbon Disulfide	**0.0625**	**0.0568**	0.0500	0.0500	125	114	37-138	10	27	
Methylene Chloride	**0.0484**	**0.0492**	0.0500	0.0500	97	98	60-135	2	23	
(trans) 1,2-Dichloroethene	**0.0595**	**0.0591**	0.0500	0.0500	119	118	74-131	1	15	
Methyl t-Butyl Ether	**0.0504**	**0.0489**	0.0500	0.0500	101	98	76-129	3	15	
1,1-Dichloroethane	**0.0592**	**0.0602**	0.0500	0.0500	118	120	74-130	2	15	
Vinyl Acetate	**0.0510**	**0.0445**	0.0500	0.0500	102	89	58-146	14	21	
2,2-Dichloropropane	**0.0626**	**0.0675**	0.0500	0.0500	125	135	74-137	8	16	
(cis) 1,2-Dichloroethene	**0.0631**	**0.0626**	0.0500	0.0500	126	125	71-136	1	15	
2-Butanone	**0.0401**	**0.0374**	0.0500	0.0500	80	75	58-144	7	32	
Bromochloromethane	**0.0453**	**0.0445**	0.0500	0.0500	91	89	78-128	2	15	
Chloroform	**0.0575**	**0.0575**	0.0500	0.0500	115	115	75-128	0	15	
1,1,1-Trichloroethane	**0.0584**	**0.0587**	0.0500	0.0500	117	117	73-129	1	15	
Carbon Tetrachloride	**0.0511**	**0.0519**	0.0500	0.0500	102	104	69-134	2	15	
1,1-Dichloropropene	**0.0580**	**0.0577**	0.0500	0.0500	116	115	73-127	1	15	
Benzene	**0.0599**	**0.0598**	0.0500	0.0500	120	120	75-126	0	15	
1,2-Dichloroethane	**0.0499**	**0.0491**	0.0500	0.0500	100	98	70-133	2	15	
Trichloroethene	**0.0554**	**0.0539**	0.0500	0.0500	111	108	80-130	3	15	
1,2-Dichloropropane	**0.0600**	**0.0616**	0.0500	0.0500	120	123	78-131	3	16	
Dibromomethane	**0.0459**	**0.0443**	0.0500	0.0500	92	89	72-136	4	28	
Bromodichloromethane	**0.0583**	**0.0568**	0.0500	0.0500	117	114	80-129	3	15	
(cis) 1,3-Dichloropropene	**0.0628**	**0.0604**	0.0500	0.0500	126	121	80-132	4	17	
Methyl Isobutyl Ketone	**0.0417**	**0.0400**	0.0500	0.0500	83	80	62-146	4	22	
Toluene	**0.0580**	**0.0600**	0.0500	0.0500	116	120	78-124	3	17	
(trans) 1,3-Dichloropropene	**0.0526**	**0.0542**	0.0500	0.0500	105	108	80-130	3	15	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

VOLATILE ORGANICS EPA 8260D/SIM
QUALITY CONTROL
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Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0617S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1,2-Trichloroethane	**0.0387**	**0.0451**	0.0500	0.0500	77	90	80-123	15	15	I,L
Tetrachloroethene	**0.0529**	**0.0590**	0.0500	0.0500	106	118	80-130	11	15	
1,3-Dichloropropane	**0.0453**	**0.0501**	0.0500	0.0500	91	100	80-122	10	15	
2-Hexanone	**0.0385**	**0.0414**	0.0500	0.0500	77	83	61-143	7	30	
Dibromochloromethane	**0.0413**	**0.0433**	0.0500	0.0500	83	87	80-129	5	15	
1,2-Dibromoethane	**0.0398**	**0.0429**	0.0500	0.0500	80	86	80-125	7	15	
Chlorobenzene	**0.0484**	**0.0483**	0.0500	0.0500	97	97	80-119	0	15	
1,1,1,2-Tetrachloroethane	**0.0496**	**0.0497**	0.0500	0.0500	99	99	80-124	0	15	
Ethylbenzene	**0.0574**	**0.0581**	0.0500	0.0500	115	116	80-120	1	15	
m,p-Xylene	**0.112**	**0.116**	0.100	0.100	112	116	80-121	4	15	
o-Xylene	**0.0563**	**0.0569**	0.0500	0.0500	113	114	80-120	1	15	
Styrene	**0.0528**	**0.0531**	0.0500	0.0500	106	106	80-130	1	15	
Bromoform	**0.0467**	**0.0419**	0.0500	0.0500	93	84	79-132	11	15	
Isopropylbenzene	**0.0556**	**0.0558**	0.0500	0.0500	111	112	80-126	0	15	
Bromobenzene	**0.0486**	**0.0507**	0.0500	0.0500	97	101	80-124	4	15	
1,1,2,2-Tetrachloroethane	**0.0440**	**0.0444**	0.0500	0.0500	88	89	75-128	1	19	
1,2,3-Trichloropropane	**0.0463**	**0.0462**	0.0500	0.0500	93	92	74-128	0	19	
n-Propylbenzene	**0.0584**	**0.0617**	0.0500	0.0500	117	123	80-128	5	16	
2-Chlorotoluene	**0.0510**	**0.0530**	0.0500	0.0500	102	106	80-126	4	15	
4-Chlorotoluene	**0.0502**	**0.0523**	0.0500	0.0500	100	105	80-129	4	15	
1,3,5-Trimethylbenzene	**0.0557**	**0.0590**	0.0500	0.0500	111	118	80-129	6	15	
tert-Butylbenzene	**0.0527**	**0.0543**	0.0500	0.0500	105	109	80-129	3	15	
1,2,4-Trimethylbenzene	**0.0570**	**0.0549**	0.0500	0.0500	114	110	80-127	4	15	
sec-Butylbenzene	**0.0582**	**0.0535**	0.0500	0.0500	116	107	77-134	8	16	
1,3-Dichlorobenzene	**0.0524**	**0.0474**	0.0500	0.0500	105	95	80-125	10	15	
p-Isopropyltoluene	**0.0558**	**0.0521**	0.0500	0.0500	112	104	80-133	7	15	
1,4-Dichlorobenzene	**0.0518**	**0.0492**	0.0500	0.0500	104	98	78-127	5	15	
1,2-Dichlorobenzene	**0.0505**	**0.0429**	0.0500	0.0500	101	86	79-127	16	15	L
n-Butylbenzene	**0.0629**	**0.0526**	0.0500	0.0500	126	105	80-136	18	17	L
1,2-Dibromo-3-chloropropane	**0.0396**	**0.0339**	0.0500	0.0500	79	68	68-143	16	26	
1,2,4-Trichlorobenzene	**0.0542**	**0.0524**	0.0500	0.0500	108	105	77-142	3	19	
Hexachlorobutadiene	**0.0604**	**0.0620**	0.0500	0.0500	121	124	73-135	3	19	
Naphthalene	**0.0398**	**0.0373**	0.0500	0.0500	80	75	72-142	6	21	
1,2,3-Trichlorobenzene	**0.0496**	**0.0481**	0.0500	0.0500	99	96	77-139	3	19	
Surrogate:										
Dibromofluoromethane					*99*	*95*	*69-124*			
Toluene-d8					*103*	*108*	*80-118*			
4-Bromofluorobenzene					*97*	*115*	*75-123*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Naphthalene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
2-Methylnaphthalene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
1-Methylnaphthalene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Acenaphthylene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Acenaphthene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Fluorene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Phenanthrene	**0.0085**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Anthracene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Fluoranthene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Pyrene	**0.0076**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Benzo[a]anthracene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Chrysene	**0.0073**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Benzo[b]fluoranthene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Benzo(j,k)fluoranthene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Benzo[a]pyrene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Dibenz[a,h]anthracene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Benzo[g,h,i]perylene	**ND**	0.0070	EPA 8270E/SIM	6-17-24	6-18-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*81*	*47-112*				
Pyrene-d10	*91*	*48-129*				
Terphenyl-d14	*104*	*51-114*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S1					
Naphthalene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Acenaphthylene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Acenaphthene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Fluorene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Phenanthrene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Anthracene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Pyrene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270E/SIM	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*84*	*47-112*				
Pyrene-d10	*94*	*48-129*				
Terphenyl-d14	*95*	*51-114*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0617S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0731**	**0.0746**	0.0833	0.0833	88	90	64-115	2	15	
Acenaphthylene	**0.0794**	**0.0807**	0.0833	0.0833	95	97	68-118	2	15	
Acenaphthene	**0.0758**	**0.0778**	0.0833	0.0833	91	93	67-116	3	15	
Fluorene	**0.0776**	**0.0793**	0.0833	0.0833	93	95	69-120	2	15	
Phenanthrene	**0.0778**	**0.0811**	0.0833	0.0833	93	97	67-120	4	15	
Anthracene	**0.0786**	**0.0823**	0.0833	0.0833	94	99	71-118	5	15	
Fluoranthene	**0.0816**	**0.0857**	0.0833	0.0833	98	103	73-118	5	15	
Pyrene	**0.0790**	**0.0820**	0.0833	0.0833	95	98	71-118	4	15	
Benzo[a]anthracene	**0.0825**	**0.0870**	0.0833	0.0833	99	104	60-128	5	15	
Chrysene	**0.0780**	**0.0828**	0.0833	0.0833	94	99	70-121	6	15	
Benzo[b]fluoranthene	**0.0758**	**0.0791**	0.0833	0.0833	91	95	68-123	4	15	
Benzo(j,k)fluoranthene	**0.0830**	**0.0877**	0.0833	0.0833	100	105	73-123	6	17	
Benzo[a]pyrene	**0.0790**	**0.0826**	0.0833	0.0833	95	99	72-120	4	15	
Indeno(1,2,3-c,d)pyrene	**0.0764**	**0.0798**	0.0833	0.0833	92	96	64-122	4	15	
Dibenz[a,h]anthracene	**0.0783**	**0.0821**	0.0833	0.0833	94	99	72-120	5	15	
Benzo[g,h,i]perylene	**0.0777**	**0.0812**	0.0833	0.0833	93	97	71-117	4	15	
Surrogate:										
2-Fluorobiphenyl					*85*	*86*	*47-112*			
Pyrene-d10					*92*	*97*	*48-129*			
Terphenyl-d14					*92*	*97*	*51-114*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

PCBs EPA 8082A

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Aroclor 1016	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1221	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1232	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1242	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1248	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1254	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1260	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1262	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Aroclor 1268	**ND**	0.052	EPA 8082A	6-17-24	6-18-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*89*	*40-134*				

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0617S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1221	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1232	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1242	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1248	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1254	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1260	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1262	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Aroclor 1268	**ND**	0.050	EPA 8082A	6-17-24	6-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
DCB	*102*	*40-134*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0617S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.394**	**0.452**	0.500	0.500	N/A	**79**	**90**	60-115	14	23	
Surrogate:											
DCB						*102*	*107*	*40-134*			

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**CSO DU-4**					
Laboratory ID:	06-163-01					
Arsenic	**ND**	10	EPA 6010D	6-18-24	6-18-24	
Barium	**120**	2.6	EPA 6010D	6-18-24	6-18-24	
Cadmium	**ND**	0.52	EPA 6010D	6-18-24	6-18-24	
Chromium	**6.6**	0.52	EPA 6010D	6-18-24	6-18-24	
Lead	**ND**	5.2	EPA 6010D	6-18-24	6-18-24	
Mercury	**ND**	0.26	EPA 7471B	6-17-24	6-17-24	
Selenium	**ND**	10	EPA 6010D	6-18-24	6-18-24	
Silver	**ND**	1.0	EPA 6010D	6-18-24	6-18-24	

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0618SM2					
Arsenic	**ND**	10	EPA 6010D	6-17-24	6-18-24	
Barium	**ND**	2.5	EPA 6010D	6-17-24	6-17-24	
Cadmium	**ND**	0.50	EPA 6010D	6-17-24	6-18-24	
Chromium	**ND**	0.50	EPA 6010D	6-17-24	6-18-24	
Lead	**ND**	5.0	EPA 6010D	6-17-24	6-18-24	
Selenium	**ND**	10	EPA 6010D	6-17-24	6-18-24	
Silver	**ND**	1.0	EPA 6010D	6-17-24	6-18-24	
Laboratory ID:	MB0617S1					
Mercury	**ND**	0.25	EPA 7471B	6-17-24	6-17-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	06-213-01									
	ORIG	DUP								
Arsenic	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Barium	**87.6**	**87.9**	NA	NA		NA	NA	0	20	
Cadmium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Chromium	**19.1**	**19.2**	NA	NA		NA	NA	1	20	
Lead	**8.40**	**7.96**	NA	NA		NA	NA	5	20	
Selenium	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA	NA	NA	20	
Laboratory ID:	06-183-02									
Mercury	**ND**	**ND**	NA	NA		NA	NA	NA	20	
MATRIX SPIKES										
Laboratory ID:	06-213-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	**113**	**113**	100	100	ND	**113**	**113**	75-125	0	20
Barium	**189**	**183**	100	100	87.6	**101**	**96**	75-125	3	20
Cadmium	**51.8**	**49.9**	50.0	50.0	ND	**104**	**100**	75-125	4	20
Chromium	**126**	**123**	100	100	19.1	**106**	**104**	75-125	2	20
Lead	**273**	**261**	250	250	8.40	**106**	**101**	75-125	5	20
Selenium	**103**	**97.7**	100	100	ND	**103**	**98**	75-125	5	20
Silver	**24.0**	**22.9**	25.0	25.0	ND	**96**	**92**	75-125	5	20
Laboratory ID:	06-183-02									
Mercury	**0.508**	**0.511**	0.500	0.500	0.00660	**100**	**101**	80-120	1	20

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
CSO DU-4	06-163-01	**7**	6-14-24

Date of Report: June 18, 2024
Samples Submitted: June 13, 2024
Laboratory Reference: 2406-163
Project: 2024-243-3

% MOISTURE
MULTI-INCREMENT SAMPLING

Client ID	Lab ID	% Moisture	Date Analyzed
CSO DU-4	06-163-01	**5**	6-17-24

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: LEHUA ENVIRONMENTAL INC.

Project Number: 2024-243-3

Project Name: CSO DECOMMISSIONING - PARKING LOT/ DRIVEWAY ASPHALT PAVED AREA

Project Manager: KAMA KOBAYASHI

Sampled by: CALVIN ARCA

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days)
- ☐ _____ (other)

Laboratory Number: 06-163

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx EPA 8015	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Multi-incremental sample preparation Volatile and Non-Volatile				% Moisture
1	CSO DU-4	6-11-24		S	14			X	X	X				X	X				X				X				16

	Signature	Company	Date	Time
Relinquished		LEHUA ENVIRONMENTAL INC.	6-12-24	12:00 pm
Received		ONE	6/13/24	1000
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

13 in methanol vials
1 ziploc bag

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Sample/Cooler Receipt and Acceptance Checklist

Client: UET

Client Project Name/Number: 2024-243-3

OnSite Project Number: 06-163

Initiated by: MV

Date Initiated: 6/13/24

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	(No)	N/A	1 2 3 4
1.2 Were the custody seals intact?	Yes	No	(N/A)	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	(N/A)	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No	N/A	1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	N/A	Temperature: 6
1.6 Have shipping bills (if any) been attached to the back of this form?	(Yes)	N/A		
1.7 How were the samples delivered?	Client	Courier	(UPS/FedEx)	OSE Pickup Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	(Yes)	No		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	(Yes)	No		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	(No)		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	(Yes)	No	N/A	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	(Yes)	No	N/A	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#	2	N/A	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

ADVANCED ANALYTICAL LABORATORY INC

June 24, 2024

Lehua Environmental Inc
PO BOX 1018
Kamuela, HI
96743

Dear Kama Kobayashi:

Please find enclosed the analytical report for:

Project Name:	CSO Asphalt spill stockpile
AAL Project #:	Z540
Date Received:	06/21/2024
MIS Prep:	Yes

The results, applicable reporting limits, QA/QC data, invoice, and copy of COC are included.

Advanced Analytical Laboratory appreciates the opportunity to provide analytical services for this project. If you have any questions regarding this project, please don't hesitate to contact AAL.

Thank you for your business and continuing support.

Sincerely,

Uwe Baumgartner, Ph.D
Owner

Elisa M. Young
Owner

ADVANCED ANALYTICAL LABORATORY INC

AAL Project #Z540

Lehua Environmental Inc.

Client Project #: Method 8015M

Client Project Name: CSO Asphalt spill stockpile Matrix: Soil

CLIENT SAMPLE ID	TPH-DIESEL [mg/kg]	TPH-OIL [mg/kg]	SURROGATE RECOVERY	FLAGS	DATE ANALYZED
Blank	nd	nd	109%		6/24/2024
CSO DU-4 Stockpile	nd	nd	112%		6/24/2024
CSO DU-4A EXC	nd	nd	110%		6/24/2024
CSO DU-4B EXC	nd	nd	106%		6/24/2024
CSO DU-4C EXC	nd	nd	104%		6/24/2024
PQL	50	100	Acceptable Range		
MDL	20	35	70%-130%		

QA/QC DATA

QC BATCH # 062424	TPH-DIESEL [mg/kg]	TPH-OIL [mg/kg]	Acceptable Range
Lab Control Spike (LCS)	534	436	350-650
Matrix Spike (MS)	494	443	350-650
Matrix Spike Dup (MSD)	502	444	350-650
Recovery LCS	107%	87%	70%-130%
Recovery MS	99%	89%	70%-130%
Recovery MSD	100%	89%	70%-130%
RPD of MS/MSD	1.6%	0.2%	20%

Analyst: U. Baumgartner, Ph.D.

Data review: E. Young

544 OHOHIA STREET #10 HONOLULU HAWAII 96819
TEL (808) 836-2252

ACCU LABORATORY

12524 130th Lane NE
Kirkland WA 98034

Tel: (425) 214-5858
(425) 214-5868
Email: lisa@accu-lab.com
website: www.accu-lab.com

Analytical Report

Client	**Advanced Analytical Laboratory**	**Acculab WO#**	**24-AL0625-2**
	544 Ohohia Street #10		
	Honolulu, HI, 96819	Date Sampled	6/19/2024
Project Manager	Uwe Baumgartner/ Elisa Young	Date Received	6/25/2024
Project Name	**CSO Asphalt spill stockpile**	Date Reported	6/26/2024
Client Project#			
Project#	**Z540**		

Metals in Soil TCLP by EPA 6020B/3010A/1311

Accu Lab Batch# AL062524-10

Client sample ID					**TCLP CSO DU-4 Stockpile**	**TCLP MS**	**TCLP MSD**	**TCLP RPD**
Lab ID	**MRL**	**Unit**	**MTH BLK**	**LCS**	24-AL0625-2-1	24-AL0625-1-1	24-AL0625-1-1	24-AL0625-1-1
Matrix			TCLP Extract	TCLP Extract	TCLP Extract	TCLP Extract	TCLP Extract	TCLP Extract
Date Extracted			6/25/2024	6/25/2024	6/25/2024	6/25/2024	6/25/2024	6/25/2024
Date Analyzed			6/26/2024	6/26/2024	6/26/2024	6/26/2024	6/26/2024	6/26/2024
Barium (Ba)	0.50	mg/l	nd	90%	nd	119%	120%	1%
Chromium (Cr)	0.10	mg/l	nd	93%	nd	110%	108%	2%

Acceptable Recovery Limits:

LCS	*80-120%*
MS/MSD	*75-125%*
Acceptable RPD limit:	*20%*

ACCU LABORATORY

12524 130th Lane NE
Kirkland WA 98034

Tel: (425) 214-5858
(425) 214-5868
Email: lisa@accu-lab.com
website: www.accu-lab.com

Analytical Report

Client	Advanced Analytical Laboratory	**Acculab WO#**	**24-AL0625-2**
	544 Ohohia Street #10		
	Honolulu, HI, 96819	Date Sampled	6/19/2024
Project Manager	Uwe Baumgartner/ Elisa Young	Date Received	6/25/2024
Project Name	**CSO Asphalt spill stockpile**	Date Reported	6/26/2024
Client Project#			
Project#	**Z540**		

Data Qualifiers and Comments:

Results reported on dry-weight basis for soil samples.

MRL- Method Reporting Limit
nd- Indicates the analyte is not detected at the listing reporting limit.
C- Coelution with other compounds.
M- % Recovery of surrogate, MS/MSD is out of the acceptable limit due to matrix effect.
B- Indicates the analyte is detected in the method blank associated with the sample.
J- The analyte is detected at below the reporting limit.
E- The result reported exceeds the calibration range, and is an estimate.
D- Sample required dilution due to matrix. Method Reporting Limits were elevated due to dilutions.
H- Sample was received or analyzed past holding time
Q- Sample was received with head space, improper preserved or above recommended temperature.
I- Due to insufficient sample, LCS/LCS DUP were analyzed in place of MS/MSD.
R- The recovery of this analyte in QC sample failed high, but the analyte was not detected in all related samples. No action was taken.
R-1- The RPD value for the MS/MSD was outside of QC acceptance limits however both recoveries were acceptable. All related samples were "nd". No action was taken.
R-2- The recovery of the surrogate in sample failed high, but all related analytes were not detected in the sample. No action was taken.

ADVANCED ANALYTICAL LABORATORY-CHAIN OF CUSTODY RECORD

Phone: (808) 836 2252 Fax:(808) 836 2250 Address: 544 Ohohia St., unit 10 Honolulu, HI 96819

TURNAROUND TIME: 24 hour TAT AAL PROJECT#: 7540

CLIENT:	Lehua Environmental Inc.	PROJECT NAME:	CSO Asphault spill stockpile
ADDRESS:	P.O. Box 1018, Kamuela, HI 96743	COLLECTOR:	Calvin John Arca
PHONE:	(808)494-0365 lehuaenvironmental@gmail.com	DATE OF COLLECTION:	6/19/2024
CLIENT PROJECT#:		PROJECT MANAGER:	K. Kobayashi

Sample Number	Time	Sample type	Container Type	Multi-Incremental Volatile	Multi-Incremental Non Volatile	8015M TPH Fuel Scan	8015M TPH Gasoline	8015M TPH Diesel	8015M TPH Oil	8260B Volatiles	8260 BTEX	Bioaccessible Arsenic	8270 PAH DOH 4	8270 PAH 17 analytes	8270 Semi Volatiles	TCLP Barium	8082 PCB	TCLP 8081 OrganoChlorind Pes	8081 Organochlorine Pesticides	TCLP Chromium	Total Lead	Total Cadmium	TCLP RCRA 8 Metals	Total RCRA 8 Metals	TPH Residual Range Organics	Field Notes	Number of containers	Number containers received
CSO DU-4 Stockpile		MI	zip lock bag		x			x	x						x				x								1	1
CSO DU-4A EXC		MI	zip lock bag		x			x	x																		1	1
CSO DU-4B EXC		MI	zip lock bag		x			x	x																		1	1
CSO DU-4C EXC		MI	zip lock bag		x			x	x																		1	1

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	6/20/24 10:00AM		6/21/24 1095
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	4
CHAIN OF CUSTODY SEALS INTACT	N
RECEIVED IN GOOD CONDITION	Yes
TEMPERATURE	3.9°C
PAGE _ OF _	

LABORATORY NOTES:

Attachment C: Landfill Soil Disposal Documentation

EZ Profile™

Requested Facility: West Hawaii Sanitary Landfill ☐ Unsure Profile Number: 346282HI

☐ Multiple Generator Locations (Attach Locations) ☑ Request Certificate of Disposal ☐ Renewal? Original Profile Number: _____

A. GENERATOR INFORMATION (MATERIAL ORIGIN)

1. Generator Name: Caltech Submillimeter Observatory
2. Generator Site Address: Maunakea Summit
   (City, State, ZIP) Maunakea, Hawaii HI 96743
3. County: Hawaii
4. Contact Name: Jon Steen
5. Email: jons@goodfellowbros.com
6. Phone: (808) 443-8698 7. Fax: _____
8. Generator EPA ID: _____ ☑ N/A
9. State ID: _____ ☑ N/A

B. BILLING INFORMATION ☐ SAME AS GENERATOR

1. Billing Name: Edwin DeLuz Trucking
2. Billing Address: PO BOX 9
   (City, State, ZIP) KAMUELA HI 96743
3. Contact Name: Kevin Balog
4. Email: blogranch@aol.com
5. Phone: (808) 960-1407 6. Fax: _____
7. P.O. Number: 567050
8. Payment Method: ☑ Credit Account ☐ Cash ☐ Credit Card at Gate

C. MATERIAL INFORMATION

1. Common Name: Petroleum impacted soil

   Describe Process(es) Generating Material: ☐ See Attached

   Soil from under demolished asphalt parking lot where a 12 gallon hydraulic oil spill occurred.

2. Material Composition and Contaminants: ☐ See Attached

1. Soil	99 %
2. Petroleum oil	1 %
3.	
4.	
Total comp. must be equal to or greater than 100%	≥100%

3. State Waste Codes: _____ ☑ N/A
4. Color: brown
5. Physical State at 70˚F: ☑ Solid ☐ Liquid ☐ Other: _____
6. Free Liquid Range Percentage: _____ to _____ ☑ N/A
7. pH: _____ to _____ ☑ N/A
8. Strong Odor: ☐ Yes ☑ No Describe: _____
9. Flash Point: ☐ <140˚F ☐ 140˚–199˚F ☐ ≥200˚ ☑ N/A

D. REGULATORY INFORMATION

1. EPA Hazardous Waste? ☐ Yes* ☑ No
   Code: _____
2. State Hazardous Waste? ☐ Yes ☑ No
   Code: _____
3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? ☐ Yes* ☑ No
4. Contains Underlying Hazardous Constituents? ☐ Yes* ☑ No
5. Does the material contain benzene? ☐ Yes* ☑ No
6. Facility remediation subject to 40 CFR 63 GGGGG? ☐ Yes* ☑ No
7. CERCLA or State-mandated clean-up? ☐ Yes* ☑ No
8. NRC, State-regulated, NORM or TENORM waste? ☐ Yes* ☑ No

***If Yes, see Addendum (page 2) for additional questions and space.**

9. Contains PCBs? → If Yes, answer a, b and c. ☐ Yes ☑ No
   a. Regulated by 40 CFR 761? ☐ Yes ☐ No
   b. Remediation under 40 CFR 761.61? ☐ Yes ☐ No
   c. Were PCBs imported into the US? ☐ Yes ☐ No
10. Regulated and/or Untreated Medical/Infectious Waste? ☐ Yes ☑ No
11. Contains Asbestos? ☐ Yes ☑ No
    → If Yes: ☐ Non-Friable ☐ Non-Friable - Regulated ☐ Friable
12. Contains Dioxins? (If Yes, please attach analysis) ☐ Yes ☑ No

E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION

1. Analytical attached ☑ Yes

   Please identify Lab Report(s) and list specific representative Sample ID#s:

   Attached "Complete Laboratory Report....". The only relevant sample for stockpiled soil disposal is Sample #: CSO DU-4 Stockpile. "Soil Results" is the initial sampling laboratory report.

2. Other information attached (such as SDS)? ☐ Yes

F. SHIPPING AND DOT INFORMATION

1. ☑ One-Time Event ☐ Repeat Event/Ongoing Business
2. Estimated Annual Quantity/Unit of Measure: 30
   ☐ Tons ☑ Yards ☐ Drums ☐ Gallons ☐ Other _____
3. Container Type and Size: 30yd rolloff & end dump
4. USDOT Proper Shipping Name ☑ N/A

   _____
5. Estimated Start Date 06/27/2024
6. Transportation Needed? ☐ Yes* ☑ No

G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this Waste Management ("WM") Profile, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to WM prior to providing the material to WM. I am aware that there are significant penalties for knowingly submitting false information.

☑ I am authorized to sign on behalf of the Generator and I have confirmed with the Generator that information contained in this profile, as well as supporting documents provided, are accurate and complete.

☐ I am a duly authorized employee of Generator holding a position of technical responsibility with direct knowledge of the waste stream and the information contained in this profile, and I confirm that information contained in this profile, as well as supporting documents are accurate and complete.

Name (Print): Jon Steen
Title: Project Manager
Company: Goodfellow Brothers, LLC
Date: 06/26/2024

Certification Signature

Jon Steen

619fce43b6...

QUESTIONS? CALL 800 963 4776 FOR ASSISTANCE

WASTE SHIPMENT MANIFEST

Work Site Name & Address	Owner's Name	Owner's Telephone No.
CSO Mauna Kea Summit	Caltech	626-676-6236

Consultant Contact	Operator's Telephone No.
Sunil Golwala	808-443-8698

Waste Disposal Facility	Facility Telephone No.
West Hawaii Landfill 71-111 Queen Kaahumanu Hwy Waikoloa, HI 96738	(808) 886-0940
Name & Address of Responsible Agency	
Hawaii State Department of Health - 919 Ala Moana Blvd., Room 203 Honolulu, HI 96814	(808) 586-5800

Description of Materials	No. of Containers	Total Quantity, Cubic Yard
Contaminated Soil Profile Number: 346282HI	8 loads	40 yds

Special Handling Instruction and Additional Information

Waste must follow approval criterial listed on page two of profile. No free liquids, loads leaking and wet for whatever reason, will be rejected. Excessive odors will also be rejected.

Operator's Certification: *I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable government regulations.*

Type/Print Name & Title	Signature	Date
Jon Steen, GBI Project Manager	Jon Steen	6/27/24

Transporter #1 (Acknowledge Receipt of Materials)

Type/Print Name & Title	Signature	Date
John Martines Jr.	John Martines Jr.	6/28/24

Edwin Deluz Trucking + Gravel LLC P.O. Box 9 Kamela HI 96743 808-885-9346

Company Name, Address, and Telephone Number

Transporter #2 (Acknowledge Receipt of Materials)

Type/Print Name & Title	Signature	Date

Company Name, Address, and Telephone Number

Discrepancy Indications

Waste Disposal Site: West Hawaii Sanitary Landfill

Type/Print Name & Title: N-Hui

Signature:

Date Received: 6/28/24

WM Profile No: