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Naval Facilities Engineering Systems Command Hawaii

Technical Memorandum
Holding Tank and Leach Tank Characterization
November 2021 Pipeline Release
Red Hill Bulk Fuel Storage Facility
JBPHH, O‘ahu, Hawai‘i

DOH Facility ID No. 9-102271
DOH Release ID No 20211120_2330

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Executive Summary

Subsurface soil samples and organic vapor headspace readings were collected during this preliminary investigation from selected locations around a Holding Tank and Leach Tank to characterize the nature and extent of a fuel-water mixture originating from the Adit 3 tunnel sump. The potential analytes that were evaluated were total petroleum hydrocarbons (TPH) as gasoline (TPH-g), diesel (TPH-d), and oil (TPH-o); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. This Technical Memorandum presents a summary of the activities, methods, field observations, pre-validation Level II data package results, and pre-validation Level IV data package results to initially characterize the soil around the Holding Tank and Leach Tank area of concern.

Objectives

This preliminary investigation was conducted to: 1) determine whether petroleum or petroleum-impacted water entered the Holding Tank and Leach Tank from the Adit 3 drain line, 2) determine whether petroleum or petroleum-impacted water passed through the Holding Tank and Leach Tank from the Adit 3 drain line and into the surrounding environment, and 3) if petroleum impacts entered the environment adjacent to these features, determine the nature and extent of the contamination.

Field Activities

The direct-push drilling activities at the Holding Tank and Leach Tank began on January 11, 2022 and were completed on January 13, 2022. All field activities were accomplished in accordance with procedures detailed in the Preliminary Site Characterization Plan (DON 2022). A total of 27 sampling locations were preselected and evaluated to be cleared of utilities, of which 22 borings were advanced but 1 boring (LT-N55) could not be sampled due to refusal.

Investigation Results

Several subsurface soil sample results analyzed at the project laboratory exceeded Hawaii Department of Health (DOH) Environmental Action Levels (EALs) for TPH-g, TPH-d, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. EALs from Table A-2, Soil Action Levels (Potentially impacted groundwater is a current or potential drinking water source; surface water body is located within 150 meters of the release site) (DOH 2017a) were used to compare results to the following risk drivers:

- Leaching to groundwater that is a drinking water source
- Direct exposure impact to human health
- Gross contamination (e.g., odors)

Recommendations

Following the process laid out in the Preliminary Site Characterization Plan (DON 2022a), the Navy recommends conducting additional characterization to refine the lateral and vertical extent of contamination using a drill rig capable of coring through rock. The Navy also recommends collecting groundwater samples from the perched and basal aquifers using OWDFMW06B and OWDFMW06A, respectively, to determine if contamination has impacted the water bearing zones beneath the Holding Tank and Leach Tank. The Navy will consult with DOH to determine the best approach to complete the investigation.

Table of Contents

Appendices

Figures

Tables

Acronyms and Abbreviations

µg/L	micrograms per liter
amsl	above mean sea level
AOC	Administrative Order on Consent
BTEX	benzene, toluene, ethylbenzene, and xylenes
BWS	Honolulu Board of Water Supply
cc	cubic centimeter
CF&T	contaminant fate and transport
CoC	chain of custody
COPC	chemical of potential concern
CSM	conceptual site model
DOH	State of Hawai‘i Department of Health
DQO	data quality objectives
EAL	Environmental Action Level
EPA	United States Environmental Protection Agency
GWPP	Groundwater Protection Plan
HAR	Hawai‘i Administrative Rules
HCl	hydrochloric acid
HEER	Hazard Evaluation and Emergency Response
JBPHH	Joint Base Pearl Harbor-Hickam
JP-5	jet fuel propellant number
LNAPL	light nonaqueous-phase liquid
mL	milliliter
NAVFAC	Naval Facilities Engineering Systems Command
Navy	United States Department of the Navy
PID	photoionization detector
ppmv	parts per million by volume
SIM	selected ion monitoring
SOP	standard operating procedure
SSRBL	Site-Specific Risk-Based Level
SVMP	soil vapor monitoring point
TGM	Technical Guidance Manual
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons – diesel range organics
TPH-g	total petroleum hydrocarbons – gasoline range organics
TPH-o	total petroleum hydrocarbons – residual range organics (i.e., TPH-oil)
U.S.	United States
UIC	Underground Injection Control
VOC	volatile organic compound

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1.0 Introduction and Purpose

This Technical Memorandum was prepared for Naval Facilities Engineering Systems Command (NAVFAC) Hawaii by AECOM in accordance with the State of Hawai‘i Department of Health (DOH) Technical Guidance Manual (TGM) for the Implementation of the Hawaii State Contingency Plan (DOH 2021) and in response to the DOH release confirmation letter dated November 24, 2021 for the Red Hill Bulk Fuel Storage Facility (Facility) and as required by Hawai‘i Administrative Rules (HAR) 11-280.1-65.2.

This Technical Memorandum provides the results of the Holding Tank and Leach Tank characterization area of concern located east of the Moanalua Freeway in South Hālawa Valley approximately 2 miles east of Pearl Harbor, as shown on Figure 1 (figures are compiled after the References section).

This Technical Memorandum is based on the data quality objectives (DQOs) presented in the Preliminary Site Characterization Plan (DON 2022a) and presents field observations, pre-validation Level II data package results, and pre-validation Level IV data package results available at the time of preparation. Data presented in this report was gathered from the January 11 through January 13, 2022 direct-push subsurface soil investigation at the Holding Tank and Leach Tank area of concern, and includes:

- Preliminary bore logs and cross sections developed from subsurface soil cores
- Subsurface soil organic vapor headspace semi-quantitative results from hand-held photoionization detector (PID) measurements collected in real time from subsurface soil cores
- Subsurface soil laboratory quantitative results of chemical constituents from discrete subsurface soil samples collected at two selected locations in each borehole:
  - At the soil interval with the highest PID reading in each borehole
  - At the bottom of each borehole

1.1 Statement of Purpose

This Technical Memorandum has been prepared to present preliminary results of the Holding Tank and Leach Tank characterization for evaluation and assessment. The Navy will evaluate data presented in this memorandum and in collaboration with regulatory agencies will make decisions on future actions to protect human health and the environment.

1.2 Previous Reports and Plans

The following document related to the Holding Tank and Leach Tank investigation were previously submitted to DOH:

- Preliminary Site Characterization Plan (DON 2022a).

2.0 Background

Based on historical drawings, Jet Fuel Propellant Number 5 (JP-5)-impacted fluid from the Adit 3 sump may have been pumped via pipeline first to an external Holding Tank and then a Leach Tank located near the concrete-lined portion of South Hālawa Stream.

On December 18, 2021, a buried holding tank (Holding Tank) and connected leach tank (Leach Tank) were identified. The purpose of these tanks is to discharge storm water collected from a sump pump located near the entrance of Adit 3 (see Figure 2). Both cylindrical tanks are 8 feet tall and 7 feet in diameter. Upon inspection of the Holding Tank, approximately 1,500 gallons of fuel/water mixture was observed. This fuel/water mixture was pumped out of the tank and measured to contain approximately 253 gallons of free product and roughly 1,250 gallons of water. The Leach Tank was empty and dry; however, noticeable petroleum odors were noted. At the time, it was unknown whether these petroleum odors were a result of volatized fuel vapors that traveled from the Holding Tank or fuel that may have entered the Leach Tank. This preliminary characterization was proposed to address this uncertainty and support decision-making regarding a remedial action, if needed. The locations of the Holding Tank, Leach Tank, and sampling locations are illustrated on Figure 3.

2.1.1 Climate

Climatological conditions in the area of the Holding Tank and Leach Tank consist of warm to moderate temperatures and low to moderate rainfall. The average annual precipitation is approximately 40 inches, which occurs mainly between November and April (Giambelluca, Nullet, and Schroeder 1986). Average temperatures range from the low 60s to high 80s (degrees Fahrenheit) (Juvik and Juvik 1998).

2.1.2 Soils and Geology

The Holding Tank and Leach Tank are located within the Koʻolau Volcanic series. The Koʻolau formation at Red Hill consists of the basaltic lava flows that erupted from a fissure line approaching 30 miles in length and trending in a northwest rift zone (Wentworth and Macdonald 1953). Pāhoehoe and aʻā lava flows are present in the Koʻolau formation. The valleys on either side of Red Hill ridge were formed as a result of fluvial erosion and are filled with sedimentary deposits (alluvium and colluvium), also known as valley fill, underlain by residual (weathered basalt), also known as saprolite. Saprolite zones in Hawaiʻi are typically around 75 feet thick but can be 300 feet thick or greater beneath the valley floors or in areas of high precipitation (Hunt Jr. 1996; Macdonald, Abbott, and Peterson 1983) The results of a recently conducted geophysical seismic survey in North and South Hālawa Valleys, Red Hill, and Moanalua Valley (DON 2018a) found that valley fill and saprolite extend much deeper in the valleys surrounding Red Hill, particularly in the center of the valleys and below the streambeds.

Soils in the vicinity of the Holding Tank and Leach Tank are mapped as Helemano-Wahiawā association consisting of well-drained, moderately fine-textured and fine-textured soils (USDA SCS 1972). The surfaces of the basaltic flows have been weathered to form reddish-brown clayey silt, which is the basis for the local name "Red Hill." These soils typically range from nearly level to moderately-sloping and occur in broad areas dissected by very steep gulches, which typically formed in material weathered from basalt to a depth of approximately 10 feet below ground surface (bgs). Along the slopes, the basaltic bedrock is covered with approximately 10–30 feet of Ko'olau residuum. These soils were derived from weathering of the underlying basalt bedrock or were deposited as alluvium/colluvium. The younger alluvium/colluvium deposits were derived from fractured basalts and tuff. Beneath the surficial soils, alternating layers of clay and basalts are encountered at depth. The northwestern slope of Red Hill is generally barren of soil and consists of outcropping basalt lava flows to the valley floor.

2.1.3 Surface Water

Surface water features in the general vicinity of the Holding Tank and Leach Tank include South Hālawa Stream (an ephemeral stream approximately 70 feet to the west northwest). Potential recharge (run-on and operational water use) from the Hālawa Quarry north of the tank farm Facility may also impact groundwater flow in this area. In Hālawa Valley, stream flow may contribute water to perched groundwater within alluvial material (valley fill) but is generally isolated from the underlying basal aquifer. Most precipitation percolates to the basal aquifer and does not maintain base flows in the streams (Izuka 1992). Groundwater that flows beneath the Facility does not intercept surface water inland of the ocean shoreline (DON 2007). Both South Hālawa Stream and Moanalua Stream (to the north and south of Red Hill ridge, respectively) are located approximately 170 feet or more above the basal water table.

2.1.4 Groundwater

In the vicinity of Red Hill, the basal aquifer water table lies between 15 and 20 feet above mean sea level, and regionally groundwater flows toward Pearl Harbor (mauka to makai), although potential exists for variability in localized flow directions depending on geologic formations and other factors.

The Facility, including the Holding Tank and Leach Tank area of concern, is located at the administrative boundary between the Waimalu Aquifer System of the Pearl Harbor Aquifer Sector and the Moanalua Aquifer System of the Honolulu Aquifer Sector. The underlying aquifer is classified as a basal, unconfined, flank-type aquifer and is currently used as a drinking water source.

The Holding Tank and Leach Tank area is located upgradient of the Hawaii State Underground Injection Control (UIC) Line, which separates potable groundwater from non-potable groundwater. The nearest drinking water supply well is Navy Supply Well 2254-01 (also known as Red Hill Shaft), located approximately 770 feet east of the area. The nearest Honolulu Board of

Water Supply (BWS) public drinking water supply well (BWS Hālawa Shaft Well 2354-01) is located hydraulically cross-gradient of the Facility approximately 4,400 feet to the northwest and pumps water from the basal aquifer.

2.2 Historical Land Use

Prior to the 1940s, the surface of Red Hill supported cane and pineapple agriculture. Navy archive images show that the Red Hill ground surface was exposed and modified during construction of the tank farm beginning in 1940. A 1952 aerial photograph shows unmaintained land on the ridge of Red Hill and agriculture on the lower reaches of Red Hill north of the Moanalua Golf Course (DON 2019).

2.3 Current Land Use

The Facility, including the Holding Tank and Leach Tank area, is located on land zoned by the County as a mix of F-1 Federal and Military and P-1 Restricted Preservation districts. All major structures at the Facility are located underground. Populated areas closest to the Facility are ʻAiea to the west and Honolulu to the south and east. Honolulu is heavily urbanized and densely populated.

Preservation land is located east and northeast of the Facility boundary. To the southeast are residential single-family homes in Moanalua Valley; a high cliff face with a 100–200 foot elevation difference exists between the Facility and this residential area. Southwest of the tank farm area on the lower southwest flank of Red Hill are the public Red Hill Elementary School and residential apartments, and further west is U.S. Coast Guard Housing on F-1 Military land. North of the western segment of the Facility boundary in South Hālawa Valley is the State Animal Quarantine Station, private businesses in Hālawa Industrial Park, and the State-operated Hālawa Correctional Facility. To the north of the Correctional Facility at the lower reaches of an inter-valley ridge that forms the north wall of South Hālawa Valley is the open-pit Hālawa Quarry operated by the Hawaiian Cement Company.

As shown on Figure 1, the H-201 Moanalua Freeway transits approximately 350–700 feet beyond the Facility's southwest boundary and intersects with the H-1 and H-3 Freeways at the Hālawa Interchange, approximately 1,800 feet west of the Facility. The H-3 Freeway transits northeast from the interchange through North Hālawa Valley and on to Oʻahu's windward side.

2.4 Conceptual Site Model

The following description includes elements from the Red Hill Conceptual Site Model report (DON 2019).

2.4.1 Holding Tank and Leach Tank Exposure Model

This exposure model includes potentially impacted environmental media and potential receptors specific to the Holding Tank and Leach Tank release area. Potentially impacted media are:

- Unconsolidated subsurface soil at depths greater than the bottom of the Holding Tank and Leach Tank (approximately 8 feet bgs).
- The perched groundwater water identified in adjacent well OWDMW06B at approximately 30 feet bgs beneath the area of concern the unconsolidated soil and saprolite (see Appendix B).
- The confined basal aquifer groundwater identified in adjacent well OWDFMW06A, which was encountered during drilling between approximately 191 and 192 feet bgs, corresponding to between approximately -74 and -75 feet above mean sea level (amsl). OWDFMW06A was subsequently screened between 190 feet bgs and 210 feet bgs (approximately -73 and -93 feet bgs) on or about June 18, 2021. On September 28, 2021, static water was measured at 18.93 feet amsl, indicating strong confining conditions resulting in an upward vertical hydraulic gradient in the basal aquifer at this location (see Appendix B).
- South Hālawa Stream runs from northeast to southwest adjacent to the area of concern and is approximately 70 feet to the west-northwest of the Leach Tank at its nearest extent. South Hālawa Stream consists of a concrete channel for more than 300 feet in either direction of the investigation area but contains drain holes to allow infiltrating groundwater to flow into the channel during periods of high precipitation.

Potential receptors include:

- Human receptors that may contact contaminated subsurface soil would include:
  - Potential construction workers who may have direct contact with contaminated subsurface soil at depths more than 8 feet bgs.
  - Potential human receptors and ecological receptors that may have direct contact with contaminated soil that has been excavated from the site, depending on where the excavated soil is disposed, or used.
  - Potential human recreators and ecological receptors that may come in contact with the perched water. Although the perched water is not a source of potable water and is not currently used, it is unknown whether it may enter South Hālawa Stream during extreme storm events, which could result in contact by human recreators and ecological receptors downstream under significantly diluted conditions. This perched water is likely below the stream during non-storm events.
  - Potential human and ecological receptors who may come in contact with the basal groundwater beneath the area of concern, which is a drinking water source. These include offsite residents using tap water sourced from the Red Hill Shaft Water Supply Well 2254-01. These receptors could be exposed to constituents in tap water via direct ingestion and dermal contact, and via inhalation while showering and bathing. Animals and vegetation may also be exposed to tap water as pets or from irrigation. However, there is evidence that

dry, low-permeability strata are present between the perched and basal aquifers, and the basal groundwater may be further protected by a significant confining layer and resulting upward vertical gradient identified during the drilling of the adjacent OWDFMW06A (see Appendix B).

2.5 Previous Facility Investigations

Previous environmental investigations at the Facility are summarized in Table 1.

Table 1: Summary of Previous Red Hill Environmental Investigations

Investigation Report	Summary
Pre-AOC Investigations	
Remedial Investigation [RI] *Phase I and II, Red Hill Oily Waste Disposal Facility* (DON 1996; 2000)	A two-phase RI was initiated in the early 1990s at the Red Hill Oily Waste Disposal Facility. No contaminants were detected in the basal aquifer beneath the site, and DOH issued a concurrence letter for a No Further Action determination in 2005 (DOH 2005).
Facility Site Characterization and Investigation (DON 1999, 2002)	A two-phase investigation initiated in 1998 evaluated the presence of petroleum constituents at the Facility. DOH requested the Navy to conduct quarterly groundwater monitoring, conduct a Tier 3 risk assessment, and develop a contingency plan.
Quarterly Groundwater Monitoring Reports (DON 2005 to present)	Sampling and analysis of Red Hill network groundwater monitoring wells was initiated in 2005 and incorporated into the Red Hill Groundwater Protection Plan (GWPP) (DON 2008a; 2014b); results are reported to DOH.
Technical Report (DON 2007)	An environmental investigation and risk assessment initiated in 2004 included installation of soil vapor monitoring points (SVMPs) in angle borings under the active fuel storage tanks, three additional groundwater monitoring wells in the lower access tunnel, a three-dimensional groundwater model, and a Tier 3 human health risk assessment.
Tank 17 Removal Action Report (DON 2008b)	A limited removal action and site characterization investigation was conducted in June 2008; the report's Environmental Hazard Analysis determined that the release posed no further significant environmental hazards.
Type 1 Letter Report (DON 2010)	A 2010 investigation re-evaluated the DON (2007) groundwater model assumptions and results and the Tier 3 risk assessment results.
Monthly Soil Vapor Monitoring Reports (DON 2014a through present)	Soil vapor PID measurements are collected monthly under the Facility's fuel storage tanks with SVMPs in accordance with the Red Hill GWPP (DON 2008a; 2014b); results are reported to DOH.

Investigation Report	Summary
AOC-Related Investigations *(EPA Region 9 and DOH 2015)*	
Tank 5 Quarterly Release Response Reports (DON 2014a to present	In response to the 2014 fuel release from Tank 5, Navy reports release response actions undertaken in the last 90 days to the DOH.
Seismic Profiling to Map Hydrostratigraphy in the Red Hill Area (DON 2018a)	Presented results and evaluation of nine seismic profiling transects conducted at Red Hill and in North and South Hālawa Valleys and Moanalua Valley to improve understanding of subsurface conditions that affect groundwater flow and CF&T.
Groundwater Protection and Evaluation Considerations for the Red Hill Bulk Fuel Storage Facility (DON 2018c)	Presented an interim environmental analysis of data and an initial analysis of potential environmental risks; interim results of the groundwater flow model; and an evaluation of hypothetical release scenarios.
Conceptual Site Model (DON 2018b; 2019)	Established a basis for evaluating contaminant transport pathways and potential for exposure of human receptors to potentially impacted drinking water.
Groundwater Flow Model Report (DON 2020a)	Refined the previous groundwater flow model to improve understanding of the direction and rate of groundwater flow within the aquifers around the Facility.
Investigation and Remediation of Releases Report (DON 2020b)	Documented the response to the January 2014 Tank 5 release and evaluated potential remedial alternatives for that release and any potential future release.
Evaluation of Chromatograms for Understanding TPH Detections in Monitoring Wells (DON 2020c)	Provided an evaluation of TPH detections in monitoring wells to determine whether those detections are indicative of potential fuel impacts from the Facility.
Initial and Quarterly Release Response Reports (DON 2021; 2022b; 2022c)	Documented the response to the May 6, 2021 Tunnel Pipeline Breach and November 20, 2021 Fire Suppression Drain Line releases.

Notes:

AOC	Administrative Order on Consent
CF&T	contaminant fate and transport
GWPP	Groundwater Protection Plan
HEER	Hazard Evaluation and Emergency Response
SSRBL	Site-Specific Risk-Based Level
SVMP	soil vapor monitoring point
TPH	total petroleum hydrocarbons

3.0 Summary of Investigation History

On November 20, 2021, a release of JP-5 jet fuel occurred in the Adit 3 tunnel of the Facility. JP-5 was released from an overhead 14-inch polyvinyl chloride (PVC) pipe at a location approximately 400 feet east of the Adit 3 Pump Station and approximately 200 feet east of the upper Pearl Harbor tunnel. The release point was near the underlying U.S. Navy Well 2254-01 water development

tunnel that extends greater than 1,200 feet east-southeast of the well's Pump Station at an elevation of approximately 0–20 feet amsl. Subsequently, Navy divers entered the water development tunnel and swam approximately 300 feet east of the Pump Station; they reported observing emulsified fuel in the water tunnel. Skimmers and floating absorbent booms were deployed to remove light nonaqueous-phase liquid (LNAPL) fuel from the surface of the water development tunnel and to prevent it from floating into the production well chamber.

The fuel released from the overhead pipe ran westward along the tunnel floor, likely in the low point between the centrally located rail lines, past the Pearl Harbor tunnel and the Pump Station, which also directly overlay the water development tunnel. Fuel gathered in a sump located approximately 750 feet west of the release point. Fuel that made its way to the sump likely entered the environment directly at this point, and also likely traveled eastward and westward in the subfloor Hume line:

- Eastward, fuel was observed in the Navy Well 2254-01 water development tunnel, following the observance of fuel odors and impacts to residents that were served by the well later in the week of November 21, 2021.
- Westward, fuel had the potential to migrate within the sump drainage system via a sump pump to approximately 150 feet from the entrance of Adit 3, and another 225 feet under the Adit 3 loading area to reach the sump drain Holding Tank and connected Leach Tank, which are the subject of this investigation.

Upon indication that there was a fuel-like odor in drinking water in some of the homes served by the Red Hill source, the U.S. Navy Well 2254-01 was turned off on November 28, 2021.

Between December 15 and 17, 2021, 47 subslab soil vapor monitoring points (SVMPs) were installed into petroleum-impacted segments of the Adit 3 and Pearl Harbor tunnels. Results from hand-held organic vapor detectors (PIDs) that sampled these SVMPs between December 17 and 24, 2021 indicated elevated petroleum vapors under the concrete tunnel floors. Organic vapor maxima, or hotspots, were noted over the water development tunnel in the vicinity of the release area, and just below the intersection of the Adit 3 tunnel and the Pearl Harbor tunnel. Organic vapors were also elevated throughout the lower portion of the Adit 3 tunnel, highest surrounding the sump. The SVMP results will be presented in a future report.

4.0 Summary of Data Quality Objectives

The data quality objectives (DQOs) for the Leach Tank area subsurface characterization are:

- Determine whether petroleum or petroleum-impacted water was/is entering the Holding Tank and Leach Tank from the Adit 3 drain line.

- Determine whether petroleum or petroleum-impacted water passed through the Holding Tank and Leach Tank from the Adit 3 drain line into environmental media (subsurface soil, groundwater) in the vicinity of these features.
- If petroleum impacts entered the environment adjacent to these features, evaluate the nature and extent of the contamination.

The objectives of collecting semi-quantitative headspace measurements using handheld real-time organic vapor detectors at each 1-foot interval of subsurface soil core located below 5 feet bgs were to:

- Provide information on the extent of the vertical contamination in each borehole.
- Assess the potential for LNAPL migration in the unsaturated zone based on the relative magnitude of these results compared to that expected for LNAPL.
- Estimate the location of the most contaminated subsurface soil interval in each borehole to guide sampling for more detailed laboratory analyses.

The objectives of the quantitative discrete subsurface soil samples collected for laboratory analysis include:

- Conservatively evaluate the concentrations of site-specific chemicals of potential concern (COPCs) in each soil boring compared to site-specific and constituent-specific DOH Table 2-A Soil Action Levels, as presented in the Preliminary Site Characterization Plan (DON 2022a) (see Table 2). One discrete subsurface soil sample was collected at the soil interval with the highest headspace measurement of subsurface soil core located below 5 feet bgs.
- Evaluate the potential for COPCs to have migrated below the bottom of the borehole and potentially into the underlying groundwater systems. One discrete subsurface soil sample was collected at the bottom soil interval in each boring.

COPCs presented in the Preliminary Site Characterization Plan are:

- TPH-g (C6 to C12) as measured by Method 8260/CALUFT
- BTEX as measured by Method 8260D
- TPH-d (C10 to C24) as measured by Method 8015D
- Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene as measured by Method 8270E selected ion monitoring (SIM)

Table 2: DOH Soil Environmental Action Levels (Table A-2)

Analytical Method	Analyte	Soil Environmental Action Levels (EALs)		
		Gross Contamination (Odor, Visual) (mg/kg)	Direct Exposure (mg/kg)	Leaching to Groundwater (mg/kg)
SW-8260	TPH-g	100	451	696
	Benzene	500	1.2	0.3
	Toluene	500	818	0.78
	Ethylbenzene	479	62	0.89
	Xylenes	260	129	1.4
SW-8270	Naphthalene	500	28	3.1
	1-Methylnaphthalene	500	169	0.89
	2-Methylnaphthalene	500	39	1.9
SW-8015	TPH-d	500	219	940
	TPH-o	500	9,386	1,000

Notes:

Source: (DOH 2017b) Hawai‘i Department of Health Environmental Action Level Surfer (Fall 2017)

Soil EALs = (Gross Contamination) / (Direct Exposure) / (Leaching to Groundwater) in milligrams per kilogram (mg/kg)

5.0 Field Activities

Subsurface soil characterization activities are described below.

5.1 Project Planning and Mobilization

During the weeks prior to the field activity:

- The project Preliminary Site Characterization Plan was submitted on January 6, 2022 for DOH review. DOH provided comments on January 9, 2022. Responses to comments and a final Preliminary Site Characterization Plan were submitted on January 12, 2022 (DON 2022a).
- Dig permits were completed on January 10, 2022, and toning for utilities was completed on January 10, 2022.
- Site access for subcontractors was provided by full-time military escort, as the work required the Facility security fence to be breached and open because the Leach Tank is located west of the fence.

5.2 Direct-Push Soil Sampling

Direct-push soil sampling was conducted on January 11 through 13, 2022 with two Geoprobe track rigs working simultaneously. Over that 3-day period, 23 soil borings were drilled in a step-out manner from the Holding Tank and the Leach Tank, and 21 of those boring were sampled for JP-5 constituents in subsurface soil. The approach as described in the Preliminary Site Characterization Plan was to initially sample four borings at approximately 10 feet from each tank in approximately north, south, east, and west locations. If PID readings were elevated above 10 parts per million by volume (ppmv) and professional judgement identified the subsurface soil as potentially contaminated, an additional boring would be sampled approximately 15 feet radially away from the Tank in the general direction of the original sample, accounting for features that would obstruct sample collection, such as large boulders, highly uneven ground, large trees, and other potential obstructions. If no contamination was observed in a borehole, the sampler retreated approximately 7.5 feet toward the previously sampled boring where contamination was observed, and the final boring was advanced and sampled. Subsurface soil sampling continued vertically until no contamination was observed, or the direct-push sampler could no longer penetrate the subsurface (i.e., encountered refusal). Groundwater was not encountered during the subsurface sampling event. Appendix A provides the field bore logs and field notes for each day. Figure 3 shows the locations of each boring.

All boreholes were hand-augered to 5 feet and then sampled via direct-push methods. Cores were logged, and each 1-foot interval was bagged for headspace analysis using a PID. PID readings were recorded in the bore logs and evaluated along with sample observations to determine the most impacted soil core to be sampled and sent to the project environmental laboratory (Eurofins TestAmerica Seattle in Tacoma, Washington).

An additional sample was collected at the bottom of each borehole to evaluate potential contaminant migration. Table 3 presents the intervals sampled at each borehole and the laboratory analyses conducted on each sample (Tables 3, 4, 5, and 6 are compiled after the References section).

Figure 3 shows the boring locations in topographic relation to the Holding Tank and Leach Tank and other site features. Each borehole was abandoned by filling the 2.5-inch-diameter hole with bentonite chips to ground surface.

Soil aliquots that were to be analyzed for the volatile organic compounds (VOCs) BTEX by Method 8260D and TPH-g by 8260/CALUFT were sampled using Terra Core sampling methodology in which a single-use Terra-Core sampling kit collected three sets of approximately 5 cubic centimeters (cc) of soil with a dedicated, disposable sampler from the portion of the sampling interval evaluated as having the highest potential for maximum impact of contamination. Two of the 5-cc plugs were placed with 5 milliliters (mL) of methanol in a 40-mL vial with septum and stir bar for medium-level analysis. The third 5-cc plug was placed with 5 mL of de-ionized,

reagent-free water in a third 40-mL vial for low-level analysis. The labels on the tared vials were filled out and the three vials were bubble wrapped and placed in a new, clean Ziploc bag and placed on ice for storage before shipment.

The remainder of the sample (approximately 4–6 ounces) was placed in a single-use, clean resealable plastic bag, labeled, double-bagged, and immediately placed on ice prior to shipment to the laboratory by overnight courier service.

5.3 Groundwater Sampling at OWDFMW06B

Bore logs from a nearby two-monitoring-well cluster were evaluated: OWDFMW06A, a deep groundwater monitoring well screened in the confined basal aquifer; and OWDFMW06B, a shallow monitoring well screened in the perched aquifer located below the Holding Tank and Leach Tank. OWDFMW06B is located approximately 20 feet north-northeast of the Holding Tank and is screened from approximately 25 to 35 feet bgs. A groundwater sample was collected from OWDFMW06B on January 26, 2022. A summary of the laboratory analyses performed on this sample is included in Table 3. The results of the groundwater sampling at OWDFMW06B are described in Section 8.1.5.

5.4 Sampling Packing and Shipping

Subsurface soil samples for laboratory analysis were taken to a warehouse at the end of each sampling day on ice, then were frozen to ensure they would arrive at the laboratory within the acceptable temperature range. Custody seals were applied, chain-of-custody (CoC) forms were completed for each cooler, and a trip blank was included with each cooler containing VOCs. All samples were received at the contract laboratory within specification limits, and were analyzed on an expedited turnaround time, with Level II and Level IV data packages and electronic data deliverables available beginning Wednesday, January 19, 2022.

6.0 Sample Control Procedures

Prior to sampling, the field team inspected all supplies and consumables to ensure that they were acceptable for use. Sampling and sample handling procedures were designed to ensure that samples were consistently collected, labeled, preserved, and transported in a manner that maintained their integrity for their intended purposes.

6.1 Sample Containers and Preservation

Soil laboratory samples were collected in accordance with the standard operating procedure (SOP) included in the Preliminary Site Characterization Plan (DON 2022a).

These containers, preservatives, and holding times are specified in the respective EPA SW-846 methods. The analytical laboratories selected for the site characterization supplied the required sample containers.

6.2 Chain of Custody

CoC documentation was maintained for samples during all phases of sample collection, transport, and laboratory sample preservation procedures.

Laboratory samples for soil vapor, groundwater, and drinking water were preserved as described in Section 6.1.

7.0 Field Observations during Sampling

Figure 3 shows the locations of the direct-push soil borings with respect to site features and cross section projection lines A-A', B-B', and C-C'. Figure 4, Figure 5, and Figure 6 show cross sections that present organic vapor headspace measurements and laboratory analytical results for site-specific-COPCs, color-coded to identify exceedances of DOH Soil EALs. The coordinates for these locations were mapped in the field using a 300-foot measuring tape and a calibrated magnetic direction sensor. Locations were not professionally surveyed, but were verified by comparison to items observed in Google Earth imagery.

Important features include the two groundwater monitoring wells that are located approximately 20 feet north-northwest of the Holding Tank. Field observations by others have indicated that the shallower of these two wells (OWDFMW06B) has a static water level associated with the perched groundwater system ranging from approximately 30 to 36 feet bgs. In addition, recent observations of the headspace air within the well casing after the November 20, 2021 release included a petroleum-like odor that was not present before November 20, 2021.

A composite sediment sample was scraped off the Leach Tank floor, as specified in the Preliminary Site Characterization Plan. Observations inside the Holding Tank from the access port in the middle of the top indicated similar oily waste sediments in its bottom. These will be sampled for waste characterization prior to disposal.

Ground surface west of the fence line to South Hālawa Stream consists of a relatively flat plateau extending approximately 15 feet from the fence, then approximately 10 feet of boulders and manmade debris dropping down about 3 feet to another relatively flat plateau adjacent to South Hālawa Stream. The direct-push rig encountered refusal at various depths in the 22 boreholes drilled, ranging from 6 feet bgs at LT-N25 to 26 feet bgs at HT-N10, as shown in Table 4.

South Hālawa Stream in the Holding Tank and Leach Tank area is a concrete-lined channel approximately 10 feet deep on the eastern embankment adjacent to the investigation area. Drainage holes are located in the lower portions of the channel walls.

Field observations made during sampling activities are described in field notes and bore logs provided in Appendix A. In general, the bore logs identified disturbed subsurface soil to depths as deep as 20 feet, in some cases, as evidenced by man-made debris at depth.

7.1 Organic Vapor Headspace Observations in the Soil Cores

As described in the project DQOs (Section 4.0), organic vapor headspace samples were analyzed with a calibrated PID at 1-foot intervals from 6 feet bgs to total depth. Table 4 presents these results with depth. Cross sections A-A', B-B', and C-C' are shown on Figure 4, Figure 5, and Figure 6, respectively. The table and cross section value boxes include the measured PID readings at that soil interval and are coded with the following color scheme:

- Green – (less than 1 ppmv) indicates likely not petroleum-contaminated soil (PCS).
- Green-gold to gold-orange – (1 to 70 ppmv) indicates potential for some PCS although may not exceed EALs.
- Gold-orange to orange-red – (greater than 70 to 220 ppmv) indicates soil is likely PCS and may exceed EALs.
- Orange-red to red – (greater than 220 ppmv to maximum value of 518 ppmv) indicates soil is likely PCS and more likely to exceed EALs.

In some borings, elevated PID readings were not observed in the final depth, including when borings met refusal at shallow depths, and elevated PID readings were observed in adjacent borings at greater depths.

Impacted borings adjacent to the Leach Tank are:

- LT-W10, LT-W17.5
- LT-N10, LT-N25
- LT-S10

Impacted borings adjacent to the Holding Tank are:

- HT-W10
- HT-E10
- HT-N10
- HT-S10

8.0 Laboratory Analytical Results

Table 5 provides the laboratory analytical results from 35 primary subsurface soil samples and three duplicate samples collected from 21 borings, as well as one sediment sample. Table 6 presents the laboratory analytical results for the groundwater sample collected from OWDFMW06B. Figure 4, Figure 5, and Figure 6 are cross sections with analytical results spatially referenced to the location of the samples.

Table 5 provides the final unvalidated laboratory report results compared to DOH EALs for soil overlying a drinking water aquifer and within 150 meters of a surface water body, based on EALs for:

- Leaching to groundwater that is a drinking water source
- Direct exposure impact to human health
- Gross contamination (e.g., odors)

Complete Level II data reports are provided in Appendix C.

8.1.1 TPH-g (Carbon Range C6 to C12) Soil Sample Results

TPH-g analysis included the carbon range of C6 to C12, which overlaps significantly with the TPH-d carbon range of C10 to C24. Of the 35 subsurface soil samples analyzed for TPH-g, the following exceedances were noted:

- The leaching to groundwater EAL of 696 mg/kg in 6 samples
- The direct exposure EAL of 451 mg/kg in 8 samples
- The gross contamination (odor) EAL of 100 mg/kg in 13 samples

8.1.2 Volatile Organic Compound BTEX Soil Sample Results

None of the 35 subsurface soil samples exceeded any DOH EALs for BTEX. In two samples, benzene was not detected but the limit of detection exceeded the DOH EAL for leaching to groundwater due to the requirement for sample dilution prior to analysis.

8.1.3 TPH-d (Carbon Range C10 to C24) and TPH-o (Carbon Range C24 to C40) Soil Sample Results

TPH-d analysis included the carbon range of C10 to C24, which overlaps significantly with the TPH-g carbon range of C6 to C12. Of the 35 subsurface soil samples analyzed for TPH-d, the following exceedances were noted:

- The leaching to groundwater EAL of 940 mg/kg in 7 samples
- The direct exposure EAL of 219 mg/kg in 13 samples
- The gross contamination (odor) EAL of 500 mg/kg in 9 samples

In addition, the sediment sample from the Leach Tank ("LT-Sediment") exceeded all action levels for TPH-d and had the maximum TPH-d concentration measured on site of 13,000 mg/kg.

None of the soil samples collected exceeded the DOH EALs for TPH-o during this investigation.

8.1.4 Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene Soil Sample Results

The naphthalenes have the lowest Soil Action Levels for leaching to groundwater that is a drinking water source, ranging from 0.9 mg/kg for 1-methynaphthalene to 3.1 mg/kg for naphthalene:

- Naphthalene exceeded the leaching to groundwater EAL of 3.1 mg/kg in 3 subsurface soil samples.
- 1-Methylnaphthalene exceeded the leaching to groundwater EAL of 0.89 mg/kg in 10 subsurface soil samples.
- 2-Methylnaphthalene exceeded the leaching to groundwater EAL of 1.9 mg//kg in 6 subsurface soil samples.

In addition, the Leach Tank sediment sample (LT-Sediment) exceeded all three naphthalene-related Soil Action Levels, with the highest concentrations of naphthalene being 7.2 mg/kg, 1-methylnaphthalene 52 mg/kg, and 2-methylnaphthalene 74 mg/kg.

8.1.5 Groundwater Analytical Results

A groundwater sample was collected for laboratory analysis from OWDFMW06B on January 26, 2022. In addition, the following information was collected:

- A static water level of 29.13 feet below top of casing
- A headspace organic vapor measurement within the well casing of 159 ppmv
- An oil/water interface measurement indicating no oil was present on the water surface
- Photographs of the bailer indicated no oil or sheen

The elevated headspace PID readings and petroleum odors now present within well OWDFWM06B were not identified prior to the November 2021 release. The laboratory results showed detections of fuel-related constituents (including TPH-g, TPH-d, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene), which indicates that petroleum-related impacts may be present in the perched aquifer, but there were no exceedances of applicable EALs. The analytical results of the groundwater sample collected from OWDFWM06B are summarized in Table 6.

9.0 Summary of Results and Extent and Magnitude of Contamination

The following evidence indicates that fuel was likely released from the Holding Tank and Leach Tank into the subsurface soil beneath the tanks:

- Fuel-related analytes were detected at the highest concentrations on site in the sediments collected from the Leach Tank floor.
- PID headspace measurements and subsurface soil sample results from soil borings located nearest to both tanks show the highest concentrations of TPH-g, TPH-d, and naphthalenes, with the exception of LT-N25 at the 16–17 foot depth interval, which has the highest concentration of TPH-d (5,900 mg/kg).

Although there were significant TPH-g exceedances, the chromatograms reveal that most of the measured constituents were in the upper part of the TPH-g carbon range (i.e., the higher molecular weight), which may more properly be considered to be in the TPH-d range so this does not indicate a gasoline release. The chromatograms were reviewed by the project forensic chemist, who identified the chromatographic signature as very similar to JP-5.

No groundwater was encountered during drilling and sample collection; however, well OWDFMW06B is located within 30 feet of the Holding Tank and is screened in the perched groundwater system located approximately 30–36 feet bgs at that location. Elevated headspace PID readings and petroleum odors now present within the well were not identified prior to the November 2021 release, and laboratory analyses of one groundwater sample indicated that petroleum-related impacts may be present in the perched aquifer at concentrations below applicable regulatory screening levels.

The basal well OWDFMW06A, located just east of OWDFMW06B and within 20 feet northeast of the Holding Tank, was not sampled during this investigation but this well is screened between -73 and -93 feet amsl, below a thick confining unit. Circulation was lost at this depth during drilling, indicating that drilling had entered the high transmissive environment expected in the basal aquifer. Groundwater subsequently rose to the expected basal head of approximately 18 feet amsl, indicating strong confining conditions that would be protective of downward migration of contaminants resulting from LNAPL.

10.0 References

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Figure 1. Site Location Map
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

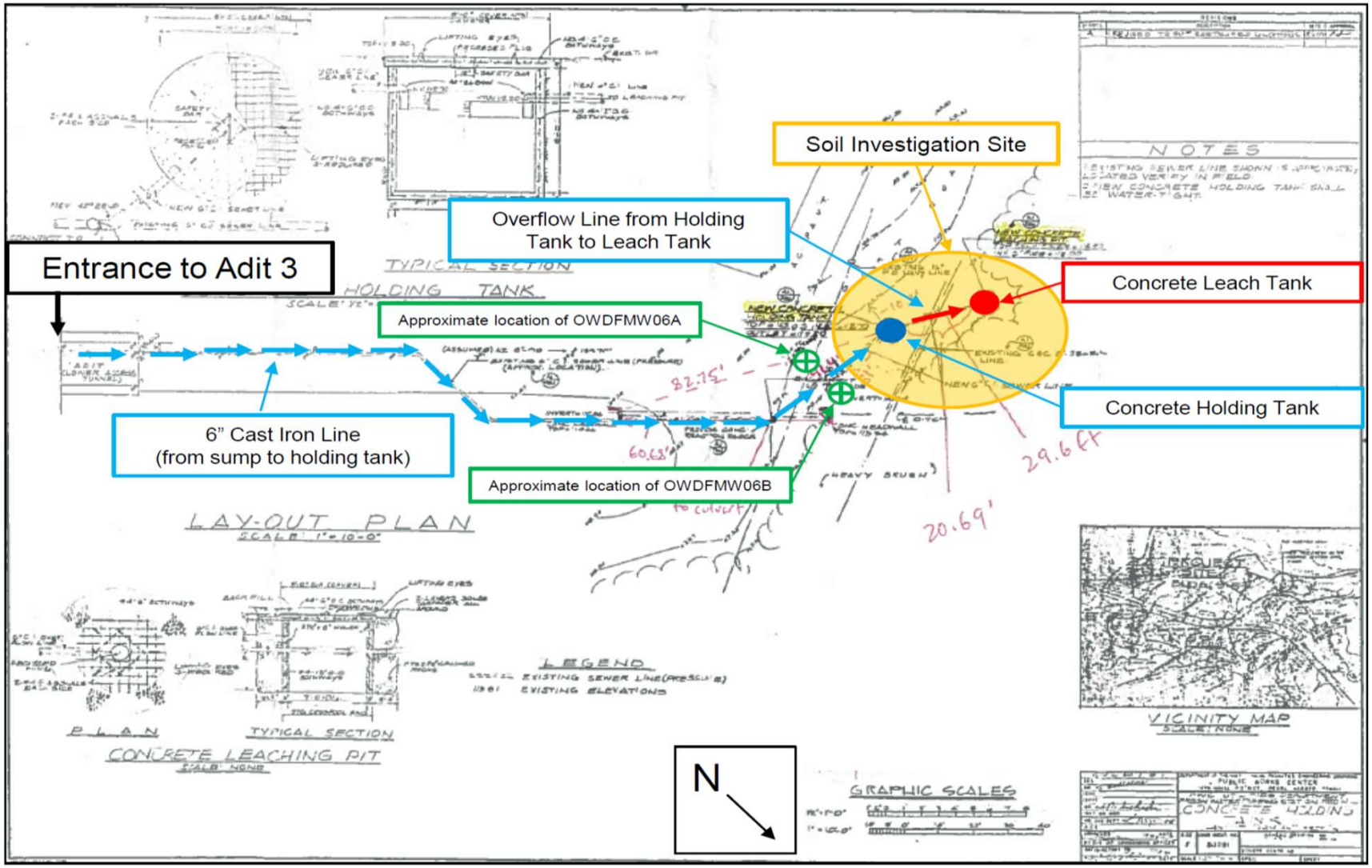

Figure 2. Schematic Drawing of Holding Tank and Leach Tank
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

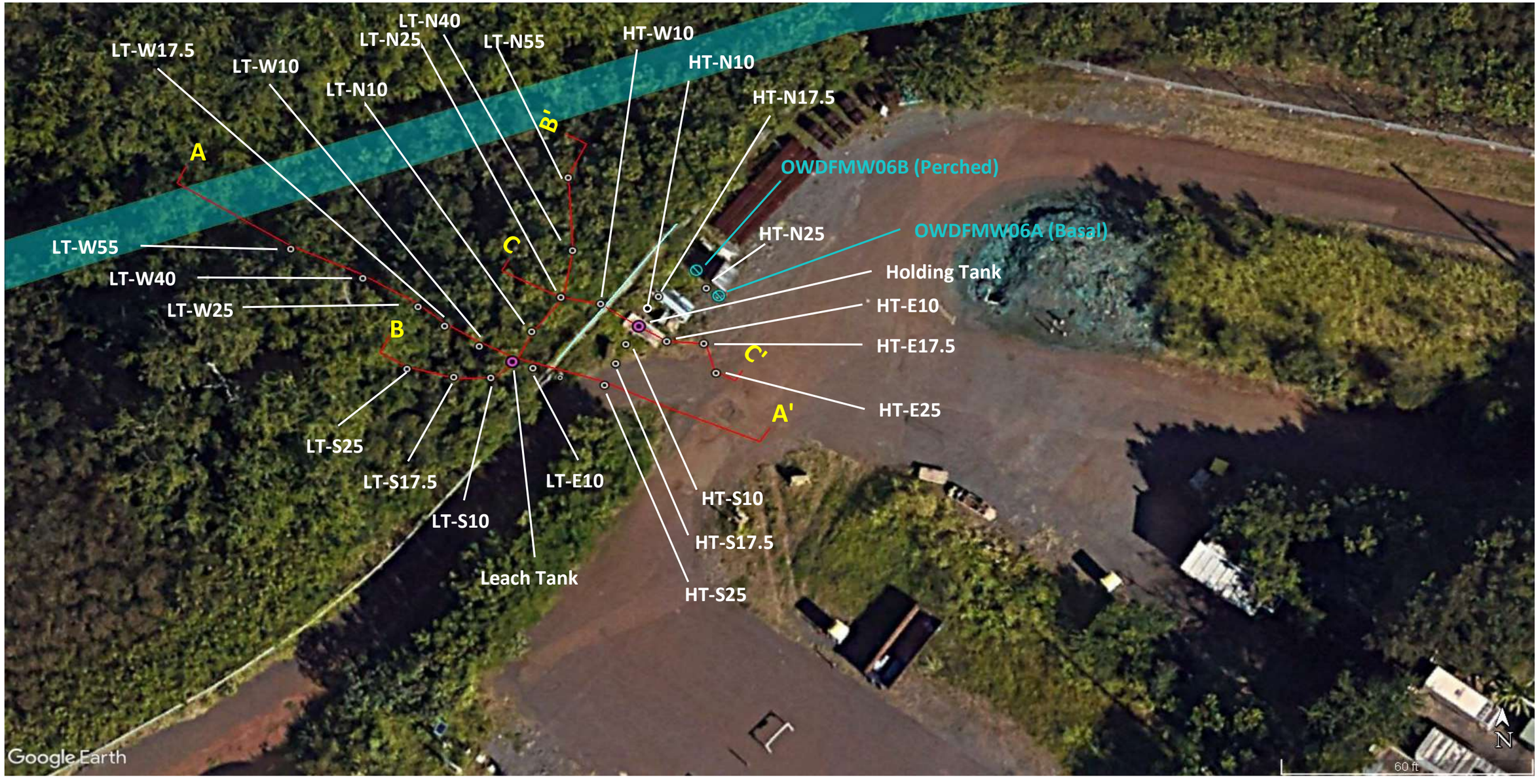

Figure 3. Site Sample Locations and Features Map
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

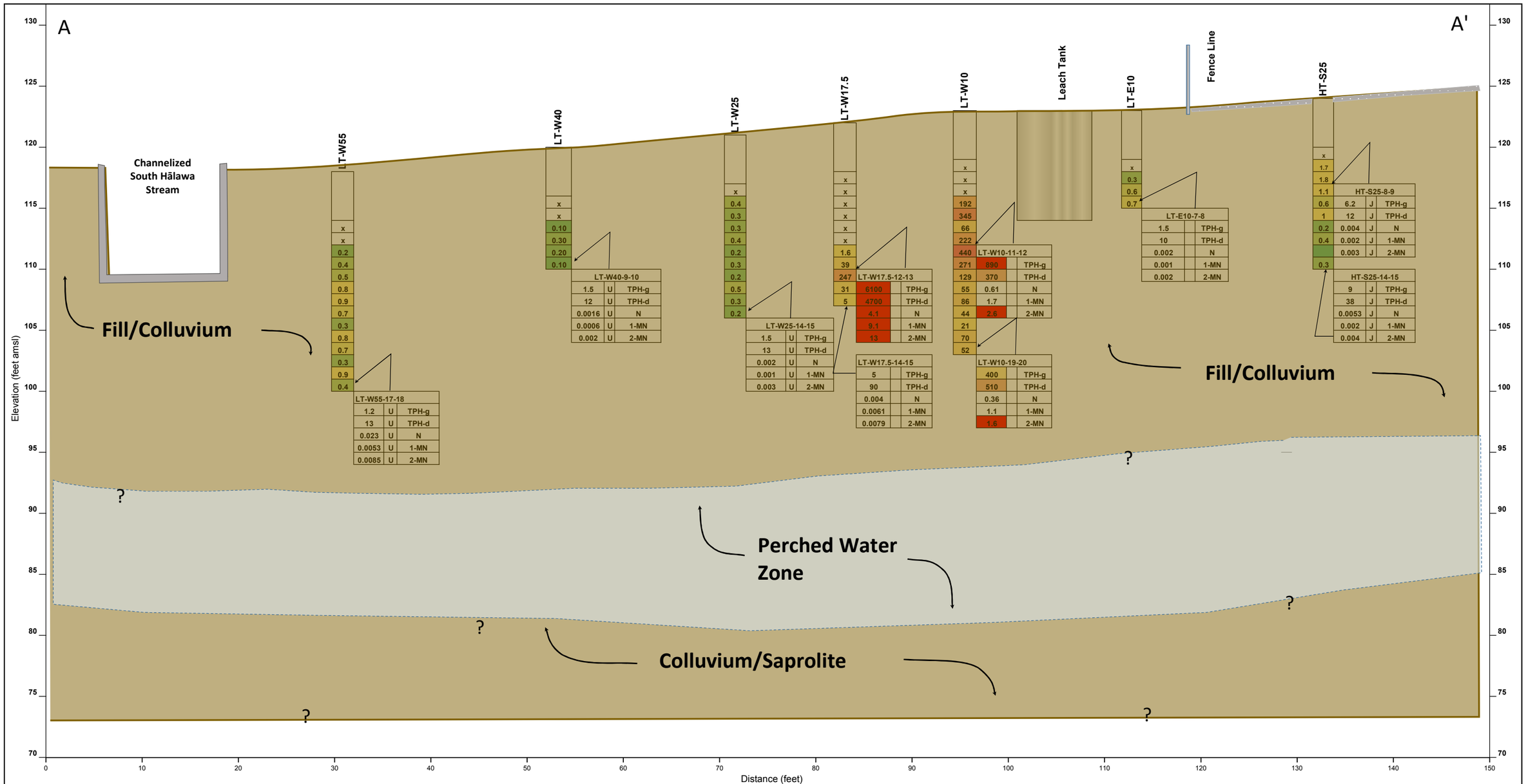

Figure 4. Cross-Section A-A'
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

Organic Vapor Measurement (parts per million by volume)

Boring Name
0.1
50
100
150
200
300
400

Analyte (mg/kg)	Acronym	Gross Odor	Direct Exposure	Leaching to Groundwater
Gasoline Range Organics (C6-C12)	TPH-g	100	451	696
C10-C24	TPH-d	500	219	940
Naphthalene	N	500	28	3.1
2-Methylnaphthalene	1MN	500	39	1.9
1-Methylnaphthalene	2MN	500	169	0.9

Hawai'i Department of Health Environmental Action Levels (EALs), Table A-2

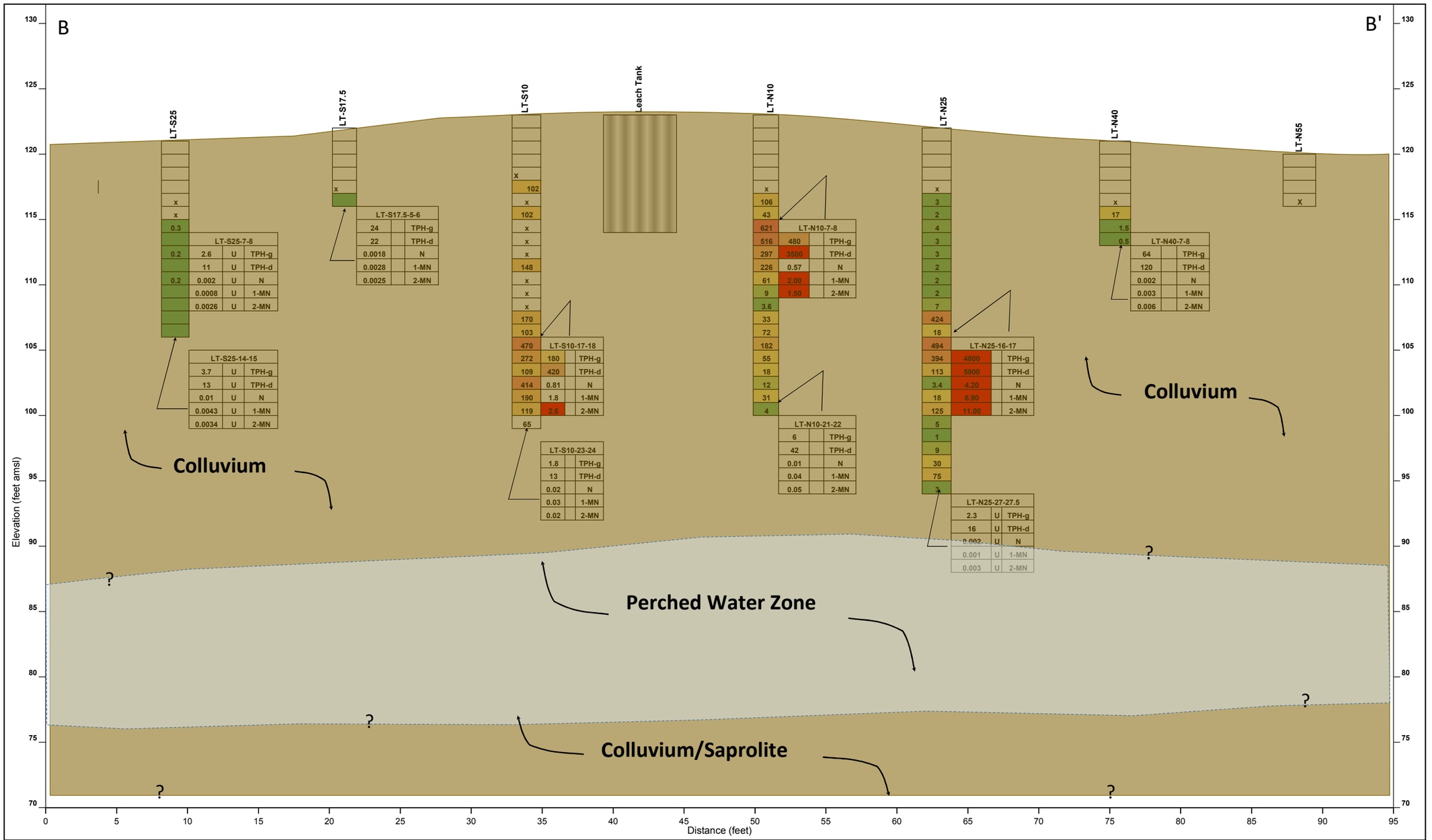

Figure 5. Cross-Section B-B'
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

Organic Vapor Measurement (parts per million by volume)

Boring Name
0.1
50
100
150
200
300
400

Analyte (mg/kg)	Acronym	Gross Odor	Direct Exposure	Leaching to Groundwater
Gasoline Range Organics (C6-C12)	TPH-g	100	451	696
C10-C24	TPH-d	500	219	940
Naphthalene	N	500	28	3.1
1-Methylnaphthalene	1MN	500	169	0.9
2-Methylnaphthalene	2MN	500	39	1.9

Hawai'i Department of Health Environmental Action Levels (EALs), Table A-2

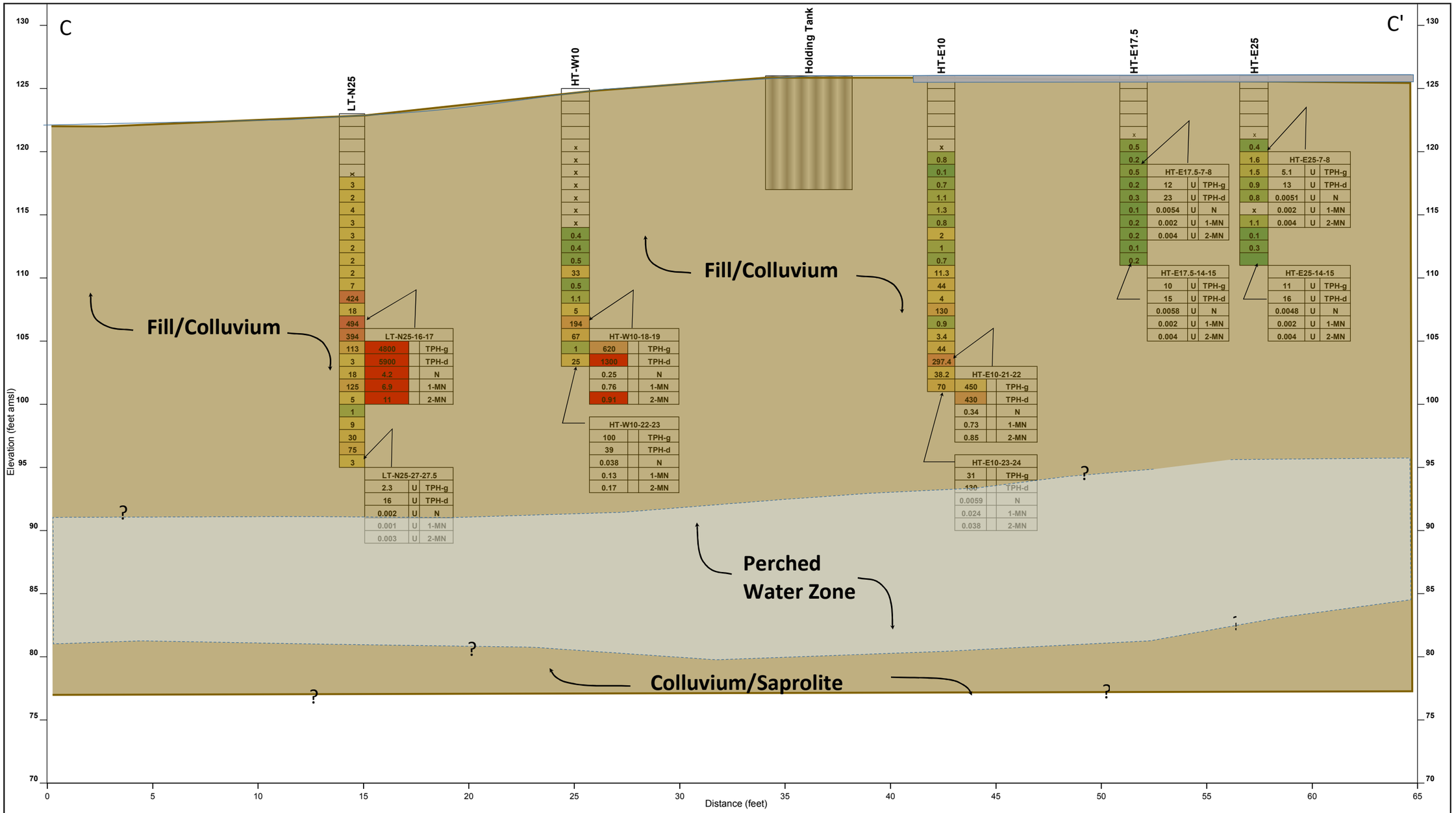

Figure 6. Cross-Section C-C'
Holding Tank and Leach Tank Characterization
November 20, 2021 Release Response

Organic Vapor Measurement (parts per million by volume)

Boring Name
0.1
50
100
150
200
300
400

Analyte (mg/kg)	Acronym	Gross	Direct Exposure	Leaching to Groundwater
Gasoline Range Organics (C6-C12)	TPH-g	100	451	696
C10-C24	TPH-d	500	219	940
Naphthalene	N	500	28	3.1
2-Methylnaphthalene	1MN	500	39	1.9
1-Methylnaphthalene	2MN	500	169	0.9

Hawai'i Department of Health Environmental Action Levels (EALs), Table A-2

Table 5. Holding Tank - Leach Tank Subsurface Soil Results
November 20, 2021 Release Response
Red Hill Bulk Fuel Storage Facility

	Gross Odor EAL			100				500				479				500				260			
	Direct Exposure EAL			451				1				62				818				129			
	Leaching to Groundwater EAL			696				0.3				0.9				0.8				1.4			
				Gasoline Range Organics (C6-C12) Gas (mg/kg)				Benzene 71-43-2 (mg/kg)				Ethylbenzene 100-41-4 (mg/kg)				Toluene 108-88-3 (mg/kg)				m-Xylene & p-Xylene 1330-20-7 (mg/kg)			
Sample Location	Boring or QC Sample	Begin Depth (ft)	End Depth (ft)	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL
HT-E10-21-22	HT-E10	21	22	450		4.6	14.0	0.053	U	0.014	0.071	0.110	U	0.032	0.140	0.110	U	0.048	0.210	0.053	U	0.025	0.140
HT-E10-23-24	HT-E10	23	24	31		4.7	14.0	0.054	U	0.014	0.072	0.110	U	0.033	0.140	0.110	U	0.049	0.220	0.054	U	0.026	0.140
HT-E17.5-14-15	HT-E17.5	14	15	10	U	4.3	13.0	0.050	U	0.013	0.067	0.100	U	0.030	0.130	0.100	U	0.045	0.200	0.050	U	0.024	0.130
HT-E17.5-7-8	HT-E17.5	7	8	12	U	5.3	16.0	0.061	U	0.015	0.081	0.120	U	0.037	0.160	0.120	U	0.055	0.240	0.061	U	0.029	0.160
HT-E25-14-15	HT-E25	14	15	11	U	4.7	15.0	0.055	U	0.014	0.073	0.110	U	0.033	0.150	0.110	U	0.049	0.220	0.055	U	0.026	0.150
HT-E25-7-8	HT-E25	7	8	5	U	2.2	6.8	0.026	U	0.007	0.034	0.051	U	0.016	0.068	0.051	U	0.023	0.100	0.026	U	0.012	0.068
HT-N10-24-25	HT-N10	24	25	240		2.2	6.7	0.025	U	0.006	0.033	0.050	U	0.015	0.067	0.050	U	0.022	0.100	0.025	U M	0.012	0.067
HT-N25-10-11	HT-N25	10	11	7	J	4.0	12.0	0.046	U	0.012	0.061	0.091	U	0.028	0.120	0.091	U	0.041	0.180	0.046	U	0.022	0.120
HT-N25-10-11 DUPLICATE	HT-N25	10	11	21		4.3	13.0	0.049	U	0.012	0.066	0.099	U	0.030	0.130	0.099	U	0.044	0.200	0.049	U	0.023	0.130
HT-N25-14-15	HT-N25	14	15	10	U	4.2	13.0	0.049	U	0.012	0.065	0.098	U	0.030	0.130	0.098	U	0.044	0.200	0.049	U	0.023	0.130
HT-N25-14-15 DUPLICATE	HT-N25	14	15	12	U	5.0	15.0	0.058	U	0.015	0.077	0.120	U	0.035	0.150	0.120	U	0.052	0.230	0.058	U	0.027	0.150
HT-S10-15-16	HT-S10	15	16	3900		450.0	1400.0	0.100	U Q	0.026	0.140	0.290		0.063	0.280	0.210	U Q	0.094	0.420	1.900		0.050	0.280
HT-S10-17-18	HT-S10	17	18	2500		46.0	140.0	0.110	U Q	0.027	0.140	0.210	U	0.065	0.280	0.210	U Q	0.096	0.430	0.690		0.050	0.280
HT-S17.5-8-9	HT-S17	8	9	10	U	4.4	14.0	0.051	U	0.013	0.068	0.100	U	0.031	0.140	0.100	U	0.046	0.200	0.051	U	0.024	0.140
HT-S25-14-15	HT-S25	14	15	9	J	4.6	14.0	0.053	U	0.013	0.070	0.110	U	0.032	0.140	0.110	U	0.047	0.210	0.053	U	0.025	0.140
HT-S25-8-9	HT-S25	8	9	6	J	3.5	11.0	0.040	U Q	0.010	0.054	0.081	U	0.024	0.110	0.081	U Q	0.036	0.160	0.040	U	0.019	0.110
HT-W10-18-19	HT-W10	18	19	620		2.6	8.1	0.030	U	0.008	0.040	0.061	U	0.018	0.081	0.061	U	0.027	0.120	0.038	J	0.014	0.081
HT-W10-22-23	HT-W10	22	23	100		2.8	8.7	0.033	U	0.008	0.044	0.065	U	0.020	0.087	0.065	U	0.029	0.130	0.033	U	0.015	0.087
LT-E10-7-8	LT-E10	7	8	2	J	1.1	3.5	0.013	U	0.003	0.018	0.026	U	0.008	0.035	0.026	U	0.012	0.053	0.013	U	0.006	0.035
LT-N10-19-20	LT-N10	19	20	450		3.0	9.1	0.034	U	0.009	0.045	0.068	U	0.021	0.091	0.068	U	0.031	0.140	0.034	U	0.016	0.091
LT-N10-21-22	LT-N10	21	22	6		1.1	3.5	0.013	U	0.003	0.018	0.026	U	0.008	0.035	0.026	U	0.012	0.053	0.013	U	0.006	0.035
LT-N10-7-8	LT-N10	7	8	480		1.1	3.5	0.013	U	0.003	0.018	0.026	U	0.008	0.035	0.026	U	0.012	0.053	0.035		0.006	0.035
LT-N10-7-8-Dup	LT-N10	7	8	890		12.0	36.0	0.140	U Q	0.034	0.180	0.091	J Q	0.082	0.360	0.480	J Q	0.120	0.540	0.600	Q	0.064	0.360
LT-N25-16-17	LT-N25	16	17	4800		270.0	840.0	0.310	U	0.080	0.420	0.210	J	0.190	0.840	0.630	U	0.280	1.300	1.500		0.150	0.840
LT-N25-27-27.5	LT-N25	27	27	5	U	2.3	7.2	0.027	U	0.007	0.036	0.054	U	0.016	0.072	0.054	U	0.024	0.110	0.027	U	0.013	0.072
LT-N40-7-8	LT-N40	7	8	64		2.7	8.2	0.031	U	0.008	0.041	0.061	U	0.019	0.082	0.061	U	0.028	0.120	0.031	U	0.015	0.082
LT-S10-17-18	LT-S10	17	18	180		1.2	3.8	0.014	U	0.004	0.019	0.028	U M	0.009	0.038	0.028	U	0.013	0.057	0.034	J M	0.007	0.038
LT-S10-23-24	LT-S10	23	24	2	J	1.2	3.8	0.014	U	0.004	0.019	0.029	U	0.009	0.038	0.029	U	0.013	0.057	0.014	U	0.007	0.038
LT-S17.5-5-6	LT-S17.5	5	6	24		2.6	8.1	0.030	U	0.008	0.041	0.061	U	0.018	0.081	0.061	U	0.027	0.120	0.030	U	0.014	0.081
LT-S25-14-15	LT-S25	14	15	8	U	3.7	11.0	0.042	U	0.011	0.056	0.084	U	0.026	0.110	0.084	U	0.038	0.170	0.042	U	0.020	0.110
LT-S25-7-8	LT-S25	7	8	6	U	2.6	8.1	0.030	U	0.008	0.041	0.061	U	0.018	0.081	0.061	U	0.027	0.120	0.030	U	0.014	0.081
LT-SEDIMENT	LT-SEDIME	0.1	0.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
LT-W10-11-12	LT-W10	11	12	890		130.0	390.0	0.029	U	0.008	0.039	0.059	U	0.018	0.079	0.059	U	0.026	0.120	0.370		0.014	0.079
LT-W10-19-20	LT-W10	19	20	400		1.2	3.6	0.029	U	0.007	0.039	0.058	U	0.018	0.077	0.058	U	0.026	0.120	0.230	M	0.014	0.077
LT-W17.5-12-13	LT-W17.5	12	13	6100		280.0	870.0	3.300	U	0.820	4.300	6.500	U	2.000	8.700	6.500	U	2.900	13.000	3.300	U	1.500	8.700
LT-W19.5-14-15	LT-W17.5	14	15	5	J	2.9	9.0	0.034	U	0.009	0.045	0.068	U	0.021	0.090	0.068	U	0.030	0.140	0.034	U	0.016	0.090
LT-W25-14-15	LT-W25	14	15	4	U	1.5	4.7	0.018	U	0.004	0.023	0.035	U	0.011	0.047	0.035	U	0.016	0.070	0.018	U	0.008	0.047
LT-W40-9-10	LT-W40	9	10	3	U	1.5	4.6	0.017	U	0.004	0.023	0.034	U	0.010	0.046	0.034	U	0.015	0.068	0.017	U	0.008	0.046
LT-W55-17-18	LT-W55	17	18	3	U	1.2	3.6	0.014	U	0.003	0.018	0.027	U	0.008	0.036	0.027	U	0.012	0.054	0.014	U	0.006	0.036

Table 5. Holding Tank- Leach Tank Subsurface Soil Results (cont'd)
November 20, 2021 Release Response
Red Hill Bulk Fuel Storage Facility

	Gross Odor EAL			500				500				500				500				500			
	Direct Exposure EAL			28				169				39				219				9386			
	Leaching to Groundwater EAL			3.1				0.9				1.9				940				1000			
				Naphthalene 91-20-3 (mg/kg)				1-Methylnaphthalene 90-12-0 (mg/kg)				2-Methylnaphthalene 91-57-6 (mg/kg)				C10-C24 Diesel (mg/kg)				C24-C40 Oil (mg/kg)			
Sample Location	Boring or QC Sample	Begin Depth (ft)	End Depth (ft)	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL	Result	Flag	MDL	RL
HT-E10-21-22	HT-E10	21	22	0.34		0.0	0.0	1		0.001	0.008	1		0.003	0.008	**450**		13.0	67.0	40	U	27.00	67.00
HT-E10-23-24	HT-E10	23	24	0.01	U	0.0	0.0	0.024	M	0.001	0.007	0.038	M	0.003	0.007	130		14.0	68.0	41.00	U	27.00	68.00
HT-E17.5-14-15	HT-E17.5	14	15	0.01	U	0.0	0.0	0.002	U	0.001	0.007	0.004	U	0.003	0.007	15	J	14.0	72.0	43.00	U	29.00	72.00
HT-E17.5-7-8	HT-E17.5	7	8	0.01	U	0.0	0.0	0.002	U	0.001	0.007	0.004	U	0.003	0.007	23	J	13.0	67.0	72.00		27.00	67.00
HT-E25-14-15	HT-E25	14	15	0.00	U	0.0	0.0	0.002	U	0.001	0.006	0.004	U	0.002	0.006	16	J	15.0	74.0	44.00	U	30.00	74.00
HT-E25-7-8	HT-E25	7	8	1.35		0.0	0.0	**1.130**	M	0.001	0.006	1.350	M	0.003	0.006	**617**		13.0	65.0	603.00		26.00	65.00
HT-N10-24-25	HT-N10	24	25	0.02	M	0.0	0.0	0.039		0.001	0.006	0.060	M	0.003	0.006	95		14.0	71.0	43.00	U	29.00	71.00
HT-N25-10-11	HT-N25	10	11	0.00	U	0.0	0.0	0.002	U	0.001	0.005	0.003	U	0.002	0.005	21	J	12.0	61.0	36.00	U	24.00	61.00
HT-N25-10-11 DUPLICATE	HT-N25	10	11	0.00	U	0.0	0.0	0.013	M	0.001	0.006	0.019	M	0.002	0.006	18	J	12.0	60.0	40.00	J	24.00	60.00
HT-N25-14-15	HT-N25	14	15	0.01	U	0.0	0.0	0.002	U	0.001	0.008	0.005	U	0.003	0.008	20	J	15.0	77.0	46.00	U	31.00	77.00
HT-N25-14-15 DUPLICATE	HT-N25	14	15	0.01	U	0.0	0.0	0.002	U	0.001	0.007	0.004	U	0.003	0.007	25	J	13.0	67.0	40.00	U	27.00	67.00
HT-S10-15-16	HT-S10	15	16	**8.90**		0.0	0.0	**29**	D	0.009	0.067	**45**	D	0.028	0.067	**3200**		11.0	55.0	61.00		22.00	55.00
HT-S10-17-18	HT-S10	17	18	1.40	M	0.0019	0.0060	**4**		0.001	0.006	**7**		0.002	0.006	**2600**		12.0	63.0	38.00	U	25.00	63.00
HT-S17.5-8-9	HT-S17	8	9	0.01	U	0.0021	0.0065	0.002	U	0.001	0.007	0.004	U	0.003	0.007	39	U	13.0	66.0	39.00	U	26.00	66.00
HT-S25-14-15	HT-S25	14	15	0.01	U	0.0022	0.0067	0.002	U	0.001	0.007	0.004	U	0.003	0.007	38	U	13.0	64.0	38.00	U	25.00	64.00
HT-S25-8-9	HT-S25	8	9	0.00	U	0.0017	0.0053	0.002	U	0.001	0.005	0.003	U	0.002	0.005	12	J	9.8	50.0	30.00	U	20.00	50.00
HT-W10-18-19	HT-W10	18	19	0.25		0.0023	0.0071	1		0.001	0.007	0.910		0.003	0.007	**1300**		11.0	56.0	33.00	U	22.00	56.00
HT-W10-22-23	HT-W10	22	23	0.04		0.0020	0.0061	0.130		0.001	0.006	0.170		0.003	0.006	39	J	11.0	56.0	33.00	U	22.00	56.00
LT-E10-7-8	LT-E10	7	8	0.00	U	0.0019	0.0057	0.002	U	0.001	0.006	0.003	U	0.002	0.006	31	U	10.0	52.0	25.00	J	21.00	52.00
LT-N10-19-20	LT-N10	19	20	0.40		0.0023	0.0071	**1**		0.001	0.007	1.700		0.003	0.007	**1200**		12.0	62.0	37.00	U	25.00	62.00
LT-N10-21-22	LT-N10	21	22	0.01	M	0.0021	0.0065	0.039		0.001	0.007	0.053		0.003	0.007	42	J	14.0	69.0	42.00	U	28.00	69.00
LT-N10-7-8	LT-N10	7	8	0.57		0.0022	0.0066	**2**		0.001	0.007	1.500		0.003	0.007	**3500**		13.0	65.0	39.00	U	26.00	65.00
LT-N10-7-8-Dup	LT-N10	7	8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
LT-N25-16-17	LT-N25	16	17	**4.20**		0.0022	0.0069	**7**		0.001	0.007	**11**		0.003	0.007	**5900**		15.0	73.0	44.00	U	29.00	73.00
LT-N25-27-27.5	LT-N25	27	27	0.01	U	0.0022	0.0067	0.002	U	0.001	0.007	0.004	U	0.003	0.007	16	J	13.0	67.0	40.00	U	27.00	67.00
LT-N40-7-8	LT-N40	7	8	0.00	U M	0.0016	0.0050	0.003	J M	0.001	0.005	0.006	M	0.002	0.005	**370**	U	120.0	610.0	640.00	D	240.00	610.00
LT-S10-17-18	LT-S10	17	18	0.81		0.0024	0.0075	**2**		0.001	0.008	**3**		0.003	0.008	**420**		14.0	68.0	41.00	U	27.00	68.00
LT-S10-23-24	LT-S10	23	24	0.02	M	0.0019	0.0059	0.027		0.001	0.006	0.021		0.002	0.006	13	J	13.0	65.0	39.00	U	26.00	65.00
LT-S17.5-5-6	LT-S17.5	5	6	0.00	U	0.0018	0.0055	0.003	J M	0.001	0.006	0.003	J M	0.002	0.006	22	J	11.0	54.0	110.00		22.00	54.00
LT-S25-14-15	LT-S25	14	15	0.01	M	0.0019	0.0058	0.004	J M	0.001	0.006	0.003	J M	0.002	0.006	40	U	13.0	66.0	40.00	U	26.00	66.00
LT-S25-7-8	LT-S25	7	8	0.01	U	0.0020	0.0063	0.002	U	0.001	0.006	0.004	U	0.003	0.006	33	U	11.0	55.0	33.00	U	22.00	55.00
LT-SEDIMENT	LT-SEDIME	0.1	0.5	**7.20**		0.0024	0.0073	**52**	D	0.009	0.073	**74**	D	0.030	0.073	**13000**		14.0	70.0	250.00		28.00	70.00
LT-W10-11-12	LT-W10	11	12	0.61		0.0019	0.0058	**2**		0.001	0.006	**3**		0.002	0.006	**370**		11.0	58.0	140.00		23.00	58.00
LT-W10-19-20	LT-W10	19	20	0.36		0.0023	0.0072	**1**		0.001	0.007	2		0.003	0.007	**510**		11.0	54.0	29.00	J	22.00	54.00
LT-W17.5-12-13	LT-W17.5	12	13	**4.10**	J1	0.0027	0.0084	**9**	J1	0.001	0.008	**13**	J1	0.004	0.008	**4700**	J1	15.0	77.0	46.00	U	31.00	77.00
LT-W19.5-14-15	LT-W17.5	14	15	0.00	J M	0.0019	0.0059	0.006	M	0.001	0.006	0	M	0.002	0.006	90		12.0	59.0	110.00		24.00	59.00
LT-W25-14-15	LT-W25	14	15	0.00	J M	0.0021	0.0063	0.002	U	0.001	0.006	0.004	U	0.003	0.006	39	U	13.0	65.0	39.00	U	26.00	65.00
LT-W40-9-10	LT-W40	9	10	0.00	U	0.0016	0.0050	0.002	U	0.001	0.005	0.003	U	0.002	0.005	38	U	12.0	63.0	38.00	U	25.00	63.00
LT-W55-17-18	LT-W55	17	18	0.02	M	0.0020	0.0062	0.005	J M	0.001	0.006	0.009	M	0.003	0.006	39	U	13.0	65.0	39.00	U	26.00	65.00

#NA Not Analyzed

EAL Hawaii Department of Health Soil Environmental Action Levels for specific exposure pathways. Colors indicate EAL exceedance.
- The Leaching to Groundwater pathway is the relevant pathway for contaminants in subsurface soil over a drinking water aquifer.
- The Direct Exposure pathway is relevant onlyfor excavation activities.
- The Gross Odor threshold is a nuisance threshold, which would limit the use of excavated soil but does not include a health risk.

Flag Data Qualifiers
- J Estimated: The analyte was positively identified; the quantitation is an estimation
- M Manual integrated compound.
- Q One or more quality control criteria failed.
- U Undetected at the Limit of Detection.
- J1 Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
- D The reported value is from a dilution.
- 4 Concentration in the sample is greater than 4 times the MS/MSD spike; therefore, control limits are not applicable.

Units
- mg/kg concentration in milligrams per kilogram

Table 6: Groundwater Analytical Results for Sample Collected from OWDFMW06B on January 26, 2022

Sample ID	Constituent	Groundwater EAL [a] (µg/L)	Result (µg/L)	Method Detection Limit (µg/L)	Limit of Quantitation (µg/L)
ERH2495	TPH-o (C24-C40)	500	ND	180	360
ERH2495	TPH-d (C9-C25)	400	250	92	110
ERH2495	TPH-g (C6-C12)	300	260	31	100
ERH2495	Benzene	5	ND	0.24	1.0
ERH2495	Ethylbenzene	7.3	ND	0.50	1.0
ERH2495	m-Xylene & p-Xylene	13	ND	0.53	2.0
ERH2495	o-Xylene	13	ND	0.39	1.0
ERH2495	Toluene	9.8	ND	0.39	1.0
ERH2495	1-Methylnaphthalene	2.1	1.7	0.019	0.10
ERH2495	2-Methylnaphthalene	4.7	0.27	0.040	0.20
ERH2495	Naphthalene	12	0.64	0.032	0.10

Notes:

[a] (DOH 2017b) Hawai‘i Department of Health Environmental Action Level Surfer (Fall 2017), Table D1-a (i.e., groundwater EALs for sites where groundwater is a current or potential drinking water source and the nearest surface water body is located within 150 meters of the release site).

µg/L micrograms per liter

ID sample identification

ND Constituent was not detected above the Method Detection Limit.

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Appendix A – Field Notes and Bore Logs

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From: Mariano, Dominic
Sent: Tuesday, January 11, 2022 7:37 PM
To: Maman, Alex; Hart, Jeff
Cc: House, Ethan; Ferguson, Colin; Nutter, James
Subject: CTO 22F0106 Dailies
Attachments: RH_DPT_Adit3_Boringlogs_011122.pdf; RH_DPT_Adit3_Notes_011122.pdf; RH_DPT_Adit3_Riginspection_011122.pdf; RH_DPT_Adit3_Tailgate_011122.pdf

Alex, Jeff

Here are today’s notes from the DPT investigation around the Adit 3 Leach tank.

We drilled all 4 borings along the ‘west’ axis from the leach tank.

Samples were collected from the TD of each boring (see logs for boring end depths)

Contamination was observed in the boring closest to the leach tank, and a sample was collected at 11-12 ft bgs.

Tomorrow we will meet at the warehouse at 0600 and be on site by 0700 which is when Navy staff will open up the fencing .

PCS will be on site tomorrow at 0800 to do additional vegetation cutting.

Thanks,

Dominic Mariano
Geologist III
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AECOM

Client Name: NAVFAC	Boring/Well Name: W10
Job/Site Name: RHTBFSF	Utility Cleared to: 2'
Location: ADIT 3 TRENCH TANK	Total Depth: ~~11/22~~ (EH) 20'
Project Number: 60574414	Date(s) Drilled: 1/11/22
Driller: GEOTEK	Screened Interval: —
Drilling Method: DPT	Depth to water (first encountered): —
Boring Diameter: 2"	Depth to water (static): —
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
RUN 1			X	36%		BASALT - LIGHT GRAY, SMALL ANGULAR PIECES, TRACE OF CORAL & CLAYEY SILT (BROWN), DRY. 10YR3/3	LT GRAY	d/m/w	VS	5	5	f/m/c —	f/c 90	N/L/M/H N
2			X					d/m/w				f/m/c	f/c	N/L/M/H
4			X				BR	d/m/w				f/m/c	f/c	N/L/M/H
RUN 2 6	1408		0.0			SILTY CLAY - MOD. TO HIGH PLAS, FIRM, 10YR3/3, 5% BASALT, 5-7.3 DRY, 7.3-10 DAMP	BR	d/m/w	FIRM	75	15	f/m/c —	f/c 10	N/L/M/H
			0.0	100%										
8			191.8					d/m/w				f/m/c	f/c	N/L/M/H
			344.5											
10			65.8											
RUN 3	1420	X	222.3			SILTY CLAY - MOD. PLAS, SOFT, ~~10~~ 7.5YR2.5/2, MOIST, 10% SAPROLITE @ 14-15'.		d/m/w	SOFT	75	15	f/m/c —	f/c —	N/L/M/H
			439.6	100%										
12			270.8					d/m/w				f/m/c	f/c	N/L/M/H
14			129.4											
			55.2					d/m/w				f/m/c	f/c	N/L/M/H
RUN 4 16	1445		85.9	100% (15-19')		SAME AS ABOVE		d/m/w	SOFT			f/m/c —	f/c	N/L/M/H
			44.3											
18			21.4					d/m/w				f/m/c	f/c	N/L/M/H
			69.9											
RUN 5 20	1455	X	51.7	90%		SAME AS ABOVE		Moist	S	75	15	—	—	M
						TERMINATE BORING @ 20' DUE TO REFUSAL		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: ~~LT-W-10~~ WSS
Job/Site Name: RHBFSF	Utility Cleared to: 2', refusal
Location: Adit 3 Leach Tank	Total Depth: 18'
Project Number: 60574414	Date(s) Drilled: 1/11/22 / 1330-
Driller: Geotek	Screened Interval:
Drilling Method: ~~X~~ ~~G~~ Direct Push / Geoprobe	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By: D. Mariano	Location: 10' west of leach tank
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
0–2				↑ 100	ML	Clayey silt (ML); boulder, crushed basalt; lt brwn gy 10YR6/2	dark brown 10YR3/3	d/(m)/w	med stiff	30	70	f/m/c 0	f/c 0	N/(L)/M/H
2–4				100				d/m/w	v. stiff			f/m/c	f/c	N/L/M/H
4–6			0.0	↓		boulder, crushed basalt		d/m/w				f/m/c	f/c	N/L/M/H
6–8			0.2 0.4	90/100		micro sand, loose angular sand	~~med~~ brown 10YR4/3	d/m/w	med. stiff	30	60	f/(m)/c 10	f/c 0	N/L/M/H
8–10			0.5 0.8			boulder, basalt		d/m/w				f/m/c	f/c	N/L/M/H
10–12			0.9 0.7	100		multi colored dark brown 10YR3/3, strong brown 10YR5/6, gray 10YR5/1, gravel		d/m/w		30	60	f/m/c 10	f/c 10	N/L/M/H
12–14			0.3 0.8					d/m/w				f/m/c	f/c	N/L/M/H
14–16			0.7 0.3			boulder, basalt		d/m/w				f/m/c	f/c	N/L/M/H
16–18	1455	LT-WSS-17-18	0.9 0.4	100		no sand or gravel, root fragments; boulder, basalt.	dark brown 10YR3/3	d/m/w		30	70	f/m/c 0	f/c 0	N/(L)/M/H
						refusal at 18' bgs, end of boring		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: W25
Job/Site Name: RHBFSF Leach	Utility Cleared to: 1'
Location: ADIT3 ~~FRENCH~~ TANK	Total Depth:
Project Number: 605744 14	Date(s) Drilled: 1/11/21
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
RUN 1			X					d/m/w				f/m/c	f/c	N/L/M/H
2	1525		X	50%		0-2.5 - FILL - MIX OF ROOTS, BASALT + SILTY CLAY		d/m/w	FIRM			—		
						2.5-4.1' - BASALT - LIGHT GRAY, SMALL ANGULAR FRAGMENTS		d/m/w	—			f/m/c	f/c	N/L/M/H
4			/			4.1-5' SILTY CLAY - MOD. PLAS, STIFF, 7.5YR3/3, TRACE OF ~~GRAN~~ BASALT, DRY.		d/m/w	S	85	10	—	5	N/L/M/H
RUN 2												f/m/c	f/c	N/L/M/H
6			0.4			5-6.3' - SILTY CLAY (SAME AS ABOVE, DRY, VERY STIFF				85	10	—	5	
	1535		0.3	100%				d/m/w				f/m/c	f/c	N/L/M/H
8			0.3			6.3-8.3 - SAME AS 2.5-4.1				15	15	—	70	
			0.4			30% SILTY CLAY, DRY, STIFF		d/m/w				f/m/c	f/c	N/L/M/H
10			0.2			8.3-10' - SAME AS 5-6.3' 7.5YR3/2, STIFF, FRIABLE,	DRY			85	10	-	5	
			0.3					d/m/w				f/m/c	f/c	N/L/M/H
12			0.2	100%		SILTY CLAY - MOD. PLAS,				75	10	—	15	
RUN 3	1545		0.5			VERY STIFF, 7.5YR3/2, TRACE		d/m/w				f/m/c	f/c	N/L/M/H
14			0.3			OF BASALT, DRY.				75	10	—	15	
		X	0.2					d/m/w		75	10	f/m/c	f/c	N/L/M/H
16						TERMINATE DPT @ 15'							15	
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: LT-W40
Job/Site Name: RIBFSF	Utility Cleared to: 1'
Location: Adit 3 Leach tank	Total Depth:
Project Number: 60574414	Date(s) Drilled: 1/11/21
Driller: Geo Tek	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: D. Montano	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
1			—	↑	ML	Clayey Silt (ML) with gravel, friable	dk br 10YR3/3 + brown 10YR4/3 + gray 10YR5/1	d/m/w	v. stiff	30	50	0	20	N/L/M/H
2			—			basalt boulder, crushed		d/m/w		30	60	f/m/c	f/c 10	N/L/M/H
3			—	100%				d/m/w				f/m/c	f/c	N/L/M/H
4			—			basalt boulder, crushed		d/m/w				f/m/c	f/c	N/L/M/H
5			—			becomes moist, medium stiff less gravel	dk br. 10YR3/3	d/m/w	med.	20	60	f/m/c	f/c 10	N/L/M/H
6			0.0	70%		CLAYEY SILT - 7.5YR3/3, VERY STIFF, TRACE OF SMALL		d/m/w				f/m/c	f/c	N/L/M/H
7			0.1	100%		ANGULAR GRAY BASALT, DAMP, LOW PLAS.		d/m/w				f/m/c	f/c	N/L/M/H
8			0.3					d/m/w		30	60		10	
9	1639	LT-W40 9-10	0.2			SAME AS ABOVE (SAA)	7.5YR3/3	d/m/w		30	70	—	—	N/L/M/H
10		LT-W40 -9-10	0.1			Refusal at 9.5' bgs		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

1/11/21

RH BFSF - CTO 106 DPT INV

0700 EH+ JN+ CF meet at warehouse, DM at office

~~0900~~ 0850 All staff depart

0915 Meet GeoTek on site

0950 Complete H+S tailgate

Objective: Begin DPT Investigation

Staff: AECOM (D. Mariano, E. House, C. Ferguson, J. Nutter) Geotek Hawaii (S. Shjegstad, G. Gutierrez, Chad Nix)

Weather: 70-75°, 60% humidity, clear

Equipment: Mini Rae x 2

1030 complete site walk, inspect both drill rigs

1145 DM finish up phone calls with mgmt team and chemistry team. to confirm bottle requirements and counts. JS depart site to get hydraulic grease gun to repair rig. Tread hydraulics pressure dropped and needed grease gun to top off. CF + JN + EH depart site.

1215 discuss drilling requirements in the tunnel with CN.

1240 CF + JN + EH return to site

1300 repair rig tread

1315 begin hand augering at LT-W~~40~~ SS and LT W-10

DM

1/11/22

RH BFSF - CTO 106 DPT INV Cont

1455 Soil sample LT-W55-17-18 taken

1520 Soil sample LT-W10-11-12 taken

1602 Soil sample LT-W10-19-20 taken

1610 Geo Tek off site after completing LT-W40 LT-W20

1620 move all equipment inside fence

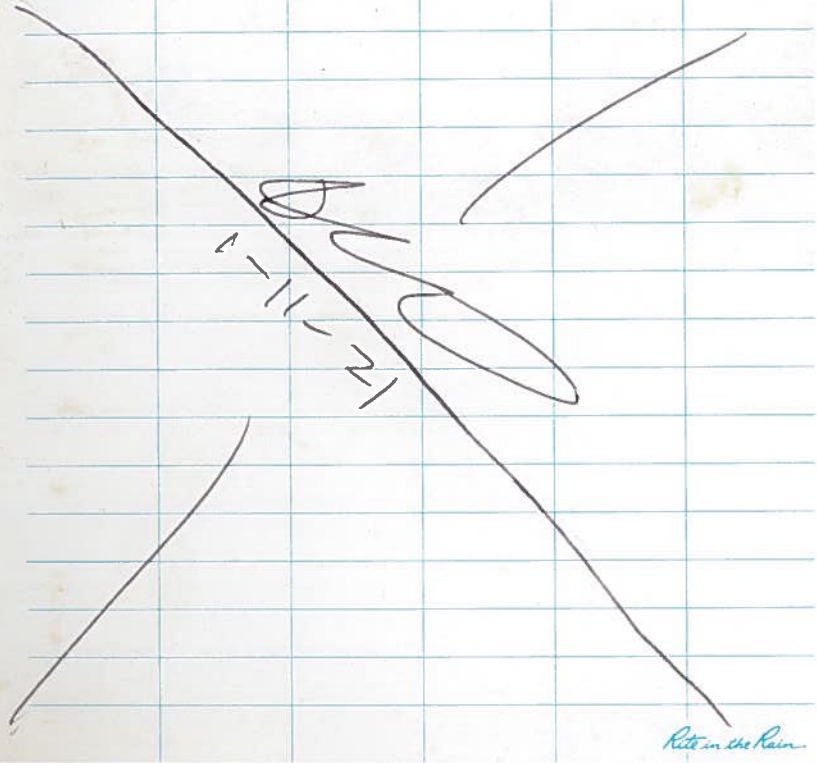
1639 soil sample LT-W40-9-10 taken

~~1633 1723~~ 1725 pack up supplies

Take entry collect trip blank TB01 at 1445

1757 secure IDW at staging area, all staff depart site.

1820 return to Warehouse, end of field day



Rite in the Rain

AECOM

Americas

Daily Drilling, Boring & Direct-Push Equipment Inspection

S3NA-321-FM1

Site / Project Name: RHSF - CT0166, Direct Push | Rig Inspector (Name/Company): Colin Ferguson AECOM

RIG INFORMATION:

Rig Type	Rotary/Auger Drilling Rig ☐		Direct Push Type (DPT) ☒
Owner	GeoTek	VIN#	Z8824T6620
Year/Make	2005, Geoprobe	Mileage	—
Model	6620-DT	Drill Hrs (CW)	6870

INSTRUCTIONS: Each shift shall inspect all applicable items. If an unsatisfactory condition (fail) is observed, suspend operation of the equipment and report the condition to the site supervisor immediately.

Emergency Equipment / Devices / Switches	
Kill switches are located and accessible to workers on both sides of the rotating stem. NOTE: Location and number of switches depend on the rig manufacturer; please refer to owner's manual (DPT typically has one switch on control panel).	☒ Pass ☐ Fail ☐ N/A
Kill switches installed by the manufacturer, alarms and other devices (e.g. positive air shut-off valve) tested and in operable condition. All workers familiar with location and operation of devices. **NEVER BYPASS, DISABLE, OR REMOVE KILL DEVICES.**	☒ Pass ☐ Fail ☐ N/A
First aid kit adequate and on equipment / readily available.	☒ Pass ☐ Fail ☐ N/A
Absorbent materials on equipment / readily available (spill response).	☒ Pass ☐ Fail ☐ N/A
A fire extinguisher of appropriate size is located on drill rig and readily available/accessible for drilling crew (recommended 20 lb).	☒ Pass ☐ Fail ☐ N/A
Protective Guards	
Drive shafts, belts, chain drives, and universal joints are guarded to prevent accidental insertion of hands, fingers, or tools.	☒ Pass ☐ Fail ☐ N/A
Cables	
Cables on drill rig free of kinks, frayed wires, birdcages, flat spots, grease, and worn or missing sections.	☒ Pass ☐ Fail ☐ N/A
Cables are terminated at the working end with a proper eye splice; either swaged, coupled, or using cable clamps.	☒ Pass ☐ Fail ☐ N/A
Cable clamps are installed with the saddle on the live or load side. Clamps are not alternated and are of the correct size and number for the cable size.	☐ Pass ☐ Fail ☒ N/A
Wire ropes are not allowed to bend around sharp edges without cushion material.	☒ Pass ☐ Fail ☐ N/A
Pulleys and Cable Winches	
Pulleys are not bent, cracked, or broken.	☒ Pass ☐ Fail ☐ N/A
Pulleys operate smoothly and freely, without resistance.	☒ Pass ☐ Fail ☐ N/A
Motor is mounted in correct location and tightly secured to drill rig.	☒ Pass ☐ Fail ☐ N/A
Winch capable of being placed in the free spool (unwind smoothly) and locked position correctly, demonstrating that the cable is suitable for lifting during drilling operations.	☐ Pass ☐ Fail ☒ N/A
Safety Latches	
Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation.	☒ Pass ☐ Fail ☐ N/A
Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load.	☒ Pass ☐ Fail ☐ N/A
Flights / Augers / Reamers	
Flights / Augers / Reamers are not bent, cracked, or broken. NOTE: Flights / Augers / Reamers failing inspection must be removed from jobsite.	☐ Pass ☐ Fail ☒ N/A

Flights are blunt to prevent the risks of cuts.	☐ Pass ☐ Fail ☒ N/A
Auger keys are not bent, cracked/fractured, excessively worn, or otherwise damaged.	☐ Pass ☐ Fail ☒ N/A
Auger bolt holes and threads are not damaged.	☐ Pass ☐ Fail ☒ N/A
Inspect flights/augers for metal burns. NOTE: Burrs must be filed to flat surface.	☐ Pass ☐ Fail ☒ N/A
Augers / Reamers lying flat on the ground (avoid stacking).	☐ Pass ☐ Fail ☒ N/A
Augers / Reamers over 50lbs (22.7kg) moved mechanically. (Avoid manual lifting).	☐ Pass ☐ Fail ☒ N/A
Drill String	
Appropriate break out tool(s) available.	☐ Pass ☐ Fail ☒ N/A
Rod box and power vice operating smoothly and freely.	
Drill string are not bent and do not have any cracks/fractures.	☐ Pass ☐ Fail ☒ N/A
Drill string connections (e.g. pins, threads, couplers) are of the proper type, are not bent, have no cracks/fractures, and are not excessively worn.	☐ Pass ☐ Fail ☒ N/A
Swivel connectors (for trailing horizontal drill stem) lubricated and freely rotating.	☐ Pass ☐ Fail ☒ N/A
Mast	
Mast is free of bends, cracks, or broken sections.	☒ Pass ☐ Fail ☐ N/A
All mounting hardware (pins, bolts, etc) in place.	☒ Pass ☐ Fail ☐ N/A
No moving of drill rig or maintenance/repairs while mast is in vertical position.	☒ Pass ☐ Fail ☐ N/A
Hammering Device	
Hammer free of cracks, fatigue, or other signs of excessive wear.	☒ Pass ☐ Fail ☐ N/A
Hammer connections are secure.	☒ Pass ☐ Fail ☐ N/A
Leveling Devices	
Outriggers move in/out and up/down smoothly and freely while using controls on drill rig, with no hydraulics leaks.	☒ Pass ☐ Fail ☐ N/A
Outriggers are extended prior to and whenever the mast is raised off its cradle. Outriggers must maintain pressure to continuously support and stabilize the drill rig (even while unattended).	☒ Pass ☐ Fail ☐ N/A
Outriggers are properly supported on the ground surface to prevent setting into the soil (use of outrigger support pads).	☒ Pass ☐ Fail ☐ N/A
Controls	
Controls are intact, properly labeled, have freedom of movement, and have no loose wiring or connections.	☒ Pass ☐ Fail ☐ N/A
Controls are not blocked or locked into an operating position.	☒ Pass ☐ Fail ☐ N/A
Installed lights, signals, gauges, and alarms operate properly.	☒ Pass ☐ Fail ☐ N/A
Lifting Devices	
Slings, chokers, and lifting devices (straps, not chains) inspected before using and are in proper working order. NOTE: Damaged units are labeled and removed from jobsite.	☐ Pass ☐ Fail ☒ N/A
Shackles/Clevises are in proper working order with pins/screws in place that is to be used while lifting.	☐ Pass ☐ Fail ☒ N/A
Cables and lifting devices are not operated erratically or with a jerking action to overcome resistance.	☐ Pass ☐ Fail ☒ N/A
Hydraulic System	
Hydraulic lines are secure, in good condition with no signs of excessive wear, and not leaking. NOTE: Check while pressurized.	☒ Pass ☐ Fail ☐ N/A
Hydraulic lines are not in a bent or pinched position causing additional fluid restrictions/pressures.	☒ Pass ☐ Fail ☐ N/A
Hydraulic oil reservoir has appropriate amount of oil and not leaking.	☒ Pass ☐ Fail ☐ N/A
Documentation available to confirm that pressure relief valve was checked during shop maintenance activity and noted on maintenance log.	☒ Pass ☐ Fail ☐ N/A
Pump Lines (water, grout, etc)	
Suction/Discharge hoses, pipes, valves, and fittings are secured and not leaking.	☐ Pass ☐ Fail ☒ N/A
High pressure hoses have a safety chain, cable, or strap at each end to prevent whipping in the event of a failure.	☐ Pass ☐ Fail ☒ N/A

Ladders	
Drill rig has a permanently attached or proper portable ladder to be used for access to drilling platform.	☐ Pass ☐ Fail ☒ N/A
Ladders and platforms not to be used for tool storage- keep ladders and operator platforms clear during drilling.	☐ Pass ☐ Fail ☒ N/A
Tires / Tracks	
Tires / Tracks on rig are not excessively worn and free of any debris or foreign material.	☒ Pass ☐ Fail ☐ N/A
General	
General condition – exterior (no structural damage, no loose bolts, platform tidy, etc.)	Clean, maintained recently
General condition – interior (cab clean, tidy)	N/A
Drill rig meets regulations for transport on state/federal highways (inspection sticker, license plate, etc.).	☒ Pass ☐ Fail ☐ N/A
Rig is of appropriate size to meet job requirements.	☒ Pass ☐ Fail ☐ N/A
Maintenance log available for previous 3 months to confirm proper maintenance/inspection.	☒ Pass ☐ Fail ☐ N/A
Exhaust	
Exhaust system is free from defect and routes engine exhaust away from drill rig workers.	☒ Pass ☐ Fail ☐ N/A
Fuels	
Fuel stored in an approved and properly labeled container.	☒ Pass ☐ Fail ☐ N/A
Fuel transfer lines free from signs of excessive wear and not leaking.	☒ Pass ☐ Fail ☐ N/A
Refueling and transferring of fuel is performed in an approved area with sufficient containment to prevent spillage.	☐ Pass ☐ Fail ☒ N/A
Exclusion/Work Zones	cont
The exclusion/work zone is centered over the borehole (and if applicable, bore exit point) and the radius equal to or greater than the height of the mast (measured from ground level).	☒ Pass ☐ Fail ☒ N/A
The exclusion/work zone is clear of tripping hazards.	☒ Pass ☐ Fail ☐ N/A
The exclusion/work zone communicated to concurrent/adjacent operations to prevent overlap of work zones or line of fire.	☒ Pass ☐ Fail ☐ N/A
Subsurface Utilities / Installations and Overhead Obstructions	
Subsurface utilities / installations have been confirmed as identified and cleared through site observation and review of the completed *S3NA-331-FM1 Underground Utilities & Subsurface Installation Clearance Checklist.*	☒ Pass ☐ Fail ☐ N/A
Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to under, by, or near power lines in accordance with the Minimum Approach Distance (MAD).	☒ Pass ☐ Fail ☐ N/A
Rig Repairs	
Repairs, when possible, are conducted offsite to reduce the risk of any onsite incidents.	☒ Pass ☐ Fail ☐ N/A
Specialized PPE	
When working at elevated heights, workers are to wear a fall restraining device attached in a manner to restrict falls to less than six feet (1.83 meters).	☒ Pass ☐ Fail ☐ N/A
When working in wet/slippery conditions, all workers have a lug-type sole or similar slip resistant sole, on their safety footwear to prevent slipping.	☒ Pass ☐ Fail ☐ N/A

Comments:
Work area has stumps / rubble, it uneven. Discussed during tailgate

Signature of Inspector: CS Date: 1/11/22

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AECOM

Americas

Daily Drilling, Boring & Direct-Push Equipment Inspection

S3NA-321-FM1

Site / Project Name: RH-C0106-Direct Push Rig Inspector (Name/Company): C.L. Ferguson

RIG INFORMATION:

Rig Type	Rotary/Auger Drilling Rig ☐		Direct Push Type (DPT) ☑
Owner	GeoTek	VIN#	2T000T6620
Year/Make	Geoprobe 2006	Mileage	–
Model	6620-DT	Drill Hrs	1438

INSTRUCTIONS: Each shift shall inspect all applicable items. If an unsatisfactory condition (fail) is observed, suspend operation of the equipment and report the condition to the site supervisor immediately.

Emergency Equipment / Devices / Switches	
Kill switches are located and accessible to workers on both sides of the rotating stem. NOTE: Location and number of switches depend on the rig manufacturer; please refer to owner's manual (DPT typically has one switch on control panel).	☑ Pass ☐ Fail ☐ N/A
Kill switches installed by the manufacturer, alarms and other devices (e.g. positive air shut-off valve) tested and in operable condition. All workers familiar with location and operation of devices. **NEVER BYPASS, DISABLE, OR REMOVE KILL DEVICES.**	☑ Pass ☐ Fail ☐ N/A
First aid kit adequate and on equipment / readily available.	☑ Pass ☐ Fail ☐ N/A
Absorbent materials on equipment / readily available (spill response).	☑ Pass ☐ Fail ☐ N/A
A fire extinguisher of appropriate size is located on drill rig and readily available/accessible for drilling crew (recommended 20 lb).	☑ Pass ☐ Fail ☐ N/A
Protective Guards	
Drive shafts, belts, chain drives, and universal joints are guarded to prevent accidental insertion of hands, fingers, or tools.	☑ Pass ☐ Fail ☐ N/A
Cables	
Cables on drill rig free of kinks, frayed wires, birdcages, flat spots, grease, and worn or missing sections.	☑ Pass ☐ Fail ☐ N/A
Cables are terminated at the working end with a proper eye splice; either swaged, coupled, or using cable clamps.	☑ Pass ☐ Fail ☐ N/A
Cable clamps are installed with the saddle on the live or load side. Clamps are not alternated and are of the correct size and number for the cable size.	☑ Pass ☐ Fail ☐ N/A
Wire ropes are not allowed to bend around sharp edges without cushion material.	☑ Pass ☐ Fail ☐ N/A
Pulleys and Cable Winches	
Pulleys are not bent, cracked, or broken.	☑ Pass ☐ Fail ☐ N/A
Pulleys operate smoothly and freely, without resistance.	☑ Pass ☐ Fail ☐ N/A
Motor is mounted in correct location and tightly secured to drill rig.	☑ Pass ☐ Fail ☐ N/A
Winch capable of being placed in the free spool (unwind smoothly) and locked position correctly, demonstrating that the cable is suitable for lifting during drilling operations.	☑ Pass ☐ Fail ☐ N/A
Safety Latches	
Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation.	☑ Pass ☐ Fail ☐ N/A
Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load.	☑ Pass ☐ Fail ☐ N/A
Flights / Augers / Reamers	
Flights / Augers / Reamers are not bent, cracked, or broken. NOTE: Flights / Augers / Reamers failing inspection must be removed from jobsite.	☐ Pass ☐ Fail ☑ N/A

Flights are blunt to prevent the risks of cuts.	☐ Pass ☐ Fail ☒ N/A
Auger keys are not bent, cracked/fractured, excessively worn, or otherwise damaged.	☐ Pass ☐ Fail ☒ N/A
Auger bolt holes and threads are not damaged.	☐ Pass ☐ Fail ☒ N/A
Inspect flights/augers for metal burns. NOTE: Burrs must be filed to flat surface.	☐ Pass ☐ Fail ☒ N/A
Augers / Reamers lying flat on the ground (avoid stacking).	☐ Pass ☐ Fail ☒ N/A
Augers / Reamers over 50lbs (22.7kg) moved mechanically. (Avoid manual lifting).	☐ Pass ☐ Fail ☒ N/A
Drill String	
Appropriate break out tool(s) available.	☐ Pass ☐ Fail ☒ N/A
Rod box and power vice operating smoothly and freely.	
Drill string are not bent and do not have any cracks/fractures.	☐ Pass ☐ Fail ☒ N/A
Drill string connections (e.g. pins, threads, couplers) are of the proper type, are not bent, have no cracks/fractures, and are not excessively worn.	☐ Pass ☐ Fail ☒ N/A
Swivel connectors (for trailing horizontal drill stem) lubricated and freely rotating.	☐ Pass ☐ Fail ☒ N/A
Mast	
Mast is free of bends, cracks, or broken sections.	☒ Pass ☐ Fail ☐ N/A
All mounting hardware (pins, bolts, etc) in place.	☒ Pass ☐ Fail ☐ N/A
No moving of drill rig or maintenance/repairs while mast is in vertical position.	☒ Pass ☐ Fail ☐ N/A
Hammering Device	
Hammer free of cracks, fatigue, or other signs of excessive wear.	☒ Pass ☐ Fail ☐ N/A
Hammer connections are secure.	☒ Pass ☐ Fail ☐ N/A
Leveling Devices	
Outriggers move in/out and up/down smoothly and freely while using controls on drill rig, with no hydraulics leaks.	☒ Pass ☐ Fail ☐ N/A
Outriggers are extended prior to and whenever the mast is raised off its cradle. Outriggers must maintain pressure to continuously support and stabilize the drill rig (even while unattended).	☒ Pass ☐ Fail ☐ N/A
Outriggers are properly supported on the ground surface to prevent setting into the soil (use of outrigger support pads).	☒ Pass ☐ Fail ☐ N/A
Controls	
Controls are intact, properly labeled, have freedom of movement, and have no loose wiring or connections.	☒ Pass ☐ Fail ☐ N/A
Controls are not blocked or locked into an operating position.	☒ Pass ☐ Fail ☐ N/A
Installed lights, signals, gauges, and alarms operate properly.	☒ Pass ☐ Fail ☐ N/A
Lifting Devices	
Slings, chokers, and lifting devices (straps, not chains) inspected before using and are in proper working order. NOTE: Damaged units are labeled and removed from jobsite.	☐ Pass ☐ Fail ☒ N/A
Shackles/Clevises are in proper working order with pins/screws in place that is to be used while lifting.	☐ Pass ☐ Fail ☒ N/A
Cables and lifting devices are not operated erratically or with a jerking action to overcome resistance.	☐ Pass ☐ Fail ☒ N/A
Hydraulic System	
Hydraulic lines are secure, in good condition with no signs of excessive wear, and not leaking. NOTE: Check while pressurized.	☒ Pass ☐ Fail ☐ N/A
Hydraulic lines are not in a bent or pinched position causing additional fluid restrictions/pressures.	☒ Pass ☐ Fail ☐ N/A
Hydraulic oil reservoir has appropriate amount of oil and not leaking.	☒ Pass ☐ Fail ☐ N/A
Documentation available to confirm that pressure relief valve was checked during shop maintenance activity and noted on maintenance log.	☒ Pass ☐ Fail ☐ N/A
Pump Lines (water, grout, etc)	
Suction/Discharge hoses, pipes, valves, and fittings are secured and not leaking.	☐ Pass ☐ Fail ☒ N/A
High pressure hoses have a safety chain, cable, or strap at each end to prevent whipping in the event of a failure.	☐ Pass ☐ Fail ☒ N/A

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: D. Mariano
Phone Number: 310-625-1283
AECOM SH&E Rep. Name: Devon Molitor
Phone Number: 858-531-9666
Meeting Leader: D. Mariano / E. House

Date: 1/11/21	Project Name/Location: RH OWDF - leach tank	Project Number:

Today's Scope of Work: - DPT investigation

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
Adit 3	Field Vehicles	Field Vehicles / Drill Rig	Drill Rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [x] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [✓] as reviewed or mark [■] as not applicable

✓	■	
[x]	[ ]	Biological/ Chemical / Electrical Hazards
[x]	[ ]	Ergonomics - Lifting, Body Position
[ ]	[x]	Lock Out/ Tag Out
		Short Service Employees - visual identifier and mentor/ oversight assignment
[x]	[ ]	Simultaneous/ Neighbouring Operations
[x]	[ ]	Slip/ Trip/ Fall Hazards
[x]	[ ]	Specialized PPE Needs
[ ]	[x]	Traffic Control
[x]	[ ]	Waste Management/ Decontamination
[x]	[ ]	Weather Hazards / Heat Stress / Cold Stress
[x]	[ ]	Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
[x]	[ ]	Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach): Drilling Permit
[ ]	[ ]	Other Topics (describe/attach):
[ ]	[ ]	Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Dominic Mariano		1/11/22 1015

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
Dominic Mandino AECOM		In & Fit 0945 DM	Out & Fit 1820 DM
Chad Nix GTH		In & Fit 0945 CN	Out & Fit 1610
Jon Shjegstad GTH		In & Fit 0945 JS	Out & Fit 1610
Gabe Gutierrez GTH		In & Fit 0945 GG	Out & Fit 1610
Travis Nutter AECOM		In & Fit 0945 TN	Out & Fit 1820
Colin Ferguson AECOM		In & Fit 0945 CMF	Out & Fit 1800 CMF
ETHAN HOUSE AECOM		In & Fit 0945 EAH	Out & Fit 1820
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

From: Mariano, Dominic
Sent: Wednesday, January 12, 2022 7:39 PM
To: Maman, Alex; Hart, Jeff
Cc: House, Ethan; Ferguson, Colin; Nutter, James; Pascua, Margie; Ramos, Alethea; Womack, Chris Subject: CTO 22F0106 Dailies
Attachments: RH_DPT_Adit3_Tailgate_01122022.pdf; RH_DPT_Adit3_Notes_011222.pdf; RH_DPT_Adit3_Boringlogs_011222.pdf; Sample_List_011222.xlsx

Alex, Jeff,

Here are today’s notes from DP investigation.

We completed soil borings around the leach tank and did two around the holding tank.

We will continue investigation around the holding tank using the step-out methodology.

Samples are currently in the warehouse on ice in separate coolers (ie not in the fridge). Apparently these samples need to be frozen within 48 hours of collection if not brought to the lab within this period.

Chris Womack mentioned that a freezer was being brought to the warehouse, so I think we can have these stored there in the morning, however we may also end up shipping them during the day tomorrow.

I do not think anyone has been assigned to ship these, but I could be wrong.

I’ve attached a list of all the samples taken so far. We took one duplicate and one trip blank.

We will need grab two additional duplicates and an equipment blank tomorrow.

Thanks,

Dominic Mariano
Geologist III
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AECOM

Client Name: NAVFAC	Boring/Well Name: ~~B112~~ LT-S10
Job/Site Name: RHTBFSF	Utility Cleared to: 1' HAND AUGER
Location: ADIT 3 TRENCH TANK	Total Depth: 24'
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
2	0820		X X X	32%		BASALT - HARD, SMALL ANGULAR FRAGMENTED PIECES, VARIOUS COLORING OF MED. GRAYS TO MAROON, DRY		d/m/w d/m/w		10	10	f/m/c f/m/c	f/c f/c	N/L/M/H N/L/M/H
4			X X					d/m/w				f/m/c	f/c	N/L/M/H
6	0830		102.1	28%		SAME AS ABOVE (SAA) - MAINLY FILL MATERIAL, LOW RECOVERY, WET @ 5'.		d/m/w				f/m/c –	f/c	N/L/M/H
8			X					d/m/w		10	10	f/m/c –	f/c 80	N/L/M/H
10			X											
12	0840		X 148.1	26%		CLAYEY SILT - LOW PLAS, 7.5YR3/3, SOFT, TRACE OF BASALT, MOIST.		d/m/w d/m/w	SOFT	40	50	f/m/c –	f/c 10	N/L/M/H N/L/M/H
14			X					d/m/w				f/m/c	f/c	N/L/M/H
16	0847	LT-S10-17-18	169.5 103.4	100%		CLAYEY SILT - LOW PLAS, 7.5YR2.5/1, FIRM, TRACE OF BASALT, WET.		d/m/w	FIRM	10	80	f/m/c –	f/c 10	N/L/M/H
18	1005	X	470.4					d/m/w				f/m/c	f/c	N/L/M/H
20			271.8 109.1											
22	0904		413.9 189.6	100%		SAA - LOW PLAS, FIRM, MOIST.		d/m/w d/m/w	FIRM	20	75 80	f/m/c f/m/c	f/c 5 –	N/L/M/H N/L/M/H
24	1010	LT-S10 X 23-24	119.1 65.1					d/m/w				f/m/c	f/c	N/L/M/H
						REFUSAL @ 24'		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

NCY PID EADING ER UE TO ACK OF ECOVERY

AECOM

Client Name: NAVFAC HI	**Boring/Well Name:** LT- N10
Job/Site Name: RHBFSF	**Utility Cleared to:** 1'
Location: Adj 3 Leach tank	**Total Depth:** 22'
Project Number: 60524414	**Date(s) Drilled:** 1/12/22
Driller: Geotek	**Screened Interval:**
Drilling Method: DPT	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By: D. Marrazzo	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D. (ppm)	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
0–1					ML	Gravelly sandy ~~clay~~ ~~(ML)~~ silt (ML)	dark grayish brown 10YR 4/2	d/m/w	loose	30	50 ~~40~~	f/m/c 10	~~f/c~~ 10	N/L/M/H
1–2			↑	↑		with clay	to grayish brn. 10YR 5/2	d/m/w				f/m/c	f/c	N/L/M/H
2–3			~~100~~	100				d/m/w				f/m/c	f/c	N/L/M/H
3–4			—		CL	Clay w/ minor silt, ~~dark~~	dk. gysh	d/m/w	med.	90	10	f/m/c 0	f/c 0	N/L/M/H
4–5			—			dark yysh brn (10YR 4/6) gravel at 4.5'	brn 10YR 3/2	d/m/w				f/m/c	f/c	N/L/M/H
5–6			↓	↓		saprolite, weathered basalt 10YR 7/2	reddish brn. + dk gy	d/m/w	n/a	30	0	f/m/c 0	f/c 70	N/L/M/H
6–7			106.2					d/m/w				f/m/c	f/c	N/L/M/H
7–8	1050	LT-N10 - 7-8 + duplicate	~~621.2~~ Dup 43.4			basalt boulder, crushed.	light gy 10YR 7/1	d/m/w	—	0	0	f/m/c 0	f/c 0	—
8–9			621.2	100%				d/m/w				f/m/c	f/c	N/L/M/H
9–10			516.3			Saprolite, weathered basalt	yysh red 5YR 5/6	d/m/w	loose			f/m/c	f/c	N/L/M/H
10–11			296.5			soft ~~clay~~ silt, greenish gray 6/10GY	+ reddish brown	d/m/w				f/m/c	f/c	N/L/M/H
11–12			22.6			saprolite, dark reddish gray 5YR 4/2, dark gray 5YR 4/1 ← becomes wet at 11.4' ss	(5YR 4/2 + GLEY1 6/10GY greenish gray	d/m/w				f/m/c	f/c	N/L/M/H
12–13			61.3	100				d/m/w				f/m/c	f/c	N/L/M/H
13–14			9.1			becomes dark gray 5YR 4/2, same as above, saprolite		d/m/w				f/m/c	f/c	N/L/M/H
14–15			3.6					d/m/w				f/m/c	f/c	N/L/M/H
15			329	↓				d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name:	**Boring/Well Name:** LT-MW10 continued
Job/Site Name:	**Utility Cleared to:**
Location:	**Total Depth:**
Project Number:	**Date(s) Drilled:**
Driller:	**Screened Interval:**
Drilling Method:	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By:	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
16			71.8	↑	ML	Saprolite, same as above. sandy silt w clay banded. staining at 16.5, 17.8, and 18.6 5GY 1 6/10GY	dark gray 5Y 12/4/2	d/m/w	med stiff	20	60	20	f/c	N/L/M/H
17			182.8	100				d/m/w				f/m/c	f/c	N/L/M/H
18			54.7					d/m/w				f/m/c	f/c	N/L/M/H
19			17.8					d/m/w				f/m/c	f/c	N/L/M/H
20			11.9			same as above. Saprolite, MPL color change to brown 10YR 4/3 from 19.4 – 19.7		d/m/w				f/m/c	f/c	N/L/M/H
21			≥1.2	40		banded staining, same as above		d/m/w				f/m/c	f/c	N/L/M/H
22	1058	LT-MW10 21-22	3.9	↓		no staining or odor observed in shoe end of boring		d/m/w				f/m/c	f/c	N/L/M/H
						note: Boring initially refused at 14' bgs, but another attempt was made which reached 22' bgs		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

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Client Name: NAVFAC	Boring/Well Name: LT - [redacted] E18
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 TRENCH TANK	Total Depth:
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
2	1145			80		0-2.7 - FILL - SILTY CLAY, 7.5YR 3/2, STIFF, TRACE OF GRAVEL, DRY, MOD. PLAS.		d/m/w	STIFF	60	30	f/m/c —	f/c 10	N/L/M/H
4						2.7-3.4 - SMALL FRAGMENTS OF BASALT		d/m/w				f/m/c	f/c	N/L/M/H
						3.4-5 - SILTY CLAY - MOD. PLAS, 7.5YR 3/3, FIRM, DAMP, 10% BASALT		d/m/w	FIRM	60	30	f/m/c	f/c 10	N/L/M/H
6			0.3			5 - 6.9 - SAA								
8	1155	X LT-E10 -7.8	0.6	50		6.9-7.6' - SAA - 50% BASALT		d/m/w		25	25	f/m/c —	f/c 50	N/L/M/H
	1325		0.7			7.6-8' - SILTY CLAY - SOFT, 5% BASALT FRAGMENTS, MOD PLAS, DAMP, 10R 4/6.		d/m/w		50	45	f/m/c	f/c 5	N/L/M/H
10						REFUSAL @ 8' BGS		d/m/w				f/m/c	f/c	N/L/M/H
12								d/m/w				f/m/c	f/c	N/L/M/H
14								d/m/w				f/m/c	f/c	N/L/M/H
16								d/m/w				f/m/c	f/c	N/L/M/H
18								d/m/w				f/m/c	f/c	N/L/M/H
20								d/m/w				f/m/c	f/c	N/L/M/H
22								d/m/w				f/m/c	f/c	N/L/M/H
24								d/m/w				f/m/c	f/c	N/L/M/H
26								d/m/w				f/m/c	f/c	N/L/M/H
28								d/m/w				f/m/c	f/c	N/L/M/H
30														

AECOM

Client Name: NAVFAC	**Boring/Well Name:** LT-N25
Job/Site Name: RHBFSF	**Utility Cleared to:** ~~2ft~~ 2'
Location: Adit 3 Leach tank.	**Total Depth:** 27.5
Project Number: 60574414	**Date(s) Drilled:** 1/12/21
Driller: Geotek	**Screened Interval:**
Drilling Method: DPT	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By: P. Mariano	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
0–1						Hand cleaned		d/m/w				f/m/c	f/c	N/L/M/H
1–2								d/m/w				f/m/c	f/c	N/L/M/H
2–3					ML	Sandy silt with gravel and ~~gravel~~ clay, crushed coral; fill material.	dk. gy 5Y 4 brn. 10YR 4/2	(d)/m/w	loose	10	60 ~~80~~	(f)(m)(c) 20	f/c 10	N/(L)/M/H
3–4				100				d/m/w				f/m/c	f/c	N/L/M/H
4–5								d/m/w				f/m/c	f/c	N/L/M/H
5–6			3.2			same as above, crushed rocks as gravel		(d)/m/w	loose	0	60	f/m/c 20	f/(c) 20	(N)/L/M/H
6–7			2.2	3/5				d/m/w				f/m/c	f/c	N/L/M/H
7–8			3.9					d/m/w				f/m/c	f/c	N/L/M/H
8–9			3.2					d/m/w				f/m/c	f/c	N/L/M/H
9–10			2.9					d/m/w				f/m/c	f/c	N/L/M/H
10–11			2.2					d/m/w				f/m/c	f/c	N/L/M/H
11–12			1.8			Saprolite; reddish brown and dark gray 5YR 4/1	5YR 4/3	d/(m)/w	med. dense	0	~~70~~ 30	f/(m)/c ~~30~~ 70	f/c 0	(N)/L/M/H
12–13			2.0	5/5				d/m/w				f/m/c	f/c	N/L/M/H
13–14			7.2			color change to v. dk. gy 10YR 3/1		d/m/w				f/m/c	f/c	N/L/M/H
14–15			423.9					d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name:	**Boring/Well Name:** LT-NZS
Job/Site Name:	**Utility Cleared to:**
Location:	**Total Depth:**
Project Number:	**Date(s) Drilled:**
Driller:	**Screened Interval:**
Drilling Method:	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By:	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
15			423.9 ~~417.5~~	↑		Same as above, saprolite	dk. gy 10YR 3/1	d/m/w	md loose	0	30	f/m/c 70	f/c 0	N/L/M/H
			417.5 ~~413.6~~			↑ crushed gravel		d/m/w				f/m/c	f/c	N/L/M/H
16	1336	LT-NZS -16-17	413.6 ~~393.7~~	5/5				d/m/w				f/m/c	f/c	N/L/M/H
17			393.7 ~~113.1~~					d/m/w				f/m/c	f/c	N/L/M/H
18			113.1 ~~3.4~~					d/m/w				f/m/c	f/c	N/L/M/H
19			3.4 ~~18.3~~			← banded staining		d/m/w				f/m/c	f/c	N/L/M/H
20			18.3	↓				d/m/w				f/m/c	f/c	N/L/M/H
21			125.4					d/m/w				f/m/c	f/c	N/L/M/H
22			4.5	5/5				d/m/w				f/m/c	f/c	N/L/M/H
23			1.3					d/m/w				f/m/c	f/c	N/L/M/H
24			9.3					d/m/w				f/m/c	f/c	N/L/M/H
25			30.1	↓	CL	← banded staining clayey (silty clay, v. dk. gy)	~~5YR 4/3~~ 10YR 3/1	d/m/w	soft	70	30	f/m/c 0	f/c 0	N/L/M/H
26			74.9	2.5/2.5		Saprolite, dark grayish brown 10YR 4/2	10YR 4/2	d/m/w	/	0	30	f/m/c 70	f/c 0	N/L/M/H
27.5	1336	LT-NZS -27-27.5	2.6	↓				d/m/w				f/m/c	f/c	N/L/M/H
						end boring at 27.5' bgs		d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: LT-S17.5
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 TRENCH, TANK	Total Depth: 6'
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

	DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
1005	2			X X			FILL 0-3' - MIX OF CLAYEY SILT + CRUSHED BASALT, DRY		(d)/m/w		25	25	f/m/c	f/c 50	(N)/L/M/H
	4			X X	80		3-5' - SILTY CLAY - MOD. PLAS., STIFF, 7.5YR3/3, DRY. 5%		(d)/m/w		25	70	f/m/c	f/c 5	N/L/(M)/H
				X			CRUSHED BASALT		(d)/m/w				f/m/c	f/c	N/L/M/H
015	6	1343	LT-S17.5-5-6	0.0	100		REFUSAL AT 6' 5-6' - SAME AS ABOVE		(d)/m/w		25	70	f/m/c	f/c 5	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H
									d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: LT-S25
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 TRENCH TANK	Total Depth:
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
0			X			0-3.7' - FILL/ BASALT - VARIOUS COLORING, VERY STIFF, DRY.		d/m/w	~~10~~			f/m/c	f/c	N/L/M/H
2	0935		X	100				d/m/w		10	10	~	80	N/L/M/H
4			X			3.7-5' - SILTY CLAY - MOD. PLAS, 7.5YR 3/3, FIRM, DRY.		d/m/w				f/m/c ~	f/c	N/L/M/H
6			X			5-8.5 - SAME AS ABOVE, 30% BASALT, DRY.				70	30	f/m/c	f/c	N/L/M/H
8	0940 1422	LT-S25-7-8 X	0.3 0.0	70		8.5-9.2 - CRUSHED BASALT LENSE		d/m/w		~~60~~	~~30~~	—	30	M
10			0.2 0.0			9.2-10 CLAYEY SILT W/ SAPROLITE - NO PLAS, 7.5YR 3/4, FRIABLE, DRY		d/m/w				f/m/c -	f/c 100	N/L/M/H
12	0950		0.2 0.0	92		10-11.7 - GRAVEL W/ CLAYEY SILT, 7.5YR 4/3, SMALL ANGULAR FRAGMENTS, DRY.		d/m/w	~~10~~	20	60	f/m/c —	f/c 20	N/L/M/H
14	1430 → 1445	LT-S25-13-14 X	0.0 0.0			11.7-15' - SAPROLITE W/ TRACE OF SILT, 7.5YR 4/3, FRIABLE, DRY.		d/m/w		10	10	f/m/c	f/c 80	N/L/M/H
16						TERMINATE @ 15'		d/m/w				f/m/c	f/c 90	N/L/M/H
18								d/m/w				f/m/c	f/c	N/L/M/H
20								d/m/w				f/m/c	f/c	N/L/M/H
22								d/m/w				f/m/c	f/c	N/L/M/H
24								d/m/w				f/m/c	f/c	N/L/M/H
26								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: LT-W17.5
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 TRENCH TANK	Total Depth: 15'
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
2	1030		X	100		0-3' - FILL/BASALT - NO PLAS, 2.5Y 3/2, LOOSE, DRY, ORGANIC MATTER		d/m/w		25	25	f/m/c	f/c	N/L/M/H
			X										50	
4			X			3-5' - CLAY - HIGH PLAS, 2.5Y 3/3, TRACE OF BASALT, DRY; FIRM.		d/m/w		90		f/m/c	f/c	N/L/M/H
			X									-	10	
6	1035		0.0					d/m/w				f/m/c	f/c	N/L/M/H
			0.0			ALLUVIAL - SILTY CLAY, SMALL GRAVEL, 7.5YR 5/4, FRIABLE, DRY, VERY STIFF, NO PLAS.			V. S T / F F	35	35			
8			0.0	92				d/m/w				f/m/c	f/c	N/L/M/H
			0.0										30	
10			0.0			8.2 - 8.5 BASALT - 7.5YR 7/1								
12	1045	LT-W17.5 12-13	1.6			SAME AS ABOVE FROM 10-12.6.		d/m/w		45	45	f/m/c	f/c	N/L/M/H
			38.6									-	10	
	1505 →	X	246.5	92		12.6 - 15 - SAA, 5% CRUSHED BASALT, 7.5YR 7/1, DRY, LOW PLAS, FRIABLE		d/m/w				f/m/c	f/c	N/L/M/H
14		LT-W17.5 14-15	31.2							35	60	-	5	
	1604 →	X	5.1					d/m/w				f/m/c	f/c	N/L/M/H
16						TERMINATE BORING AT 15' BGS								
								d/m/w				f/m/c	f/c	N/L/M/H
18														
								d/m/w				f/m/c	f/c	N/L/M/H
20														
								d/m/w				f/m/c	f/c	N/L/M/H
22														
								d/m/w				f/m/c	f/c	N/L/M/H
24														
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC HI	Boring/Well Name: LT 2 MW40
Job/Site Name: RHRFSF	Utility Cleared to: 2'
Location: Leach Tank Adit 3	Total Depth: 8'
Project Number: 60574419	Date(s) Drilled: 1/12/22
Driller: GeoTek	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By: D. Munguia	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
1								d/m/w				f/m/c	f/c	N/L/M/H
2								d/m/w				f/m/c	f/c	N/L/M/H
2				↑	ML	Silt w/ ~~fine~~ sand, ~~and~~ gravel, and clay	Brown 10YR4/4	d/m/w	stiff			f/m/c	f/c	N/L/M/H
3				100		@ 3' broken bubble		d/m/w		10	70	10	10	
4					ML	no sand or gravel		d/m/w	stiff	0	100	f/m/c	f/c	N/L/M/H
5			1.7					d/m/w				f/m/c	f/c	N/L/M/H
6			1.5	2.5/3				d/m/w				f/m/c	f/c	N/L/M/H
7	1542	LT-MW40-7-8	0.5			← black, banded staining, no odor noted		d/m/w				f/m/c	f/c	N/L/M/H
8								d/m/w				f/m/c	f/c	N/L/M/H
9				2/3		Refusal at 8' bgs		d/m/w				f/m/c	f/c	N/L/M/H
10						next 3 attempts also refused		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC HI	**Boring/Well Name:** MW55
Job/Site Name: RIMPAC-SF	**Utility Cleared to:** 2'
Location: ~~RIM~~ Adit 3 Holding Tank	**Total Depth:** 4'
Project Number: 60	**Date(s) Drilled:** 1-12-22
Driller: Geo Tek	**Screened Interval:**
Drilling Method: DPT	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By: D. Mariano	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
								d/m/w				f/m/c	f/c	N/L/M/H
1				↑	ML	Silt	brown 10YR 4/4	~~d/m/w~~ d	stiff	10	90	f/m/c 0	f/c 0	N/L/M/H
2				100		broken boulder at 2'		d/m/w				f/m/c	f/c	N/L/M/H
3								d/m/w				f/m/c	f/c	N/L/M/H
4				↓		Refusal at 4' bgs. end of boring. 2nd attempt also refused at 4'		d/m/w				f/m/c	f/c	N/L/M/H
5								d/m/w				f/m/c	f/c	N/L/M/H
6								d/m/w				f/m/c	f/c	N/L/M/H
7								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: HT-N10
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 HOLDING TANK	Total Depth: 24'
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
2	1355		X	80		0-2.7 - Fill - organic matter, roots, coral, basalt,		d/m/w				f/m/c	f/c	N/L/M/H
4						2.7-5' - Silty Clay - 7.5YR 3/3, mod. plas, firm, 15% Basalt, damp.		d/m/w		50	35	—	15	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
6			X			5-7 - Same as above		d/m/w				f/m/c	f/c	N/L/M/H
8	1405		X 0.0	60		7-10 - Same as above, increase in basalt, damp, no plas.		d/m/w		25	25	—	50	N/L/M/H
10			0.0 0.0			BASALT IS SMALL ANGULAR PIECES						f/m/c	f/c	
12	1415		X X	40		SAME AS ABOVE - DAMP		d/m/w		25	25		50	N/L/M/H
14			X 0.3					d/m/w				f/m/c	f/c	N/L/M/H
			0.0					d/m/w				f/m/c	f/c	N/L/M/H
16			X			SAPROLITE - CRUSHED BASALT,								
18	1435		X 3.1	60		SMALL FRAGMENTS, STIFF, 7.5YR 3/1, MOIST, FRIABLE, NO PLAS.		d/m/w		5	5	f/m/c	f/c 90	N/L/M/H
		HT-N10 -19-20	65.5					d/m/w				f/m/c	f/c	N/L/M/H
20	1608 →	X	171.5											
22	1445		0 3.5	100		SAME AS ABOVE		d/m/w	F I R M	5	5	f/m/c	f/c	N/L/M/H
24	1108 →	HT-N10 -24-25 X	39.7 94.7 3.5					d/m/w				f/m/c	f/c 90	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
26						REFUSAL @ 25'		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAC	Boring/Well Name: HT-W10
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 HOLDING TANK	Total Depth: 23'
Project Number: 60574414	Date(s) Drilled: 1/12/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
2	1505		X	80		0-2.9 - FILL - ORGANIC MATTER, BASALT FRAGMENTS & SILTY CLAY.		d/m/w				f/m/c	f/c	N/L/M/H
4			X			2.9-5' - CLAYEY SILT - 7.5YR3/2, SOFT, BASALT FRAGMENTS, LOOSE, DAMP, LOW PLAS.		d/m/w		35	45	f/m/c –	f/c 30	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
6			X											
8	1510	0.2	0.0	60		SAPROLITE - 7.5YR3/2, FIRM, LOOSE, BASALT FRAGMENTS, NO PLAS, DAMP.		d/m/w		5	5	f/m/c –	f/c 90	N/L/M/H
		0.6	0.0					d/m/w				f/m/c	f/c	N/L/M/H
10		0.4	0.0											
			X			10-12.5 - SAA		d/m/w				f/m/c	f/c	N/L/M/H
12	1515		0.4	90		12.5-15' - CLAYEY SILT - 7.5YR3/1, FIRM, LOW PLAS, DAMP.		d/m/w		10	90	f/m/c –	f/c –	N/L/M/H
14			0.5					d/m/w				f/m/c	f/c	N/L/M/H
			33.2											
16			0.5			SAME AS 5-10' - MOIST, STIFF, NO PLAS.		d/m/w	ST			f/m/c	f/c	N/L/M/H
	1535	HT-W10 -18-19	1.1							–	–		100	
18		X	4.9	100				d/m/w	FF			f/m/c	f/c	N/L/M/H
			194.3											
20			66.5											
			1.1			SAME AS ABOVE - TRACE OF SAPROLITE		d/m/w	ST	15	80	f/m/c –	f/c 5	N/L/M/H
22	1550	HT-W10 -22-23	0.7	100						–	–			
		X	24.5					d/m/w	IFF			f/m/c	f/c	N/L/M/H
24	1723		X											
								d/m/w				f/m/c	f/c	N/L/M/H
26						REFUSAL @ 23'								
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

RHBFSF - CTO 106 DPT Inv 1/12/22

0600 CF + EH+CF at warehouse
0610 DM at warehouse
0620 depart warehouse
0640 arrive on site
0705 JH on site.
0745 Complete site walk to review scope of work for the day. Navy staff open up fence. Complete safety discussion. Drill rig not inspected.
Late entry: GeoTek on site at 0720, depart soon.
0800 begin drilling location LT-S10
0920 begin drilling location LT-N10, PCS on site for vegetation clearance
0900 CF depart to assist with ROV work in the tunnel, PCS drill LT-~~S+20~~ S25
0930 PCS return to site with veg cutting tools
0955 CF return from ROV, drill S17.5
1020 PCS complete veg clear, depart site to get a green waste bin, ~~GeoTek begin on drilling~~ LT S17.5. boring refused at 6.5 twice.
late entry: at 1005, collect
1050 collect sample [LT-N10-7-8]
1058 collect sample [LT-N10-1058+duplicate]
1200 drillers depart for lunch.
1730 PCS return with roll-off bin

1-12-22 continued

1315 ~~1345~~ Angela Paolucci NAVFAC EXWC visit site for an update
1336 [LT-N25-16-17] sample taken
1336 [LT-N25-27-27.5] sample taken
~~1350~~ ~~1415~~ DM late entry. Drillers returned to site at 1300; resume drilling at 1345. Drill teams set up at LT-N40 and HT NW10
1405 LT N40 refusal at ~~8~~ 8' bgs. Step out north along fence line
1430 LT N40 refused again at 8 and again at 4' for each step-out. logged the 1st attempt only. Move on to LT-S5.
1448 HT NT refused at 24'. Borehole at LT-S5 & refused twice at 4'
1517 begin drilling HT W10
1600 drillers depart site
1650 deposit IDW in drum, all AECOM staff depart site
1720 ~~all of~~ on AECOM staff return to warehouse, end of field day. Sample times recorded on a separate log sheet.
A total of [18 samples] logged today.

1-12-22

Rite in the Rain

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Dominic Mariano
Phone Number: 310-625-1263
AECOM SH&E Rep. Name: Devon Molitor
Phone Number: 858-531-9666
Meeting Leader: _____

Date: 1/12/22 | **Project Name/Location:** Adit 3 leach tank | **Project Number:** 60524414

Today's Scope of Work:
DPT Investigation
Adit 3 leach tank

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
Adit 3	Field Vehicle	Field Vehicle/ Drill Rig	Drill Rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.)
- [x] Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [x] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check [x] as reviewed or mark [■] as not applicable

- [x] [ ] Biological/ Chemical / Electrical Hazards
- [x] [ ] Ergonomics - Lifting, Body Position
- [ ] [x] Lock Out/ Tag Out
  Short Service Employees - visual identifier and mentor/ oversight assignment
- [x] [ ] Simultaneous/ Neighbouring Operations
- [x] [ ] Slip/ Trip/ Fall Hazards
- [x] [ ] Specialized PPE Needs
- [ ] [x] Traffic Control
- [x] [ ] Waste Management/ Decontamination
- [x] [ ] Weather Hazards / Heat Stress / Cold Stress
- [x] [ ] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [x] [ ] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [■] [ ] Other Topics (describe/attach):
- [ ] [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
Dominic Mariano		1-12-22 / 1750

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
ETHAN HOUSE AECOM		EAH In & Fit 0700	Out & Fit
James Nutter AECOM		JN In & Fit 0700	Out & Fit
Chris Capobianco		CC In & Fit 730	Out & Fit
Jon Shjegstad GTH		JS In & Fit 0730	Out & Fit
Colin Ferguson AECOM		In & Fit CMF 0730	Out & Fit CMF
JEFF S, HART		In & Fit 0730	Out & Fit 0750
Adobe Gutierrez GTH		In & Fit 730	Out & Fit
Dominic Montano		In & Fit DM 0730	Out & Fit
JOSEPH GARCIA JR. TILL IOMPO P GEOFF.T		In & Fit 0745	Out & Fit 130
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature

LT-W25-14-15	13:35	1/11/2022
Trip Blank 1	14:45	1/11/2022
LT-W55-17-18	14:55	1/11/2022
LT-W10-11-12	15:20	1/11/2022
LT-W10-19-20	16:02	1/11/2022
LT-S10-17-18	10:05	1/12/2022
LT-S10-23-24	10:10	1/12/2022
LT-N10-7-8	10:50	1/12/2022
LT-N10-7-8 DUP	10:50	1/12/2022
LT-N10-21-22	10:58	1/12/2022
LT-N10-24-25	11:08	1/12/2022
LT-E10-7-8	13:25	1/12/2022
LT-N25-16-17	13:36	1/12/2022
LT-N25-27-27.5	13:36	1/12/2022
LT-S17.5-5-6	13:43	1/12/2022
LT-S25-7-8	14:22	1/12/2022
LT-S25-14-15	14:30	1/12/2022
LT-W17.5-12-13	15:05	1/12/2022
LT-N40-7-8	15:42	1/12/2022
LT-W17.5-14-15	16:04	1/12/2022
HT-N10-19-20	16:08	1/12/2022
HT-W10-22-23	17:23	1/12/2022
HT-W10-18-19	17:29	1/12/2022

From: Mariano, Dominic
Sent: Thursday, January 13, 2022 6:31 PM
To: Maman, Alex; Hart, Jeff
Cc: House, Ethan; Ferguson, Colin; Nutter, James; Pascua, Margie; Ramos, Alethea
Subject: RE: CTO 22F0106 Dailies
Attachments: Sample_List_011322.xlsx

Here is the complete sample list from this week

Dominic Mariano
Geologist III
D +1 808-529-7271
dominic.mariano@aecom.com

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Suite 1600
Honolulu, HI, 96813, USA
T +1 808-521-3051
aecom.com

From: Mariano, Dominic
Sent: Thursday, January 13, 2022 18:25
To: Maman, Alex <alexandre.maman@aecom.com>; Hart, Jeff <Jeff.Hart@aecom.com>
Cc: House, Ethan <Ethan.House@aecom.com>; Ferguson, Colin <Colin.Ferguson@aecom.com>; Nutter, James <james.nutter@aecom.com>; Pascua, Margie <Margie.Pascua@aecom.com>; Ramos, Alethea <alethea.ramos@aecom.com>
Subject: CTO 22F0106 Dailies

Alex, Jeff,

Here are today’s dailies.

We completed the DPT investigation by completing step-out borings in accessible locations. We collected a composite sample from the ‘sludge’ at the bottom of the leach tank.

Jocelyn Tamashiro came by in the early afternoon to observe and get an update on our progress. We had no visitors from DOH or the state today.

We also took an equipment blank off one of the drill rig shoes.

All soil samples are in the freezer
The equipment blank is in the Red Hill Fridge

Thanks to Ethan, James, and Colin for stepping in to execute as best we could with such a short preparation window.
Extra special thank you to chemistry and shipping teams for helping get our bottle sets together and samples shipped out!

I took measurements and photos of our boring locations at the end of the day. Tomorrow I will put together a plot of the locations as drilled showing delineation.

Thanks,

Dominic Mariano
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AECOM

Client Name: NAVFAC	Boring/Well Name: HT- E10
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 Leach tank	Total Depth: 24'
Project Number: 60574414	Date(s) Drilled: 1/13/22
Driller: Geo Tek	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By: D. Mariano	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
								d/m/w				f/m/c	f/c	N/L/M/H
1			1	↑	ML	Gravelly silt (ML) w/ sand and clay, fill material.	dk. bn 7.5Y 4/2 + bn. 10YR 4/4 + gray 7.5YR 5/1	d/m/w	dense	10	60	10	20	N/L/M/H
2								d/m/w				f/m/c	f/c	N/L/M/H
3				100%				d/m/w				f/m/c	f/c	N/L/M/H
4								d/m/w				f/m/c	f/c	N/L/M/H
5				*										
6			0.8			crushed boulder		d/m/w				f/m/c	f/c	N/L/M/H
7			0.1	4/5	CL	clay, stiff.	10YR 4/3 brown	d/m/w	stiff	100	0	0	0	N/L/M/H
			0.7					d/m/w				f/m/c	f/c	N/L/M/H
8			1.1			crushed boulders, light gray 10YR 7/1 yuch bn 10YR 5/8		d/m/w				f/m/c	f/c	N/L/M/H
9			1.3					d/m/w				f/m/c	f/c	N/L/M/H
10			0.8	*	ML	Saprolite, weathered to silt with clay, very dark brown	10YR 2/2	d/m/w	med. stiff	10	90	0	0	N/L/M/H
11			2.0					d/m/w				f/m/c	f/c	N/L/M/H
12			1.0	4/5	SC	~~ox~~ saprolite, weathered to ~~sa~~ clayey sand. fine angular sand pale brown layer 10YR 7/4	10YR 2/2 v. dk. ~~gray~~ brn	d/m/w	~~stiff~~ dense	30	0	70	0	N/L/M/H
13			0.7					d/m/w				f/m/c	f/c	N/L/M/H
14			14.3		ML	saprolite, weathered to silt + clay v. dk. gy.	v. dk gy 10YR 3/1	d/m/w	~~dense~~ med stiff	10	90	0	0	N/L/M/H

AECOM

Client Name:	Boring/Well Name: HT-E10
Job/Site Name:	Utility Cleared to:
Location:	Total Depth:
Project Number:	Date(s) Drilled:
Driller:	Screened Interval:
Drilling Method:	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By:	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
16			427.8		SC	saprolite weathered to clayey sand fine, angular sand	v. dk gy 10yr 3/1	d/m/w	sh large	30	0	f/m/c 70	f/c 0	N/L/M/H
17			4.3	5/5				d/m/w				f/m/c	f/c	N/L/M/H
18			129.7					d/m/w				f/m/c	f/c	N/L/M/H
19			0.9			color change to very dark grayish brown (10yr 3/2)		d/m/w				f/m/c	f/c	N/L/M/H
20			3.4	*				d/m/w				f/m/c	f/c	N/L/M/H
21	1200	HT-E10 -21-22	44.1			same as above		d/m/w				f/m/c	f/c	N/L/M/H
22			297.4	4/4		banded staining, Gley1 6/10GY		d/m/w				f/m/c	f/c	N/L/M/H
23			38.2					d/m/w				f/m/c	f/c	N/L/M/H
24	1122	HT-E10 -23-24	70.1					d/m/w				f/m/c	f/c	N/L/M/H
						refusal at 24'		d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

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Client Name: NAVFAC HI	Boring/Well Name: HT - E17.5
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 leach tank	Total Depth: 15'
Project Number: 60574414	Date(s) Drilled: 1-13-21
Driller: GeoTek Hmuni	Screened Interval:
Drilling Method: Direct Push	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By: D. Marian	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
								d/m/w				f/m/c	f/c	N/L/M/H
1				↑	ML	Gravelly sandy silt, coral gravel	dark gray bn. 10yr 4/2	d/m/w	loose			f/m/c	f/c	N/L/M/H
2				4/4			→ mix 10yr 5/1	d/m/w	and dense	0	60	10	30	
3						→ color change to dark yellowish brown 10yr 3/4, less gravel		d/m/w		10	70 80	f/m/c 10	f/c 10	N/L/M/H
4						~~less gravel~~ + sa	10yr 4/3 brown	d/m/w				f/m/c	f/c	N/L/M/H
5				*										
			0.5					d/m/w				f/m/c	f/c	N/L/M/H
6						crushed boulder								
			0.2					d/m/w				f/m/c	f/c	N/L/M/H
7														
	1300	HT-E17.5 7-8	0.5	4/5		crushed boulder		d/m/w				f/m/c	f/c	N/L/M/H
8					ML	silt ~ clay	dark yellowish brown 10yr 3/6	d/m/w	v. dense	20	80	f/m/c 0	f/c 0	N/L/M/H
			0.2											
9														
			0.3			crushed boulder		d/m/w				f/m/c	f/c	N/L/M/H
10				*										
			0.1			wit' gravel, rounded, moist		d/m/w		20	70	f/m/c 0	f/c 10	N/L/M/H
11														
			0.2	5/5				d/m/w				f/m/c	f/c	N/L/M/H
12														
			0.2					d/m/w				f/m/c	f/c	N/L/M/H
13														
			0.1			~~clayey sand~~ weathered saprolite	v. dark gysh bn.	d/m/w	dense			f/m/c	f/c	N/L/M/H
14					SM	Silty sand				30		70	0	
	1315	HT-E17.5 -14-15	0.2	↓		end of boring at 15' bgs	10yr 3/2	d/m/w				f/m/c	f/c	N/L/M/H

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Client Name: NAVFAC HI	**Boring/Well Name:** HT-EZS
Job/Site Name: RHBIIF	**Utility Cleared to:** 1'
Location: Adit 3 leach bank	**Total Depth:** 15'
Project Number: 60574414	**Date(s) Drilled:** 1/13/22
Driller: Geotek HI	**Screened Interval:**
Drilling Method: DPT	**Depth to water (first encountered):**
Boring Diameter:	**Depth to water (static):**
Logged By: D. Mariano	**Location:**
PG:	**Misc. Notes:**

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES				ESTIMATED PLASTICITY
										Clay	Silt	Sand	Gravel	
								d/m/w				f/m/c	f/c	N/L/M/H
1				—	—	—	—	—	—	—	—	—	—	—
2					ML	Gravelly silt w/ sand and clay, Fill material	dk. brn 7.5YR 3/2	d/m/w	loose	10	60	f/m/c 10	f/c 20	N/L/M/H
3				4/4	ML	Silt w mica sand and gravel dark grayish brown 10YR 4/2	brn 10YR 4/4 dark gr 7.5YR 4/1	d/m/w	dense	10	70	f/m/c 10	f/c 10	N/L/M/H
4						cracked core		d/m/w				f/m/c	f/c	N/L/M/H
5						cracked basalt boulder. becomes extremely dense at 5', no plasticity, dry		d/m/w	extremely dense			f/m/c	f/c	N/L/M/H
6			0.4			same as above		d/m/w				f/m/c	f/c	N/L/M/H
7	1235	HT-EZS -7-8	1.6	5/5				d/m/w				f/m/c	f/c	N/L/M/H
8			1.5					d/m/w				f/m/c	f/c	N/L/M/H
9			0.9					d/m/w				f/m/c	f/c	N/L/M/H
10		no soil	0.8			cracked basalt boulders, gray 10YR 6/1 light		d/m/w				f/m/c	f/c	N/L/M/H
11			0.8					d/m/w				f/m/c	f/c	N/L/M/H
12			1.1					d/m/w				f/m/c	f/c	N/L/M/H
13			0.1	15	CL	Clay (CL) w silt	yellowish brown 10YR 5/6	d/m/w	med stiff	80	20	f/m/c 0	f/c 0	N/L/M/H
14			0.3		SC			d/m/w				f/m/c	f/c	N/L/M/H
	1245	HT-EZS -14-15	0.0	↓		weathered saprolite	v. dark gray 5Y 3/1	d/m/w	dense	30	0	f/m/c 70	f/c 0	N/L/M/H

and at 15'

f

AECOM

Client Name: NAVFAC HI	Boring/Well Name: HT-N25
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: Adit 3 leach tank	Total Depth: 15'
Project Number: 60574414	Date(s) Drilled: 1-13-21
Driller: GeoTek Hawaii	Screened Interval:
Drilling Method: Direct Push	Depth to water (first encountered):
Boring Diameter:	Depth to water (static):
Logged By: D. Marino	Location:
PG:	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
1								d/m/w				f/m/c	f/c	N/L/M/H
2				4/4	ML	Gravelly silt	10yr 4/1 dark gray	d/m/w	loose	0	60	10 f/m/c	30 f/c	N/L/M/H
3						← crushed basalt boulder		d/m/w				f/m/c	f/c	N/L/M/H
4								d/m/w				f/m/c	f/c	N/L/M/H
5			0.0		ML	Clayey silt	dark yust brn. 10yr 5/4	d/m/w	Stiff	30	70	f/m/c 0	f/c 0	N/L/M/H
6			0.0					d/m/w				f/m/c	f/c	N/L/M/H
7			0.0	5/5				d/m/w				f/m/c	f/c	N/L/M/H
8			0.2					d/m/w				f/m/c	f/c	N/L/M/H
9			0.2					d/m/w				f/m/c	f/c	N/L/M/H
10	1415 dup 1425	HT-N25 10-11 + Dup	5.2		MC	Gravelly silt, dry, friable	dk. yust brn 10yr 4/4	d/m/w	stiff	30	70	f/m/c 0	f/c 0	N/L/M/H
11			0.5					d/m/w				f/m/c	f/c	N/L/M/H
12			0.0	5/5				d/m/w				f/m/c	f/c	N/L/M/H
13			0.4		SM	Silty Sand	v. dk. gy	d/m/w	loose med. dense	0	30	f/m/c 70	f/c 0	N/L/M/H
14	1401 dup 1420	HT-N25 14-15 + Dup	0.0					d/m/w				f/m/c	f/c	N/L/M/H
15						end of boring at 15' bgs								

AECOM

Client Name: NAVFAC	Boring/Well Name: HT-S10
Job/Site Name: RHBFSF	Utility Cleared to: 1'
Location: ADIT 3 HOLDING TANK	Total Depth: 18'
Project Number: 60574414	Date(s) Drilled: 1/13/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
2	0915		X	100		SILTY CLAY - MOD. PLAS, 7.5YR3/2, STIFF, DAMP, TRACE OF BASALT & CORAL		d/m/w		60	30	f/m/c	f/c 10	N/L/M/H
4			X					d/m/w				f/m/c	f/c	N/L/M/H
			X					d/m/w				f/m/c	f/c	N/L/M/H
6			0.0			5-6' - SAA								
8	0920		0.0	100		6-10 - SAPROLITE - 7.5YR3/2, COARSE GRAINED, STIFF, FRIABLE, DAMP, NO PLAS,		d/m/w		5		f/m/c	f/c 95	N/L/M/H
10			0.0					d/m/w				f/m/c	f/c 90	N/L/M/H
			88.3											
12	0930		1.2	90		BASALT - 5YR3/1, SMALL ANGULAR FRAGMENTS, SOME PULVERIZED, STIFF, LOOSE, DRY		d/m/w		10		f/m/c	f/c 90	N/L/M/H
			2.3					d/m/w				f/m/c	f/c	N/L/M/H
14			0.3			13.3 - 15' - CLAYEY SILT - LOW PLAS, SOFT, 7.5YR3/2, DAMP.				30	65		5	
		HT-S10 -15-16	0.4					d/m/w				f/m/c	f/c	N/L/M/H
			0.3											
16	1140 →	X	518.3			CLAYEY SILT - LOW PLAS, SOFT,				30	65		5	
	0940		308.7	100		7.5YR3/2, DAMP.		d/m/w				f/m/c	f/c	N/L/M/H
18	1135 →	X HT-S10 -17-18	33.8			17-18' - SAPROLITE - 7.5YR3/2, MED TO COARSE GRAINED, STIFF, FRIABLE, WET.		d/m/w			10	f/m/c	f/c 90	N/L/M/H
20														
						REFUSAL @ 18'		d/m/w				f/m/c	f/c	N/L/M/H
22								d/m/w				f/m/c	f/c	N/L/M/H
24								d/m/w				f/m/c	f/c	N/L/M/H
26								d/m/w				f/m/c	f/c	N/L/M/H
								d/m/w				f/m/c	f/c	N/L/M/H

AECOM

Client Name: NAVFAV	Boring/Well Name: HT-S17.5
Job/Site Name: RHBFSF	Utility Cleared to:
Location: ADIT 3 HOLDING TANK	Total Depth: 9'
Project Number: 60574414	Date(s) Drilled: 1/13/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
0			X			FILL - MIX OF BASALT, SOIL, CORAL + ORGANIC MATTER, DRY & SOFT		d/m/w		30	30	f/m/c –	f/c 40	N/L/M/H
2	1110		X	95				d/m/w				f/m/c	f/c	N/L/M/H
4			X			3.8-5' - SILTY CLAY - MOD. PLAS, 7.5YR3/2, STIFF, DAMP, MOD PLAS				50	45		5	
			X			TRACE OF BASALT, DRY.		d/m/w				f/m/c	f/c	N/L/M/H
6			0.3			SAME AS ABOVE - VERY STIFF, TRACE OF BASALT, DRY.				50	45		5	
	1115	HT-S17.5 -8-9	0.3	100				d/m/w				f/m/c	f/c	N/L/M/H
8			1.3			8.5-9' BASALT - 5YR7/1, SMALL ANGULAR FRAGMENTS, STIFF, LOOSE, DRY		d/m/w				f/m/c	f/c	N/L/M/H
	1220 →	X	0.3											
10			X											
						REFUSAL AT 9'		d/m/w				f/m/c	f/c	N/L/M/H
12								d/m/w				f/m/c	f/c	N/L/M/H
14								d/m/w				f/m/c	f/c	N/L/M/H
16								d/m/w				f/m/c	f/c	N/L/M/H
18								d/m/w				f/m/c	f/c	N/L/M/H
20								d/m/w				f/m/c	f/c	N/L/M/H
22								d/m/w				f/m/c	f/c	N/L/M/H
24								d/m/w				f/m/c	f/c	N/L/M/H
26								d/m/w				f/m/c	f/c	N/L/M/H
28								d/m/w				f/m/c	f/c	N/L/M/H
30														

AECOM

Client Name: NAVFAC	Boring/Well Name: HT-S25
Job/Site Name: RHRFSF	Utility Cleared to: 1'
Location: ADIT 3 HOLDING TANK	Total Depth: 15'
Project Number: 605 74414	Date(s) Drilled: 11/13/22
Driller: GEOTEK	Screened Interval:
Drilling Method: DPT	Depth to water (first encountered):
Boring Diameter: 2"	Depth to water (static):
Logged By: ETHAN HOUSE	Location:
PG: ETHAN HOUSE	Misc. Notes:

DEPTH/ SAMPLE INTERVAL	SAMPLE TIME	SAMPLE ID	P.I.D.	RECOVERY, %	USCS CLASS	GEOLOGIC DESCRIPTION AND FIELD NOTES	COLOR	Moisture	Stiffness/Density	ESTIMATED PERCENTAGES Clay	Silt	Sand	Gravel	ESTIMATED PLASTICITY
2	0955		X			0-3 - FILL - MIX OF BASALT, SOIL, CORAL + ORGANIC MATTER, DRY.		d/m/w				f/m/c	f/c	N/L/M/H
4			X			3-5' - SILTY CLAY - MOD. PLAS, 7.5YR3/2, STIFF, DAMP, TRACE OF BASALT		d/m/w		55	40	f/m/c	5 f/c	N/L/M/H
6			1.7			5-8' - SAA - INCREASE IN BASALT, DRY,		d/m/w		40	40	f/m/c	20 f/c	N/L/M/H
8	1000	X HT-S25 7-9 Bm	1.8			8-10' - BASALT - 5YR7/1, SMALL ANGULAR FRAGMENTS, STIFF, LOOSE DRY		d/m/w				f/m/c	f/c	N/L/M/H
10	1150		1.1							5	5		90	
12	1010		0.6			10-11.2 - SAA		d/m/w		5	5	f/m/c	f/c 90	N/L/M/H
14	1155	HT-S25 -14-15 X	1.0			11.2-13' - SAME AS 3-5'		d/m/w		55	40	f/m/c	5 f/c	N/L/M/H
16			0.2			13-15' - SAPROLITE - 7.5YR3/2, MED. GRAINED, STIFF, FRIABLE, DRY.		d/m/w		5	5	f/m/c	90 f/c	N/L/M/H
18			0.1											
20			0.4											
22			0.0											
24			0.3											
26						TERMINATE BORING AT 15' BGS		d/m/w				f/m/c	f/c	N/L/M/H
28								d/m/w				f/m/c	f/c	N/L/M/H
30								d/m/w				f/m/c	f/c	N/L/M/H

RHBFSF - CTO 0126 DPT Inv. 1/13/22

0700 SN + EH + CMF arrive at Warehouse

0715 DM arrive at warehouse, hand paperwork to rest of team, return to office to get missing ID Badge

0800 SN + EH + CMF meet Geotek on site, EH lead tailgate meeting

0900 DM arrive on site, Geotek begin DPT operations at HT ~~E10~~ S10 and ~~HTW~~ HT E10 simultaneously. CMF calibrate PIDs

Objective: DPT investigation to delineate contaminants from leach tank and holding tank near Adit 3.

Staff: AECOM (D. Moriano, E. House, C. Ferguson, S. Nutter) Geotek Hawaii (J. Skjeiestad, G. Gutierrez, Chris Capobianco, C. Nix)

Weather: 75° - 80°, 75% humidity, sunny

Equipment: Mini Rae S/N 914105, 908699

0918 ~~S10~~ HTS10 refused at 18'

0950 drill step-outs at HT-S25 and HT-E25

1100 drill step-outs at HTS-17.5 and HT-E17.5

1115 HT-S17.5 refused twice at 8' and 9', 3-ft off set.

1230 complete HT-N25 OWDF6B HTN25 OWDF6A

1315 GeoTek depart site

~~1330 Geotek~~

DM

1/13/22 continued

1515 Geotek return to G11 ~~...~~ hole that wire missed. AECOM plot out actual boring locations

1524 IDW in drum, AECOM staff depart site.

1552 Return to warehouse, update sample tracking log and ef field day log entry. LT sediment VOCs = 439.8

1-13-22

AECOM

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: Dominic Mancuso
Phone Number: 310-625-1287

AECOM SH&E Rep. Name: Devon Molitor
Phone Number: 858-531-9666

Meeting Leader: ETHAN HOUSE

Date: 1/13/22 | **Project Name/Location:** RK ANDIE - Leach Tank | **Project Number:** ~~60571032~~ 60574414

Today's Scope of Work:
- DPI Investigation
- Adit 3 Holdy tank

Muster Point Location:	First Aid Kit Location:	Fire Extinguisher Location:	Spill Kit Location:
Adit 3	field vehicles	Field vehicles / Drill Rig	Drill Rig

1. Required Topics

- [x] Fitness for Duty requirements, all sign in / sign out
- [x] Required training (incl. task specific) completed and current
- [x] SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, hazards, controls, procedures, requirements, etc.)
- [x] Pre-Job Hazard Assessments (JHA/JSAs) available and understood
- [x] Task Hazard Assessments (THAs) are to be completed for each task immediately prior to conducting
- [x] STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA
- [x] Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition
- [x] Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location
- [x] Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all
- [x] Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified
- [x] Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public
- [x] Required checklists/records available, understood (describe):
- [ ] Lessons Learned / SH&E improvements (describe):

2. Discuss if Applicable to Today's Work

Check ☑ as reviewed or mark ■ as not applicable

- [x] [■] Biological/ Chemical / Electrical Hazards
- [x] [ ] Ergonomics - Lifting, Body Position
- [ ] [x] Lock Out/ Tag Out
- [ ] [x] Short Service Employees - visual identifier and mentor/ oversight assignment
- [x] [ ] Simultaneous/ Neighbouring Operations
- [x] [ ] Slip/ Trip/ Fall Hazards
- [x] [ ] Specialized PPE Needs
- [ ] [x] Traffic Control
- [x] [ ] Waste Management/ Decontamination
- [x] [ ] Weather Hazards / Heat Stress / Cold Stress
- [x] [ ] Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.)
- [x] [ ] Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach):
- [ ] [ ] Other Topics (describe/attach):
- [ ] [ ] Client specific requirements (describe):

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:

The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name	Signature	Date / Time (at end of day / shift)
ETHAN HOUSE	Ethan House	1-13-21 / 1700

Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

All employees:

- **STOP WORK if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.**
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

* The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
* The hazards & control measures associated with each task you are about to perform.
* The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
* That no tasks or work is to be performed without a hazard assessment.
* Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

* You are physically and mentally fit for duty.
* You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
* You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
* You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
ETHAN HOUSE AECOM		EAH In & Fit 0700	Out & Fit 1700
James Nuth AECOM		TN In & Fit 0700	Out & Fit 1700
Colin Ferguson AECOM		In & Fit 0700 CMF	Out & Fit 1700 CMF
Chad NIX GTH		In & Fit 0800 CN	Out & Fit 1330 CN
Chris Cupobianco		In & Fit 0700 CC	Out & Fit 1330 CC
Jon Stjegstad GTH		In & Fit 0800 JS	Out & Fit 1330 JS
Dominic Mancuso		In & Fit 0900 DM	Out & Fit 1700
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE

Name	Company Name	Arrival Time	Departure Time	Signature
Jocelyn Tamashiro	NAVFAC Pac	1225	1300	

1/26/2022 GW Sampling OWDF6B RHSF Book #27

1430 CF arrive WH. Prep kits. WH room calibrater devices.

1507 Depart WH For RHSF

1544 CF & PG @ OWDF6B w/ equipment. Access difficult due to co-op's.

~~Equipment~~: MiniRae 3000 SN: 906455
SmarTroll SN: 613179
Turbidimeter: DRT-15CE SN: HF3
MultiRae: SN 34939
Solnist Water Level 1000': SN: 288465

1550 PID MiniRae: VOC 158.7 ppm
MultiRae: (No hose) 38.8 ppm
MultiRae reading above well cup only.

iHeron Oil/water SN: 01-5920

1554 Oil-water reading 29.06'
intermittent sound / no product

1557 Solnist water level 29.07'

1610 TB ERH 2494

1615 Samples ERH 2495 | ERH 2496 | ERH 2497

1645 final DTW (Solnist) 29.13'

1712 Turb: 0.93 ntu
TDS: 619.21 ppm Temp: 21.64 C
pH: 6.92 ORP: 120.4 mV
SpC: 0.96 mS/cm Sal: 0.5 psu
RDO: 9.25 mg/L 104.9 % Sat

1719 A. Edmonds arrives, departs w/ Samples

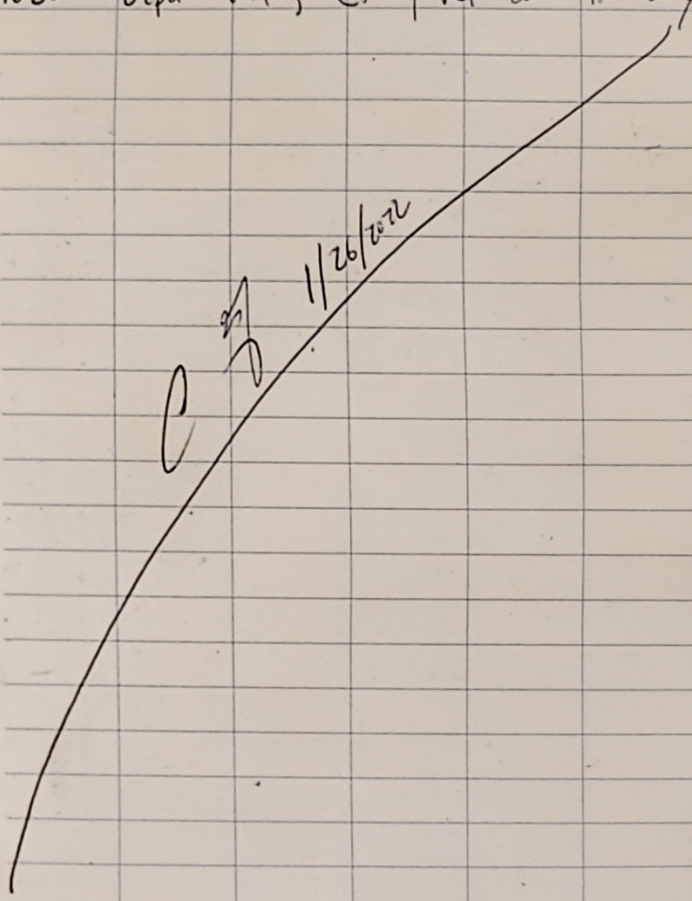
~~1534~~ Gr ~~Depart~~ 1/26/2022 OWDF6B Cont RHSF Book #27

1734 Depart OWDF6B, arrive lower Staging Pit for IDW disposal.

1752 Depart RH

1810 Arrive WH, unload vehicles

1830 Depart WH, CF & PG done for day



Rite in the Rain

Appendix B – Stratigraphic and Well Construction Logs for Monitoring Wells OWDFMWO6A and OWDFMW06B

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Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Date(s) Drilled	03/29/21 to 04/07/21	Logged By	B. Mintz, E. Bonny, C. Brownson	Checked By (Date)	G. Datt, C. Anchieta
Drilling Method	Hand clear / HSA / HQ	Drill Bit Size/Type	17.5" rotary / 9.875" rotary / HQ diamond bit	Total Depth of Borehole	215.0 feet
Drill Rig Type	Mobile-B90 / Mobile-B80	Drilling Contractor	Valley Well Drilling	Approximate Surface Elevation	117.0
Groundwater Level	97.07 ft bgs / 18.93 ft msl 9/28/2021	Location	OWDFMW06A	Inclination from Horizontal/Bearing	90 degrees
Borehole Completion	4-inch diameter monitoring well			Hammer Data	140lb auto-hammer

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
116	0								**FILL**						[50]	Hand auger to 5 ft bgs
	1	1														
	2															
114	3															
	4															
112	5												10	0.0	[75.7]	HSA starting at 5 ft bgs
	6			100									11			
													10			
110	7															Smooth drilling
	8	2	1													
108	9															
	10								**Sandy Silt (ML)** Very dark grayish brown (10YR 3/2), G 10 S 30 F 60, fines have some clay but predominantly silt				6	0.0	[13.7]	
				67									25			
106	11								Broken basalt boulder, light gray (GLEY1 7/N)							
									No recovery				18			Smooth drilling
	12															Chattering at ~12 ft bgs
		3														
104	13															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
104	13															
	14															Smooth towards ~14 ft bgs
102	15								**Silt with Sand (ML)** Dark brown (7.5YR 3/2), G 5 S 15 F 80				8	0.0	[75.7]	
	16			100									9			
													19			
100	17															
	18	4														Smooth drilling
98	19		1													
	20								**Massive A'a** Basalt boulder, black (5YR 2.5/1), completely weathered, extremely weak, 10% very weathered olivine phenocrysts					0.0	[301.2]	
96	21															
	22															Light brown WR
		5		70		0	IF									
94	23															
	24						NR		No recovery							
92	25								same as above					0.0	[151.5]	
	26															
							IF									
90	27															Light brown WR
		6		60		0										
	28						NR		No recovery							
88	29															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
88	29						NR		No recovery					
	30								same as above			0.0	[301.2]	
86	31						IF		becomes olive (5YR 5/3), moderate to highly weathered, weak to very weak, 5% vesicles, subrounded to subangular, 3 - 7 mm IF - Mn Fe clay, Sp Su					
	32	7		40		0								Light brown WR
84	33						NR		No recovery					
	34													
82	35								same as above			0.0	[151.5]	
	36		2				IF							
80	37	8		18		0								Light brown, red WR
	38						NR		No recovery					
78	39													
	40								same as above			0.0	[301.2]	
76	41						IF							
	42	9		60		0								Light brown WR
74	43						NR							
	44								No recovery					
72	45													End coring for 03/29/21

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type / Number / Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
72	45								same as above			0.0	[151.5]	Resume coring on 03/30/21
	46						IF		becomes highly weathered, very weak with more lean clay (CL), dark reddish brown (5YR 3/3)					
70	47	10		30		0	UR							Light brown WR
	48								No recovery					
68	49													
	50								becomes olive (5YR 5/3), dark brown (10YR 3/3), moderate to highly weathered, weak to very weak, 5% vesicles, subrounded to subangular, 2-5 mm, very small amount of lean clay (CL), dark brown (10YR 3/3) IF - Mn Fe clay, Sp Su			0.0	[301.2]	
66	51						IF							
	52	11		56		0								Light brown WR
64	53						NR		No recovery					
	54													
62	55								same as above			0.0	[151.5]	
	56						IF							
60	57	12		60		0	IF							Light brown WR
	58		3				NR		No recovery					
58	59													
	60								same as above				[75.7]	
56	61													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
56	61						NR		No recovery					
	62	13		54		0								Light brown WR
54	63								**Fat Clay with Sand (CH)** Dark brown (10YR 3/3), G 0, S 15, F 70, moderate to high plasticity, dry inside					
	64								Collect HU046 (62.8-65 ft bgs)					
52	65								← same as above, some weathered basalt "disks" in clay towards the end of run			0.0		Note less material in box because some was taken for samples HU046 and HU047.
	66								Collect HU047 (65-70 ft bgs)					
50	67	14		100		0								Light brown WR
	68													
48	69													End coring on 03/30/21. 10" casing set ~70 ft bgs.
	70											0.0	[151.5]	Resume coring on 04/06/21
46	71						NR							
	72	15		0		0			No recovery					Brown WR
44	73													
	74													
42	75								Broken basalt Massive A'a and Pahoehoe pieces, very dark gray (10YR 3/1), brown (7.5YR 4/3), moderate weathered, moderately strong to strong, some lean clay (CL) staining, reddish yellow (5YR 6/6), Mn staining			0.0	[301.2]	
	76						IF							Brown WR
40	77													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type / Number / Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
40	77	16		50		0								
	78													
							WR							
38	79													
	80											0.0	[301.2]	
36	81								No recovery					
	82	17		14		0								Brown WR
34	83													
	84								**Loose and Welded A'a Clinker** Black (10YR 2/1), dark reddish brown (5YR 3/2), reddish yellow (5YR 7/6), moderate to highly weathered, moderate strength to weak					
32	85											0.0	[301.2]	
	86		4											
30	87						IF		**Massive A'a** Very dark grayish brown (10YR 3/2), moderately weathered, moderate strength, 2% vesicles, subrounded, 2-20 mm					Brown WR
		18		46		0								
	88													
28	89						WR		No recovery					
	90											0.0	[301.2]	
26	91													Brown WR
	92						WR		same as above, Mn staining on fractures					
		19		60		0								
24	93													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
24	93															
	94						IF		**Loose A'a Clinker**, brown (7.5YR 4/4), highly weathered, weak							
22	95								**Pahoehoe** Very dark grayish brown (10YR 3/2), moderately weathered, moderate strength, 15% vesicles, subrounded, 1-5 mm					0.0	[151.5]	
	96						NR		No recovery							
20	97															Light brown WR, some WL, partial circulation
	98	20		36		0			**Loose A'a Clinker**, dark grayish brown (10YR 4/2), moderately weathered, moderate strength, Mn staining							
18	99								← Lean clay (CL) present among clinker clasts, dark grayish brown (10YR 4/2), clasts covered in clay							
	100													0.0	[151.5]	
									1 **Pahoehoe** Dark brown (10YR 3/2), moderately weathered, moderate strength, 10% vesicles, subrounded, 2-10 mm							
16	101								2 1: 0, J, MW, Mn Fe, Sp Su, clay Pa, Pl, SR 2: 0, J, MW, Mn Fe, Sp Su, clay Pa, Pl, SR							
									Loose A'a Clinker Very dark gray (10YR 3/1), moderately weathered, moderate strength							
	102						IF		**Massive A'a** Black (10YR 2/1), moderately weathered, moderate strength, Mn and clay in fractures							Light brown WR
14	103	21		34		24			No recovery							
	104						NR									
12	105								← same as above					0.0	[301.2]	
	106						IF									
									← becomes dark yellowish brown (10YR 4/6), moderately weathered, moderate strength, some lean clay (CL), Mn staining on fractures							
10	107															Light brown WR
	108	22		50		0										
							NR									
8	109															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
8	109													
	110								No recovery			0.0	[151.5]	
6	111													
	112	23		40		0								Light brown WR
4	113								**Loose A'a Clinker** Brown (10YR 4/3), yellowish brown (10YR 5/4), moderately weathered, moderate strength, Mn staining ← becomes highly weathered, very weak to extremely weak					
	114		5											
2	115						IF		**Massive A'a** Dark gray (7.5YR 4/1), moderately weathered, moderate strength, Mn and clay staining, 1% vesicles, elongate, 2-10 mm			0.0	[301.2]	
	116								**Loose A'a Clinker** Dark brown (10YR 3/3), very pale brown (10YR 7/3), strong brown (7.5YR 4/6), moderately weathered, moderate strength to strong, Mn staining					
0	117													Light brown WR, slight WL
	118	24		44		0								
-2	119													
	120								No recovery			0.0	[50]	
-4	121													
	122													Light brown WR, slight WL
-6	123	25		52		15			same as above					
	124						IF 1 2		**Massive A'a** Very dark grayish (10YR 3/2), moderately weathered, strong, lean clay (CL) in fractures 1: 20, J, VN, Mn Su, clay Pa, Ir, SR 2: 10, J, N, Mn Su, clay Pa, Ir, SR					
-8	125													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type / Number / Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-8	125								**Saprolite** Black (10YR 2/1), brown (7.5YR 4/4), pale brown (10YR 6/3), rounded clasts covered in clay, relic A'a Clinker clasts			0.0	[75.7]	
	126								**Pahoehoe** Very dark gray (10YR 3/1), slightly weathered, strong, 25% vesicles, rounded to subrounded, 1-3 mm					
-10	127						NR		No recovery					Light brown WR
		26		68		35								
	128								**Massive A'a** Grayish brown (2.5Y 5/2), slightly weathered, strong, 3% vesicles, subrounded, elongate, 1-5 mm, fractures filled with clay					
-12	129						IF		← becomes 10% vesicles, subrounded, elongate, 1-2 mm, some >20 mm					
	130						IF		**Saprolite** A'a Clinker/Saprolite/Clay, rounded A'a Clinker clasts covered in clay, relic A'a Clinker clasts, saprolite structure, lean clay (CL), brown (7.5YR 4/3)			0.0	[60.2]	
-14	131		6						**Massive A'a** Dark gray (10YR 4/1), moderately weathered, strong, 2% vesicles, subrounded, irregular, 2-20 mm, lean clay (CL) infilling fractures					
	132						IF							Light brown WR
		27		40		0								
-16	133						NR							
	134													
-18	135								No recovery			0.0	[50]	
	136													
-20	137													Light brown WR
		28		50		0								
	138								**Loose A'a Clinker** Dark gray (7.5YR 4/1), reddish yellow (7.5YR 6/6), moderately weathered, moderate strength, rounded clasts, Mn staining					
-22	139													
	140								**Massive A'a** Very dark gray (7.5YR 3/1), slightly to moderately weathered, moderate strength to strong, 1% vesicles, irregular, 2-6 mm, covered and completely infilled with lean clay (CL), very dark brown (7.5YR 2.5/2)			0.0		
							IF							
-24	141													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-24	141							IF	IF - clay infilling					
	142	29		30		0								Light brown WR
-26	143													
	144								No recovery					End coring for 04/06/21
-28	145											0.0	[25]	Resume coring on 04/07/21
	146													Light brown WR
-30	147	30		60		0			**Silt (ML)** Very dark brown (7.5YR 2.5/2), G 0 S 0 F 100					1 ft of saprolite, ~2 ft of silt - hard to tell based on recovery, see photos
	148													
-32	149								**Saprolite** Very dark brown (7.5YR 2.5/2), dark reddish brown (5YR 3/2), relic rock structures, rounded relic A'a Clinker clasts, very dark grayish brown (10YR 3/2)					
	150								**Loose A'a Clinker** Very dark gray (5YR 3/1), reddish brown (5YR 4/1), yellowish red (5YR 3/6), moderate to slightly weathered, strong			0.0	[60.2]	
-34	151								**Massive A'a** Very dark gray (5YR 3/1), slightly weathered, very strong, 3% vesicles, subrounded to subangular, <4 mm					Chattering
	152	31		80		18	1	IF	IF - Mn clay Sp 1. 20, J, N, Mn clay, Sp, Ir, R 2. 30, J, Mn, Fe clay, Sp, Wa, SR					
-36	153						2							Brown WR
	154							IF	IF - Mn Sp, clay infilling					
									No recovery					
-38	155						1		← becomes 5% vesicles, elongate, subrounded, 1-15 mm 1: 5, J, N, Mn Fe Sp, Ir, SR			0.0	[75.7]	
	156		7				2		2: 5, J, N, Mn Fe Sp, Wa, SR					Light brown WR
							3		3: 0, J, W, Mn Sp, St, SR 4: 10, J, VN, Mn Sp, Wa, SR ← becomes 1% vesicles, elongate, subrounded, <3 mm					
-40	157						4							

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-40	157								← becomes 3% vesicles, subrounded, elongate, irregular, 2-18 mm 5: 0, J, MW, Mn Fe clay Sp, Wa, SR 6: 0, J, N, Mn Fe Sp, Wa, SR 7: 0, J, MW, Mn Fe Sp, St, SR 8: 0, J, N, Mn Fe Sp, clay Su, St, SR 9: 0, J, MW, Mn Fe Sp, Wa, SR 10: 0, J, VN, Mn Fe Sp, Wa, SR IF - Mn Fe clay Sp						
		32		96		27										
-42	158															
	159															
	160								← vug - 50 mm x 18 mm					0.0	[33.3]	
							NR		} No recovery							
-44	161															
	162								1: 5, J, W, Mn Su, Fe clay Sp, Wa, SR 2: 10, J, VN, Mn Fe Sp, clay Su, St, SR 3: 0, J, N, Mn Fe clay Sp, Wa, SR 4: 0, J, N, Mn Fe Sp, clay Su, Wa, S 5: 60, J, N, Mn Fe clay Sp, Wa, SR IF - Mn Su, clay Fe Sp							Slight chattering, light brown WR
		33		70		40										
-46	163								← becomes 3% vesicles, elongate, 6-30 mm							
	164															
-48	165													0.0	[100]	
							NR		} No recovery							
	166															
-50	167								**Loose and Welded A'a Clinker** Dark reddish brown (2.5YR 3/3), red (2.5YR 5/6), black (2.5YR 2/1), moderately weathered, strong ← becomes completely weathered, very weak							
		34		76		58			**Pahoehoe** Dark gray (5YR 4/1), slightly weathered, strong, 10% vesicles, rounded to subrounded, 2-9 mm							Light brown WR
	168		8						← becomes 15% vesicles, subrounded to rounded, some clay in vesicles, 3-30 mm ← becomes 20% vesicles, rounded to subrounded, 1-13 mm 1: 0, J, VN, Mn Sp, Wa, SR 2: 5, J, VN, Mn Sp, clay Pa, Wa, SR 3: 20, J, N, Mn Fe clay Sp, lr, SR 4: 0, J, N, Mn Fe clay Sp, lr, SR 5: 45, J, VN, Mn Fe Sp, clay Pa, lr, SR							
-52	169															
	170													0.0	[100]	
-54	171						NR		} No recovery							Light brown WR
	172								**Loose and Welded A'a Clinker** Black (5YR 2.5/1), dark reddish brown (5YR 3/2), moderately weathered, moderately strong, clay coating clasts, yellowish red (5YR 5/6)							
		35		62		0										
-56	173															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type / Number / Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-56	173													
	174													
-58	175							IF	**Massive A'a** Dark gray (5YR 4/1), slightly weathered strong, 1% vesicles, <4 mm; vug - 35 x 17 mm at 175.2 ft bgs IF - Mn clay Su 1: 60, J, VN, Mn Fe clay Sp, Wa, R 2: 20, J, VN, Mn Fe Su, Wa, SR 3: 5, J, MW, Mn clay Su, Ir, SR			0.0	[100]	
	176							1 2 3 M M						
-60	177	36		40		0			No recovery					Light brown WR
	178													
-62	179													
	180								← becomes 10% vesicles, elongate, subrounded, 2-20 mm 1: 0, J, VN, Mn Fe Sp, Wa, SR 2: 0, J, VN, Mn Fe Sp, Ir, SR 3: 40, J, VN, Mn Fe Sp, Wa, SR				[301.2]	
-64	181							1 2 3						
	182								No recovery, possibly loose A'a Clinker					
		37		96		54		IF M	**Pahoehoe** Black (5YR 2.5/1), moderately weathered, moderately strong, 20% vesicles, rounded to subangular, 1-15 mm, partially infilled with clay, reddish yellow (5YR 6/6) 4: 90, J, N, Mn clay Sp, Wa, SR					Light brown WR, 40 gal WL, partial circulation
-66	183		9					M	5: 80, J, MW, Mn clay Sp, Ir, SR					
	184							4 5	← becomes highly weathered, very weak ← becomes weak, clay in fractures, reddish yellow (5YR 6/8)					
-68	185							IF				0.0	[151.5]	
	186							IF	**Massive A'a** Dark gray (5YR 4/1), slightly weathered, very strong, 10% vesicles, subrounded, elongate, 1-18 mm 1: 45, J, MW, clay Pa, Wa, SR 2: 30, J, N, Mn Fe clay Sp, Wa, SR 3: 20, J, N, Mn Fe clay Sp, Wa, SR 4: 10, J, N, Mn Fe clay Sp, Wa, SR 5: 45, J, N, Mn clay Sp, Wa, SR					
-70	187	38		66		0		1 2 3 4 5	← becomes very dark gray (5YR 3/1), moderately weathered, strong, 15% vesicles, 2-15 mm					Light brown WR, 60 gal WL, partial circulation.
	188													
-72	189													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-72	189						NR		No recovery					
	190											0.0	[151.5]	
-74	191						IF		**Pahoehoe** Black (5YR 2.5/1), moderately weathered, weak to moderately strong, broken pieces are covered / filled with clay, reddish yellow (5YR 5/8) IF - clay infilling					
	192								**Massive A'A** Very dark gray (5YR 3/1), moderately weathered, strong, 5% vesicles, subrounded, elongate, <1-12 mm					Lost circulation at start of run, approx. 100 ft bgs, ~100 gal WL
		39		60		13								
-76	193						IF		IF - clay infilling, reddish yellow (5YR 5/8)					
	194						NR		No recovery					
-78	195								← becomes very dark gray (10YR 3/1), slightly weathered, very strong, 25% vesicles, subrounded, elongate, 1-11 mm, partially infilled with clay, yellow (10YR 8/6)			0.0	[75.7]	
	196		10				1		1: 0, J, N, Mn Fe clay Sp, Wa, SR					
							2		2: 0, J, N, Mn Fe clay Sp, Wa, SR					
									3: 0, J, N, Mn Fe Sp, clay Su, Wa, SR					
							IF		4: 60, J, VN, Mn Fe clay Sp, Wa, SR					
-80	197						3		← becomes dark gray (10YR 4/1), slightly weathered, extremely strong, 10% vesicles, subrounded, 1-13 mm, vuggy (34 mm x 17 mm), some clay in vesicles, reddish yellow (5YR 7/6)					100 gal WL
		40		100		28	4		IF - clay Pa Su, Mn Fe Sp					
	198								5: 0, J, VN, Mn Su, clay Sp, Wa, SR					
							5		6: 0, J, VN, Mn Fe clay Sp, Wa, SR					
-82	199						6		7: 0, J, VN, Mn Fe Su, clay Su Sp, Wa, SR					
							7							
							IF							
	200								← becomes 3% vesicles, subrounded, <1 mm			0.0	[60.2]	
									← becomes moderately weathered, very strong. IF - clay in fractures, partially infilled, reddish yellow (5YR 7/6)					
-84	201						IF							100 gal WL Chattering
	202								**Saprolite** Red (10YR 4/6), relic rock texture, lean clay (CL) present					
		41		80		0	NR		No recovery					
-86	203								**Welded A'a Clinker** Dark brown (7.5YR 3/2), dusky red (10R 3/4), black (5YR 2.5/1), moderately weathered, moderately strong, covered / voids filled with clay, reddish yellow (5YR 6/6)					Rods dropped from approximately 202 to 203 ft bgs
							1							
	204						2							
							3		**Massive A'a** Very dark gray (5YR 3/1), slightly weathered, very strong, 3% vesicles, subrounded, irregular, 2-13 mm, partially infilled with clay, reddish yellow (5YR 6/6)					
							IF							
-88	205													

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-88	205								No recovery					0.0	[75.7]	
	206								1. 0, J, N, clay Su Pa, Wa, SR 2. 5, J, MW, clay Sp, Wa, SR 3. 5, J, MW, clay Mn Sp, Wa, SR							
									Loose A'a Clinker Dark brown (7.5YR 3/2), moderately weathered, moderately strong							
-90	207	42		86		0			**Silty Sand (ML)** Black (7.5YR 2.5/1), G 5 S 15 F 80, lithics present, wet							100 gal WL
	208															
-92	209															
	210													0.0	[100]	
-94	211		11						No recovery							
	212								**Massive A'a** Dark gray (7.5YR 4/1), moderately weathered, strong, 15% vesicles, subrounded to subangular, irregular, 2-15 mm							100 gal WL
		43		60		13	IF									
-96	213						1		IF - fractures and vesicles infilled with clay, reddish yellow (7.5YR 7/6) 1: 5, J, VN, Mn Fe clay Sp, Wa, SR							
							IF									
	214						2		2: 5, J, VN, Mn clay Sp, Wa, SR							
-98	215								OWDFMW06A was hand cleared from ground surface to 5 ft bgs (117 ft msl to 112 ft msl). Hollow-stem auger drilling commenced from ground surface to 20 ft bgs (117 ft msl to 97 ft msl), until reaching refusal. HQ coring commenced from 20 ft bgs to 70 ft bgs (97 ft msl to 47 ft msl). The borehole was reamed with a 17.5-inch tricone bit from ground surface to 84 ft bgs (117 ft msl to 33 ft msl) to set a conductor casing. A 10-inch diameter steel conductor casing was installed to 80 ft bgs (37 ft msl). HQ coring continued from 80 ft bgs to 215 ft bgs (37 ft msl to -98 ft msl). HQ coring terminated at a total depth of 215 ft bgs (-98 ft msl). The borehole was reamed with a 9 7/8-inch tricone bit from 80 ft bgs to 215 ft bgs (37 ft msl to -98 ft msl) for well construction. Clean water filtered through a granulated activated carbon (GAC) filter was used for drilling fluid. Approximately 600 gallons of water were used during drilling and rock coring. OWDFMW06A well construction was completed on June 18, 2021. The well was completed with 4-inch diameter Schedule 80 polyvinyl chloride (PVC) blank well casing from approximately 2.8 ft above ground surface to 190 ft bgs (114.2 ft msl to -73 ft msl) and a 0.020-inch slotted screen between 190 ft bgs to 210 ft bgs (-73 ft msl to -93 ft msl). The casing was stabilized with centralizers placed at the top and bottom of the screened section, and then spaced every 40 ft up from the top of the screen. The filter pack extended from 184 ft bgs to 211 ft bgs (-67 ft msl to -94 ft msl). The bentonite seal was							End coring on 04/07/21. TD = 215 ft bgs
	216															
-100	217															
	218															
-102	219															
	220															
-104	221															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06A

Elevation, feet	Depth, feet	ROCK CORE: Run No.	ROCK CORE: Box No.	ROCK CORE: Recovery, %	ROCK CORE: Fractures per Foot	ROCK CORE: R Q D, %	ROCK CORE: Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	SAMPLES: Number	SAMPLES: Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
-104	221								placed from 179 ft bgs to 184 ft bgs (-62 ft msl to -67 ft msl). A 100% bentonite slurry was placed from 67 ft bgs to 179 ft bgs (50 ft msl to -62ft msl [into the 10-inch conductor casing]). Cement/grout was placed to the ground surface. The surface completion consists of an approximately 2.8 foot stick up monument inside of an 8-inch diameter protective steel casing set on a concrete well pad approximately 1-foot above ground surface. A total of approximately 5,670 gallons of development water was removed during development, after well construction.						
	222								* All ground surface elevations are preliminary. Final elevation surveys have not been completed at this time.							
-106	223															
	224															
-108	225															
	226															
-110	227															
	228															
-112	229															
	230															
-114	231															
	232															
-116	233															
	234															
-118	235															
	236															
-120	237															

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Log of Boring OWDFMW06B

Sheet 1 of 3

Date(s) Drilled	**02/12/21 to 2/17/21**	Logged By	**B. Mintz**	Checked By (Date)	**G. Datt, C. Anchieta**
Drilling Method	**Hand clear / HSA**	Drill Bit Size/Type	**7 3/4" OD HSA**	Total Depth of Borehole	**35.0 feet**
Drill Rig Type	**Mobile B-59**	Drilling Contractor	**GeoTek**	Approximate Surface Elevation	**115.0**
Groundwater Level	**35.06 ft bgs / 79.94 ft msl 9/28/2021**	Location	**OWDFMW06B**	Inclination from Horizontal/Bearing	**90 degrees**
Borehole Completion	**4-inch diameter monitoring well**			Hammer Data	**140lb auto-hammer**

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
115	0								**Fill** Very dark brown (7.5YR 2.5/2), some boulders						[50]	Hand Clear to 4 ft bgs, until refusal
114	1															18-inch split spoon used for core collection every 5 ft starting at 5 ft bgs
	2	1														
112	3															
	4															
110	5								← same as above				4	0.0	[23]	
	6			50									3			Mostly smooth drilling. Some chattering ~6 ft bgs to 10 ft bgs
	7												2			
108		2											2			
	8															
106	9															
	10								← becomes very weathered basalt towards bottom							End drilling for 2/12/21
													2	0.0	[15]	Resume drilling from 10 ft bgs on 2/17/21
104	11			15									2			Mostly smooth drilling, some chattering
	12												1			
		3											1			
102	13															

Report: CTO53 RED HILL WITH WELL AND PID; File: OWDF_BORINGLOGS.GPJ; 1/3/2022 OWDFMW06B

Project: Site Assessment Red Hill Oily Waste Disposal Facility
Project Location: JBPHH, Oahu, HI
Project Number: 60513348 (CTO 0063)

Log of Boring OWDFMW06B

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type	Number	Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
102	13															
	14															
100	15								Split spoon empty, some crushed up dust basalt.				30	0.0	[7]	
	16			0									3			Difficulty drilling at ~ 16 ft bgs
98	17												1.5			
		4											1.5			Easier drilling at ~ 18 ft bgs
	18															More grinding below 19 ft bgs to bottom of run
96	19															Pieces of broken basalt and tuff coming up auger last 1/2 foot easier
	20								**Sandy Silt (ML)** very dark gray (2.5 Y 3/1), sand - pale brown (2.5 Y 7/4), G5 S25 F70				10	0.0	[12.5]	
94	21			100									9			
	22												12			
		5											14			
92	23															
	24															
90	25								**Silt (ML)** less sand some clay, very dark gray (2.5 Y 3/1), G5 S10 F 85, mostly silt some clay				8	0.0	[60]	Smooth drilling
	26			100									10			
88	27												10			
		6											11			
	28															
86	29															

Report: CTO53 RED HILL WITH WELL AND PID; File: OWDF_BORINGLOGS.GPJ; 1/3/2022 OWDFMW06B

Project: Site Assessment Red Hill Oily Waste Disposal Facility
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Log of Boring OWDFMW06B

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	Well Schematic	SAMPLES: Type Number Blows per foot	PID (ppm)	Drill Time [Rate, ft/hr]	FIELD NOTES AND TEST RESULTS
86	29													
	30								**Gravelly Silt with Sand (ML)** Very dark gray (2.5 Y 3/1), G15 S15 F 70 some clay, basalt gravel (7.5 YR 2.5/1 black), sand reddish yellow (7.5 YR 1/6)		5	0.0	[30]	Smooth drilling
84	31			100					Collect HU016		7 6			
	32	7									6			
82	33													Around 33.5 ft bgs cuttings no longer coming off auger
	34													
80	35								← becomes very dark grayish brown (10YR 3/2), slightly weathered gravel, G15 S5 F80, some clay ← ML silt with sand, G5 S15 F80 some clay		3	0.0		End drilling on 02/17/21. TD = 35 ft bgs. Water level recorded in logbook #1 pg 22-24
	36	8		100							4 3			
									Lean Clay with Sand (CL) G 0 S10 F90					
78	37								Collect HU017 and HU018 (35-37 ft bgs)		4			
	38								OWDFMW06B was hand cleared from ground surface to 4 ft bgs (115 ft msl to 111 ft msl). The borehole was then drilled using 7 3/4-inch outer diameter hollow stem auger to 35 ft bgs (80 ft msl). An 18-inch split spoon used for core collection every 5 ft starting at 5 ft bgs. OWDFMW06B well construction was completed on February 17, 2021. The well was completed with 4-inch diameter Schedule 80 polyvinyl chloride (PVC) blank well casing from ground surface to 24.63 ft bgs (115 ft msl to 90.37 ft msl) and a 0.020-inch slotted screen between 24.63 ft bgs to 34.63 ft bgs (100.37 ft msl to 90.37 ft msl). The filter pack extended from 35 ft bgs to 20 ft bgs (85 ft msl to 95 ft msl). The bentonite seal was placed from 20.00 ft bgs to 15.00 ft bgs (95 ft msl to 90 ft msl). Cement/grout was place to the ground surface. The surface completion consists of above ground completion. A total of approximately 140 gallons of development water was removed during development, after well construction.					
76	39													
	40													
74	41													
	42													
72	43													
	44													
70	45								* All ground surface elevations are preliminary. Final elevation surveys have not been completed at this time.					

Report: CTO53 RED HILL WITH WELL AND PID; File: OWDF_BORINGLOGS.GPJ; 1/3/2022 OWDFMW06B

Appendix C – Level II Laboratory Reports
Eurofins Seattle

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Appendix C.1 – Soil Analytical Data

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ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-109299-1
Client Project/Site: Red Hill JBPHH N62742-17-D-1800
CV18F0126

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Jeff Hart

Kristine D. Allen

Authorized for release by:
1/17/2022 5:54:16 PM
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Table of Contents

Job ID: 580-109299-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE

Client: AECOM
Project: Red Hill JBPHH N62742-17-D-1800 CV18F0126
Report Number: 580-109299-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 01/14/2022 and 01/14/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

Receipt Exceptions

One or more containers for the following samples were received broken: TB01 (580-109299-24). This trip blank was unable to be salvaged since it had completely frozen and burst the container's bottom.

The cooler containing all of the VOA vials did not arrive by FedEx with the other containers. They were picked up from the FedEx Facility and arrived at the lab 1620 1/14/22.

Insufficient sample volume was provided for the following samples for the Moisture analysis: LT-N10-7-8-Dup (580-109299-23). There is no bulk soild for this field duplicate sample and cannot be corrected for Dry Weight.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples LT-W17.5-12-13 (580-109299-1), LT-N10-21-22 (580-109299-2), LT-E10-7-8 (580-109299-3), LT-S25-7-8 (580-109299-4), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), LT-S10-17-18 (580-109299-10), LT-N10-7-8 (580-109299-11), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W55-17-18 (580-109299-16), LT-W19.5-14-15 (580-109299-17), LT-S10-23-24 (580-109299-18), LT-W40-9-10 (580-109299-19), LT-N25-27-27.5 (580-109299-20), LT-S25-14-15 (580-109299-21), LT-W25-14-15 (580-109299-22) and LT-N10-7-8-Dup (580-109299-23) were analyzed for volatile organic compounds

Job ID: 580-109299-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

(GC-MS) in accordance with 8260D_DOD5. The samples were prepared on 01/15/2022 and analyzed on 01/16/2022 and 01/17/2022.

Sample LT-W17.5-12-13 (580-109299-1) which was used for the MS/MSD was non detect when run at dilution. It was reanalyzed at a lesser dilution. Both sets of data are reported due to this sample being used as the MS/MSD in the initial batch. LT-W17.5-12-13 (580-109299-1), (580-109299-D-1-B MS) and (580-109299-D-1-C MSD)

Surrogate recovery was outside drift limits for the CCVIS but within surrogate recovery limits for 1,2-Dichloroethane-d4 (Surr): (CCVIS 580-378538/3). Recovery limit 71%, CCVIS recovered at 75%. All samples are within recovery limits.

The following samples were analyzed at reduced volume due to high concentrations of target analytes: LT-W17.5-12-13 (580-109299-1), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N25-16-17 (580-109299-9), (580-109299-D-1-B MS) and (580-109299-D-1-C MSD). The calculation was performed using an initial volume adjustment rather than a dilution factor. The reporting limits have been elevated by the appropriate factor.

The following sample was analyzed at reduced volume due to high concentrations of target analytes: LT-N10-7-8-Dup (580-109299-23). The calculation was performed using an initial volume adjustment rather than a dilution factor. The reporting limits have been elevated by the appropriate factor.

Surrogate recovery for the following sample was outside control limits: LT-N10-7-8-Dup (580-109299-23). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

VOA Prep
Method 5035: The following samples was provided to the laboratory with a significantly different initial weight than that required by the reference method: LT-W17.5-12-13 (580-109299-1), LT-S25-7-8 (580-109299-4), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W19.5-14-15 (580-109299-17), LT-N25-27-27.5 (580-109299-20), (580-109299-D-1 MS) and (580-109299-D-1 MSD). Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 10g. The amount provided was below this range.

Method 5035: The following samples were provided to the laboratory with a significantly different initial weight than that required by the reference method: LT-S25-14-15 (580-109299-21), LT-W25-14-15 (580-109299-22) and LT-N10-7-8-Dup (580-109299-23). Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 10g. The amount provided was below this range.

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

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)
Samples LT-W17.5-12-13 (580-109299-1), LT-N10-21-22 (580-109299-2), LT-E10-7-8 (580-109299-3), LT-S25-7-8 (580-109299-4), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), LT-S10-17-18 (580-109299-10), LT-N10-7-8 (580-109299-11), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W55-17-18 (580-109299-16), LT-W19.5-14-15 (580-109299-17), LT-S10-23-24 (580-109299-18), LT-W40-9-10 (580-109299-19), LT-N25-27-27.5 (580-109299-20), LT-S25-14-15 (580-109299-21) and LT-W25-14-15 (580-109299-22) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with 8270E SIM. The samples were prepared on 01/14/2022 and analyzed on 01/15/2022.

The following samples was diluted due to the black color and odor of the sample: LT-N40-7-8 (580-109299-8). Elevated reporting limits (RL) are provided.

1-Methylnaphthalene, 2-Methylnaphthalene and Naphthalene failed the recovery criteria high for the MS of sample LT-W17.5-12-13MS (580-109299-1) in batch 580-378418. 1-Methylnaphthalene and 2-Methylnaphthalene failed the recovery criteria low for the MSD. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. In addition, 1-Methylnaphthalene, 2-Methylnaphthalene and Naphthalene exceeded the RPD limit.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Job ID: 580-109299-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

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

GASOLINE RANGE ORGANICS (GRO)

Samples LT-W17.5-12-13 (580-109299-1), LT-N10-21-22 (580-109299-2), LT-E10-7-8 (580-109299-3), LT-S25-7-8 (580-109299-4), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), LT-S10-17-18 (580-109299-10), LT-N10-7-8 (580-109299-11), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W55-17-18 (580-109299-16), LT-W19.5-14-15 (580-109299-17), LT-S10-23-24 (580-109299-18), LT-W40-9-10 (580-109299-19), LT-N25-27-27.5 (580-109299-20), LT-S25-14-15 (580-109299-21), LT-W25-14-15 (580-109299-22) and LT-N10-7-8-Dup (580-109299-23) were analyzed for gasoline range organics (GRO) in accordance with 8260B CALUFT. The samples were prepared on 01/15/2022 and analyzed on 01/15/2022, 01/16/2022 and 01/17/2022.

The following samples were analyzed at reduced volume due to high concentrations of target analytes: LT-W17.5-12-13 (580-109299-1), LT-W10-11-12 (580-109299-5) and LT-N25-16-17 (580-109299-9). The calculation was performed using an initial volume adjustment rather than a dilution factor. The reporting limits have been elevated by the appropriate factor.

Surrogate recovery for the following samples was outside control limits high for 4-Bromofluorobenzene (Surr): LT-W10-19-20 (580-109299-6) and LT-N10-7-8 (580-109299-11). Evidence of matrix interference is present; therefore, re-analysis was not performed.

The following sample was analyzed at reduced volume due to high concentrations of target analytes: LT-N10-7-8-Dup (580-109299-23). The calculation was performed using an initial volume adjustment rather than a dilution factor. The reporting limits have been elevated by the appropriate factor.

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

DIESEL RANGE ORGANICS

Samples LT-W17.5-12-13 (580-109299-1), LT-N10-21-22 (580-109299-2), LT-E10-7-8 (580-109299-3), LT-S25-7-8 (580-109299-4), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), LT-S10-17-18 (580-109299-10), LT-N10-7-8 (580-109299-11), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W55-17-18 (580-109299-16), LT-W19.5-14-15 (580-109299-17), LT-S10-23-24 (580-109299-18), LT-W40-9-10 (580-109299-19), LT-N25-27-27.5 (580-109299-20), LT-S25-14-15 (580-109299-21) and LT-W25-14-15 (580-109299-22) were analyzed for diesel range organics in accordance with 8015DRO. The samples were prepared on 01/14/2022 and analyzed on 01/15/2022 and 01/16/2022.

Sample LT-N40-7-8 (580-109299-8)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

C10-C24 failed the recovery criteria high for the MS/MSD of sample LT-W17.5-12-13 (580-109299-1) in batch 580-378473. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

The peak profile present in this sample LT-S17.5-5-6 (580-109299-15) and LT-W19.5-14-15 (580-109299-17) is atypical of a hydrocarbon pattern and consists of discrete peaks.

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

PERCENT SOLIDS

Samples LT-W17.5-12-13 (580-109299-1), LT-N10-21-22 (580-109299-2), LT-E10-7-8 (580-109299-3), LT-S25-7-8 (580-109299-4), LT-W10-11-12 (580-109299-5), LT-W10-19-20 (580-109299-6), LT-N10-19-20 (580-109299-7), LT-N40-7-8 (580-109299-8), LT-N25-16-17 (580-109299-9), LT-S10-17-18 (580-109299-10), LT-N10-7-8 (580-109299-11), HT-N10-24-25 (580-109299-12), HT-W10-18-19 (580-109299-13), HT-W10-22-23 (580-109299-14), LT-S17.5-5-6 (580-109299-15), LT-W55-17-18 (580-109299-16), LT-W19.5-14-15 (580-109299-17), LT-S10-23-24 (580-109299-18), LT-W40-9-10 (580-109299-19), LT-N25-27-27.5 (580-109299-20), LT-S25-14-15 (580-109299-21) and LT-W25-14-15 (580-109299-22) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 01/14/2022.

Job ID: 580-109299-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

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

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

Glossary

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

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W17.5-12-13
Lab Sample ID: 580-109299-1
Date Collected: 01/12/22 15:05
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	6100		870	280	mg/Kg		01/15/22 11:51	01/15/22 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*67 - 134*	*01/15/22 11:51*	*01/15/22 14:45*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3.3	U	4.3	0.82	mg/Kg		01/15/22 11:14	01/16/22 14:56	1
Toluene	6.5	U	13	2.9	mg/Kg		01/15/22 11:14	01/16/22 14:56	1
Ethylbenzene	6.5	U	8.7	2.0	mg/Kg		01/15/22 11:14	01/16/22 14:56	1
m-Xylene & p-Xylene	3.3	U	8.7	1.5	mg/Kg		01/15/22 11:14	01/16/22 14:56	1
o-Xylene	3.3	U	8.7	1.1	mg/Kg		01/15/22 11:14	01/16/22 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/15/22 11:14*	*01/16/22 14:56*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*01/15/22 11:14*	*01/16/22 14:56*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*01/15/22 11:14*	*01/16/22 14:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 14:56*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.33	U	0.43	0.082	mg/Kg		01/15/22 11:14	01/17/22 12:25	1
Toluene	0.65	U	1.3	0.29	mg/Kg		01/15/22 11:14	01/17/22 12:25	1
Ethylbenzene	0.65	U	0.87	0.20	mg/Kg		01/15/22 11:14	01/17/22 12:25	1
m-Xylene & p-Xylene	0.78	J	0.87	0.15	mg/Kg		01/15/22 11:14	01/17/22 12:25	1
o-Xylene	1.7		0.87	0.11	mg/Kg		01/15/22 11:14	01/17/22 12:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/15/22 11:14*	*01/17/22 12:25*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*01/15/22 11:14*	*01/17/22 12:25*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*01/15/22 11:14*	*01/17/22 12:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*	*Q*	*71 - 136*	*01/15/22 11:14*	*01/17/22 12:25*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	57.1		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	42.9		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W17.5-12-13
Lab Sample ID: 580-109299-1
Date Collected: 01/12/22 15:05
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 57.1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	9.1	J1	0.0084	0.0011	mg/Kg	☼	01/14/22 16:26	01/15/22 00:57	1
2-Methylnaphthalene	13	J1	0.0084	0.0035	mg/Kg	☼	01/14/22 16:26	01/15/22 00:57	1
Naphthalene	4.1	J1	0.0084	0.0027	mg/Kg	☼	01/14/22 16:26	01/15/22 00:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*32*		*28 - 143*	*01/14/22 16:26*	*01/15/22 00:57*	*1*
2-methylnaphthalene-d10	*63*		*40 - 140*	*01/14/22 16:26*	*01/15/22 00:57*	*1*
Fluoranthene-d10 (Surr)	*79*		*40 - 140*	*01/14/22 16:26*	*01/15/22 00:57*	*1*
Terphenyl-d14	*95*		*58 - 132*	*01/14/22 16:26*	*01/15/22 00:57*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	4700	J1	77	15	mg/Kg	☼	01/14/22 16:25	01/15/22 21:42	1
C24-C40	46	U	77	31	mg/Kg	☼	01/14/22 16:25	01/15/22 21:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*45 - 130*	*01/14/22 16:25*	*01/15/22 21:42*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-21-22
Lab Sample ID: 580-109299-2
Date Collected: 01/12/22 10:58
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	6.0		3.5	1.1	mg/Kg		01/15/22 11:51	01/15/22 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*67 - 134*	*01/15/22 11:51*	*01/15/22 15:09*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.013	U	0.018	0.0033	mg/Kg		01/15/22 11:14	01/16/22 16:05	1
Toluene	0.026	U	0.053	0.012	mg/Kg		01/15/22 11:14	01/16/22 16:05	1
Ethylbenzene	0.026	U	0.035	0.0080	mg/Kg		01/15/22 11:14	01/16/22 16:05	1
m-Xylene & p-Xylene	0.013	U	0.035	0.0063	mg/Kg		01/15/22 11:14	01/16/22 16:05	1
o-Xylene	0.013	U	0.035	0.0044	mg/Kg		01/15/22 11:14	01/16/22 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 11:14*	*01/16/22 16:05*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*01/15/22 11:14*	*01/16/22 16:05*	*1*
Dibromofluoromethane (Surr)	*95*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 16:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 16:05*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.3		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	32.7		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-21-22
Lab Sample ID: 580-109299-2
Date Collected: 01/12/22 10:58
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 67.3

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.039		0.0065	0.00081	mg/Kg	☼	01/14/22 16:26	01/15/22 02:09	1
2-Methylnaphthalene	0.053		0.0065	0.0026	mg/Kg	☼	01/14/22 16:26	01/15/22 02:09	1
Naphthalene	0.011	M	0.0065	0.0021	mg/Kg	☼	01/14/22 16:26	01/15/22 02:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*64*		*28 - 143*	*01/14/22 16:26*	*01/15/22 02:09*	*1*
2-methylnaphthalene-d10	*71*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:09*	*1*
Fluoranthene-d10 (Surr)	*88*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:09*	*1*
Terphenyl-d14	*91*		*58 - 132*	*01/14/22 16:26*	*01/15/22 02:09*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	42	J	69	14	mg/Kg	☼	01/14/22 16:25	01/15/22 22:40	1
C24-C40	42	U	69	28	mg/Kg	☼	01/14/22 16:25	01/15/22 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*45 - 130*	*01/14/22 16:25*	*01/15/22 22:40*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-E10-7-8
Lab Sample ID: 580-109299-3
Date Collected: 01/12/22 13:25
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	1.5	J	3.5	1.1	mg/Kg		01/15/22 11:51	01/15/22 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*67 - 134*	*01/15/22 11:51*	*01/15/22 15:32*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.013	U	0.018	0.0033	mg/Kg		01/15/22 11:14	01/16/22 16:28	1
Toluene	0.026	U	0.053	0.012	mg/Kg		01/15/22 11:14	01/16/22 16:28	1
Ethylbenzene	0.026	U	0.035	0.0080	mg/Kg		01/15/22 11:14	01/16/22 16:28	1
m-Xylene & p-Xylene	0.013	U	0.035	0.0062	mg/Kg		01/15/22 11:14	01/16/22 16:28	1
o-Xylene	0.013	U	0.035	0.0044	mg/Kg		01/15/22 11:14	01/16/22 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 11:14*	*01/16/22 16:28*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 11:14*	*01/16/22 16:28*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 119*	*01/15/22 11:14*	*01/16/22 16:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*01/15/22 11:14*	*01/16/22 16:28*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	70.6		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	29.4		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-E10-7-8
Date Collected: 01/12/22 13:25
Date Received: 01/14/22 15:12

Lab Sample ID: 580-109299-3
Matrix: Solid
Percent Solids: 70.6

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0017	U	0.0057	0.00072	mg/Kg	☼	01/14/22 16:26	01/15/22 02:33	1
2-Methylnaphthalene	0.0034	U	0.0057	0.0023	mg/Kg	☼	01/14/22 16:26	01/15/22 02:33	1
Naphthalene	0.0046	U	0.0057	0.0019	mg/Kg	☼	01/14/22 16:26	01/15/22 02:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*28 - 143*	*01/14/22 16:26*	*01/15/22 02:33*	*1*
2-methylnaphthalene-d10	*68*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:33*	*1*
Fluoranthene-d10 (Surr)	*79*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:33*	*1*
Terphenyl-d14	*89*		*58 - 132*	*01/14/22 16:26*	*01/15/22 02:33*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	31	U	52	10	mg/Kg	☼	01/14/22 16:25	01/15/22 22:59	1
C24-C40	**25**	**J**	52	21	mg/Kg	☼	01/14/22 16:25	01/15/22 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*45 - 130*	*01/14/22 16:25*	*01/15/22 22:59*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S25-7-8
Lab Sample ID: 580-109299-4
Date Collected: 01/12/22 14:22
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	6.1	U	8.1	2.6	mg/Kg		01/15/22 11:51	01/15/22 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*67 - 134*	*01/15/22 11:51*	*01/15/22 13:36*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.030	U	0.041	0.0077	mg/Kg		01/15/22 11:14	01/16/22 16:51	1
Toluene	0.061	U	0.12	0.027	mg/Kg		01/15/22 11:14	01/16/22 16:51	1
Ethylbenzene	0.061	U	0.081	0.018	mg/Kg		01/15/22 11:14	01/16/22 16:51	1
m-Xylene & p-Xylene	0.030	U	0.081	0.014	mg/Kg		01/15/22 11:14	01/16/22 16:51	1
o-Xylene	0.030	U	0.081	0.010	mg/Kg		01/15/22 11:14	01/16/22 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/15/22 11:14*	*01/16/22 16:51*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 11:14*	*01/16/22 16:51*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*01/15/22 11:14*	*01/16/22 16:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*01/15/22 11:14*	*01/16/22 16:51*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**78.0**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**22.0**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S25-7-8
Lab Sample ID: 580-109299-4
Date Collected: 01/12/22 14:22
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 78.0

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0019	U	0.0063	0.00080	mg/Kg	☼	01/14/22 16:26	01/15/22 02:57	1
2-Methylnaphthalene	0.0038	U	0.0063	0.0026	mg/Kg	☼	01/14/22 16:26	01/15/22 02:57	1
Naphthalene	0.0051	U	0.0063	0.0020	mg/Kg	☼	01/14/22 16:26	01/15/22 02:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*28 - 143*	*01/14/22 16:26*	*01/15/22 02:57*	*1*
2-methylnaphthalene-d10	*77*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:57*	*1*
Fluoranthene-d10 (Surr)	*95*		*40 - 140*	*01/14/22 16:26*	*01/15/22 02:57*	*1*
Terphenyl-d14	*114*		*58 - 132*	*01/14/22 16:26*	*01/15/22 02:57*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	33	U	55	11	mg/Kg	☼	01/14/22 16:25	01/15/22 23:18	1
C24-C40	33	U	55	22	mg/Kg	☼	01/14/22 16:25	01/15/22 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*45 - 130*	*01/14/22 16:25*	*01/15/22 23:18*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W10-11-12
Lab Sample ID: 580-109299-5
Date Collected: 01/11/22 15:20
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**890**		390	130	mg/Kg		01/15/22 11:51	01/15/22 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*67 - 134*	*01/15/22 11:51*	*01/15/22 15:55*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.029	U	0.039	0.0075	mg/Kg		01/15/22 11:14	01/17/22 13:35	1
Toluene	0.059	U	0.12	0.026	mg/Kg		01/15/22 11:14	01/17/22 13:35	1
Ethylbenzene	0.059	U	0.079	0.018	mg/Kg		01/15/22 11:14	01/17/22 13:35	1
m-Xylene & p-Xylene	**0.37**		0.079	0.014	mg/Kg		01/15/22 11:14	01/17/22 13:35	1
o-Xylene	**1.3**		0.079	0.0098	mg/Kg		01/15/22 11:14	01/17/22 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*85 - 116*	*01/15/22 11:14*	*01/17/22 13:35*	*1*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*	*01/15/22 11:14*	*01/17/22 13:35*	*1*
Dibromofluoromethane (Surr)	*82*		*78 - 119*	*01/15/22 11:14*	*01/17/22 13:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*78*	*Q*	*71 - 136*	*01/15/22 11:14*	*01/17/22 13:35*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**77.9**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**22.1**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W10-11-12
Lab Sample ID: 580-109299-5

Date Collected: 01/11/22 15:20
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 77.9

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	1.7		0.0058	0.00073	mg/Kg	☼	01/14/22 16:26	01/15/22 03:20	1
2-Methylnaphthalene	2.6		0.0058	0.0024	mg/Kg	☼	01/14/22 16:26	01/15/22 03:20	1
Naphthalene	0.61		0.0058	0.0019	mg/Kg	☼	01/14/22 16:26	01/15/22 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*52*		*28 - 143*	*01/14/22 16:26*	*01/15/22 03:20*	*1*
2-methylnaphthalene-d10	*73*		*40 - 140*	*01/14/22 16:26*	*01/15/22 03:20*	*1*
Fluoranthene-d10 (Surr)	*87*		*40 - 140*	*01/14/22 16:26*	*01/15/22 03:20*	*1*
Terphenyl-d14	*103*		*58 - 132*	*01/14/22 16:26*	*01/15/22 03:20*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	370		58	11	mg/Kg	☼	01/14/22 16:25	01/15/22 23:38	1
C24-C40	140		58	23	mg/Kg	☼	01/14/22 16:25	01/15/22 23:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*45 - 130*	*01/14/22 16:25*	*01/15/22 23:38*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W10-19-20
Lab Sample ID: 580-109299-6
Date Collected: 01/11/22 16:02
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**400**		3.6	1.2	mg/Kg		01/15/22 11:51	01/15/22 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*140*	*Q*	*67 - 134*	*01/15/22 11:51*	*01/15/22 16:41*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.029	U	0.039	0.0073	mg/Kg		01/15/22 11:14	01/17/22 13:58	1
Toluene	0.058	U	0.12	0.026	mg/Kg		01/15/22 11:14	01/17/22 13:58	1
Ethylbenzene	0.058	U	0.077	0.018	mg/Kg		01/15/22 11:14	01/17/22 13:58	1
m-Xylene & p-Xylene	**0.23**	**M**	0.077	0.014	mg/Kg		01/15/22 11:14	01/17/22 13:58	1
o-Xylene	**0.43**		0.077	0.0096	mg/Kg		01/15/22 11:14	01/17/22 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*01/15/22 11:14*	*01/17/22 13:58*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*01/15/22 11:14*	*01/17/22 13:58*	*1*
Dibromofluoromethane (Surr)	*80*		*78 - 119*	*01/15/22 11:14*	*01/17/22 13:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*74*	*Q*	*71 - 136*	*01/15/22 11:14*	*01/17/22 13:58*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**66.2**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**33.8**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W10-19-20
Lab Sample ID: 580-109299-6
Date Collected: 01/11/22 16:02
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.2

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	1.1		0.0072	0.00091	mg/Kg	☼	01/14/22 16:26	01/15/22 03:44	1
2-Methylnaphthalene	1.6		0.0072	0.0029	mg/Kg	☼	01/14/22 16:26	01/15/22 03:44	1
Naphthalene	0.36		0.0072	0.0023	mg/Kg	☼	01/14/22 16:26	01/15/22 03:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*62*		*28 - 143*	*01/14/22 16:26*	*01/15/22 03:44*	*1*
2-methylnaphthalene-d10	*73*		*40 - 140*	*01/14/22 16:26*	*01/15/22 03:44*	*1*
Fluoranthene-d10 (Surr)	*83*		*40 - 140*	*01/14/22 16:26*	*01/15/22 03:44*	*1*
Terphenyl-d14	*104*		*58 - 132*	*01/14/22 16:26*	*01/15/22 03:44*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	510		54	11	mg/Kg	☼	01/14/22 16:25	01/16/22 00:16	1
C24-C40	29	J	54	22	mg/Kg	☼	01/14/22 16:25	01/16/22 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*45 - 130*	*01/14/22 16:25*	*01/16/22 00:16*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-19-20
Lab Sample ID: 580-109299-7
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**450**		9.1	3.0	mg/Kg		01/15/22 11:51	01/15/22 17:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*67 - 134*	*01/15/22 11:51*	*01/15/22 17:04*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.034	U	0.045	0.0086	mg/Kg		01/15/22 11:14	01/16/22 18:00	1
Toluene	0.068	U	0.14	0.031	mg/Kg		01/15/22 11:14	01/16/22 18:00	1
Ethylbenzene	0.068	U	0.091	0.021	mg/Kg		01/15/22 11:14	01/16/22 18:00	1
m-Xylene & p-Xylene	0.034	U	0.091	0.016	mg/Kg		01/15/22 11:14	01/16/22 18:00	1
o-Xylene	**0.13**		0.091	0.011	mg/Kg		01/15/22 11:14	01/16/22 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*01/15/22 11:14*	*01/16/22 18:00*	*1*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*	*01/15/22 11:14*	*01/16/22 18:00*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*01/15/22 11:14*	*01/16/22 18:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*01/15/22 11:14*	*01/16/22 18:00*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**66.8**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**33.2**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-19-20
Lab Sample ID: 580-109299-7

Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.8

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	1.2		0.0071	0.00089	mg/Kg	☼	01/14/22 16:26	01/15/22 04:08	1
2-Methylnaphthalene	1.7		0.0071	0.0029	mg/Kg	☼	01/14/22 16:26	01/15/22 04:08	1
Naphthalene	0.40		0.0071	0.0023	mg/Kg	☼	01/14/22 16:26	01/15/22 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*51*		*28 - 143*	*01/14/22 16:26*	*01/15/22 04:08*	*1*
2-methylnaphthalene-d10	*65*		*40 - 140*	*01/14/22 16:26*	*01/15/22 04:08*	*1*
Fluoranthene-d10 (Surr)	*73*		*40 - 140*	*01/14/22 16:26*	*01/15/22 04:08*	*1*
Terphenyl-d14	*90*		*58 - 132*	*01/14/22 16:26*	*01/15/22 04:08*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	1200		62	12	mg/Kg	☼	01/14/22 16:25	01/16/22 00:35	1
C24-C40	37	U	62	25	mg/Kg	☼	01/14/22 16:25	01/16/22 00:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*45 - 130*	*01/14/22 16:25*	*01/16/22 00:35*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N40-7-8
Lab Sample ID: 580-109299-8
Date Collected: 01/12/22 15:42
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	64		8.2	2.7	mg/Kg		01/15/22 11:51	01/15/22 17:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*67 - 134*	*01/15/22 11:51*	*01/15/22 17:28*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.031	U	0.041	0.0078	mg/Kg		01/15/22 11:14	01/16/22 18:23	1
Toluene	0.061	U	0.12	0.028	mg/Kg		01/15/22 11:14	01/16/22 18:23	1
Ethylbenzene	0.061	U	0.082	0.019	mg/Kg		01/15/22 11:14	01/16/22 18:23	1
m-Xylene & p-Xylene	0.031	U	0.082	0.015	mg/Kg		01/15/22 11:14	01/16/22 18:23	1
o-Xylene	0.031	U	0.082	0.010	mg/Kg		01/15/22 11:14	01/16/22 18:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/15/22 11:14*	*01/16/22 18:23*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*01/15/22 11:14*	*01/16/22 18:23*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*01/15/22 11:14*	*01/16/22 18:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*01/15/22 11:14*	*01/16/22 18:23*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.7		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	20.3		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N40-7-8
Lab Sample ID: 580-109299-8
Date Collected: 01/12/22 15:42
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 79.7

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	**0.0026**	**J M**	0.0050	0.00063	mg/Kg	☼	01/14/22 16:26	01/15/22 19:29	1
2-Methylnaphthalene	**0.0056**	**M**	0.0050	0.0020	mg/Kg	☼	01/14/22 16:26	01/15/22 19:29	1
Naphthalene	0.0040	U M	0.0050	0.0016	mg/Kg	☼	01/14/22 16:26	01/15/22 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*60*		*28 - 143*	*01/14/22 16:26*	*01/15/22 19:29*	*1*
2-methylnaphthalene-d10	*78*		*40 - 140*	*01/14/22 16:26*	*01/15/22 19:29*	*1*
Fluoranthene-d10 (Surr)	*62*		*40 - 140*	*01/14/22 16:26*	*01/15/22 19:29*	*1*
Terphenyl-d14	*77*		*58 - 132*	*01/14/22 16:26*	*01/15/22 19:29*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	370	U	610	120	mg/Kg	☼	01/14/22 16:25	01/16/22 16:17	10
C24-C40	**640**	**D**	610	240	mg/Kg	☼	01/14/22 16:25	01/16/22 16:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*45 - 130*	*01/14/22 16:25*	*01/16/22 16:17*	*10*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N25-16-17
Lab Sample ID: 580-109299-9
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	4800		840	270	mg/Kg		01/15/22 11:51	01/15/22 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*67 - 134*	*01/15/22 11:51*	*01/15/22 17:51*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.31	U	0.42	0.080	mg/Kg		01/15/22 11:14	01/17/22 13:12	1
Toluene	0.63	U	1.3	0.28	mg/Kg		01/15/22 11:14	01/17/22 13:12	1
Ethylbenzene	0.21	J	0.84	0.19	mg/Kg		01/15/22 11:14	01/17/22 13:12	1
m-Xylene & p-Xylene	1.5		0.84	0.15	mg/Kg		01/15/22 11:14	01/17/22 13:12	1
o-Xylene	2.6		0.84	0.10	mg/Kg		01/15/22 11:14	01/17/22 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*01/15/22 11:14*	*01/17/22 13:12*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 11:14*	*01/17/22 13:12*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 119*	*01/15/22 11:14*	*01/17/22 13:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*	*Q*	*71 - 136*	*01/15/22 11:14*	*01/17/22 13:12*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	66.1		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	33.9		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N25-16-17
Lab Sample ID: 580-109299-9
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	6.9		0.0069	0.00087	mg/Kg	☼	01/14/22 16:26	01/15/22 04:56	1
2-Methylnaphthalene	11		0.0069	0.0028	mg/Kg	☼	01/14/22 16:26	01/15/22 04:56	1
Naphthalene	4.2		0.0069	0.0022	mg/Kg	☼	01/14/22 16:26	01/15/22 04:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*31*		*28 - 143*	*01/14/22 16:26*	*01/15/22 04:56*	*1*
2-methylnaphthalene-d10	*42*		*40 - 140*	*01/14/22 16:26*	*01/15/22 04:56*	*1*
Fluoranthene-d10 (Surr)	*76*		*40 - 140*	*01/14/22 16:26*	*01/15/22 04:56*	*1*
Terphenyl-d14	*78*		*58 - 132*	*01/14/22 16:26*	*01/15/22 04:56*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	5900		73	15	mg/Kg	☼	01/14/22 16:25	01/16/22 01:14	1
C24-C40	44	U	73	29	mg/Kg	☼	01/14/22 16:25	01/16/22 01:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*45 - 130*	*01/14/22 16:25*	*01/16/22 01:14*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S10-17-18
Lab Sample ID: 580-109299-10
Date Collected: 01/12/22 10:05
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**180**		3.8	1.2	mg/Kg		01/15/22 11:51	01/15/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*67 - 134*	*01/15/22 11:51*	*01/15/22 18:14*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.014	U	0.019	0.0036	mg/Kg		01/15/22 11:14	01/16/22 19:08	1
Toluene	0.028	U	0.057	0.013	mg/Kg		01/15/22 11:14	01/16/22 19:08	1
Ethylbenzene	0.028	U M	0.038	0.0086	mg/Kg		01/15/22 11:14	01/16/22 19:08	1
m-Xylene & p-Xylene	**0.034**	**J M**	0.038	0.0067	mg/Kg		01/15/22 11:14	01/16/22 19:08	1
o-Xylene	**0.030**	**J**	0.038	0.0047	mg/Kg		01/15/22 11:14	01/16/22 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/15/22 11:14*	*01/16/22 19:08*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*01/15/22 11:14*	*01/16/22 19:08*	*1*
Dibromofluoromethane (Surr)	*99*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 19:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 19:08*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**64.4**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**35.6**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S10-17-18
Lab Sample ID: 580-109299-10
Date Collected: 01/12/22 10:05
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 64.4

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	1.8		0.0075	0.00095	mg/Kg	☼	01/14/22 16:26	01/15/22 05:20	1
2-Methylnaphthalene	2.6		0.0075	0.0031	mg/Kg	☼	01/14/22 16:26	01/15/22 05:20	1
Naphthalene	0.81		0.0075	0.0024	mg/Kg	☼	01/14/22 16:26	01/15/22 05:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*53*		*28 - 143*	*01/14/22 16:26*	*01/15/22 05:20*	*1*
2-methylnaphthalene-d10	*73*		*40 - 140*	*01/14/22 16:26*	*01/15/22 05:20*	*1*
Fluoranthene-d10 (Surr)	*76*		*40 - 140*	*01/14/22 16:26*	*01/15/22 05:20*	*1*
Terphenyl-d14	*94*		*58 - 132*	*01/14/22 16:26*	*01/15/22 05:20*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	420		68	14	mg/Kg	☼	01/14/22 16:25	01/16/22 01:33	1
C24-C40	41	U	68	27	mg/Kg	☼	01/14/22 16:25	01/16/22 01:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*45 - 130*	*01/14/22 16:25*	*01/16/22 01:33*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-7-8
Lab Sample ID: 580-109299-11
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**480**		3.5	1.1	mg/Kg		01/15/22 11:51	01/15/22 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*153*	*Q*	*67 - 134*	*01/15/22 11:51*	*01/15/22 18:37*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.013	U	0.018	0.0033	mg/Kg		01/15/22 11:14	01/16/22 19:31	1
Toluene	0.026	U	0.053	0.012	mg/Kg		01/15/22 11:14	01/16/22 19:31	1
Ethylbenzene	0.026	U	0.035	0.0080	mg/Kg		01/15/22 11:14	01/16/22 19:31	1
m-Xylene & p-Xylene	**0.035**		0.035	0.0062	mg/Kg		01/15/22 11:14	01/16/22 19:31	1
o-Xylene	**0.23**		0.035	0.0044	mg/Kg		01/15/22 11:14	01/16/22 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*01/15/22 11:14*	*01/16/22 19:31*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*01/15/22 11:14*	*01/16/22 19:31*	*1*
Dibromofluoromethane (Surr)	*92*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 19:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 19:31*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**72.9**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**27.1**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-7-8
Lab Sample ID: 580-109299-11
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 72.9

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	2.0		0.0066	0.00084	mg/Kg	☼	01/14/22 16:26	01/15/22 05:44	1
2-Methylnaphthalene	1.5		0.0066	0.0027	mg/Kg	☼	01/14/22 16:26	01/15/22 05:44	1
Naphthalene	0.57		0.0066	0.0022	mg/Kg	☼	01/14/22 16:26	01/15/22 05:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*34*		*28 - 143*	*01/14/22 16:26*	*01/15/22 05:44*	*1*
2-methylnaphthalene-d10	*85*		*40 - 140*	*01/14/22 16:26*	*01/15/22 05:44*	*1*
Fluoranthene-d10 (Surr)	*70*		*40 - 140*	*01/14/22 16:26*	*01/15/22 05:44*	*1*
Terphenyl-d14	*90*		*58 - 132*	*01/14/22 16:26*	*01/15/22 05:44*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	3500		65	13	mg/Kg	☼	01/14/22 16:25	01/16/22 01:52	1
C24-C40	39	U	65	26	mg/Kg	☼	01/14/22 16:25	01/16/22 01:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*45 - 130*	*01/14/22 16:25*	*01/16/22 01:52*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-N10-24-25
Lab Sample ID: 580-109299-12
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	240		6.7	2.2	mg/Kg		01/15/22 11:51	01/15/22 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*67 - 134*	*01/15/22 11:51*	*01/15/22 19:01*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.025	U	0.033	0.0063	mg/Kg		01/15/22 11:14	01/16/22 19:54	1
Toluene	0.050	U	0.10	0.022	mg/Kg		01/15/22 11:14	01/16/22 19:54	1
Ethylbenzene	0.050	U	0.067	0.015	mg/Kg		01/15/22 11:14	01/16/22 19:54	1
m-Xylene & p-Xylene	0.025	U M	0.067	0.012	mg/Kg		01/15/22 11:14	01/16/22 19:54	1
o-Xylene	0.025	U M	0.067	0.0083	mg/Kg		01/15/22 11:14	01/16/22 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/15/22 11:14*	*01/16/22 19:54*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 11:14*	*01/16/22 19:54*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*01/15/22 11:14*	*01/16/22 19:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 19:54*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.2		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	31.8		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-N10-24-25
Lab Sample ID: 580-109299-12
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 68.2

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.039		0.0064	0.00080	mg/Kg	☼	01/14/22 16:26	01/15/22 06:07	1
2-Methylnaphthalene	0.060	M	0.0064	0.0026	mg/Kg	☼	01/14/22 16:26	01/15/22 06:07	1
Naphthalene	0.021	M	0.0064	0.0021	mg/Kg	☼	01/14/22 16:26	01/15/22 06:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*55*		*28 - 143*	*01/14/22 16:26*	*01/15/22 06:07*	*1*
2-methylnaphthalene-d10	*71*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:07*	*1*
Fluoranthene-d10 (Surr)	*87*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:07*	*1*
Terphenyl-d14	*99*		*58 - 132*	*01/14/22 16:26*	*01/15/22 06:07*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	95		71	14	mg/Kg	☼	01/14/22 16:25	01/16/22 02:11	1
C24-C40	43	U	71	29	mg/Kg	☼	01/14/22 16:25	01/16/22 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*45 - 130*	*01/14/22 16:25*	*01/16/22 02:11*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-W10-18-19
Lab Sample ID: 580-109299-13
Date Collected: 01/12/22 17:29
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**620**		8.1	2.6	mg/Kg		01/15/22 11:51	01/15/22 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*67 - 134*	*01/15/22 11:51*	*01/15/22 19:24*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.030	U	0.040	0.0077	mg/Kg		01/15/22 11:14	01/16/22 20:17	1
Toluene	0.061	U	0.12	0.027	mg/Kg		01/15/22 11:14	01/16/22 20:17	1
Ethylbenzene	0.061	U	0.081	0.018	mg/Kg		01/15/22 11:14	01/16/22 20:17	1
m-Xylene & p-Xylene	**0.038**	**J**	0.081	0.014	mg/Kg		01/15/22 11:14	01/16/22 20:17	1
o-Xylene	**0.32**		0.081	0.010	mg/Kg		01/15/22 11:14	01/16/22 20:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*85 - 116*	*01/15/22 11:14*	*01/16/22 20:17*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*01/15/22 11:14*	*01/16/22 20:17*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 119*	*01/15/22 11:14*	*01/16/22 20:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*01/15/22 11:14*	*01/16/22 20:17*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**65.7**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**34.3**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-W10-18-19
Lab Sample ID: 580-109299-13
Date Collected: 01/12/22 17:29
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 65.7

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.76		0.0071	0.00089	mg/Kg	☼	01/14/22 16:26	01/15/22 06:31	1
2-Methylnaphthalene	0.91		0.0071	0.0029	mg/Kg	☼	01/14/22 16:26	01/15/22 06:31	1
Naphthalene	0.25		0.0071	0.0023	mg/Kg	☼	01/14/22 16:26	01/15/22 06:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*42*		*28 - 143*	*01/14/22 16:26*	*01/15/22 06:31*	*1*
2-methylnaphthalene-d10	*55*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:31*	*1*
Fluoranthene-d10 (Surr)	*62*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:31*	*1*
Terphenyl-d14	*74*		*58 - 132*	*01/14/22 16:26*	*01/15/22 06:31*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	1300		56	11	mg/Kg	☼	01/14/22 16:25	01/16/22 02:30	1
C24-C40	33	U	56	22	mg/Kg	☼	01/14/22 16:25	01/16/22 02:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*45 - 130*	*01/14/22 16:25*	*01/16/22 02:30*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-W10-22-23
Lab Sample ID: 580-109299-14
Date Collected: 01/12/22 17:23
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	100		8.7	2.8	mg/Kg		01/15/22 11:51	01/15/22 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*67 - 134*	*01/15/22 11:51*	*01/15/22 19:47*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.033	U	0.044	0.0083	mg/Kg		01/15/22 11:14	01/16/22 20:40	1
Toluene	0.065	U	0.13	0.029	mg/Kg		01/15/22 11:14	01/16/22 20:40	1
Ethylbenzene	0.065	U	0.087	0.020	mg/Kg		01/15/22 11:14	01/16/22 20:40	1
m-Xylene & p-Xylene	0.033	U	0.087	0.015	mg/Kg		01/15/22 11:14	01/16/22 20:40	1
o-Xylene	0.033	U	0.087	0.011	mg/Kg		01/15/22 11:14	01/16/22 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/15/22 11:14*	*01/16/22 20:40*	*1*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*	*01/15/22 11:14*	*01/16/22 20:40*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*01/15/22 11:14*	*01/16/22 20:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/15/22 11:14*	*01/16/22 20:40*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75.3		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	24.7		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: HT-W10-22-23
Lab Sample ID: 580-109299-14
Date Collected: 01/12/22 17:23
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.3

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.13		0.0061	0.00077	mg/Kg	☼	01/14/22 16:26	01/15/22 06:55	1
2-Methylnaphthalene	0.17		0.0061	0.0025	mg/Kg	☼	01/14/22 16:26	01/15/22 06:55	1
Naphthalene	0.038		0.0061	0.0020	mg/Kg	☼	01/14/22 16:26	01/15/22 06:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*55*		*28 - 143*	*01/14/22 16:26*	*01/15/22 06:55*	*1*
2-methylnaphthalene-d10	*67*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:55*	*1*
Fluoranthene-d10 (Surr)	*71*		*40 - 140*	*01/14/22 16:26*	*01/15/22 06:55*	*1*
Terphenyl-d14	*94*		*58 - 132*	*01/14/22 16:26*	*01/15/22 06:55*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	39	J	56	11	mg/Kg	☼	01/14/22 16:25	01/16/22 02:49	1
C24-C40	33	U	56	22	mg/Kg	☼	01/14/22 16:25	01/16/22 02:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*45 - 130*	*01/14/22 16:25*	*01/16/22 02:49*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S17.5-5-6
Lab Sample ID: 580-109299-15
Date Collected: 01/12/22 13:43
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	24		8.1	2.6	mg/Kg		01/15/22 11:51	01/15/22 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*67 - 134*	*01/15/22 11:51*	*01/15/22 20:10*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.030	U	0.041	0.0077	mg/Kg		01/15/22 11:14	01/16/22 21:03	1
Toluene	0.061	U	0.12	0.027	mg/Kg		01/15/22 11:14	01/16/22 21:03	1
Ethylbenzene	0.061	U	0.081	0.018	mg/Kg		01/15/22 11:14	01/16/22 21:03	1
m-Xylene & p-Xylene	0.030	U	0.081	0.014	mg/Kg		01/15/22 11:14	01/16/22 21:03	1
o-Xylene	0.030	U	0.081	0.010	mg/Kg		01/15/22 11:14	01/16/22 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 11:14*	*01/16/22 21:03*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/15/22 11:14*	*01/16/22 21:03*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 119*	*01/15/22 11:14*	*01/16/22 21:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*01/15/22 11:14*	*01/16/22 21:03*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.0		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	16.0		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S17.5-5-6
Lab Sample ID: 580-109299-15
Date Collected: 01/12/22 13:43
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 84.0

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0028	J M	0.0055	0.00069	mg/Kg	☼	01/14/22 16:26	01/15/22 07:19	1
2-Methylnaphthalene	0.0025	J M	0.0055	0.0023	mg/Kg	☼	01/14/22 16:26	01/15/22 07:19	1
Naphthalene	0.0044	U	0.0055	0.0018	mg/Kg	☼	01/14/22 16:26	01/15/22 07:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*28 - 143*	*01/14/22 16:26*	*01/15/22 07:19*	*1*
2-methylnaphthalene-d10	*69*		*40 - 140*	*01/14/22 16:26*	*01/15/22 07:19*	*1*
Fluoranthene-d10 (Surr)	*77*		*40 - 140*	*01/14/22 16:26*	*01/15/22 07:19*	*1*
Terphenyl-d14	*92*		*58 - 132*	*01/14/22 16:26*	*01/15/22 07:19*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	22	J	54	11	mg/Kg	☼	01/14/22 16:25	01/16/22 03:08	1
C24-C40	110		54	22	mg/Kg	☼	01/14/22 16:25	01/16/22 03:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*45 - 130*	*01/14/22 16:25*	*01/16/22 03:08*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W55-17-18
Lab Sample ID: 580-109299-16
Date Collected: 01/11/22 14:55
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	2.7	U	3.6	1.2	mg/Kg		01/15/22 11:51	01/15/22 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*67 - 134*	*01/15/22 11:51*	*01/15/22 20:57*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.014	U	0.018	0.0034	mg/Kg		01/15/22 11:14	01/16/22 21:25	1
Toluene	0.027	U	0.054	0.012	mg/Kg		01/15/22 11:14	01/16/22 21:25	1
Ethylbenzene	0.027	U	0.036	0.0082	mg/Kg		01/15/22 11:14	01/16/22 21:25	1
m-Xylene & p-Xylene	0.014	U	0.036	0.0064	mg/Kg		01/15/22 11:14	01/16/22 21:25	1
o-Xylene	**0.020**	**J**	0.036	0.0045	mg/Kg		01/15/22 11:14	01/16/22 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/15/22 11:14*	*01/16/22 21:25*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/15/22 11:14*	*01/16/22 21:25*	*1*
Dibromofluoromethane (Surr)	*93*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 21:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 21:25*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75.2**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**24.8**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W55-17-18
Lab Sample ID: 580-109299-16
Date Collected: 01/11/22 14:55
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.2

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0053	J M	0.0062	0.00078	mg/Kg	☼	01/14/22 16:26	01/15/22 07:43	1
2-Methylnaphthalene	0.0085	M	0.0062	0.0025	mg/Kg	☼	01/14/22 16:26	01/15/22 07:43	1
Naphthalene	0.023	M	0.0062	0.0020	mg/Kg	☼	01/14/22 16:26	01/15/22 07:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*28 - 143*	*01/14/22 16:26*	*01/15/22 07:43*	*1*
2-methylnaphthalene-d10	*69*		*40 - 140*	*01/14/22 16:26*	*01/15/22 07:43*	*1*
Fluoranthene-d10 (Surr)	*82*		*40 - 140*	*01/14/22 16:26*	*01/15/22 07:43*	*1*
Terphenyl-d14	*99*		*58 - 132*	*01/14/22 16:26*	*01/15/22 07:43*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	39	U	65	13	mg/Kg	☼	01/14/22 16:25	01/16/22 03:47	1
C24-C40	39	U	65	26	mg/Kg	☼	01/14/22 16:25	01/16/22 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*79*		*45 - 130*	*01/14/22 16:25*	*01/16/22 03:47*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W19.5-14-15
Lab Sample ID: 580-109299-17
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	5.0	J	9.0	2.9	mg/Kg		01/15/22 11:51	01/15/22 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*67 - 134*	*01/15/22 11:51*	*01/15/22 21:20*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.034	U	0.045	0.0086	mg/Kg		01/15/22 11:14	01/16/22 21:48	1
Toluene	0.068	U	0.14	0.030	mg/Kg		01/15/22 11:14	01/16/22 21:48	1
Ethylbenzene	0.068	U	0.090	0.021	mg/Kg		01/15/22 11:14	01/16/22 21:48	1
m-Xylene & p-Xylene	0.034	U	0.090	0.016	mg/Kg		01/15/22 11:14	01/16/22 21:48	1
o-Xylene	0.034	U	0.090	0.011	mg/Kg		01/15/22 11:14	01/16/22 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 11:14*	*01/16/22 21:48*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*01/15/22 11:14*	*01/16/22 21:48*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 119*	*01/15/22 11:14*	*01/16/22 21:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*01/15/22 11:14*	*01/16/22 21:48*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75.7		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	24.3		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W19.5-14-15
Lab Sample ID: 580-109299-17
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.7

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0061	M	0.0059	0.00075	mg/Kg	☼	01/14/22 16:26	01/15/22 08:07	1
2-Methylnaphthalene	0.0079	M	0.0059	0.0024	mg/Kg	☼	01/14/22 16:26	01/15/22 08:07	1
Naphthalene	0.0040	J M	0.0059	0.0019	mg/Kg	☼	01/14/22 16:26	01/15/22 08:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*58*		*28 - 143*	*01/14/22 16:26*	*01/15/22 08:07*	*1*
2-methylnaphthalene-d10	*62*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:07*	*1*
Fluoranthene-d10 (Surr)	*75*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:07*	*1*
Terphenyl-d14	*91*		*58 - 132*	*01/14/22 16:26*	*01/15/22 08:07*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	90		59	12	mg/Kg	☼	01/14/22 16:25	01/16/22 04:06	1
C24-C40	110		59	24	mg/Kg	☼	01/14/22 16:25	01/16/22 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*		*45 - 130*	*01/14/22 16:25*	*01/16/22 04:06*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S10-23-24
Lab Sample ID: 580-109299-18
Date Collected: 01/12/22 10:10
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	1.8	J	3.8	1.2	mg/Kg		01/15/22 11:51	01/15/22 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*67 - 134*	*01/15/22 11:51*	*01/15/22 21:43*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.014	U	0.019	0.0036	mg/Kg		01/15/22 11:14	01/16/22 22:11	1
Toluene	0.029	U	0.057	0.013	mg/Kg		01/15/22 11:14	01/16/22 22:11	1
Ethylbenzene	0.029	U	0.038	0.0087	mg/Kg		01/15/22 11:14	01/16/22 22:11	1
m-Xylene & p-Xylene	0.014	U	0.038	0.0068	mg/Kg		01/15/22 11:14	01/16/22 22:11	1
o-Xylene	0.014	U	0.038	0.0048	mg/Kg		01/15/22 11:14	01/16/22 22:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/15/22 11:14*	*01/16/22 22:11*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*01/15/22 11:14*	*01/16/22 22:11*	*1*
Dibromofluoromethane (Surr)	*91*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 22:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*01/15/22 11:14*	*01/16/22 22:11*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.7		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	32.3		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S10-23-24
Lab Sample ID: 580-109299-18
Date Collected: 01/12/22 10:10
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 67.7

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.027		0.0059	0.00075	mg/Kg	☼	01/14/22 16:26	01/15/22 08:31	1
2-Methylnaphthalene	0.021		0.0059	0.0024	mg/Kg	☼	01/14/22 16:26	01/15/22 08:31	1
Naphthalene	0.017	M	0.0059	0.0019	mg/Kg	☼	01/14/22 16:26	01/15/22 08:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*61*		*28 - 143*	*01/14/22 16:26*	*01/15/22 08:31*	*1*
2-methylnaphthalene-d10	*69*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:31*	*1*
Fluoranthene-d10 (Surr)	*79*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:31*	*1*
Terphenyl-d14	*93*		*58 - 132*	*01/14/22 16:26*	*01/15/22 08:31*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	13	J	65	13	mg/Kg	☼	01/14/22 16:25	01/16/22 04:25	1
C24-C40	39	U	65	26	mg/Kg	☼	01/14/22 16:25	01/16/22 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*45 - 130*	*01/14/22 16:25*	*01/16/22 04:25*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W40-9-10
Lab Sample ID: 580-109299-19
Date Collected: 01/11/22 16:51
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3.4	U	4.6	1.5	mg/Kg		01/15/22 11:51	01/15/22 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*67 - 134*	*01/15/22 11:51*	*01/15/22 22:06*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.017	U	0.023	0.0043	mg/Kg		01/15/22 11:14	01/16/22 22:34	1
Toluene	0.034	U	0.068	0.015	mg/Kg		01/15/22 11:14	01/16/22 22:34	1
Ethylbenzene	0.034	U	0.046	0.010	mg/Kg		01/15/22 11:14	01/16/22 22:34	1
m-Xylene & p-Xylene	0.017	U	0.046	0.0081	mg/Kg		01/15/22 11:14	01/16/22 22:34	1
o-Xylene	0.017	U	0.046	0.0057	mg/Kg		01/15/22 11:14	01/16/22 22:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*01/15/22 11:14*	*01/16/22 22:34*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*01/15/22 11:14*	*01/16/22 22:34*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*01/15/22 11:14*	*01/16/22 22:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*01/15/22 11:14*	*01/16/22 22:34*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**78.4**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**21.6**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W40-9-10
Lab Sample ID: 580-109299-19
Date Collected: 01/11/22 16:51
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 78.4

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0015	U	0.0050	0.00063	mg/Kg	☼	01/14/22 16:26	01/15/22 08:55	1
2-Methylnaphthalene	0.0030	U	0.0050	0.0020	mg/Kg	☼	01/14/22 16:26	01/15/22 08:55	1
Naphthalene	0.0040	U	0.0050	0.0016	mg/Kg	☼	01/14/22 16:26	01/15/22 08:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*57*		*28 - 143*	*01/14/22 16:26*	*01/15/22 08:55*	*1*
2-methylnaphthalene-d10	*62*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:55*	*1*
Fluoranthene-d10 (Surr)	*84*		*40 - 140*	*01/14/22 16:26*	*01/15/22 08:55*	*1*
Terphenyl-d14	*98*		*58 - 132*	*01/14/22 16:26*	*01/15/22 08:55*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	38	U	63	12	mg/Kg	☼	01/14/22 16:25	01/16/22 04:44	1
C24-C40	38	U	63	25	mg/Kg	☼	01/14/22 16:25	01/16/22 04:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*45 - 130*	*01/14/22 16:25*	*01/16/22 04:44*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N25-27-27.5
Lab Sample ID: 580-109299-20
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	5.4	U	7.2	2.3	mg/Kg		01/15/22 11:51	01/15/22 22:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*67 - 134*	*01/15/22 11:51*	*01/15/22 22:29*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.027	U	0.036	0.0069	mg/Kg		01/15/22 11:14	01/16/22 22:57	1
Toluene	0.054	U	0.11	0.024	mg/Kg		01/15/22 11:14	01/16/22 22:57	1
Ethylbenzene	0.054	U	0.072	0.016	mg/Kg		01/15/22 11:14	01/16/22 22:57	1
m-Xylene & p-Xylene	0.027	U	0.072	0.013	mg/Kg		01/15/22 11:14	01/16/22 22:57	1
o-Xylene	0.027	U	0.072	0.0090	mg/Kg		01/15/22 11:14	01/16/22 22:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*01/15/22 11:14*	*01/16/22 22:57*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/15/22 11:14*	*01/16/22 22:57*	*1*
Dibromofluoromethane (Surr)	*90*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 22:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/15/22 11:14*	*01/16/22 22:57*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**68.4**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**31.6**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N25-27-27.5
Lab Sample ID: 580-109299-20
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 68.4

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0020	U	0.0067	0.00085	mg/Kg	☼	01/14/22 16:26	01/15/22 09:18	1
2-Methylnaphthalene	0.0040	U	0.0067	0.0028	mg/Kg	☼	01/14/22 16:26	01/15/22 09:18	1
Naphthalene	0.0054	U	0.0067	0.0022	mg/Kg	☼	01/14/22 16:26	01/15/22 09:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*59*		*28 - 143*	*01/14/22 16:26*	*01/15/22 09:18*	*1*
2-methylnaphthalene-d10	*69*		*40 - 140*	*01/14/22 16:26*	*01/15/22 09:18*	*1*
Fluoranthene-d10 (Surr)	*83*		*40 - 140*	*01/14/22 16:26*	*01/15/22 09:18*	*1*
Terphenyl-d14	*91*		*58 - 132*	*01/14/22 16:26*	*01/15/22 09:18*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**16**	**J**	67	13	mg/Kg	☼	01/14/22 16:25	01/16/22 05:03	1
C24-C40	40	U	67	27	mg/Kg	☼	01/14/22 16:25	01/16/22 05:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*45 - 130*	*01/14/22 16:25*	*01/16/22 05:03*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S25-14-15
Lab Sample ID: 580-109299-21
Date Collected: 01/12/22 14:30
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	8.4	U	11	3.7	mg/Kg		01/15/22 16:57	01/16/22 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 02:45*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.042	U	0.056	0.011	mg/Kg		01/15/22 17:17	01/17/22 01:59	1
Toluene	0.084	U	0.17	0.038	mg/Kg		01/15/22 17:17	01/17/22 01:59	1
Ethylbenzene	0.084	U	0.11	0.026	mg/Kg		01/15/22 17:17	01/17/22 01:59	1
m-Xylene & p-Xylene	0.042	U	0.11	0.020	mg/Kg		01/15/22 17:17	01/17/22 01:59	1
o-Xylene	0.042	U	0.11	0.014	mg/Kg		01/15/22 17:17	01/17/22 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*01/15/22 17:17*	*01/17/22 01:59*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 17:17*	*01/17/22 01:59*	*1*
Dibromofluoromethane (Surr)	*86*		*78 - 119*	*01/15/22 17:17*	*01/17/22 01:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*	*M*	*71 - 136*	*01/15/22 17:17*	*01/17/22 01:59*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**72.0**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**28.0**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-S25-14-15
Lab Sample ID: 580-109299-21
Date Collected: 01/12/22 14:30
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 72.0

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0043	J M	0.0058	0.00073	mg/Kg	☼	01/14/22 17:22	01/15/22 17:53	1
2-Methylnaphthalene	0.0034	J M	0.0058	0.0024	mg/Kg	☼	01/14/22 17:22	01/15/22 17:53	1
Naphthalene	0.010	M	0.0058	0.0019	mg/Kg	☼	01/14/22 17:22	01/15/22 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*59*	*M*	*28 - 143*	*01/14/22 17:22*	*01/15/22 17:53*	*1*
2-methylnaphthalene-d10	*68*		*40 - 140*	*01/14/22 17:22*	*01/15/22 17:53*	*1*
Fluoranthene-d10 (Surr)	*77*		*40 - 140*	*01/14/22 17:22*	*01/15/22 17:53*	*1*
Terphenyl-d14	*90*		*58 - 132*	*01/14/22 17:22*	*01/15/22 17:53*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	40	U	66	13	mg/Kg	☼	01/14/22 18:32	01/16/22 06:20	1
C24-C40	40	U	66	26	mg/Kg	☼	01/14/22 18:32	01/16/22 06:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*45 - 130*	*01/14/22 18:32*	*01/16/22 06:20*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W25-14-15
Lab Sample ID: 580-109299-22
Date Collected: 01/11/22 16:35
Matrix: Solid
Date Received: 01/14/22 15:12

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3.5	U	4.7	1.5	mg/Kg		01/15/22 16:57	01/16/22 03:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*67 - 134*	*01/15/22 16:57*	*01/16/22 03:08*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.018	U	0.023	0.0044	mg/Kg		01/15/22 17:17	01/17/22 08:15	1
Toluene	0.035	U	0.070	0.016	mg/Kg		01/15/22 17:17	01/17/22 08:15	1
Ethylbenzene	0.035	U	0.047	0.011	mg/Kg		01/15/22 17:17	01/17/22 08:15	1
m-Xylene & p-Xylene	0.018	U	0.047	0.0083	mg/Kg		01/15/22 17:17	01/17/22 08:15	1
o-Xylene	0.018	U	0.047	0.0058	mg/Kg		01/15/22 17:17	01/17/22 08:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 17:17*	*01/17/22 08:15*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/15/22 17:17*	*01/17/22 08:15*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*01/15/22 17:17*	*01/17/22 08:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*131*		*71 - 136*	*01/15/22 17:17*	*01/17/22 08:15*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75.1**		0.1	0.1	%			01/14/22 18:41	1
Percent Moisture	**24.9**		0.1	0.1	%			01/14/22 18:41	1

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W25-14-15
Lab Sample ID: 580-109299-22

Date Collected: 01/11/22 16:35
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0019	U	0.0063	0.00080	mg/Kg	☼	01/14/22 17:22	01/15/22 19:05	1
2-Methylnaphthalene	0.0038	U	0.0063	0.0026	mg/Kg	☼	01/14/22 17:22	01/15/22 19:05	1
Naphthalene	**0.0024**	**J M**	0.0063	0.0021	mg/Kg	☼	01/14/22 17:22	01/15/22 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*66*		*28 - 143*	*01/14/22 17:22*	*01/15/22 19:05*	*1*
2-methylnaphthalene-d10	*72*		*40 - 140*	*01/14/22 17:22*	*01/15/22 19:05*	*1*
Fluoranthene-d10 (Surr)	*99*		*40 - 140*	*01/14/22 17:22*	*01/15/22 19:05*	*1*
Terphenyl-d14	*117*		*58 - 132*	*01/14/22 17:22*	*01/15/22 19:05*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	39	U	65	13	mg/Kg	☼	01/14/22 18:32	01/16/22 07:37	1
C24-C40	39	U	65	26	mg/Kg	☼	01/14/22 18:32	01/16/22 07:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*45 - 130*	*01/14/22 18:32*	*01/16/22 07:37*	*1*

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-N10-7-8-Dup
Lab Sample ID: 580-109299-23
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 10:30

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**890**		36	12	mg/Kg		01/15/22 16:57	01/17/22 11:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*119*		*67 - 134*	*01/15/22 16:57*	*01/17/22 11:49*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.14	U Q	0.18	0.034	mg/Kg		01/15/22 17:17	01/17/22 09:00	1
Toluene	**0.48**	**J Q**	0.54	0.12	mg/Kg		01/15/22 17:17	01/17/22 09:00	1
Ethylbenzene	**0.091**	**J Q**	0.36	0.082	mg/Kg		01/15/22 17:17	01/17/22 09:00	1
m-Xylene & p-Xylene	**0.60**	**Q**	0.36	0.064	mg/Kg		01/15/22 17:17	01/17/22 09:00	1
o-Xylene	**0.47**	**M Q**	0.36	0.045	mg/Kg		01/15/22 17:17	01/17/22 09:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*117*	*Q*	*85 - 116*	*01/15/22 17:17*	*01/17/22 09:00*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/15/22 17:17*	*01/17/22 09:00*	*1*
Dibromofluoromethane (Surr)	*106*	*M*	*78 - 119*	*01/15/22 17:17*	*01/17/22 09:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*140*	*Q*	*71 - 136*	*01/15/22 17:17*	*01/17/22 09:00*	*1*

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378434/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378437
Prep Batch: 378434

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3.0	U	4.0	1.3	mg/Kg		01/15/22 11:51	01/15/22 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*67 - 134*	*01/15/22 11:51*	*01/15/22 12:26*	*1*

Lab Sample ID: LCS 580-378434/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378437
Prep Batch: 378434

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	40.0	36.3		mg/Kg		91	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*67 - 134*

Lab Sample ID: LCSD 580-378434/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378437
Prep Batch: 378434

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	40.0	35.7		mg/Kg		89	79 - 122	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*67 - 134*

Lab Sample ID: 580-109299-4 MS
Client Sample ID: LT-S25-7-8
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378437
Prep Batch: 378434

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	6.1	U	81.0	80.0		mg/Kg		99	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*67 - 134*

Lab Sample ID: 580-109299-4 MSD
Client Sample ID: LT-S25-7-8
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378437
Prep Batch: 378434

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	6.1	U	81.0	79.4		mg/Kg		98	79 - 122	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*67 - 134*

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378452/1-A
Matrix: Solid
Analysis Batch: 378464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378452

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3.0	U	4.0	1.3	mg/Kg		01/15/22 16:57	01/16/22 00:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 00:25*	*1*

Lab Sample ID: LCS 580-378452/2-A
Matrix: Solid
Analysis Batch: 378464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378452

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (C6-C12)			40.0	34.8		mg/Kg		87	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*67 - 134*

Lab Sample ID: LCSD 580-378452/3-A
Matrix: Solid
Analysis Batch: 378464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378452

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)			40.0	33.6		mg/Kg		84	79 - 122	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*67 - 134*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-378429/1-A
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378429

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.015	U	0.020	0.0038	mg/Kg		01/15/22 11:14	01/16/22 13:48	1
Toluene	0.030	U	0.060	0.014	mg/Kg		01/15/22 11:14	01/16/22 13:48	1
Ethylbenzene	0.030	U	0.040	0.0091	mg/Kg		01/15/22 11:14	01/16/22 13:48	1
m-Xylene & p-Xylene	0.015	U	0.040	0.0071	mg/Kg		01/15/22 11:14	01/16/22 13:48	1
o-Xylene	0.015	U	0.040	0.0050	mg/Kg		01/15/22 11:14	01/16/22 13:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 11:14*	*01/16/22 13:48*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/15/22 11:14*	*01/16/22 13:48*	*1*
Dibromofluoromethane (Surr)	*96*	*M*	*78 - 119*	*01/15/22 11:14*	*01/16/22 13:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*	*M*	*71 - 136*	*01/15/22 11:14*	*01/16/22 13:48*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-378429/2-A
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378429

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.800	0.809		mg/Kg		101	77 - 121		
Toluene			0.800	0.814		mg/Kg		102	77 - 121		
Ethylbenzene			0.800	0.795		mg/Kg		99	76 - 122		
m-Xylene & p-Xylene			0.800	0.783		mg/Kg		98	77 - 124		
o-Xylene			0.800	0.778	M	mg/Kg		97	77 - 123		
Naphthalene			0.800	0.701		mg/Kg		88	62 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*96*		*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*

Lab Sample ID: LCSD 580-378429/3-A
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378429

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.800	0.886		mg/Kg		111	77 - 121	9	20
Toluene			0.800	0.899		mg/Kg		112	77 - 121	10	20
Ethylbenzene			0.800	0.879		mg/Kg		110	76 - 122	10	20
m-Xylene & p-Xylene			0.800	0.864		mg/Kg		108	77 - 124	10	20
o-Xylene			0.800	0.844	M	mg/Kg		105	77 - 123	8	20
Naphthalene			0.800	0.813		mg/Kg		102	62 - 129	15	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*96*	*M*	*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*

Lab Sample ID: 580-109299-1 MS
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378429

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	3.3	U	86.8	94.1		mg/Kg		108	77 - 121		
Toluene	6.5	U	86.8	96.5		mg/Kg		111	77 - 121		
Ethylbenzene	6.5	U	86.8	96.1		mg/Kg		111	76 - 122		
m-Xylene & p-Xylene	3.3	U	86.8	95.9		mg/Kg		110	77 - 124		
o-Xylene	3.3	U	86.8	94.3	M	mg/Kg		109	77 - 123		
Naphthalene	10	J	86.8	108		mg/Kg		113	62 - 129		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Method: 8260D - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-109299-1 MS
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378429

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*

Lab Sample ID: 580-109299-1 MSD
Matrix: Solid
Analysis Batch: 378485

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378429

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3.3	U	86.8	95.1		mg/Kg		110	77 - 121	1	20
Toluene	6.5	U	86.8	94.7		mg/Kg		109	77 - 121	2	20
Ethylbenzene	6.5	U	86.8	91.8		mg/Kg		106	76 - 122	5	20
m-Xylene & p-Xylene	3.3	U	86.8	92.7		mg/Kg		107	77 - 124	3	20
o-Xylene	3.3	U	86.8	93.4	M	mg/Kg		108	77 - 123	1	20
Naphthalene	10	J	86.8	110		mg/Kg		115	62 - 129	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*
Dibromofluoromethane (Surr)	*98*		*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*

Lab Sample ID: MB 580-378453/1-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378453

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.015	U	0.020	0.0038	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
Toluene	0.030	U	0.060	0.014	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
Ethylbenzene	0.030	U	0.040	0.0091	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
m-Xylene & p-Xylene	0.015	U	0.040	0.0071	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
o-Xylene	0.015	U	0.040	0.0050	mg/Kg		01/15/22 17:17	01/17/22 00:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
Dibromofluoromethane (Surr)	*96*	*M*	*78 - 119*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*	*M*	*71 - 136*	*01/15/22 17:17*	*01/17/22 00:51*	*1*

Lab Sample ID: LCS 580-378453/2-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378453

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.800	0.885		mg/Kg		111	77 - 121
Toluene	0.800	0.922		mg/Kg		115	77 - 121
Ethylbenzene	0.800	0.894		mg/Kg		112	76 - 122
m-Xylene & p-Xylene	0.800	0.889		mg/Kg		111	77 - 124
o-Xylene	0.800	0.871	M	mg/Kg		109	77 - 123
Naphthalene	0.800	0.987		mg/Kg		123	62 - 129

Method: 8260D - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*99*		*85 - 116*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*90*	*M*	*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*87*		*71 - 136*

Lab Sample ID: LCSD 580-378453/3-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378453

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.800	0.782		mg/Kg		98	77 - 121	12	20
Toluene			0.800	0.783		mg/Kg		98	77 - 121	16	20
Ethylbenzene			0.800	0.761		mg/Kg		95	76 - 122	16	20
m-Xylene & p-Xylene			0.800	0.763		mg/Kg		95	77 - 124	15	20
o-Xylene			0.800	0.755	M	mg/Kg		94	77 - 123	14	20
Naphthalene			0.800	0.845		mg/Kg		106	62 - 129	16	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	*97*		*85 - 116*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*92*	*M*	*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*89*	*M*	*71 - 136*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-378391/1-A
Matrix: Solid
Analysis Batch: 378418

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378391

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0015	U	0.0050	0.00063	mg/Kg		01/14/22 16:26	01/15/22 00:09	1
2-Methylnaphthalene	0.0030	U	0.0050	0.0021	mg/Kg		01/14/22 16:26	01/15/22 00:09	1
Naphthalene	0.0040	U	0.0050	0.0016	mg/Kg		01/14/22 16:26	01/15/22 00:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	*63*	*M*	*28 - 143*	*01/14/22 16:26*	*01/15/22 00:09*	*1*
2-methylnaphthalene-d10	*82*		*40 - 140*	*01/14/22 16:26*	*01/15/22 00:09*	*1*
Fluoranthene-d10 (Surr)	*82*		*40 - 140*	*01/14/22 16:26*	*01/15/22 00:09*	*1*
Terphenyl-d14	*103*		*58 - 132*	*01/14/22 16:26*	*01/15/22 00:09*	*1*

Lab Sample ID: LCS 580-378391/2-A
Matrix: Solid
Analysis Batch: 378418

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378391

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene			1.00	0.835		mg/Kg		84	43 - 111
2-Methylnaphthalene			1.00	1.05		mg/Kg		105	39 - 114
Naphthalene			1.00	0.950		mg/Kg		95	38 - 111

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	*80*		*28 - 143*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-378391/2-A
Matrix: Solid
Analysis Batch: 378418

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378391

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-methylnaphthalene-d10	*115*		*40 - 140*
Fluoranthene-d10 (Surr)	*85*		*40 - 140*
Terphenyl-d14	*100*		*58 - 132*

Lab Sample ID: 580-109299-1 MS
Matrix: Solid
Analysis Batch: 378418

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378391

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	9.1	J1	1.65	11.6	4	mg/Kg	☼	150	43 - 111
2-Methylnaphthalene	13	J1	1.65	16.4	M 4	mg/Kg	☼	214	39 - 114
Naphthalene	4.1	J1	1.65	6.72	J1	mg/Kg	☼	161	38 - 111

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*36*		*28 - 143*
2-methylnaphthalene-d10	*94*		*40 - 140*
Fluoranthene-d10 (Surr)	*74*		*40 - 140*
Terphenyl-d14	*88*		*58 - 132*

Lab Sample ID: 580-109299-1 MSD
Matrix: Solid
Analysis Batch: 378418

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378391

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	9.1	J1	1.60	8.17	4 J1	mg/Kg	☼	-59	43 - 111	35	20
2-Methylnaphthalene	13	J1	1.60	12.5	4 J1	mg/Kg	☼	-27	39 - 114	27	20
Naphthalene	4.1	J1	1.60	5.07	J1	mg/Kg	☼	63	38 - 111	28	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*32*		*28 - 143*
2-methylnaphthalene-d10	*67*		*40 - 140*
Fluoranthene-d10 (Surr)	*83*		*40 - 140*
Terphenyl-d14	*97*		*58 - 132*

Lab Sample ID: MB 580-378402/1-A
Matrix: Solid
Analysis Batch: 378443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378402

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0015	U	0.0050	0.00063	mg/Kg		01/14/22 17:22	01/15/22 15:54	1
2-Methylnaphthalene	0.0030	U	0.0050	0.0021	mg/Kg		01/14/22 17:22	01/15/22 15:54	1
Naphthalene	0.0040	U	0.0050	0.0016	mg/Kg		01/14/22 17:22	01/15/22 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*83*	*M*	*28 - 143*	*01/14/22 17:22*	*01/15/22 15:54*	*1*
2-methylnaphthalene-d10	*92*		*40 - 140*	*01/14/22 17:22*	*01/15/22 15:54*	*1*
Fluoranthene-d10 (Surr)	*86*		*40 - 140*	*01/14/22 17:22*	*01/15/22 15:54*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-378402/1-A
Matrix: Solid
Analysis Batch: 378443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378402

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	108		58 - 132	01/14/22 17:22	01/15/22 15:54	1

Lab Sample ID: LCS 580-378402/2-A
Matrix: Solid
Analysis Batch: 378443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378402

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	1.00	0.834		mg/Kg		83	43 - 111
2-Methylnaphthalene	1.00	1.04		mg/Kg		104	39 - 114
Naphthalene	1.00	0.975		mg/Kg		97	38 - 111

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	88		28 - 143
2-methylnaphthalene-d10	120	M	40 - 140
Fluoranthene-d10 (Surr)	88		40 - 140
Terphenyl-d14	112		58 - 132

Lab Sample ID: 580-109299-21 MS
Matrix: Solid
Analysis Batch: 378443

Client Sample ID: LT-S25-14-15
Prep Type: Total/NA
Prep Batch: 378402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	0.0043	J M	1.37	1.05		mg/Kg	☼	76	43 - 111
2-Methylnaphthalene	0.0034	J M	1.37	1.31		mg/Kg	☼	95	39 - 114
Naphthalene	0.010	M	1.37	1.27		mg/Kg	☼	92	38 - 111

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	77		28 - 143
2-methylnaphthalene-d10	102		40 - 140
Fluoranthene-d10 (Surr)	71		40 - 140
Terphenyl-d14	80		58 - 132

Lab Sample ID: 580-109299-21 MSD
Matrix: Solid
Analysis Batch: 378443

Client Sample ID: LT-S25-14-15
Prep Type: Total/NA
Prep Batch: 378402

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	0.0043	J M	1.36	0.923		mg/Kg	☼	67	43 - 111	12	20
2-Methylnaphthalene	0.0034	J M	1.36	1.14		mg/Kg	☼	83	39 - 114	14	20
Naphthalene	0.010	M	1.36	1.21		mg/Kg	☼	88	38 - 111	5	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	69		28 - 143
2-methylnaphthalene-d10	81		40 - 140
Fluoranthene-d10 (Surr)	80		40 - 140
Terphenyl-d14	98		58 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 580-378393/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378473
Prep Batch: 378393

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	30	U	50	9.9	mg/Kg		01/14/22 16:25	01/15/22 20:44	1
C24-C40	30	U	50	20	mg/Kg		01/14/22 16:25	01/15/22 20:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*	*M*	*45 - 130*	*01/14/22 16:25*	*01/15/22 20:44*	*1*

Lab Sample ID: LCS 580-378393/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378473
Prep Batch: 378393

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C24			500	461		mg/Kg		92	75 - 125		
C24-C40			500	430		mg/Kg		86	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*98*		*45 - 130*

Lab Sample ID: LCSD 580-378393/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378473
Prep Batch: 378393

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C24			500	506		mg/Kg		101	75 - 125	9	20
C24-C40			500	462		mg/Kg		92	39 - 106	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*104*		*45 - 130*

Lab Sample ID: 580-109299-1 MS
Client Sample ID: LT-W17.5-12-13
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378473
Prep Batch: 378393

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C24	4700	J1	832	6090	4	mg/Kg	☼	164	75 - 125		
C24-C40	46	U	832	845		mg/Kg	☼	102	39 - 106		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*98*		*45 - 130*

Lab Sample ID: 580-109299-1 MSD
Client Sample ID: LT-W17.5-12-13
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378473
Prep Batch: 378393

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C24	4700	J1	853	6630	4	mg/Kg	☼	225	75 - 125	9	20
C24-C40	46	U	853	897		mg/Kg	☼	105	39 - 106	6	20

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 580-109299-1 MSD
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA
Prep Batch: 378393

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	110		45 - 130

Lab Sample ID: MB 580-378410/1-A
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378410

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	30	U	50	9.9	mg/Kg		01/14/22 18:32	01/16/22 05:22	1
C24-C40	30	U	50	20	mg/Kg		01/14/22 18:32	01/16/22 05:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	90		45 - 130	01/14/22 18:32	01/16/22 05:22	1

Lab Sample ID: LCS 580-378410/2-A
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378410

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C24			500	493		mg/Kg		99	75 - 125		
C24-C40			500	528		mg/Kg		106	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	104		45 - 130

Lab Sample ID: LCSD 580-378410/3-A
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378410

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C24			500	517		mg/Kg		103	75 - 125	5	20
C24-C40			500	494		mg/Kg		99	39 - 106	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	102		45 - 130

Lab Sample ID: 580-109299-21 MS
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: LT-S25-14-15
Prep Type: Total/NA
Prep Batch: 378410

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
C10-C24	40	U	652	588		mg/Kg	☼	90	75 - 125		
C24-C40	40	U	652	518		mg/Kg	☼	79	39 - 106		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	89		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 580-109299-21 MSD
Matrix: Solid
Analysis Batch: 378473

Client Sample ID: LT-S25-14-15
Prep Type: Total/NA
Prep Batch: 378410

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C24	40	U	642	562		mg/Kg	☼	87	75 - 125	5	20
C24-C40	40	U	642	497		mg/Kg	☼	77	39 - 106	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl	*85*		*45 - 130*

Method: 2540G - SM 2540G

Lab Sample ID: 580-109299-1 DU
Matrix: Solid
Analysis Batch: 378411

Client Sample ID: LT-W17.5-12-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	57.1			55.6		%				3	20
Percent Moisture	42.9			44.4		%				4	20

Lab Sample ID: 580-109299-19 DU
Matrix: Solid
Analysis Batch: 378411

Client Sample ID: LT-W40-9-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	78.4			79.2		%				1	20
Percent Moisture	21.6			20.8		%				4	20

Lab Chronicle

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W17.5-12-13
Lab Sample ID: 580-109299-1
Date Collected: 01/12/22 15:05
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 14:45	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 14:56	JBT	FGS SEA
Total/NA	Prep	5035	RA		378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D	RA	1	378538	01/17/22 12:25	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W17.5-12-13
Lab Sample ID: 580-109299-1
Date Collected: 01/12/22 15:05
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 57.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 00:57	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/15/22 21:42	JCM	FGS SEA

Client Sample ID: LT-N10-21-22
Lab Sample ID: 580-109299-2
Date Collected: 01/12/22 10:58
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 15:09	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 16:05	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N10-21-22
Lab Sample ID: 580-109299-2
Date Collected: 01/12/22 10:58
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 67.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 02:09	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/15/22 22:40	JCM	FGS SEA

Client Sample ID: LT-E10-7-8
Lab Sample ID: 580-109299-3
Date Collected: 01/12/22 13:25
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 15:32	JBT	FGS SEA

Client Sample ID: LT-E10-7-8
Lab Sample ID: 580-109299-3
Date Collected: 01/12/22 13:25
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 16:28	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-E10-7-8
Lab Sample ID: 580-109299-3
Date Collected: 01/12/22 13:25
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 70.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 02:33	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/15/22 22:59	JCM	FGS SEA

Client Sample ID: LT-S25-7-8
Lab Sample ID: 580-109299-4
Date Collected: 01/12/22 14:22
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 13:36	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 16:51	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-S25-7-8
Lab Sample ID: 580-109299-4
Date Collected: 01/12/22 14:22
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 78.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 02:57	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/15/22 23:18	JCM	FGS SEA

Client Sample ID: LT-W10-11-12
Lab Sample ID: 580-109299-5
Date Collected: 01/11/22 15:20
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 15:55	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378538	01/17/22 13:35	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W10-11-12
Lab Sample ID: 580-109299-5
Date Collected: 01/11/22 15:20
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 03:20	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/15/22 23:38	JCM	FGS SEA

Client Sample ID: LT-W10-19-20
Lab Sample ID: 580-109299-6
Date Collected: 01/11/22 16:02
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 16:41	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378538	01/17/22 13:58	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W10-19-20
Lab Sample ID: 580-109299-6
Date Collected: 01/11/22 16:02
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 03:44	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 00:16	JCM	FGS SEA

Client Sample ID: LT-N10-19-20
Lab Sample ID: 580-109299-7
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 17:04	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 18:00	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N10-19-20
Lab Sample ID: 580-109299-7
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 04:08	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 00:35	JCM	FGS SEA

Client Sample ID: LT-N40-7-8
Lab Sample ID: 580-109299-8
Date Collected: 01/12/22 15:42
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 17:28	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 18:23	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N40-7-8
Lab Sample ID: 580-109299-8
Date Collected: 01/12/22 15:42
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378443	01/15/22 19:29	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		10	378473	01/16/22 16:17	JCM	FGS SEA

Client Sample ID: LT-N25-16-17
Lab Sample ID: 580-109299-9
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 17:51	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378538	01/17/22 13:12	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N25-16-17
Lab Sample ID: 580-109299-9
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 66.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 04:56	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 01:14	JCM	FGS SEA

Client Sample ID: LT-S10-17-18
Lab Sample ID: 580-109299-10
Date Collected: 01/12/22 10:05
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 18:14	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 19:08	JBT	FGS SEA

Client Sample ID: LT-S10-17-18
Lab Sample ID: 580-109299-10
Date Collected: 01/12/22 10:05
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-S10-17-18
Lab Sample ID: 580-109299-10
Date Collected: 01/12/22 10:05
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 64.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 05:20	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 01:33	JCM	FGS SEA

Client Sample ID: LT-N10-7-8
Lab Sample ID: 580-109299-11
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 18:37	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 19:31	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N10-7-8
Lab Sample ID: 580-109299-11
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 72.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 05:44	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 01:52	JCM	FGS SEA

Client Sample ID: HT-N10-24-25
Lab Sample ID: 580-109299-12
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 19:01	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 19:54	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: HT-N10-24-25
Lab Sample ID: 580-109299-12
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 68.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 06:07	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 02:11	JCM	FGS SEA

Client Sample ID: HT-W10-18-19
Lab Sample ID: 580-109299-13
Date Collected: 01/12/22 17:29
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 19:24	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 20:17	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: HT-W10-18-19
Lab Sample ID: 580-109299-13
Date Collected: 01/12/22 17:29
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 65.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 06:31	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 02:30	JCM	FGS SEA

Client Sample ID: HT-W10-22-23
Lab Sample ID: 580-109299-14
Date Collected: 01/12/22 17:23
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 19:47	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 20:40	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: HT-W10-22-23
Lab Sample ID: 580-109299-14
Date Collected: 01/12/22 17:23
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 06:55	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 02:49	JCM	FGS SEA

Client Sample ID: LT-S17.5-5-6
Lab Sample ID: 580-109299-15
Date Collected: 01/12/22 13:43
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 20:10	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 21:03	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-S17.5-5-6
Lab Sample ID: 580-109299-15
Date Collected: 01/12/22 13:43
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 07:19	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 03:08	JCM	FGS SEA

Client Sample ID: LT-W55-17-18
Lab Sample ID: 580-109299-16
Date Collected: 01/11/22 14:55
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 20:57	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 21:25	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W55-17-18
Lab Sample ID: 580-109299-16
Date Collected: 01/11/22 14:55
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 07:43	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 03:47	JCM	FGS SEA

Client Sample ID: LT-W19.5-14-15
Lab Sample ID: 580-109299-17
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 21:20	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 21:48	JBT	FGS SEA

Client Sample ID: LT-W19.5-14-15
Lab Sample ID: 580-109299-17
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W19.5-14-15
Lab Sample ID: 580-109299-17
Date Collected: 01/12/22 16:08
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 08:07	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 04:06	JCM	FGS SEA

Client Sample ID: LT-S10-23-24
Lab Sample ID: 580-109299-18
Date Collected: 01/12/22 10:10
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 21:43	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 22:11	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-S10-23-24
Lab Sample ID: 580-109299-18
Date Collected: 01/12/22 10:10
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 67.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 08:31	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 04:25	JCM	FGS SEA

Client Sample ID: LT-W40-9-10
Lab Sample ID: 580-109299-19
Date Collected: 01/11/22 16:51
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 22:06	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 22:34	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W40-9-10
Lab Sample ID: 580-109299-19
Date Collected: 01/11/22 16:51
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 08:55	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 04:44	JCM	FGS SEA

Client Sample ID: LT-N25-27-27.5
Lab Sample ID: 580-109299-20
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378434	01/15/22 11:51	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378437	01/15/22 22:29	JBT	FGS SEA
Total/NA	Prep	5035			378429	01/15/22 11:14	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378485	01/16/22 22:57	JBT	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-N25-27-27.5
Lab Sample ID: 580-109299-20
Date Collected: 01/12/22 13:36
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 68.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378391	01/14/22 16:26	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378418	01/15/22 09:18	T1L	FGS SEA
Total/NA	Prep	3546			378393	01/14/22 16:25	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 05:03	JCM	FGS SEA

Client Sample ID: LT-S25-14-15
Lab Sample ID: 580-109299-21
Date Collected: 01/12/22 14:30
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 02:45	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378460	01/17/22 01:59	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-S25-14-15
Lab Sample ID: 580-109299-21
Date Collected: 01/12/22 14:30
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 72.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378402	01/14/22 17:22	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378443	01/15/22 17:53	T1L	FGS SEA
Total/NA	Prep	3546			378410	01/14/22 18:32	RJL	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 06:20	JCM	FGS SEA

Lab Chronicle

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Client Sample ID: LT-W25-14-15
Lab Sample ID: 580-109299-22
Date Collected: 01/11/22 16:35
Matrix: Solid
Date Received: 01/14/22 15:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 03:08	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378460	01/17/22 08:15	JSM	FGS SEA
Total/NA	Analysis	2540G		1	378411	01/14/22 18:41	BJM	FGS SEA

Client Sample ID: LT-W25-14-15
Lab Sample ID: 580-109299-22
Date Collected: 01/11/22 16:35
Matrix: Solid
Date Received: 01/14/22 15:12
Percent Solids: 75.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378402	01/14/22 17:22	RJL	FGS SEA
Total/NA	Analysis	8270E SIM		1	378443	01/15/22 19:05	T1L	FGS SEA
Total/NA	Prep	3546			378410	01/14/22 18:32	RJL	FGS SEA
Total/NA	Analysis	8015D DRO		1	378473	01/16/22 07:37	JCM	FGS SEA

Client Sample ID: LT-N10-7-8-Dup
Lab Sample ID: 580-109299-23
Date Collected: 01/12/22 10:50
Matrix: Solid
Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378543	01/17/22 11:49	JSM	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378460	01/17/22 09:00	JSM	FGS SEA

Laboratory References:
FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2236	01-19-22

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

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids
8015D DRO	3546	Solid	C10-C24

Sample Summary

Client: AECOM
Job ID: 580-109299-1
Project/Site: Red Hill JBPHH N62742-17-D-1800 CV18F0126

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109299-1	LT-W17.5-12-13	Solid	01/12/22 15:05	01/14/22 15:12
580-109299-2	LT-N10-21-22	Solid	01/12/22 10:58	01/14/22 15:12
580-109299-3	LT-E10-7-8	Solid	01/12/22 13:25	01/14/22 15:12
580-109299-4	LT-S25-7-8	Solid	01/12/22 14:22	01/14/22 15:12
580-109299-5	LT-W10-11-12	Solid	01/11/22 15:20	01/14/22 15:12
580-109299-6	LT-W10-19-20	Solid	01/11/22 16:02	01/14/22 15:12
580-109299-7	LT-N10-19-20	Solid	01/12/22 16:08	01/14/22 15:12
580-109299-8	LT-N40-7-8	Solid	01/12/22 15:42	01/14/22 15:12
580-109299-9	LT-N25-16-17	Solid	01/12/22 13:36	01/14/22 15:12
580-109299-10	LT-S10-17-18	Solid	01/12/22 10:05	01/14/22 15:12
580-109299-11	LT-N10-7-8	Solid	01/12/22 10:50	01/14/22 15:12
580-109299-12	HT-N10-24-25	Solid	01/12/22 16:08	01/14/22 15:12
580-109299-13	HT-W10-18-19	Solid	01/12/22 17:29	01/14/22 15:12
580-109299-14	HT-W10-22-23	Solid	01/12/22 17:23	01/14/22 15:12
580-109299-15	LT-S17.5-5-6	Solid	01/12/22 13:43	01/14/22 15:12
580-109299-16	LT-W55-17-18	Solid	01/11/22 14:55	01/14/22 15:12
580-109299-17	LT-W19.5-14-15	Solid	01/12/22 16:08	01/14/22 15:12
580-109299-18	LT-S10-23-24	Solid	01/12/22 10:10	01/14/22 15:12
580-109299-19	LT-W40-9-10	Solid	01/11/22 16:51	01/14/22 15:12
580-109299-20	LT-N25-27-27.5	Solid	01/12/22 13:36	01/14/22 15:12
580-109299-21	LT-S25-14-15	Solid	01/12/22 14:30	01/14/22 15:12
580-109299-22	LT-W25-14-15	Solid	01/11/22 16:35	01/14/22 15:12
580-109299-23	LT-N10-7-8-Dup	Solid	01/12/22 10:50	01/14/22 10:30

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

580-109299 Chain of Custody

eurofins Environment Testing America

Client Information

Client Contact: Alethea Ramos (alternate: Margie Pascua)	Sampler: Dominic Mariano	Lab PM: Elaine Walker	COC No: 202201-01 Soil
Company: AECOM	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii
Address: 1001 Bishop St. Suite 1600	PWSID:		Page: Page 1 of 4
City: Honolulu	Due Date Requested: see subcontract		Job #: 109299
State, Zip: Hawaii 96813	TAT Requested (days): 3 working days		
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	Compliance Project: Δ Yes Δ No		
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	PO #: Note to AECOM before printing COC: put in PO# w		
Project Name: CV18F0126	WO #:		
Site: RH	Project #: 60674414		
	SSOW#: Note to AECOM before printing COC: put in subk#		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	I,J,F	I,J,F	I	I	I		
-1 LT-W17.5-12-13	1/12/22	1505	G	S	N	N			X	X	X	1	
LT-N10-21-22	1/12/22	1058	G	S	N	N			X	X	X	1	
-3 LT-E10-7-8	1/12/22	1325	G	S	N	N			X	X	X	1	
LT-S25-7-8	1/12/22	1422	G	S	N	N			X	X	X	1	
-5 LT-W10-11-12	1/11/22	1520	G	S	N	N			X	X	X	1	
LT-W10-19-20	1/11/22	1602	G	S	N	N			X	X	X	1	
-7 HT-N10-19-20	1/12/22	1608	G	S	N	N			X	X	X	1	
LT-N40-7-8	1/12/22	1542	G	S	N	N			X	X	X	1	
-9 LT-N25-16-17	1/12/22	1336	G	S	N	N			X	X	X	1	
LT-S10-17-18	1/12/22	1005	G	S	N	N			X	X	X	1	
-11 LT-N10-7-8	1/12/22	1050	G	S	N	N			X	X	X	1	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time: 1/14/22 1030	Company EFGS
Relinquished by:	Date/Time:	Company	Received by:		Company
Relinquished by:	Date/Time:	Company	Received by:		Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperatur		

Therm. ID: IR9 Cor: 2.7° Unc: 2.2°
Cooler Dsc: RO
Packing: Bubb
Cust. Seal: Yes X No ____
Blue Ice, Wet, Dry, None
FedEx: RO
UPS: ____
Lab Cour: ____
Other: ____

Ver: 01/16/2019 1/17/2022

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-02 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 2 of 4
Company: AECOM	PWSID:			Job #:

Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract	Analysis Requested	Preservation Codes:
City: Honolulu	TAT Requested (days): 3 working days		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No		
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w		
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:		
Project Name: CV18F0126	Project #: 60674414		
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				I,J,F	I,J,F	I	I	I		
HT-N10-24-25	1/12/22	1608	G	S	N	N			X	X	X	1	
HT-W10-18-19	1/12/22	1729	G	S	N	N			X	X	X	1	
HT-W10-22-23	1/12/22	1723	G	S	N	N			X	X	X	1	
LT-S17.5-5-6	1/12/22	1343	G	S	N	N			X	X	X	1	
LT-W55-17-18	1/11/22	1455	G	S	N	N			X	X	X	1	
LT-W19.5-14-15	1/12/22	1608	G	S	N	N			X	X	X	1	
LT-S10-23-24	1/12/22	1010	G	S	N	N			X	X	X	1	
LT-W40-9-10	1/11/22	1651	G	S	N	N			X	X	X	1	
LT-N25-27-27.5	1/12/22	1336	G	S	N	N			X	X	X	1	
LT-S25-14-15	1/12/22	1430	G	S	N	N			X	X	X	1	
LT-W25-14-15	1/11/22	1635	G	S	N	N			X	X	X	1	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time: 1/14/22 1030	Company EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-01 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 4
Company: AECOM	PWSID:	Analysis Requested		Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			Preservation Codes:
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			Other:

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	~~EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup~~	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note: Do not do silica gel cleanup on soil
			Preservation Code:				I,J,F	I,J,F	I	I	I		
LT-W17.5-12-13	1/12/22	1505	G	S	N	N			X	~~X~~	X	1	PID = 39 ppmv
LT-N10-21-22	1/12/22	1058	G	S	N	N			X	~~X~~	X	1	= 621 ppmv
LT-E10-7-8	1/12/22	1325	G	S	N	N			X	~~X~~	X	1	= 0.7
LT-S25-7-8	1/12/22	1422	G	S	N	N			X	~~X~~	X	1	= 0.0
LT-W10-11-12	1/11/22	1520	G	S	N	N			X	~~X~~	X	1	= 440
LT-W10-19-20	1/11/22	1602	G	S	N	N			X	~~X~~	X	1	= 70
HT-N10-19-20	1/12/22	1608	G	S	N	N			X	~~X~~	X	1	= 70
LT-N40-7-8	1/12/22	1542	G	S	N	N			X	~~X~~	X	1	= 0.5
LT-N25-16-17	1/12/22	1336	G	S	N	N			X	~~X~~	X	1	= 50
LT-S10-17-18	1/12/22	1005	G	S	N	N			X	~~X~~	X	1	= 470
LT-N10-7-8	1/12/22	1050	G	S	N	N			X	~~X~~	X	1	= 662

1/14/22 (initials) Per client

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

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

Deliverable Requested: I, II, III, IV, Other (specify) Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Matthew Yim (signature)	1/13/22 1530	AECOM			

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature

Hart, Jeff — Digitally signed by Hart, Jeff DN: cn=Hart, Jeff, ou=USHNL1, email=Jeff.Hart@aecom.com Date: 2022.01.14 12:39:00 -10'00'

Therm. ID:______ Cor:______° Unc:______°
Cooler Dsc:__________ FedEx:______
Packing:__________ UPS:______
Cust. Seal: Yes___No___ Lab Cour:______
Blue Ice, Wet, Dry, None Other:______

Ver: 01/16/2019

1/17/2022

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-02 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 2 of 4
Company: AECOM	PWSID:	Analysis Requested		Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Special Instructions/Note: Do not do Silica gel cleanup on soil

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C8-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA-8015-TPH-D/O-(C10-C24,-C24-C40)-wi-silica-gel-cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	
			Preservation Code:				I,J,F	I,J,F	I	I	I		
HT-N10-24-25	1/12/22	1608	G	S	N	N			X	X	X	1	297 ppmv
HT-W10-18-19	1/12/22	1729	G	S	N	N			X	X	X	1	580
HT-W10-22-23	1/12/22	1723	G	S	N	N			X	X	X	1	25
LT-S17.5-5-6	1/12/22	1343	G	S	N	N			X	X	X	1	0
LT-W55-17-18	1/11/22	1455	G	S	N	N			X	X	X	1	0
LT-W19.5-14-15	1/12/22	1608	G	S	N	N			X	X	X	1	247
LT-S10-23-24	1/12/22	1010	G	S	N	N			X	X	X	1	414
LT-W40-9-10	1/11/22	1651	G	S	N	N			X	X	X	1	0.1
LT-N25-27-27.5	1/12/22	1336	G	S	N	N			X	X	X	1	30
LT-S25-14-15	1/12/22	1430	G	S	N	N			X	X	X	1	0
LT-W25-14-15	1/11/22	1635	G	S	N	N			X	X	X	1	0

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

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

Deliverable Requested: I, II, III, IV, Other (specify)
Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Hart, Jeff Digitally signed by Hart, Jeff DN: cn=Hart, Jeff, ou=USHNL1, email=Jeff.Hart@aecom.com Date: 2022.01.14 12:40:37 -10'00'
Cooler Temperature(s) °C and Other Remarks:

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

580-109299 Chain of Custody

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	COC No: 202201-01 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii
Company: AECOM	PWSID:		Page: Page 1 of 4
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract		Job #: 109299
City: Honolulu	TAT Requested (days): 3 working days		
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No		
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w		
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:		
Project Name: CV18F0126	Project #: 60674414		
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				I,J,F	I,J,F	I	I	I		
-1 LT-W17.5-12-13	1/12/22	1505	G	S	N	N			X	X	X	1	
LT-N10-21-22	1/12/22	1058	G	S	N	N			X	X	X	1	
-3 LT-E10-7-8	1/12/22	1325	G	S	N	N			X	X	X	1	
LT-S25-7-8	1/12/22	1422	G	S	N	N			X	X	X	1	
-5 LT-W10-11-12	1/11/22	1520	G	S	N	N			X	X	X	1	
LT-W10-19-20	1/11/22	1602	G	S	N	N			X	X	X	1	
-7 HT-N10-19-20	1/12/22	1608	G	S	N	N			X	X	X	1	
LT-N40-7-8	1/12/22	1542	G	S	N	N			X	X	X	1	
-9 LT-N25-16-17	1/12/22	1336	G	S	N	N			X	X	X	1	
LT-S10-17-18	1/12/22	1005	G	S	N	N			X	X	X	1	
-11 LT-N10-7-8	1/12/22	1050	G	S	N	N			X	X	X	1	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time: 1/14/22 1030	Company EFGS
Relinquished by:	Date/Time:	Company	Received by:		Company
Relinquished by:	Date/Time:	Company	Received by:		Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperatur

Therm. ID: IR9 Cor: 2.7° Unc: 2.2°
Cooler Dsc: Ice
Packing: Bub
Cust. Seal: Yes X No
Blue Ice, Wet, Dry, None
FedEx: Ice
UPS:
Lab Cour:
Other:

Ver: 01/16/2019
1/17/2022

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-02 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 2 of 4
Company: AECOM	PWSID:			Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	I,J,F	I,J,F	I	I	I	X	
HT-N10-24-25	1/12/22	1608	G	S	N	N			X	X	X	1	
HT-W10-18-19	1/12/22	1729	G	S	N	N			X	X	X	1	
HT-W10-22-23	1/12/22	1723	G	S	N	N			X	X	X	1	
LT-S17.5-5-6	1/12/22	1343	G	S	N	N			X	X	X	1	
LT-W55-17-18	1/11/22	1455	G	S	N	N			X	X	X	1	
LT-W19.5-14-15	1/12/22	1608	G	S	N	N			X	X	X	1	
LT-S10-23-24	1/12/22	1010	G	S	N	N			X	X	X	1	
LT-W40-9-10	1/11/22	1651	G	S	N	N			X	X	X	1	
LT-N25-27-27.5	1/12/22	1336	G	S	N	N			X	X	X	1	
LT-S25-14-15	1/12/22	1430	G	S	N	N			X	X	X	1	
LT-W25-14-15	1/11/22	1635	G	S	N	N			X	X	X	1	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

	Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time: 1/14/22 1030	Company EFGS
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-01 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 4
Company: AECOM	PWSID:			Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Special Instructions/Note: Do not do silica gel cleanup on soil

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	
			Preservation Code:				I,J,F	I,J,F	I	I	I		
LT-W17.5-12-13	1/12/22	1505	G	S	N	N			X	X	X	1	PID = 39 ppmv
LT-N10-21-22	1/12/22	1058	G	S	N	N			X	X	X	1	= 621 ppmv
LT-E10-7-8	1/12/22	1325	G	S	N	N			X	X	X	1	= 0.7
LT-S25-7-8	1/12/22	1422	G	S	N	N			X	X	X	1	= 0.0
LT-W10-11-12	1/11/22	1520	G	S	N	N			X	X	X	1	= 440
LT-W10-19-20	1/11/22	1602	G	S	N	N			X	X	X	1	= 70
HT-N10-19-20	1/12/22	1608	G	S	N	N			X	X	X	1	= 70
LT-N40-7-8	1/12/22	1542	G	S	N	N			X	X	X	1	= 0.5
LT-N25-16-17	1/12/22	1336	G	S	N	N			X	X	X	1	= 50
LT-S10-17-18	1/12/22	1005	G	S	N	N			X	X	X	1	= 470
LT-N10-7-8	1/12/22	1050	G	S	N	N			X	X	X	1	= 662 1/14/22 PM Per client

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Matthew Yim	1/13/22 1530	AECOM			

Therm. ID:_____ Cor:_____ ° Unc:_____ °
Cooler Dsc:_____ FedEx:_____
Packing:_____ UPS:_____
Cust. Seal: Yes___No___ Lab Cour:_____
Blue Ice, Wet, Dry, None Other:_____

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature:

Digitally signed by Hart, Jeff
DN: cn=Hart, Jeff, ou=USHNL1, email=Jeff.Hart@aecom.com
Date: 2022.01.14 12:39:00 -10'00'
Hart, Jeff

Ver: 01/16/2019

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-02 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 2 of 4
Company: AECOM	PWSID:	Analysis Requested		Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Special Instructions/Note: Do not do Silica gel cleanup on soil

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C8-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40)-w/silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	I,J,F	I,J,F	I	I	I	X	
HT-N10-24-25	1/12/22	1608	G	S	N	N			X	X	X	1	297 ppmv
HT-W10-18-19	1/12/22	1729	G	S	N	N			X	X	X	1	580
HT-W10-22-23	1/12/22	1723	G	S	N	N			X	X	X	1	25
LT-S17.5-5-6	1/12/22	1343	G	S	N	N			X	X	X	1	0
LT-W55-17-18	1/11/22	1455	G	S	N	N			X	X	X	1	0
LT-W19.5-14-15	1/12/22	1608	G	S	N	N			X	X	X	1	247
LT-S10-23-24	1/12/22	1010	G	S	N	N			X	X	X	1	414
LT-W40-9-10	1/11/22	1651	G	S	N	N			X	X	X	1	0.1
LT-N25-27-27.5	1/12/22	1336	G	S	N	N			X	X	X	1	30
LT-S25-14-15	1/12/22	1430	G	S	N	N			X	X	X	1	0
LT-W25-14-15	1/11/22	1635	G	S	N	N			X	X	X	1	0

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

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

Deliverable Requested: I, II, III, IV, Other (specify)
Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.
Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Matthew Yim	1/13/22 1530	AECOM			

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

Hart, Jeff — Digitally signed by Hart, Jeff DN: cn=Hart, Jeff, ou=USHNL1, email=Jeff.Hart@aecom.com Date: 2022.01.14 12:40:37 -10'00'

Cooler Temperature(s) °C and Other Remarks:

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-03 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 3 of 4
Company: AECOM	PWSID:			Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 3 working days			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
				Preservation Code:				I,J,F	I,J,F	I	I	I		
-1	LT-W17.5-12-13	1/12/22	1505	G	S	N	N	X	X				3	
	LT-N10-21-22	1/12/22	1058	G	S	N	N	X	X				3	
-3	LT-E10-7-8	1/12/22	1325	G	S	N	N	X	X				3	
	LT-S25-7-8	1/12/22	1422	G	S	N	N	X	X				3	
-5	LT-W10-11-12	1/11/22	1520	G	S	N	N	X	X				3	
	LT-W10-19-20	1/11/22	1602	G	S	N	N	X	X				3	
-7	HT-N10-19-20	1/12/22	1608	G	S	N	N	X	X				3	
	LT-N40-7-8	1/12/22	1542	G	S	N	N	X	X				3	
-9	LT-N25-16-17	1/12/22	1336	G	S	N	N	X	X				3	
	LT-S10-17-18	1/12/22	1005	G	S	N	N	X	X				3	
-11	LT-N10-7-8	1/12/22	1050	G	S	N	N	X	X				3	

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposa

Therm. ID: A3 Cor: 0.0 ° Unc: 0.0 °
Cooler Dsc: 1
Packing:
Cust. Seal: Yes ☒ No ☐
Blue Ice, Wet, Dry, None

FedEx: PO
UPS:
Lab Cour:
Other:

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD

Special Instructions/QC Requirements: DC

Empty Kit Relinquished by:	Date:	Time:	M
Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company: AECOM	Received by:
Relinquished by:	Date/Time:	Company	Received by:
Relinquished by:	Date/Time:	Company	Received by: Date/Time: 1/14/22 1615 Company: EFGs

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-04 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 4 of 4
Company: AECOM	PWSID:	Analysis Requested		Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			Preservation Codes:
City: Honolulu	TAT Requested (days): 3 working days			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV18F0126	Project #: 60674414			
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				I,J,F	I,J,F	I	I	I		
-23 LT-N10-7-8-Dup	1/12/22	1050	G	S	N	N	X	X				3	
-13 HT-N10-24-25	1/12/22	1608	G	S	N	N	X	X				3	
HT-W10-18-19	1/12/22	1729	G	S	N	N	X	X				3	
-19 HT-W10-22-23	1/12/22	1723	G	S	N	N	X	X				3	
LT-S17.5-5-6	1/12/22	1343	G	S	N	N	X	X				3	
-16 LT-W55-17-18	1/11/22	1455	G	S	N	N	X	X				3	
LT-W19.5-14-15	1/12/22	1608	G	S	N	N	X	X				3	
-18 LT-S10-23-24	1/12/22	1010	G	S	N	N	X	X				3	
LT-W40-9-10	1/11/22	1651	G	S	N	N	X	X				3	
-20 LT-N25-27-27.5	1/12/22	1336	G	S	N	N	X	X				3	
LT-S25-14-15	1/12/22	1430	G	S	N	N	X	X				3	
-22 LT-W25-14-15	1/11/22	1635	G	S	N	N	X	X				3	
-24 TB01	1/11/22	1445	QC	W	N	N	X	X				3	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

	Relinquished by: Matthew Yim	Date/Time: 1/13/22 1530	Company AECOM	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 1/14/22 1625	Company EFGS

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

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

1/17/2022

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109299-1

Login Number: 109299
List Number: 1
Creator: Grable, Heather D

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-109327-1
Client Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Jeff Hart

M. Elaine Walker

Authorized for release by:
1/18/2022 10:01:06 PM

Elaine Walker, Project Manager II
(253)248-4972
m.elaine.walker@eurofinset.com

Table of Contents

Job ID: 580-109327-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Red Hill JBPHH N62742-17-D-1800-CV22F0106
Report Number: 580-109327-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Seventeen samples were received on 1/15/2022 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.5º C and 1.4º C.

Receipt Exceptions

109327-1: Three 40 ml VOA Vials were submitted for analysis and there are only two listed on the COC.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

GASOLINE RANGE ORGANICS (GRO)

Samples HT-E25-7-8 (580-109327-2), HT-E17.5-14-15 (580-109327-3), HT-S17.5-8-9 (580-109327-4), HT-E10-23-24 (580-109327-5), HT-S10-17-18 (580-109327-6), HT-N25-10-11 DUPLICATE (580-109327-7), HT-E25-14-15 (580-109327-8), HT-S10-15-16 (580-109327-9), HT-E17.5-7-8 (580-109327-10), HT-N25-14-15 (580-109327-11), HT-N25-14-15 DUPLICATE (580-109327-12), HT-E10-21-22 (580-109327-13), HT-N25-10-11 (580-109327-14), HT-S25-14-15 (580-109327-15) and HT-S25-8-9 (580-109327-16) were analyzed for gasoline range organics (GRO) in accordance with 8260B CALUFT. The samples were prepared on 01/15/2022 and analyzed on 01/16/2022 and 01/17/2022.

The following samples were analyzed at reduced volume due to high concentrations of target analytes: HT-S10-17-18 (580-109327-6) and HT-S10-15-16 (580-109327-9). The calculation was performed using an initial volume adjustment rather than a dilution factor. The reporting limits have been elevated by the appropriate factor.

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

GASOLINE RANGE ORGANICS (GRO) - EB

Job ID: 580-109327-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

Sample EB (580-109327-1) was analyzed for gasoline range organics (GRO) in accordance with 8260B CALUFT. The sample was analyzed on 01/17/2022.

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

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples HT-E25-7-8 (580-109327-2), HT-E17.5-14-15 (580-109327-3), HT-S17.5-8-9 (580-109327-4), HT-E10-23-24 (580-109327-5), HT-S10-17-18 (580-109327-6), HT-N25-10-11 DUPLICATE (580-109327-7), HT-E25-14-15 (580-109327-8), HT-S10-15-16 (580-109327-9), HT-E17.5-7-8 (580-109327-10), HT-N25-14-15 (580-109327-11), HT-N25-14-15 DUPLICATE (580-109327-12), HT-E10-21-22 (580-109327-13), HT-N25-10-11 (580-109327-14), HT-S25-14-15 (580-109327-15) and HT-S25-8-9 (580-109327-16) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260D_DOD5. The samples were prepared on 01/15/2022 and analyzed on 01/17/2022 and 01/18/2022.

The continuing calibration verification (CCV) associated with batch 580-378597 recovered above the upper control limit for Benzene and Toluene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: HT-S10-17-18 (580-109327-6), HT-S10-15-16 (580-109327-9), HT-S25-8-9 (580-109327-16) and (CCVIS 580-378597/3).

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

VOLATILE ORGANIC COMPOUNDS (GC-MS) - EB

Sample EB (580-109327-1) was analyzed for volatile organic compounds (GC-MS) in accordance with 8260D_DOD5. The sample was analyzed on 01/17/2022.

The continuing calibration verification (CCV) associated with batch 580-378553 recovered above the upper control limit for m-Xylene & p-Xylene and Toluene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: EB (580-109327-1) and (CCVIS 580-378553/2).

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

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)

Samples HT-E25-7-8 (580-109327-2), HT-E17.5-14-15 (580-109327-3), HT-S17.5-8-9 (580-109327-4), HT-E10-23-24 (580-109327-5), HT-S10-17-18 (580-109327-6), HT-N25-10-11 DUPLICATE (580-109327-7), HT-E25-14-15 (580-109327-8), HT-S10-15-16 (580-109327-9), HT-E17.5-7-8 (580-109327-10), HT-N25-14-15 (580-109327-11), HT-N25-14-15 DUPLICATE (580-109327-12), HT-E10-21-22 (580-109327-13), HT-N25-10-11 (580-109327-14), HT-S25-14-15 (580-109327-15), HT-S25-8-9 (580-109327-16) and LT-SEDIMENT (580-109327-17) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with 8270E SIM. The samples were prepared on 01/15/2022 and analyzed on 01/17/2022 and 01/18/2022.

The following samples was diluted to bring the concentration of target analytes within the calibration range: HT-S10-15-16 (580-109327-9) and LT-SEDIMENT (580-109327-17). Elevated reporting limits (RLs) are provided.

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

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM) - EB

Sample EB (580-109327-1) was analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with 8270E SIM. The sample was prepared on 01/16/2022 and analyzed on 01/17/2022.

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

DIESEL RANGE ORGANICS

Samples HT-E25-7-8 (580-109327-2), HT-E17.5-14-15 (580-109327-3), HT-S17.5-8-9 (580-109327-4), HT-E10-23-24 (580-109327-5), HT-S10-17-18 (580-109327-6), HT-N25-10-11 DUPLICATE (580-109327-7), HT-E25-14-15 (580-109327-8), HT-S10-15-16 (580-109327-9), HT-E17.5-7-8 (580-109327-10), HT-N25-14-15 (580-109327-11), HT-N25-14-15 DUPLICATE (580-109327-12), HT-E10-21-22 (580-109327-13), HT-N25-10-11 (580-109327-14), HT-S25-14-15 (580-109327-15), HT-S25-8-9 (580-109327-16) and LT-SEDIMENT (580-109327-17) were analyzed for diesel range organics in accordance with 8015DRO. The samples were prepared on 01/15/2022

Job ID: 580-109327-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

and analyzed on 01/16/2022 and 01/17/2022.

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

DIESEL RANGE ORGANICS - EB

Sample EB (580-109327-1) was analyzed for Diesel Range Organics in accordance with 8015D DRO. The sample was prepared and analyzed on 01/16/2022.

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

PERCENT SOLIDS

Samples HT-E25-7-8 (580-109327-2), HT-E17.5-14-15 (580-109327-3), HT-S17.5-8-9 (580-109327-4), HT-E10-23-24 (580-109327-5), HT-S10-17-18 (580-109327-6), HT-N25-10-11 DUPLICATE (580-109327-7), HT-E25-14-15 (580-109327-8), HT-S10-15-16 (580-109327-9), HT-E17.5-7-8 (580-109327-10), HT-N25-14-15 (580-109327-11), HT-N25-14-15 DUPLICATE (580-109327-12), HT-E10-21-22 (580-109327-13), HT-N25-10-11 (580-109327-14), HT-S25-14-15 (580-109327-15), HT-S25-8-9 (580-109327-16) and LT-SEDIMENT (580-109327-17) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 01/16/2022.

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

Definitions/Glossary

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

GC/MS Semi VOA

Qualifier	Qualifier Description
D	The reported value is from a dilution.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

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

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: EB
Lab Sample ID: 580-109327-1
Date Collected: 01/13/22 16:15
Matrix: Water
Date Received: 01/15/22 11:00

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.080	U	0.10	0.031	mg/L			01/17/22 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*69 - 133*		*01/17/22 21:28*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	1.0	0.24	ug/L			01/17/22 21:28	1
Toluene	0.80	U Q	1.0	0.39	ug/L			01/17/22 21:28	1
Ethylbenzene	0.80	U	1.0	0.50	ug/L			01/17/22 21:28	1
m-Xylene & p-Xylene	0.80	U Q	2.0	0.53	ug/L			01/17/22 21:28	1
o-Xylene	0.80	U	1.0	0.39	ug/L			01/17/22 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*01/17/22 21:28*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*01/17/22 21:28*	*1*
Dibromofluoromethane (Surr)	*90*		*80 - 119*		*01/17/22 21:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*81 - 118*		*01/17/22 21:28*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.079	U M	0.099	0.031	ug/L		01/16/22 11:03	01/17/22 13:25	1
2-Methylnaphthalene	0.079	U M	0.20	0.039	ug/L		01/16/22 11:03	01/17/22 13:25	1
1-Methylnaphthalene	0.032	U M	0.099	0.019	ug/L		01/16/22 11:03	01/17/22 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*68*		*46 - 122*	*01/16/22 11:03*	*01/17/22 13:25*	*1*
Terphenyl-d14	*93*		*58 - 132*	*01/16/22 11:03*	*01/17/22 13:25*	*1*
2-methylnaphthalene-d10	*63*		*40 - 140*	*01/16/22 11:03*	*01/17/22 13:25*	*1*
Fluoranthene-d10 (Surr)	*87*		*40 - 140*	*01/16/22 11:03*	*01/17/22 13:25*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C24-C40	0.29	U	0.34	0.17	mg/L		01/16/22 11:08	01/16/22 22:45	1
C10-C24	0.097	U	0.11	0.063	mg/L		01/16/22 11:08	01/16/22 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*56 - 125*	*01/16/22 11:08*	*01/16/22 22:45*	*1*

Client Sample ID: HT-E25-7-8
Date Collected: 01/13/22 12:35
Date Received: 01/15/22 11:00

Lab Sample ID: 580-109327-2
Matrix: Solid
Percent Solids: 73.9

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	5.1	U	6.8	2.2	mg/Kg	☼	01/15/22 16:57	01/16/22 03:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*67 - 134*	*01/15/22 16:57*	*01/16/22 03:55*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.026	U	0.034	0.0065	mg/Kg	☼	01/15/22 17:17	01/17/22 15:52	1
Toluene	0.051	U	0.10	0.023	mg/Kg	☼	01/15/22 17:17	01/17/22 15:52	1
Ethylbenzene	0.051	U	0.068	0.016	mg/Kg	☼	01/15/22 17:17	01/17/22 15:52	1
m-Xylene & p-Xylene	0.026	U	0.068	0.012	mg/Kg	☼	01/15/22 17:17	01/17/22 15:52	1
o-Xylene	0.026	U	0.068	0.0085	mg/Kg	☼	01/15/22 17:17	01/17/22 15:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 15:52*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/17/22 15:52*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 119*	*01/15/22 17:17*	*01/17/22 15:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*	*01/15/22 17:17*	*01/17/22 15:52*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0019	U	0.0063	0.00080	mg/Kg	☼	01/15/22 18:03	01/17/22 14:32	1
2-Methylnaphthalene	0.0038	U	0.0063	0.0026	mg/Kg	☼	01/15/22 18:03	01/17/22 14:32	1
Naphthalene	0.0051	U	0.0063	0.0021	mg/Kg	☼	01/15/22 18:03	01/17/22 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*28 - 143*	*01/15/22 18:03*	*01/17/22 14:32*	*1*
2-methylnaphthalene-d10	*89*		*40 - 140*	*01/15/22 18:03*	*01/17/22 14:32*	*1*
Fluoranthene-d10 (Surr)	*104*		*40 - 140*	*01/15/22 18:03*	*01/17/22 14:32*	*1*
Terphenyl-d14	*114*		*58 - 132*	*01/15/22 18:03*	*01/17/22 14:32*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**13**	**J**	61	12	mg/Kg	☼	01/15/22 16:21	01/16/22 17:55	1
C24-C40	36	U	61	24	mg/Kg	☼	01/15/22 16:21	01/16/22 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*45 - 130*	*01/15/22 16:21*	*01/16/22 17:55*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**73.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**73.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**26.1**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**26.1**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-E17.5-14-15
Lab Sample ID: 580-109327-3

Date Collected: 01/13/22 13:15
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.0

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	10	U	13	4.3	mg/Kg	☼	01/15/22 16:57	01/16/22 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 01:35*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.050	U	0.067	0.013	mg/Kg	☼	01/15/22 17:17	01/17/22 16:15	1
Toluene	0.10	U	0.20	0.045	mg/Kg	☼	01/15/22 17:17	01/17/22 16:15	1
Ethylbenzene	0.10	U	0.13	0.030	mg/Kg	☼	01/15/22 17:17	01/17/22 16:15	1
m-Xylene & p-Xylene	0.050	U	0.13	0.024	mg/Kg	☼	01/15/22 17:17	01/17/22 16:15	1
o-Xylene	0.050	U	0.13	0.017	mg/Kg	☼	01/15/22 17:17	01/17/22 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 16:15*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*01/15/22 17:17*	*01/17/22 16:15*	*1*
Dibromofluoromethane (Surr)	*83*	*M*	*78 - 119*	*01/15/22 17:17*	*01/17/22 16:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*01/15/22 17:17*	*01/17/22 16:15*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0022	U	0.0072	0.00091	mg/Kg	☼	01/15/22 18:03	01/17/22 15:45	1
2-Methylnaphthalene	0.0043	U	0.0072	0.0030	mg/Kg	☼	01/15/22 18:03	01/17/22 15:45	1
Naphthalene	0.0058	U	0.0072	0.0023	mg/Kg	☼	01/15/22 18:03	01/17/22 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*		*28 - 143*	*01/15/22 18:03*	*01/17/22 15:45*	*1*
2-methylnaphthalene-d10	*89*		*40 - 140*	*01/15/22 18:03*	*01/17/22 15:45*	*1*
Fluoranthene-d10 (Surr)	*108*		*40 - 140*	*01/15/22 18:03*	*01/17/22 15:45*	*1*
Terphenyl-d14	*117*		*58 - 132*	*01/15/22 18:03*	*01/17/22 15:45*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**15**	**J**	72	14	mg/Kg	☼	01/15/22 16:21	01/16/22 18:55	1
C24-C40	43	U	72	29	mg/Kg	☼	01/15/22 16:21	01/16/22 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*45 - 130*	*01/15/22 16:21*	*01/16/22 18:55*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**65.0**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**65.0**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.0**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.0**		0.1	0.1	%			01/16/22 09:46	1

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-S17.5-8-9
Date Collected: 01/13/22 12:20
Date Received: 01/15/22 11:00

Lab Sample ID: 580-109327-4
Matrix: Solid
Percent Solids: 75.9

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	10	U	14	4.4	mg/Kg	☼	01/15/22 16:57	01/16/22 04:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 04:41*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.051	U	0.068	0.013	mg/Kg	☼	01/15/22 17:17	01/17/22 16:38	1
Toluene	0.10	U	0.20	0.046	mg/Kg	☼	01/15/22 17:17	01/17/22 16:38	1
Ethylbenzene	0.10	U	0.14	0.031	mg/Kg	☼	01/15/22 17:17	01/17/22 16:38	1
m-Xylene & p-Xylene	0.051	U	0.14	0.024	mg/Kg	☼	01/15/22 17:17	01/17/22 16:38	1
o-Xylene	0.051	U	0.14	0.017	mg/Kg	☼	01/15/22 17:17	01/17/22 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/15/22 17:17*	*01/17/22 16:38*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/15/22 17:17*	*01/17/22 16:38*	*1*
Dibromofluoromethane (Surr)	*86*		*78 - 119*	*01/15/22 17:17*	*01/17/22 16:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 136*	*01/15/22 17:17*	*01/17/22 16:38*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0019	U	0.0065	0.00082	mg/Kg	☼	01/15/22 18:03	01/17/22 16:10	1
2-Methylnaphthalene	0.0039	U	0.0065	0.0027	mg/Kg	☼	01/15/22 18:03	01/17/22 16:10	1
Naphthalene	0.0052	U	0.0065	0.0021	mg/Kg	☼	01/15/22 18:03	01/17/22 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*78*		*28 - 143*	*01/15/22 18:03*	*01/17/22 16:10*	*1*
2-methylnaphthalene-d10	*88*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:10*	*1*
Fluoranthene-d10 (Surr)	*109*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:10*	*1*
Terphenyl-d14	*117*		*58 - 132*	*01/15/22 18:03*	*01/17/22 16:10*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	39	U	66	13	mg/Kg	☼	01/15/22 16:21	01/16/22 19:15	1
C24-C40	39	U	66	26	mg/Kg	☼	01/15/22 16:21	01/16/22 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*45 - 130*	*01/15/22 16:21*	*01/16/22 19:15*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**75.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**24.1**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**24.1**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-E10-23-24
Lab Sample ID: 580-109327-5

Date Collected: 01/13/22 11:22
Matrix: Solid

Date Received: 01/15/22 11:00
Percent Solids: 64.3

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**31**		14	4.7	mg/Kg	☼	01/15/22 16:57	01/16/22 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*67 - 134*	*01/15/22 16:57*	*01/16/22 05:04*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.054	U	0.072	0.014	mg/Kg	☼	01/15/22 17:17	01/17/22 17:01	1
Toluene	0.11	U	0.22	0.049	mg/Kg	☼	01/15/22 17:17	01/17/22 17:01	1
Ethylbenzene	0.11	U	0.14	0.033	mg/Kg	☼	01/15/22 17:17	01/17/22 17:01	1
m-Xylene & p-Xylene	0.054	U	0.14	0.026	mg/Kg	☼	01/15/22 17:17	01/17/22 17:01	1
o-Xylene	0.054	U	0.14	0.018	mg/Kg	☼	01/15/22 17:17	01/17/22 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 17:01*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/15/22 17:17*	*01/17/22 17:01*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*01/15/22 17:17*	*01/17/22 17:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 136*	*01/15/22 17:17*	*01/17/22 17:01*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	**0.024**	**M**	0.0073	0.00092	mg/Kg	☼	01/15/22 18:03	01/17/22 16:34	1
2-Methylnaphthalene	**0.038**	**M**	0.0073	0.0030	mg/Kg	☼	01/15/22 18:03	01/17/22 16:34	1
Naphthalene	0.0059	U	0.0073	0.0024	mg/Kg	☼	01/15/22 18:03	01/17/22 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*	*M*	*28 - 143*	*01/15/22 18:03*	*01/17/22 16:34*	*1*
2-methylnaphthalene-d10	*86*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:34*	*1*
Fluoranthene-d10 (Surr)	*108*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:34*	*1*
Terphenyl-d14	*114*		*58 - 132*	*01/15/22 18:03*	*01/17/22 16:34*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**130**		68	14	mg/Kg	☼	01/15/22 16:21	01/16/22 19:36	1
C24-C40	41	U	68	27	mg/Kg	☼	01/15/22 16:21	01/16/22 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*45 - 130*	*01/15/22 16:21*	*01/16/22 19:36*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**64.3**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**64.3**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.7**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.7**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-S10-17-18
Lab Sample ID: 580-109327-6

Date Collected: 01/13/22 11:35
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.9

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**2500**		140	46	mg/Kg	☼	01/15/22 16:57	01/16/22 05:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*67 - 134*	*01/15/22 16:57*	*01/16/22 05:28*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.11	U Q	0.14	0.027	mg/Kg	☼	01/15/22 17:17	01/18/22 08:33	1
Toluene	0.21	U Q	0.43	0.096	mg/Kg	☼	01/15/22 17:17	01/18/22 08:33	1
Ethylbenzene	0.21	U	0.28	0.065	mg/Kg	☼	01/15/22 17:17	01/18/22 08:33	1
m-Xylene & p-Xylene	**0.69**		0.28	0.050	mg/Kg	☼	01/15/22 17:17	01/18/22 08:33	1
o-Xylene	**1.6**		0.28	0.035	mg/Kg	☼	01/15/22 17:17	01/18/22 08:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*85 - 116*	*01/15/22 17:17*	*01/18/22 08:33*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/18/22 08:33*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 119*	*01/15/22 17:17*	*01/18/22 08:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*01/15/22 17:17*	*01/18/22 08:33*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	**4.4**		0.0060	0.00075	mg/Kg	☼	01/15/22 18:03	01/17/22 16:59	1
2-Methylnaphthalene	**6.5**		0.0060	0.0024	mg/Kg	☼	01/15/22 18:03	01/17/22 16:59	1
Naphthalene	**1.4**	**M**	0.0060	0.0019	mg/Kg	☼	01/15/22 18:03	01/17/22 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*69*		*28 - 143*	*01/15/22 18:03*	*01/17/22 16:59*	*1*
2-methylnaphthalene-d10	*119*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:59*	*1*
Fluoranthene-d10 (Surr)	*100*		*40 - 140*	*01/15/22 18:03*	*01/17/22 16:59*	*1*
Terphenyl-d14	*111*		*58 - 132*	*01/15/22 18:03*	*01/17/22 16:59*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**2600**		63	12	mg/Kg	☼	01/15/22 16:21	01/16/22 19:56	1
C24-C40	38	U	63	25	mg/Kg	☼	01/15/22 16:21	01/16/22 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*45 - 130*	*01/15/22 16:21*	*01/16/22 19:56*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**65.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**65.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.1**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.1**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-N25-10-11 DUPLICATE
Lab Sample ID: 580-109327-7

Date Collected: 01/13/22 14:25
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 74.6

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	21		13	4.3	mg/Kg	☼	01/15/22 16:57	01/16/22 05:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*67 - 134*	*01/15/22 16:57*	*01/16/22 05:51*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.049	U	0.066	0.012	mg/Kg	☼	01/15/22 17:17	01/17/22 18:32	1
Toluene	0.099	U	0.20	0.044	mg/Kg	☼	01/15/22 17:17	01/17/22 18:32	1
Ethylbenzene	0.099	U	0.13	0.030	mg/Kg	☼	01/15/22 17:17	01/17/22 18:32	1
m-Xylene & p-Xylene	0.049	U	0.13	0.023	mg/Kg	☼	01/15/22 17:17	01/17/22 18:32	1
o-Xylene	0.049	U	0.13	0.016	mg/Kg	☼	01/15/22 17:17	01/17/22 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*85 - 116*	*01/15/22 17:17*	*01/17/22 18:32*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/15/22 17:17*	*01/17/22 18:32*	*1*
Dibromofluoromethane (Surr)	*81*		*78 - 119*	*01/15/22 17:17*	*01/17/22 18:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*79*		*71 - 136*	*01/15/22 17:17*	*01/17/22 18:32*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.013	M	0.0056	0.00070	mg/Kg	☼	01/15/22 18:03	01/17/22 17:23	1
2-Methylnaphthalene	0.019	M	0.0056	0.0023	mg/Kg	☼	01/15/22 18:03	01/17/22 17:23	1
Naphthalene	0.0045	U	0.0056	0.0018	mg/Kg	☼	01/15/22 18:03	01/17/22 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*88*		*28 - 143*	*01/15/22 18:03*	*01/17/22 17:23*	*1*
2-methylnaphthalene-d10	*97*		*40 - 140*	*01/15/22 18:03*	*01/17/22 17:23*	*1*
Fluoranthene-d10 (Surr)	*110*		*40 - 140*	*01/15/22 18:03*	*01/17/22 17:23*	*1*
Terphenyl-d14	*120*		*58 - 132*	*01/15/22 18:03*	*01/17/22 17:23*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	18	J	60	12	mg/Kg	☼	01/15/22 16:21	01/16/22 20:36	1
C24-C40	40	J	60	24	mg/Kg	☼	01/15/22 16:21	01/16/22 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*102*		*45 - 130*	*01/15/22 16:21*	*01/16/22 20:36*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	74.6		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	74.6		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	25.4		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	25.4		0.1	0.1	%			01/16/22 09:46	1

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-E25-14-15
Lab Sample ID: 580-109327-8
Date Collected: 01/13/22 12:45
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.6

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	11	U	15	4.7	mg/Kg	☼	01/15/22 16:57	01/16/22 06:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 06:14*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.055	U	0.073	0.014	mg/Kg	☼	01/15/22 17:17	01/17/22 18:55	1
Toluene	0.11	U	0.22	0.049	mg/Kg	☼	01/15/22 17:17	01/17/22 18:55	1
Ethylbenzene	0.11	U	0.15	0.033	mg/Kg	☼	01/15/22 17:17	01/17/22 18:55	1
m-Xylene & p-Xylene	0.055	U	0.15	0.026	mg/Kg	☼	01/15/22 17:17	01/17/22 18:55	1
o-Xylene	0.055	U	0.15	0.018	mg/Kg	☼	01/15/22 17:17	01/17/22 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 18:55*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 17:17*	*01/17/22 18:55*	*1*
Dibromofluoromethane (Surr)	*84*		*78 - 119*	*01/15/22 17:17*	*01/17/22 18:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*	*01/15/22 17:17*	*01/17/22 18:55*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0018	U	0.0059	0.00075	mg/Kg	☼	01/15/22 18:03	01/17/22 17:47	1
2-Methylnaphthalene	0.0036	U	0.0059	0.0024	mg/Kg	☼	01/15/22 18:03	01/17/22 17:47	1
Naphthalene	0.0048	U	0.0059	0.0019	mg/Kg	☼	01/15/22 18:03	01/17/22 17:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*83*		*28 - 143*	*01/15/22 18:03*	*01/17/22 17:47*	*1*
2-methylnaphthalene-d10	*89*		*40 - 140*	*01/15/22 18:03*	*01/17/22 17:47*	*1*
Fluoranthene-d10 (Surr)	*107*		*40 - 140*	*01/15/22 18:03*	*01/17/22 17:47*	*1*
Terphenyl-d14	*114*		*58 - 132*	*01/15/22 18:03*	*01/17/22 17:47*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**16**	**J**	74	15	mg/Kg	☼	01/15/22 16:21	01/16/22 20:56	1
C24-C40	44	U	74	30	mg/Kg	☼	01/15/22 16:21	01/16/22 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*45 - 130*	*01/15/22 16:21*	*01/16/22 20:56*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**65.6**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**65.6**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.4**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.4**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-S10-15-16
Date Collected: 01/13/22 11:40
Date Received: 01/15/22 11:00

Lab Sample ID: 580-109327-9
Matrix: Solid
Percent Solids: 67.8

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3900		1400	450	mg/Kg	☼	01/15/22 16:57	01/16/22 06:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*67 - 134*	*01/15/22 16:57*	*01/16/22 06:37*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.10	U Q	0.14	0.026	mg/Kg	☼	01/15/22 17:17	01/18/22 08:57	1
Toluene	0.21	U Q	0.42	0.094	mg/Kg	☼	01/15/22 17:17	01/18/22 08:57	1
Ethylbenzene	0.29		0.28	0.063	mg/Kg	☼	01/15/22 17:17	01/18/22 08:57	1
m-Xylene & p-Xylene	1.9		0.28	0.050	mg/Kg	☼	01/15/22 17:17	01/18/22 08:57	1
o-Xylene	6.1		0.28	0.035	mg/Kg	☼	01/15/22 17:17	01/18/22 08:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*85 - 116*	*01/15/22 17:17*	*01/18/22 08:57*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/18/22 08:57*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*01/15/22 17:17*	*01/18/22 08:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*01/15/22 17:17*	*01/18/22 08:57*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	8.9		0.0067	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 18:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*48*		*28 - 143*	*01/15/22 18:03*	*01/17/22 18:11*	*1*
2-methylnaphthalene-d10	*82*	*M*	*40 - 140*	*01/15/22 18:03*	*01/17/22 18:11*	*1*
Fluoranthene-d10 (Surr)	*105*		*40 - 140*	*01/15/22 18:03*	*01/17/22 18:11*	*1*
Terphenyl-d14	*111*		*58 - 132*	*01/15/22 18:03*	*01/17/22 18:11*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	29	D	0.067	0.0085	mg/Kg	☼	01/15/22 18:03	01/18/22 10:49	10
2-Methylnaphthalene	45	D	0.067	0.028	mg/Kg	☼	01/15/22 18:03	01/18/22 10:49	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*	*M*	*28 - 143*	*01/15/22 18:03*	*01/18/22 10:49*	*10*
2-methylnaphthalene-d10	*127*	*M*	*40 - 140*	*01/15/22 18:03*	*01/18/22 10:49*	*10*
Fluoranthene-d10 (Surr)	*102*		*40 - 140*	*01/15/22 18:03*	*01/18/22 10:49*	*10*
Terphenyl-d14	*116*		*58 - 132*	*01/15/22 18:03*	*01/18/22 10:49*	*10*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	3200		55	11	mg/Kg	☼	01/15/22 16:21	01/16/22 21:16	1
C24-C40	61		55	22	mg/Kg	☼	01/15/22 16:21	01/16/22 21:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*45 - 130*	*01/15/22 16:21*	*01/16/22 21:16*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.8		0.1	0.1	%			01/16/22 09:46	1

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-S10-15-16
Lab Sample ID: 580-109327-9
Date Collected: 01/13/22 11:40
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 67.8

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67.8		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	32.2		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	32.2		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-E17.5-7-8
Lab Sample ID: 580-109327-10

Date Collected: 01/13/22 13:00
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 70.1

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	12	U	16	5.3	mg/Kg	☼	01/15/22 16:57	01/16/22 07:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*67 - 134*	*01/15/22 16:57*	*01/16/22 07:01*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.061	U	0.081	0.015	mg/Kg	☼	01/15/22 17:17	01/17/22 19:42	1
Toluene	0.12	U	0.24	0.055	mg/Kg	☼	01/15/22 17:17	01/17/22 19:42	1
Ethylbenzene	0.12	U	0.16	0.037	mg/Kg	☼	01/15/22 17:17	01/17/22 19:42	1
m-Xylene & p-Xylene	0.061	U	0.16	0.029	mg/Kg	☼	01/15/22 17:17	01/17/22 19:42	1
o-Xylene	0.061	U	0.16	0.020	mg/Kg	☼	01/15/22 17:17	01/17/22 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*01/15/22 17:17*	*01/17/22 19:42*	*1*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*	*01/15/22 17:17*	*01/17/22 19:42*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 119*	*01/15/22 17:17*	*01/17/22 19:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*79*		*71 - 136*	*01/15/22 17:17*	*01/17/22 19:42*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0020	U	0.0068	0.00086	mg/Kg	☼	01/15/22 18:03	01/17/22 18:36	1
2-Methylnaphthalene	0.0041	U	0.0068	0.0028	mg/Kg	☼	01/15/22 18:03	01/17/22 18:36	1
Naphthalene	0.0054	U	0.0068	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*78*	*M*	*28 - 143*	*01/15/22 18:03*	*01/17/22 18:36*	*1*
2-methylnaphthalene-d10	*92*		*40 - 140*	*01/15/22 18:03*	*01/17/22 18:36*	*1*
Fluoranthene-d10 (Surr)	*106*		*40 - 140*	*01/15/22 18:03*	*01/17/22 18:36*	*1*
Terphenyl-d14	*112*		*58 - 132*	*01/15/22 18:03*	*01/17/22 18:36*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**23**	**J**	67	13	mg/Kg	☼	01/15/22 16:21	01/16/22 21:37	1
C24-C40	**72**		67	27	mg/Kg	☼	01/15/22 16:21	01/16/22 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*45 - 130*	*01/15/22 16:21*	*01/16/22 21:37*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**70.1**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**70.1**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**29.9**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**29.9**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-N25-14-15
Lab Sample ID: 580-109327-11

Date Collected: 01/13/22 14:01
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 64.8

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	9.8	U	13	4.2	mg/Kg	☼	01/15/22 16:57	01/16/22 07:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*67 - 134*	*01/15/22 16:57*	*01/16/22 07:24*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.049	U	0.065	0.012	mg/Kg	☼	01/15/22 17:17	01/17/22 20:04	1
Toluene	0.098	U	0.20	0.044	mg/Kg	☼	01/15/22 17:17	01/17/22 20:04	1
Ethylbenzene	0.098	U	0.13	0.030	mg/Kg	☼	01/15/22 17:17	01/17/22 20:04	1
m-Xylene & p-Xylene	0.049	U	0.13	0.023	mg/Kg	☼	01/15/22 17:17	01/17/22 20:04	1
o-Xylene	0.049	U	0.13	0.016	mg/Kg	☼	01/15/22 17:17	01/17/22 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 20:04*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/17/22 20:04*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*01/15/22 17:17*	*01/17/22 20:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*01/15/22 17:17*	*01/17/22 20:04*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0023	U	0.0076	0.00096	mg/Kg	☼	01/15/22 18:03	01/17/22 19:00	1
2-Methylnaphthalene	0.0046	U	0.0076	0.0031	mg/Kg	☼	01/15/22 18:03	01/17/22 19:00	1
Naphthalene	0.0061	U	0.0076	0.0025	mg/Kg	☼	01/15/22 18:03	01/17/22 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*81*		*28 - 143*	*01/15/22 18:03*	*01/17/22 19:00*	*1*
2-methylnaphthalene-d10	*88*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:00*	*1*
Fluoranthene-d10 (Surr)	*105*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:00*	*1*
Terphenyl-d14	*118*		*58 - 132*	*01/15/22 18:03*	*01/17/22 19:00*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**20**	**J**	77	15	mg/Kg	☼	01/15/22 16:21	01/16/22 21:57	1
C24-C40	46	U	77	31	mg/Kg	☼	01/15/22 16:21	01/16/22 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*45 - 130*	*01/15/22 16:21*	*01/16/22 21:57*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**64.8**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**64.8**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.2**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**35.2**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-N25-14-15 DUPLICATE
Lab Sample ID: 580-109327-12

Date Collected: 01/13/22 14:20
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.4

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	12	U	15	5.0	mg/Kg	☼	01/15/22 16:57	01/16/22 07:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*67 - 134*	*01/15/22 16:57*	*01/16/22 07:47*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.058	U	0.077	0.015	mg/Kg	☼	01/15/22 17:17	01/17/22 20:27	1
Toluene	0.12	U	0.23	0.052	mg/Kg	☼	01/15/22 17:17	01/17/22 20:27	1
Ethylbenzene	0.12	U	0.15	0.035	mg/Kg	☼	01/15/22 17:17	01/17/22 20:27	1
m-Xylene & p-Xylene	0.058	U	0.15	0.027	mg/Kg	☼	01/15/22 17:17	01/17/22 20:27	1
o-Xylene	0.058	U	0.15	0.019	mg/Kg	☼	01/15/22 17:17	01/17/22 20:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*01/15/22 17:17*	*01/17/22 20:27*	*1*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*	*01/15/22 17:17*	*01/17/22 20:27*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*01/15/22 17:17*	*01/17/22 20:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*01/15/22 17:17*	*01/17/22 20:27*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0021	U	0.0069	0.00087	mg/Kg	☼	01/15/22 18:03	01/17/22 19:25	1
2-Methylnaphthalene	0.0042	U	0.0069	0.0028	mg/Kg	☼	01/15/22 18:03	01/17/22 19:25	1
Naphthalene	0.0055	U	0.0069	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 19:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*28 - 143*	*01/15/22 18:03*	*01/17/22 19:25*	*1*
2-methylnaphthalene-d10	*94*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:25*	*1*
Fluoranthene-d10 (Surr)	*109*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:25*	*1*
Terphenyl-d14	*121*		*58 - 132*	*01/15/22 18:03*	*01/17/22 19:25*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**25**	**J**	67	13	mg/Kg	☼	01/15/22 16:21	01/16/22 22:17	1
C24-C40	40	U	67	27	mg/Kg	☼	01/15/22 16:21	01/16/22 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*45 - 130*	*01/15/22 16:21*	*01/16/22 22:17*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**65.4**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**65.4**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.6**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**34.6**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-E10-21-22
Lab Sample ID: 580-109327-13

Date Collected: 01/13/22 12:00
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 61.8

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**450**		14	4.6	mg/Kg	☼	01/15/22 16:57	01/16/22 08:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*67 - 134*	*01/15/22 16:57*	*01/16/22 08:10*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.053	U	0.071	0.014	mg/Kg	☼	01/15/22 17:17	01/17/22 20:50	1
Toluene	0.11	U	0.21	0.048	mg/Kg	☼	01/15/22 17:17	01/17/22 20:50	1
Ethylbenzene	0.11	U	0.14	0.032	mg/Kg	☼	01/15/22 17:17	01/17/22 20:50	1
m-Xylene & p-Xylene	0.053	U	0.14	0.025	mg/Kg	☼	01/15/22 17:17	01/17/22 20:50	1
o-Xylene	0.053	U	0.14	0.018	mg/Kg	☼	01/15/22 17:17	01/17/22 20:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*01/15/22 17:17*	*01/17/22 20:50*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*01/15/22 17:17*	*01/17/22 20:50*	*1*
Dibromofluoromethane (Surr)	*84*		*78 - 119*	*01/15/22 17:17*	*01/17/22 20:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*01/15/22 17:17*	*01/17/22 20:50*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	**0.73**		0.0078	0.00098	mg/Kg	☼	01/15/22 18:03	01/17/22 19:49	1
2-Methylnaphthalene	**0.85**		0.0078	0.0032	mg/Kg	☼	01/15/22 18:03	01/17/22 19:49	1
Naphthalene	**0.34**		0.0078	0.0025	mg/Kg	☼	01/15/22 18:03	01/17/22 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*67*		*28 - 143*	*01/15/22 18:03*	*01/17/22 19:49*	*1*
2-methylnaphthalene-d10	*84*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:49*	*1*
Fluoranthene-d10 (Surr)	*99*		*40 - 140*	*01/15/22 18:03*	*01/17/22 19:49*	*1*
Terphenyl-d14	*108*		*58 - 132*	*01/15/22 18:03*	*01/17/22 19:49*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**430**		67	13	mg/Kg	☼	01/15/22 16:21	01/16/22 22:37	1
C24-C40	40	U	67	27	mg/Kg	☼	01/15/22 16:21	01/16/22 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*45 - 130*	*01/15/22 16:21*	*01/16/22 22:37*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**61.8**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**61.8**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**38.2**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**38.2**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-N25-10-11
Lab Sample ID: 580-109327-14

Date Collected: 01/13/22 14:15
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 75.6

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	**6.6**	**J**	12	4.0	mg/Kg	☼	01/15/22 16:57	01/17/22 10:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*67 - 134*	*01/15/22 16:57*	*01/17/22 10:39*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.046	U	0.061	0.012	mg/Kg	☼	01/15/22 17:17	01/17/22 21:13	1
Toluene	0.091	U	0.18	0.041	mg/Kg	☼	01/15/22 17:17	01/17/22 21:13	1
Ethylbenzene	0.091	U	0.12	0.028	mg/Kg	☼	01/15/22 17:17	01/17/22 21:13	1
m-Xylene & p-Xylene	0.046	U	0.12	0.022	mg/Kg	☼	01/15/22 17:17	01/17/22 21:13	1
o-Xylene	0.046	U	0.12	0.015	mg/Kg	☼	01/15/22 17:17	01/17/22 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*85 - 116*	*01/15/22 17:17*	*01/17/22 21:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 17:17*	*01/17/22 21:13*	*1*
Dibromofluoromethane (Surr)	*82*		*78 - 119*	*01/15/22 17:17*	*01/17/22 21:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*77*		*71 - 136*	*01/15/22 17:17*	*01/17/22 21:13*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0016	U	0.0054	0.00068	mg/Kg	☼	01/15/22 18:03	01/17/22 20:14	1
2-Methylnaphthalene	0.0032	U	0.0054	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 20:14	1
Naphthalene	0.0043	U	0.0054	0.0017	mg/Kg	☼	01/15/22 18:03	01/17/22 20:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*80*		*28 - 143*	*01/15/22 18:03*	*01/17/22 20:14*	*1*
2-methylnaphthalene-d10	*91*		*40 - 140*	*01/15/22 18:03*	*01/17/22 20:14*	*1*
Fluoranthene-d10 (Surr)	*103*		*40 - 140*	*01/15/22 18:03*	*01/17/22 20:14*	*1*
Terphenyl-d14	*115*		*58 - 132*	*01/15/22 18:03*	*01/17/22 20:14*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	**21**	**J**	61	12	mg/Kg	☼	01/15/22 16:21	01/16/22 22:57	1
C24-C40	36	U	61	24	mg/Kg	☼	01/15/22 16:21	01/16/22 22:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*45 - 130*	*01/15/22 16:21*	*01/16/22 22:57*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**75.6**		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	**75.6**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**24.4**		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	**24.4**		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-S25-14-15
Date Collected: 01/13/22 11:55
Date Received: 01/15/22 11:00

Lab Sample ID: 580-109327-15
Matrix: Solid
Percent Solids: 68.1

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	9.0	J	14	4.6	mg/Kg	☼	01/15/22 16:57	01/17/22 11:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*67 - 134*	*01/15/22 16:57*	*01/17/22 11:03*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.053	U	0.070	0.013	mg/Kg	☼	01/15/22 17:17	01/17/22 21:36	1
Toluene	0.11	U	0.21	0.047	mg/Kg	☼	01/15/22 17:17	01/17/22 21:36	1
Ethylbenzene	0.11	U	0.14	0.032	mg/Kg	☼	01/15/22 17:17	01/17/22 21:36	1
m-Xylene & p-Xylene	0.053	U	0.14	0.025	mg/Kg	☼	01/15/22 17:17	01/17/22 21:36	1
o-Xylene	0.053	U	0.14	0.018	mg/Kg	☼	01/15/22 17:17	01/17/22 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*85 - 116*	*01/15/22 17:17*	*01/17/22 21:36*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/17/22 21:36*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*01/15/22 17:17*	*01/17/22 21:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 136*	*01/15/22 17:17*	*01/17/22 21:36*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0020	U	0.0067	0.00084	mg/Kg	☼	01/15/22 18:03	01/17/22 20:38	1
2-Methylnaphthalene	0.0040	U	0.0067	0.0027	mg/Kg	☼	01/15/22 18:03	01/17/22 20:38	1
Naphthalene	0.0053	U	0.0067	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 20:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*28 - 143*	*01/15/22 18:03*	*01/17/22 20:38*	*1*
2-methylnaphthalene-d10	*90*		*40 - 140*	*01/15/22 18:03*	*01/17/22 20:38*	*1*
Fluoranthene-d10 (Surr)	*105*		*40 - 140*	*01/15/22 18:03*	*01/17/22 20:38*	*1*
Terphenyl-d14	*113*		*58 - 132*	*01/15/22 18:03*	*01/17/22 20:38*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	38	U	64	13	mg/Kg	☼	01/15/22 16:21	01/16/22 23:17	1
C24-C40	38	U	64	25	mg/Kg	☼	01/15/22 16:21	01/16/22 23:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*45 - 130*	*01/15/22 16:21*	*01/16/22 23:17*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	68.1		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	68.1		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	31.9		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	31.9		0.1	0.1	%			01/16/22 09:46	1

Client Sample ID: HT-S25-8-9
Date Collected: 01/13/22 11:50
Date Received: 01/15/22 11:00

Lab Sample ID: 580-109327-16
Matrix: Solid
Percent Solids: 92.8

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	6.2	J	11	3.5	mg/Kg	☼	01/15/22 16:57	01/17/22 11:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*67 - 134*	*01/15/22 16:57*	*01/17/22 11:26*	*1*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.040	U Q	0.054	0.010	mg/Kg	☼	01/15/22 17:17	01/18/22 08:10	1
Toluene	0.081	U Q	0.16	0.036	mg/Kg	☼	01/15/22 17:17	01/18/22 08:10	1
Ethylbenzene	0.081	U	0.11	0.024	mg/Kg	☼	01/15/22 17:17	01/18/22 08:10	1
m-Xylene & p-Xylene	0.040	U	0.11	0.019	mg/Kg	☼	01/15/22 17:17	01/18/22 08:10	1
o-Xylene	0.040	U	0.11	0.013	mg/Kg	☼	01/15/22 17:17	01/18/22 08:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*01/15/22 17:17*	*01/18/22 08:10*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*01/15/22 17:17*	*01/18/22 08:10*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 119*	*01/15/22 17:17*	*01/18/22 08:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*01/15/22 17:17*	*01/18/22 08:10*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0016	U	0.0053	0.00067	mg/Kg	☼	01/15/22 18:03	01/17/22 21:02	1
2-Methylnaphthalene	0.0032	U	0.0053	0.0022	mg/Kg	☼	01/15/22 18:03	01/17/22 21:02	1
Naphthalene	0.0042	U	0.0053	0.0017	mg/Kg	☼	01/15/22 18:03	01/17/22 21:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*86*		*28 - 143*	*01/15/22 18:03*	*01/17/22 21:02*	*1*
2-methylnaphthalene-d10	*93*		*40 - 140*	*01/15/22 18:03*	*01/17/22 21:02*	*1*
Fluoranthene-d10 (Surr)	*114*		*40 - 140*	*01/15/22 18:03*	*01/17/22 21:02*	*1*
Terphenyl-d14	*120*		*58 - 132*	*01/15/22 18:03*	*01/17/22 21:02*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	12	J	50	9.8	mg/Kg	☼	01/15/22 16:21	01/16/22 23:37	1
C24-C40	30	U	50	20	mg/Kg	☼	01/15/22 16:21	01/16/22 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*45 - 130*	*01/15/22 16:21*	*01/16/22 23:37*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.8		0.1	0.1	%			01/16/22 09:46	1
Percent Solids	92.8		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	7.2		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	7.2		0.1	0.1	%			01/16/22 09:46	1

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: LT-SEDIMENT
Lab Sample ID: 580-109327-17

Date Collected: 01/13/22 13:50
Matrix: Solid

Date Received: 01/15/22 11:00
Percent Solids: 66.7

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	7.2		0.0073	0.0024	mg/Kg	☼	01/15/22 18:03	01/17/22 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*49*	*M*	*28 - 143*	*01/15/22 18:03*	*01/17/22 21:27*	*1*
2-methylnaphthalene-d10	*71*	*M*	*40 - 140*	*01/15/22 18:03*	*01/17/22 21:27*	*1*
Fluoranthene-d10 (Surr)	*94*		*40 - 140*	*01/15/22 18:03*	*01/17/22 21:27*	*1*
Terphenyl-d14	*98*		*58 - 132*	*01/15/22 18:03*	*01/17/22 21:27*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	52	D	0.073	0.0092	mg/Kg	☼	01/15/22 18:03	01/18/22 11:13	10
2-Methylnaphthalene	74	D	0.073	0.030	mg/Kg	☼	01/15/22 18:03	01/18/22 11:13	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*	*M*	*28 - 143*	*01/15/22 18:03*	*01/18/22 11:13*	*10*
2-methylnaphthalene-d10	*131*	*M*	*40 - 140*	*01/15/22 18:03*	*01/18/22 11:13*	*10*
Fluoranthene-d10 (Surr)	*96*		*40 - 140*	*01/15/22 18:03*	*01/18/22 11:13*	*10*
Terphenyl-d14	*104*		*58 - 132*	*01/15/22 18:03*	*01/18/22 11:13*	*10*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C24	13000		70	14	mg/Kg	☼	01/15/22 16:21	01/17/22 00:17	1
C24-C40	250		70	28	mg/Kg	☼	01/15/22 16:21	01/17/22 00:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*45 - 130*	*01/15/22 16:21*	*01/17/22 00:17*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	66.7		0.1	0.1	%			01/16/22 09:46	1
Percent Moisture	33.3		0.1	0.1	%			01/16/22 09:46	1

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378452/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378464
Prep Batch: 378452

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	3.0	U	4.0	1.3	mg/Kg		01/15/22 16:57	01/16/22 00:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*67 - 134*	*01/15/22 16:57*	*01/16/22 00:25*	*1*

Lab Sample ID: LCS 580-378452/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378464
Prep Batch: 378452

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	40.0	34.8		mg/Kg		87	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*67 - 134*

Lab Sample ID: LCSD 580-378452/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 378464
Prep Batch: 378452

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	40.0	33.6		mg/Kg		84	79 - 122	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*67 - 134*

Lab Sample ID: MB 580-378552/4
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 378552

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.080	U	0.10	0.031	mg/L			01/17/22 18:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*69 - 133*		*01/17/22 18:41*	*1*

Lab Sample ID: LCS 580-378552/7
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 378552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	1.00	1.01		mg/L		101	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*69 - 133*

Method: 8260/CALUFT DOD - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-378552/8
Matrix: Water
Analysis Batch: 378552

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)			1.00	1.01		mg/L		101	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*69 - 133*

Method: 8260D - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-378453/1-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378453

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.015	U	0.020	0.0038	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
Toluene	0.030	U	0.060	0.014	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
Ethylbenzene	0.030	U	0.040	0.0091	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
m-Xylene & p-Xylene	0.015	U	0.040	0.0071	mg/Kg		01/15/22 17:17	01/17/22 00:51	1
o-Xylene	0.015	U	0.040	0.0050	mg/Kg		01/15/22 17:17	01/17/22 00:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
Dibromofluoromethane (Surr)	*96*	*M*	*78 - 119*	*01/15/22 17:17*	*01/17/22 00:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*	*M*	*71 - 136*	*01/15/22 17:17*	*01/17/22 00:51*	*1*

Lab Sample ID: LCS 580-378453/2-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378453

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.800	0.885		mg/Kg		111	77 - 121
Toluene	0.800	0.922		mg/Kg		115	77 - 121
Ethylbenzene	0.800	0.894		mg/Kg		112	76 - 122
m-Xylene & p-Xylene	0.800	0.889		mg/Kg		111	77 - 124
o-Xylene	0.800	0.871	M	mg/Kg		109	77 - 123
Naphthalene	0.800	0.987		mg/Kg		123	62 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Toluene-d8 (Surr)	*99*		*85 - 116*
Dibromofluoromethane (Surr)	*90*	*M*	*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*87*		*71 - 136*

Method: 8260D - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-378453/3-A
Matrix: Solid
Analysis Batch: 378460

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378453

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.800	0.782		mg/Kg		98	77 - 121	12	20
Toluene			0.800	0.783		mg/Kg		98	77 - 121	16	20
Ethylbenzene			0.800	0.761		mg/Kg		95	76 - 122	16	20
m-Xylene & p-Xylene			0.800	0.763		mg/Kg		95	77 - 124	15	20
o-Xylene			0.800	0.755	M	mg/Kg		94	77 - 123	14	20
Naphthalene			0.800	0.845		mg/Kg		106	62 - 129	16	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Toluene-d8 (Surr)	*97*		*85 - 116*
Dibromofluoromethane (Surr)	*92*	*M*	*78 - 119*
1,2-Dichloroethane-d4 (Surr)	*89*	*M*	*71 - 136*

Lab Sample ID: MB 580-378553/4
Matrix: Water
Analysis Batch: 378553

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	1.0	0.24	ug/L			01/17/22 18:41	1
Toluene	0.80	U	1.0	0.39	ug/L			01/17/22 18:41	1
Ethylbenzene	0.80	U	1.0	0.50	ug/L			01/17/22 18:41	1
m-Xylene & p-Xylene	0.80	U	2.0	0.53	ug/L			01/17/22 18:41	1
o-Xylene	0.80	U	1.0	0.39	ug/L			01/17/22 18:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*01/17/22 18:41*	*1*
Toluene-d8 (Surr)	*98*		*89 - 112*		*01/17/22 18:41*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 119*		*01/17/22 18:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*	*M*	*81 - 118*		*01/17/22 18:41*	*1*

Lab Sample ID: LCS 580-378553/5
Matrix: Water
Analysis Batch: 378553

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene			10.0	10.7		ug/L		107	79 - 120
Toluene			10.0	10.3		ug/L		103	80 - 121
Ethylbenzene			10.0	10.6		ug/L		106	79 - 121
m-Xylene & p-Xylene			10.0	10.1		ug/L		101	80 - 121
o-Xylene			10.0	10.2		ug/L		102	78 - 122
Naphthalene			10.0	9.56		ug/L		96	61 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*
Toluene-d8 (Surr)	*99*		*89 - 112*
Dibromofluoromethane (Surr)	*90*		*80 - 119*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*

Method: 8260D - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-378553/6
Matrix: Water
Analysis Batch: 378553

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			10.0	10.7		ug/L		107	79 - 120	0	20
Toluene			10.0	10.1		ug/L		101	80 - 121	2	20
Ethylbenzene			10.0	10.4		ug/L		104	79 - 121	1	20
m-Xylene & p-Xylene			10.0	10.2		ug/L		102	80 - 121	1	20
o-Xylene			10.0	10.1		ug/L		101	78 - 122	1	20
Naphthalene			10.0	9.22		ug/L		92	61 - 128	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*
Toluene-d8 (Surr)	*98*		*89 - 112*
Dibromofluoromethane (Surr)	*92*		*80 - 119*
1,2-Dichloroethane-d4 (Surr)	*89*		*81 - 118*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-378465/1-A
Matrix: Solid
Analysis Batch: 378516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378465

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.0030	U	0.0050	0.0021	mg/Kg		01/15/22 18:03	01/17/22 13:44	1
1-Methylnaphthalene	0.0015	U	0.0050	0.00063	mg/Kg		01/15/22 18:03	01/17/22 13:44	1
Naphthalene	0.0040	U	0.0050	0.0016	mg/Kg		01/15/22 18:03	01/17/22 13:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*73*	*M*	*28 - 143*	*01/15/22 18:03*	*01/17/22 13:44*	*1*
2-methylnaphthalene-d10	*91*		*40 - 140*	*01/15/22 18:03*	*01/17/22 13:44*	*1*
Fluoranthene-d10 (Surr)	*111*		*40 - 140*	*01/15/22 18:03*	*01/17/22 13:44*	*1*
Terphenyl-d14	*123*		*58 - 132*	*01/15/22 18:03*	*01/17/22 13:44*	*1*

Lab Sample ID: LCS 580-378465/2-A
Matrix: Solid
Analysis Batch: 378516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378465

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene			1.00	1.11		mg/Kg		111	39 - 114
1-Methylnaphthalene			1.00	0.887		mg/Kg		89	43 - 111
Naphthalene			1.00	1.01		mg/Kg		101	38 - 111

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*100*		*28 - 143*
2-methylnaphthalene-d10	*137*		*40 - 140*
Fluoranthene-d10 (Surr)	*96*		*40 - 140*
Terphenyl-d14	*104*		*58 - 132*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-109327-2 MS
Matrix: Solid
Analysis Batch: 378516

Client Sample ID: HT-E25-7-8
Prep Type: Total/NA
Prep Batch: 378465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	0.0038	U	1.27	1.35	M	mg/Kg	☼	106	39 - 114
1-Methylnaphthalene	0.0019	U	1.27	1.13	M	mg/Kg	☼	89	43 - 111
Naphthalene	0.0051	U	1.27	1.35		mg/Kg	☼	106	38 - 111

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*106*		*28 - 143*
2-methylnaphthalene-d10	*105*		*40 - 140*
Fluoranthene-d10 (Surr)	*103*		*40 - 140*
Terphenyl-d14	*109*		*58 - 132*

Lab Sample ID: 580-109327-2 MSD
Matrix: Solid
Analysis Batch: 378516

Client Sample ID: HT-E25-7-8
Prep Type: Total/NA
Prep Batch: 378465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	0.0038	U	1.30	1.34	M	mg/Kg	☼	103	39 - 114	1	20
1-Methylnaphthalene	0.0019	U	1.30	1.12	M	mg/Kg	☼	86	43 - 111	1	20
Naphthalene	0.0051	U	1.30	1.33		mg/Kg	☼	103	38 - 111	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*104*		*28 - 143*
2-methylnaphthalene-d10	*105*		*40 - 140*
Fluoranthene-d10 (Surr)	*101*		*40 - 140*
Terphenyl-d14	*106*		*58 - 132*

Lab Sample ID: MB 580-378478/1-A
Matrix: Water
Analysis Batch: 378522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378478

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.080	U M	0.20	0.039	ug/L		01/16/22 11:03	01/17/22 12:28	1
1-Methylnaphthalene	0.032	U M	0.10	0.019	ug/L		01/16/22 11:03	01/17/22 12:28	1
Naphthalene	0.080	U M	0.10	0.031	ug/L		01/16/22 11:03	01/17/22 12:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*56*		*46 - 122*	*01/16/22 11:03*	*01/17/22 12:28*	*1*
2-methylnaphthalene-d10	*70*		*40 - 140*	*01/16/22 11:03*	*01/17/22 12:28*	*1*
Fluoranthene-d10 (Surr)	*87*		*40 - 140*	*01/16/22 11:03*	*01/17/22 12:28*	*1*
Terphenyl-d14	*93*		*58 - 132*	*01/16/22 11:03*	*01/17/22 12:28*	*1*

Lab Sample ID: LCS 580-378478/2-A
Matrix: Water
Analysis Batch: 378522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	2.00	1.54		ug/L		77	39 - 114
1-Methylnaphthalene	2.00	1.54		ug/L		77	41 - 115
Naphthalene	2.00	1.53		ug/L		77	43 - 114

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	*72*		*46 - 122*
2-methylnaphthalene-d10	*70*		*40 - 140*
Fluoranthene-d10 (Surr)	*75*		*40 - 140*
Terphenyl-d14	*85*		*58 - 132*

Lab Sample ID: LCSD 580-378478/3-A
Matrix: Water
Analysis Batch: 378522

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378478

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene			2.00	1.57		ug/L		79	39 - 114	2	20
1-Methylnaphthalene			2.00	1.57		ug/L		79	41 - 115	2	20
Naphthalene			2.00	1.57		ug/L		79	43 - 114	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	*78*		*46 - 122*
2-methylnaphthalene-d10	*72*		*40 - 140*
Fluoranthene-d10 (Surr)	*81*		*40 - 140*
Terphenyl-d14	*90*		*58 - 132*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 580-378451/1-A
Matrix: Solid
Analysis Batch: 378495

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378451

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C24-C40	30	U	50	20	mg/Kg		01/15/22 16:21	01/16/22 16:55	1
C10-C24	30	U	50	9.9	mg/Kg		01/15/22 16:21	01/16/22 16:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	*103*		*45 - 130*	*01/15/22 16:21*	*01/16/22 16:55*	*1*

Lab Sample ID: LCS 580-378451/2-A
Matrix: Solid
Analysis Batch: 378495

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378451

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C24-C40			500	464		mg/Kg		93	39 - 106		
C10-C24			500	501		mg/Kg		100	75 - 125		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	*95*		*45 - 130*

Lab Sample ID: LCSD 580-378451/3-A
Matrix: Solid
Analysis Batch: 378495

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378451

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C24-C40			500	490		mg/Kg		98	39 - 106	5	20
C10-C24			500	505		mg/Kg		101	75 - 125	1	20

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	92		45 - 130

Lab Sample ID: 580-109327-2 MS
Matrix: Solid
Analysis Batch: 378495

Client Sample ID: HT-E25-7-8
Prep Type: Total/NA
Prep Batch: 378451

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C24-C40	36	U	646	603		mg/Kg	☼	93	39 - 106
C10-C24	13	J	646	617		mg/Kg	☼	93	75 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	86		45 - 130

Lab Sample ID: 580-109327-2 MSD
Matrix: Solid
Analysis Batch: 378495

Client Sample ID: HT-E25-7-8
Prep Type: Total/NA
Prep Batch: 378451

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C24-C40	36	U	624	604		mg/Kg	☼	97	39 - 106	0	20
C10-C24	13	J	624	606		mg/Kg	☼	95	75 - 125	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	89		45 - 130

Lab Sample ID: MB 580-378479/1-A
Matrix: Water
Analysis Batch: 378500

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378479

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
C24-C40	0.30	U	0.35	0.18	mg/L		01/16/22 11:08	01/16/22 21:47	1
C10-C24	0.10	U	0.11	0.065	mg/L		01/16/22 11:08	01/16/22 21:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		56 - 125	01/16/22 11:08	01/16/22 21:47	1

Lab Sample ID: LCS 580-378479/2-A
Matrix: Water
Analysis Batch: 378500

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378479

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C24-C40	0.500	0.495		mg/L		99	41 - 113
C10-C24	0.500	0.408		mg/L		82	36 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	89		56 - 125

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 580-378479/3-A
Matrix: Water
Analysis Batch: 378500

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378479

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C24-C40			0.500	0.496		mg/L		99	41 - 113	0	20
C10-C24			0.500	0.385		mg/L		77	36 - 132	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*91*		*56 - 125*

Method: 2540G - SM 2540G

Lab Sample ID: 580-109327-2 DU
Matrix: Solid
Analysis Batch: 378477

Client Sample ID: HT-E25-7-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	73.9			74.2		%				0.4	20
Percent Solids	73.9			74.2		%				0.4	20
Percent Moisture	26.1			25.8		%				1	20
Percent Moisture	26.1			25.8		%				1	20

Lab Chronicle

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: EB
Lab Sample ID: 580-109327-1
Date Collected: 01/13/22 16:15
Matrix: Water
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260/CALUFT DOD		1	378552	01/17/22 21:28	JSM	FGS SEA
Total/NA	Analysis	8260D		1	378553	01/17/22 21:28	JSM	FGS SEA
Total/NA	Prep	3510C			378478	01/16/22 11:03	JHR	FGS SEA
Total/NA	Analysis	8270E SIM		1	378522	01/17/22 13:25	W1T	FGS SEA
Total/NA	Prep	3510C			378479	01/16/22 11:08	JHR	FGS SEA
Total/NA	Analysis	8015D DRO		1	378500	01/16/22 22:45	JCM	FGS SEA

Client Sample ID: HT-E25-7-8
Lab Sample ID: 580-109327-2
Date Collected: 01/13/22 12:35
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E25-7-8
Lab Sample ID: 580-109327-2
Date Collected: 01/13/22 12:35
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 73.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 03:55	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 15:52	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 14:32	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 17:55	JCM	FGS SEA

Client Sample ID: HT-E17.5-14-15
Lab Sample ID: 580-109327-3
Date Collected: 01/13/22 13:15
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E17.5-14-15
Lab Sample ID: 580-109327-3
Date Collected: 01/13/22 13:15
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 01:35	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 16:15	JSM	FGS SEA

Lab Chronicle

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-E17.5-14-15
Lab Sample ID: 580-109327-3
Date Collected: 01/13/22 13:15
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 15:45	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 18:55	JCM	FGS SEA

Client Sample ID: HT-S17.5-8-9
Lab Sample ID: 580-109327-4
Date Collected: 01/13/22 12:20
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-S17.5-8-9
Lab Sample ID: 580-109327-4
Date Collected: 01/13/22 12:20
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 75.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 04:41	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 16:38	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 16:10	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 19:15	JCM	FGS SEA

Client Sample ID: HT-E10-23-24
Lab Sample ID: 580-109327-5
Date Collected: 01/13/22 11:22
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E10-23-24
Lab Sample ID: 580-109327-5
Date Collected: 01/13/22 11:22
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 64.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 05:04	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 17:01	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 16:34	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 19:36	JCM	FGS SEA

Lab Chronicle

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-S10-17-18
Lab Sample ID: 580-109327-6
Date Collected: 01/13/22 11:35
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-S10-17-18
Lab Sample ID: 580-109327-6
Date Collected: 01/13/22 11:35
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 05:28	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378597	01/18/22 08:33	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 16:59	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 19:56	JCM	FGS SEA

Client Sample ID: HT-N25-10-11 DUPLICATE
Lab Sample ID: 580-109327-7
Date Collected: 01/13/22 14:25
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-N25-10-11 DUPLICATE
Lab Sample ID: 580-109327-7
Date Collected: 01/13/22 14:25
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 74.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 05:51	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 18:32	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 17:23	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 20:36	JCM	FGS SEA

Client Sample ID: HT-E25-14-15
Lab Sample ID: 580-109327-8
Date Collected: 01/13/22 12:45
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E25-14-15
Lab Sample ID: 580-109327-8

Date Collected: 01/13/22 12:45
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 06:14	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 18:55	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 17:47	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 20:56	JCM	FGS SEA

Client Sample ID: HT-S10-15-16
Lab Sample ID: 580-109327-9

Date Collected: 01/13/22 11:40
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-S10-15-16
Lab Sample ID: 580-109327-9

Date Collected: 01/13/22 11:40
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 67.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 06:37	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378597	01/18/22 08:57	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 18:11	CJ	FGS SEA
Total/NA	Prep	3546	DL		378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM	DL	10	378609	01/18/22 10:49	E1L	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 21:16	JCM	FGS SEA

Client Sample ID: HT-E17.5-7-8
Lab Sample ID: 580-109327-10

Date Collected: 01/13/22 13:00
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E17.5-7-8
Lab Sample ID: 580-109327-10

Date Collected: 01/13/22 13:00
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 70.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 07:01	CJ	FGS SEA

Client Sample ID: HT-E17.5-7-8
Lab Sample ID: 580-109327-10
Date Collected: 01/13/22 13:00
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 70.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 19:42	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 18:36	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 21:37	JCM	FGS SEA

Client Sample ID: HT-N25-14-15
Lab Sample ID: 580-109327-11
Date Collected: 01/13/22 14:01
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-N25-14-15
Lab Sample ID: 580-109327-11
Date Collected: 01/13/22 14:01
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 64.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 07:24	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 20:04	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 19:00	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 21:57	JCM	FGS SEA

Client Sample ID: HT-N25-14-15 DUPLICATE
Lab Sample ID: 580-109327-12
Date Collected: 01/13/22 14:20
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-N25-14-15 DUPLICATE
Lab Sample ID: 580-109327-12
Date Collected: 01/13/22 14:20
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 07:47	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 20:27	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 19:25	CJ	FGS SEA

Client Sample ID: HT-N25-14-15 DUPLICATE
Lab Sample ID: 580-109327-12
Date Collected: 01/13/22 14:20
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 65.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 22:17	JCM	FGS SEA

Client Sample ID: HT-E10-21-22
Lab Sample ID: 580-109327-13
Date Collected: 01/13/22 12:00
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-E10-21-22
Lab Sample ID: 580-109327-13
Date Collected: 01/13/22 12:00
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 61.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378464	01/16/22 08:10	CJ	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 20:50	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 19:49	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 22:37	JCM	FGS SEA

Client Sample ID: HT-N25-10-11
Lab Sample ID: 580-109327-14
Date Collected: 01/13/22 14:15
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-N25-10-11
Lab Sample ID: 580-109327-14
Date Collected: 01/13/22 14:15
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 75.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378543	01/17/22 10:39	JSM	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 21:13	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 20:14	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 22:57	JCM	FGS SEA

Lab Chronicle

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: HT-S25-14-15
Lab Sample ID: 580-109327-15
Date Collected: 01/13/22 11:55
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-S25-14-15
Lab Sample ID: 580-109327-15
Date Collected: 01/13/22 11:55
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 68.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378543	01/17/22 11:03	JSM	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378592	01/17/22 21:36	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 20:38	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 23:17	JCM	FGS SEA

Client Sample ID: HT-S25-8-9
Lab Sample ID: 580-109327-16
Date Collected: 01/13/22 11:50
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Client Sample ID: HT-S25-8-9
Lab Sample ID: 580-109327-16
Date Collected: 01/13/22 11:50
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			378452	01/15/22 16:57	JBT	FGS SEA
Total/NA	Analysis	8260/CALUFT DOD		1	378543	01/17/22 11:26	JSM	FGS SEA
Total/NA	Prep	5035			378453	01/15/22 17:17	JBT	FGS SEA
Total/NA	Analysis	8260D		1	378597	01/18/22 08:10	JSM	FGS SEA
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 21:02	CJ	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/16/22 23:37	JCM	FGS SEA

Client Sample ID: LT-SEDIMENT
Lab Sample ID: 580-109327-17
Date Collected: 01/13/22 13:50
Matrix: Solid
Date Received: 01/15/22 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	378477	01/16/22 09:46	RJL	FGS SEA

Lab Chronicle

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Client Sample ID: LT-SEDIMENT
Lab Sample ID: 580-109327-17

Date Collected: 01/13/22 13:50
Matrix: Solid
Date Received: 01/15/22 11:00
Percent Solids: 66.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM		1	378516	01/17/22 21:27	CJ	FGS SEA
Total/NA	Prep	3546	DL		378465	01/15/22 18:03	BJM	FGS SEA
Total/NA	Analysis	8270E SIM	DL	10	378609	01/18/22 11:13	E1L	FGS SEA
Total/NA	Prep	3546			378451	01/15/22 16:21	BJM	FGS SEA
Total/NA	Analysis	8015D DRO		1	378495	01/17/22 00:17	JCM	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2236	01-19-22

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

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids
8015D DRO	3510C	Water	C10-C24
8015D DRO	3546	Solid	C10-C24

Sample Summary

Client: AECOM
Job ID: 580-109327-1
Project/Site: Red Hill JBPHH N62742-17-D-1800-CV22F0106

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109327-1	EB	Water	01/13/22 16:15	01/15/22 11:00
580-109327-2	HT-E25-7-8	Solid	01/13/22 12:35	01/15/22 11:00
580-109327-3	HT-E17.5-14-15	Solid	01/13/22 13:15	01/15/22 11:00
580-109327-4	HT-S17.5-8-9	Solid	01/13/22 12:20	01/15/22 11:00
580-109327-5	HT-E10-23-24	Solid	01/13/22 11:22	01/15/22 11:00
580-109327-6	HT-S10-17-18	Solid	01/13/22 11:35	01/15/22 11:00
580-109327-7	HT-N25-10-11 DUPLICATE	Solid	01/13/22 14:25	01/15/22 11:00
580-109327-8	HT-E25-14-15	Solid	01/13/22 12:45	01/15/22 11:00
580-109327-9	HT-S10-15-16	Solid	01/13/22 11:40	01/15/22 11:00
580-109327-10	HT-E17.5-7-8	Solid	01/13/22 13:00	01/15/22 11:00
580-109327-11	HT-N25-14-15	Solid	01/13/22 14:01	01/15/22 11:00
580-109327-12	HT-N25-14-15 DUPLICATE	Solid	01/13/22 14:20	01/15/22 11:00
580-109327-13	HT-E10-21-22	Solid	01/13/22 12:00	01/15/22 11:00
580-109327-14	HT-N25-10-11	Solid	01/13/22 14:15	01/15/22 11:00
580-109327-15	HT-S25-14-15	Solid	01/13/22 11:55	01/15/22 11:00
580-109327-16	HT-S25-8-9	Solid	01/13/22 11:50	01/15/22 11:00
580-109327-17	LT-SEDIMENT	Solid	01/13/22 13:50	01/15/22 11:00

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody R

Therm. ID: SCA3 Cor: 1.4° Unc: 1.4°
Cooler Dsc: large blue
Packing: Blu
Cust. Seal: Yes X No
Blue Ice, Wet, Dry, None
FedEx: priority
UPS:
Lab Cour:
Other:

eurofins | Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Ela...	COC No: 202201-07 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com; State of Origin: Hawaii	Page: Page 3 of 4
Company: AECOM	PWSID:		Job #:
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract		
City: Honolulu	TAT Requested (days): 3 working days		
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No		
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w		
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:		
Project Name: CV22F0106	Project #: 60674414		
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
				Preservation Code:			I,J,F,A	I,J,F,A	I, S	I, S	I		
EB	1/13/22	1615	G	~~S~~ W (MY 1/14/22)	N	N	X	X				3	
HT-E25-7-8	1/13/22	1235	G	S	N	N	X	X				3	
HT-E17.5-14-15	1/13/22	1315	G	S	N	N	X	X				3	
HT-S17.5-8-9	1/13/22	1220	G	S	N	N	X	X				3	
HT-E10-23-24	1/13/22	1122	G	S	N	N	X	X				3	
HT-S10-17-18	1/13/22	1135	G	S	N	N	X	X				3	
HT-N25-10-11 Duplicate	1/13/22	1425	G	S	N	N	X	X				3	
HT-E25-14-15	1/13/22	1245	G	S	N	N	X	X				3	
HT-S10-15-16	1/13/22	1140	G	S	N	N	X	X				3	
HT-E17.5-7-8	1/13/22	1300	G	S	N	N	X	X				3	
HT-N25-14-15	1/13/22	1401	G	S	N	N	X	X				3	

530-109327 Chain of Custody

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

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

Deliverable Requested: I, II, III, IV, Other (specify) — Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Matthew Yim (signature)	Date/Time: 1/14/22 1530	Company: AECOM	Received by: Tracy Sutton (signature)	Date/Time: 1/15/22 1100	Company: EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-08 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 4 of 4
Company: AECOM	PWSID:			Job #:

Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract
City: Honolulu	TAT Requested (days): 3 working days
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:
Project Name: CV22F0106	Project #: 60674414
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	I,J,F,A	I,J,F,A	I, S	I, S	I		
HT-N25-14-15 Duplicate	1/13/22	1420	G	S	N	N	X	X				3	
HT-E10-21-22	1/13/22	1200	G	S	N	N	X	X				3	
HT-N25-10-11	1/13/22	1415	G	S	N	N	X	X				3	
HT-S25-14-15	1/13/22	1155	G	S	N	N	X	X				3	
HT-S25-8-9	1/13/22	1150	G	S	N	N	X	X				3	

MY 1/14/22

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Matthew Yim Matthew Yim	Date/Time: 1/14/22 1530	Company AECOM	Received by: Stacy Sutton	Date/Time: 1/15/22 1100	Company EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Cust

Therm. ID: SCA3 Cor: 0.5 ° Unc: 0.5 °
Cooler Dsc: large blue FedEx: priority
Packing: Bag UPS:
Cust. Seal: Yes X No Lab Cour:
Blue Ice, Wet, Dry, None Other:

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano		Tracking No(s): .x	COC No: 202201-05 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 4
Company: AECOM	PWSID:			Job #:

Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract	Analysis Requested
City: Honolulu	TAT Requested (days): 3 working days	
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No	
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w	
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:	
Project Name: CV22F0106	Project #: 60674414	
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	I,J,F,A	I,J,F,A	I, S	I, S	I		
EB	1/13/22	1615	G	W	N	N			X	X	X	2	
LT-Sediment	1/13/22	1350	G	S	N	N			X	X	X	1	
HT-E25-7-8	1/13/22	1235	G	S	N	N			X	X	X	1	
HT-E17.5-14-15	1/13/22	1315	G	S	N	N			X	X	X	1	
HT-S17.5-8-9	1/13/22	1220	G	S	N	N			X	X	X	1	
HT-E10-23-24	1/13/22	1122	G	S	N	N			X	X	X	1	
HT-S10-17-18	1/13/22	1135	G	S	N	N			X	X	X	1	
HT-N25-10-11 Duplicate	1/13/22	1425	G	S	N	N			X	X	X	1	
HT-E25-14-15	1/13/22	1245	G	S	N	N			X	X	X	1	
HT-S10-15-16	1/13/22	1140	G	S	N	N			X	X	X	1	
HT-E17.5-7-8	1/13/22	1300	G	S	N	N			X	X	X	1	

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

Relinquished by: Matthew Yim	Date/Time: 1/14/22 1530	Company AECOM	Received by: Tracy Dutton	Date/Time: 1/15/22 1100	Company EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Dominic Mariano	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 202201-06 Soil
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone: 310-625-1283	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 2 of 4
Company: AECOM	PWSID:			Job #:

Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract	Analysis Requested
City: Honolulu	TAT Requested (days): 3 working days	
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No	
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #: Note to AECOM before printing COC: put in PO# w	
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:	
Project Name: CV22F0106	Project #: 60674414	
Site: RH	SSOW#: Note to AECOM before printing COC: put in subk#	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 BTEX+Naph	EPA 8260 TPH-G (C6-C10)	EPA 8015 TPH-D/O (C10-C24, C24-C40)	EPA 8015 TPH-D/O (C10-C24, C24-C40) w/ silica gel cleanup	EPA 8270 SIM PAHs (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				I,J,F,A	I,J,F,A	I, S	I, S	I		
HT-N25-14-15	1/13/22	1401	G	S	N	N			X	X	X	3	MY 1/14/22
HT-N25-14-15 Duplicate	1/13/22	1420	G	S	N	N			X	X	X	1	
HT-E10-21-22	1/13/22	1200	G	S	N	N			X	X	X	1	
HT-N25-10-11	1/13/22	1415	G	S	N	N			X	X	X	1	
HT-S25-14-15	1/13/22	1155	G	S	N	N			X	X	X	1	
HT-S25-8-9	1/13/22	1150	G	S	N	N			X	X	X	1	
MY 1/14/22													

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

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

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

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

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

	Date/Time	Company		Date/Time	Company
Relinquished by: Matthew Yim Matthew Yim	Date/Time: 1/14/22 1530	AECOM	Received by: Mary Sutton	1/15/22 1100	EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109327-1

Login Number: 109327
List Number: 1
Creator: Vallelunga, Diana L

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C.2 – Groundwater Analytical Data
[provided on DVD-ROM]

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Appendix D – Level IV Sample Delivery Group Reports

[provided on DVD-ROM]