



Weston Solutions, Inc.
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June 11, 2024

Mr. Roy Ramirez
Ram-Co Services, LLC
2021 County Road 27
Fort Lupton, CO 80621

Work Order No.: 16029.003.003

Re: Site Investigation Report for the Helming #43-19 Wellhead and Tank Battery Orphaned Well Program (OWP) Location (Location ID #320534, Facility ID's #485160 [Tank Battery] and 278973 [Wellhead])

Dear Mr. Ramirez:

On behalf of Ram-Co Services, LLC (Ram-Co), Weston Solutions, Inc. (Weston) has prepared this Site Investigation Report for the Helming #43-19 (OWP) wellhead (API #05-001-09548, 63S62W/19NESE) (Site), tank battery, and associated flowlines in Adams County, Colorado. Ram-Co is performing work for the Colorado Energy and Carbon Management Commission (ECMC) OWP. Work was performed in accordance with the Proposal for Environmental Services contract (effective December 12, 2024) and the Weston General Terms and Conditions (effective December 5, 2023).

SITE DESCRIPTION

The Site is in Adams County near the town of Bennett, Colorado. The Global Positioning System (GPS) coordinates are 39.77278727° N, 104.35865449° W. The Site is located approximately 100 feet (ft) east of County Road 37 between E 38th Ave and E 48th Ave and is surrounded by cropland (**Figure 1**). According to the ECMC Colorado Oil and Gas Information System (COGIS) database, a Shut In wellhead, flowline, and tank battery are associated with the Site. According to COGIS, the Location Identification (ID) for the Site is listed as Active as of April 15, 2024.

The Helming #43-19 (OWP) (API #05-001-09548) oil and gas well was last operated by Painted Pegasus Petroleum LLC (Operator ID #10711), and drilling operations were completed in 2005. According to COGIS, the Helming #43-19 (OWP) oil and gas well is located approximately 525 feet west of the Helming #43-19 tank battery. The Helming (OWP) #43-19 wellhead is listed as Shut In as of August 1, 2021.

According to COGIS, the Site is not within a Colorado Parks and Wildlife mapped High Priority Habitat (HPH) area. According to the National Wetlands Inventory managed by the U.S. Fish and Wildlife Service, the Site is not within a mapped wetland area. However, HPHs are present approximately 0.5 mile to the east of the Site.

A Well Abandonment Report Notice of Intent (NOI) (Form 6 NOI; #403541744) was completed on November 27, 2023. A Site Investigation and Remediation Workplan (Form 27) was submitted on October 18, 2023, and Remediation Project #32255 was assigned to the decommissioning of the wellhead and tank battery. Weston was contracted by Ram-Co to perform environmental services at the Site, including soil sampling and environmental oversight of soil excavation.

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On August 28, 2023, pre-plugging methane emission monitoring was performed on the wellhead, and a leak was confirmed (Field Inspection Form #702402283). According to another Field Operations Notice (#403569942), the well was scheduled to be plugged and abandoned beginning on October 30, 2023. No additional documentation has been uploaded to COGIS for the final cut and cap date. According to a retroactive Field Operations Notice (#403751111), flowlines at the Site were abandoned on March 20, 2024.

According to the Division of Water Resources (DWR) well permit data, a water well (Permit #12820-RFP, Receipt #9001693) is in the general area of the Site. The well has a recorded depth to water measurement of 24 ft bgs, with perforated casing from 25 to 40 ft bgs. The well is at approximately the same elevation as the Site. Based on this data, groundwater at the Site is assumed to be at approximately 24 ft bgs.

Site features and conditions at the time of the investigation are shown in the photolog in **Attachment A**. Weston observed staining and evidence of impacted soils at the produced water vault (PWV), which is described in the following sections.

SITE INVESTIGATION ACTIVITIES AND METHODOLOGY

Weston mobilized to the Site in coordination with Ram-Co on January 29, 2024, and again on March 28, 2024, to complete the site investigation and sampling. Ram-Co performed excavation, exploration and production (E&P) waste impacted soil removal, and remediation activities. During the initial site visit in January 2024, Weston mobilized to the Site in coordination with Ram-Co to complete technologically enhanced naturally occurring radioactive material (TENORM) sampling. The remainder of the site investigation occurred during the March 2024 mobilization, including sampling of the off-location flowline for asbestos containing materials (ACM).

Prior to commencing on-site activities, Weston photographed the Site to document baseline conditions, as shown in **Attachment A**. Photographs documenting the work performed by Ram-Co and others are also presented.

Initial Site Visit and TENORM Sampling

Weston performed an initial site visit on January 29, 2024, to record the locations of oil and gas infrastructure, take pictures of the Site, and complete technologically enhanced naturally occurring radioactive material (TENORM) sampling. A site inventory confirmed the presence of the following: a wellhead, an aboveground storage tank (AST), one separator, and two PWVs.

Weston collected waste samples from both PWVs and from the AST on-site for TENORM analysis. The three waste samples were collected and submitted to Origins Laboratory (Origins) for TENORM analysis. The laboratory report for the TENORM samples (Y401723) was issued to the ECMC and is included in **Attachment D**; the reported results of the TENORM analyses were above natural background levels established by the Colorado Department of Public Health and Environment (CDPHE) for the requested radionuclides in all three samples submitted. The samples were collected for waste characterization purposes only and are not discussed further in this report.



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Site Investigation

Weston performed the site investigation and sampling of the wellhead, tank battery, and associated flowlines on March 28, 2024. Ram-Co and/or other contractors performed the wellhead cut and cap activities. Weston visually inspected the area around the wellhead and tank battery to determine the general condition of the Site.

After cut and cap activities at the wellhead were completed, and Ram-Co had decommissioned and removed the equipment, Weston conducted soil screening and sample collection of samples at the wellhead, former separator, former AST, and former PWVs associated with the Site. Weston also investigated the excavations for the off-location and on-location flowlines (1 of each) associated with the well. Ram-Co had noted that they did not observe any evidence of impacts during the decommissioning of the tank battery.

Ram-Co assisted Weston in the sampling process by collecting soil with an excavator. Soil was screened at 24 locations (five wellhead locations, one separator location, one AST location, ten PWV locations, and seven flowline locations) at depths ranging from 1 ft to 12 ft bgs. Additionally, two samples were collected from areas outside the oil and gas location to assess background soil conditions for metals and soil suitability for reclamation parameters. Soils were screened in the field by a Weston scientist using a photoionization detector (PID) and a flame ionization detector (FID) and observed for visual and olfactory indications of impacts.

An ACM investigation was also performed by Weston's subcontractor, Broadbent & Associates, Inc (Broadbent) for flowline wrap on the off-location flowline. Suspected asbestos containing materials (SACM) are discussed in a later section of the report.

Wellhead Investigation – The wellhead was cut and capped prior to Weston's arrival at the Site. Ram-Co excavated the area around the capped well so that sampling could be completed. Weston conducted screening and sampling at the wellhead base and four sidewalls of the wellhead excavation. Weston did not observe indications of impacts at the wellhead area.

AST Investigation — The former AST (AST01) location was investigated by collecting soil from beneath the base of the former tank location. Weston did not observe any indications of impacts or a release associated with the former AST.

PWV Investigation — Weston observed Ram-Co decommissioning and removing the PWVs (PWV01 and PWV02) during the site investigation. After Ram-Co removed the structures, the former PWV locations were investigated by collecting soil from the bases as well as the four sidewalls of the excavations. Impacts were observed in the PWV01 excavation in the north sidewall down to 8 ft bgs. Weston directed Ram-Co to remove the impacted material in the PWV01 location, and field observations indicated that all impacted material was removed from this location. Weston did not observe any indications of impacts or a release associated with the PWV02 location.

Weston directed Ram-Co to remove impacted soil from the PWV location, focusing on removing the most heavily impacted soils first. A total of less than 10 cubic yards (cy) of soil were excavated and stored on-site pending disposal. Weston directed Ram-Co to place the stockpiled material on plastic sheeting



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Horizontal Separator Investigation — The former horizontal separator (SEP01) location was investigated by collecting soil from the former separator base location. Weston did not observe any indications of impacts or a release associated with the former separator.

Flowline Investigation — Two flowlines (one on-location and one off-location) were discovered during this investigation: between the off-location wellhead and the horizontal separator (flowline FL01) and between the horizontal separator and the AST / PWV riser (flowline FL02). Although multiple flowlines were routed from the separator to the AST / PWV riser, they shared the same trench and were investigated as a single flowline. Flowline FL01 was not removed at the time of the investigation because there was SACM in the flowline wrapping at this location, which is discussed in a later section of this report. Weston investigated the FL01 and FL02 trenches by screening soil at the flowline riser at each endpoint, as well as intervals along the flowlines, taking care not to disturb the flowline or flowline wrap. Flowlines/screening locations were as follows:

- Flowline 1 – approximately 525 ft long, connecting the wellhead and horizontal separator.
 - 320534_FL01_01@6' – wellhead riser location
 - 320534_FL01_02@4' – 200 ft east of the wellhead riser
 - 320534_FL01_03@4' – 400 ft east of the wellhead riser
 - 320534_FL01_04@4' – separator riser location
- Flowline 2 – approximately 75 ft long, connecting the horizontal separator and AST / PWVs.
 - 320534_FL02_01@4' – separator riser location
 - 320534_FL02_02@4' – midpoint between separator and AST
 - 320534_FL02_03@4' – AST / PWV riser location

The on-site flowlines (FL01) were decommissioned and removed from the Site. Weston did not observe indications of impacts or a release for the flowlines.

Based on soil screening observations, ECMC sampling requirements, and the direction of ECMC, eight grab samples (two wellhead samples, four PWV samples, one AST sample, and one separator sample) were collected and submitted to Origins for analysis. Soil samples were analyzed for ECMC Table 915-1 analytes, including total petroleum hydrocarbons (TPH) as total volatile petroleum hydrocarbons (TVPH), total extractable petroleum hydrocarbons (TEPH), and total recoverable petroleum hydrocarbons (TRPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); 1,2,4-trimethylbenzene (1,2,4-TMB); 1,3,5-trimethylbenzene (1,3,5-TMB); polycyclic aromatic hydrocarbons (PAHs); soil suitability for reclamation parameters, including electrical conductivity (EC), sodium adsorption ratio (SAR), hydrogen ion concentration (pH), and boron; and ECMC Table 915-1 metals analysis.

A hand auger was used to collect two background soil samples from an area presumed to be undisturbed by oil and gas activities. The background soil samples were submitted to the laboratory for soil reclamation parameter analysis (boron, EC, pH, and SAR), and ECMC Table 915-1 metals analysis by the U.S. Environmental Protection Agency (EPA) methods listed above.

Soil sample locations were recorded using a Geode[®] GPS receiver (sub-meter, sub-foot accuracy). Site condition photos were taken once work was completed. Soil sample and field screening locations are shown on the Sample Location Map (**Figure 2**). All grab samples and field screening samples were field screened using a PID and FID, and screening results are provided in **Attachment C**.



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Asbestos Investigation

Asbestos Investigation — The FL01 pipe was wrapped with a tar-impregnated fibrous material, which is considered SACM, and it was not removed prior to Weston's investigation. On March 28, 2024, Weston's subcontractor Broadbent collected representative samples at six locations along the flowline that were submitted to EMC Labs, Inc (EMC) for bulk asbestos analysis by polarized light microscopy. Laboratory analytical results, provided in **Attachment D**, indicate that no asbestos was detected in the samples submitted. SACM sample locations can be seen in **Figure 3**. Based on laboratory analytical results, the flowline wrap is not considered to be ACM.

RESULTS

Following receipt of the final laboratory reports, Weston performed Stage 2A data validation to determine the quality of the analytical data. The data validation evaluated sample-related quality control (QC) elements and assigned data validation qualifiers when QC element(s) did not meet the project-specified acceptance criteria. Qualified data are considered usable for project decision-making purposes with potential bias considered. Any rejected data (qualified R) are not usable due to serious deficiencies in meeting QC requirements, as the associated analyte may or may not be present in the site sample. Copies of the data validation reports are included in **Attachment B**. All the analytical data in this data set were found to be usable.

Laboratory analytical results exceeded the ECMC Table 915-1 Residential Soil Screening Levels (SSLs) for SAR, pH, boron, and arsenic. Complete laboratory analytical results are shown in **Table 1**, and a summary of the results is discussed below. Copies of the laboratory reports are included in **Attachment D**.

TPH

Reported cumulative TPH concentrations were below ECMC Table 915-1 screening levels or laboratory limits of detection (LOD) for the samples analyzed.

Other Volatile Compounds (BTEX and TMBs)

Reported cumulative BTEX and TMB concentrations were below ECMC Table 915-1 screening levels or laboratory LODs for the samples analyzed.

PAHs

Reported cumulative PAH concentrations were below ECMC Table 915-1 screening levels or laboratory LODs for the samples analyzed.

Soil Suitability for Reclamation

The reported SAR calculations and boron concentrations exceeded the ECMC Table 915-1 allowable levels in three of the PWV samples (320534_PWV01_B01@6', 320534_PWV01_N01@12', and 320534_PWV02_B01@6') as shown in **Table 1**. Reported pH measurements were outside Table 915-1 allowable levels in seven of the samples (including one background sample) analyzed as shown in **Table 1**. The reported concentrations of boron exceeded Table 915-1 allowable levels for three of the PWV



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samples 320534_PWV01_B01@6', 320534_PWV01_N01@12', and 320534_PWV02_B01@6') as shown in Table 1. All other analytes were below laboratory LODs or within Table 915-1 allowable levels.

Metals

Measured metals concentrations exceeded ECMC Table 915-1 SSLs and site-specific background concentrations (1.25 x average background concentrations) for arsenic in the PWV sample 320534_PWV01_N01@12' with a reported concentration of 4.84 milligrams per kilogram (mg/kg). All other analytes were below laboratory LODs, site-specific background concentrations, or ECMC Table 915-1 cleanup values.

Field Screening Results

Soil samples were field screened using a MiniRAE 3000 PID and/or a TVA2020 PID/FID that were bump-tested daily and calibrated as needed. Field screening results for collected soil samples and field-screened soil samples are provided in **Attachment C**. A completed Wellhead Closure Checklist, Tank Battery Closure Checklist, and Flowline Closure Checklist are provided in **Attachment E**.

RECOMMENDATIONS

Weston observed indications that a legacy release had occurred at the Site. Groundwater was not encountered at the Site and, based on DWR permit data, is expected to be at a depth greater than 24 ft bgs. Therefore, ECMC Table 915-1 Protection of Groundwater Soil Screening Levels (GW SSLs) are not applicable to this Site. Laboratory analytical results exceeded the ECMC Table 915-1 allowable concentrations for SAR, pH, boron, and arsenic. Although field observations indicated that all impacted soils had been removed at the PWV01 location, exceedances (or values outside the allowable range) of soil suitability for reclamation parameters, including SAR, pH, and boron were detected for samples collected from the PWV01 and PWV02 locations. In particular, SAR was reported at values between 27.3 and 62.0, which is well beyond the allowable level of 6. Weston recommends that additional investigation be performed to delineate the soil suitability exceedances and determine if further remediation is required at the Site. Weston recommends that the off-site flowline be decommissioned and removed from the Site. Weston also recommends that any debris or remaining oil and gas infrastructure at the Site be removed and the Site be graded to match the surrounding area.



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Sincerely,
Weston Solutions, Inc.

A handwritten signature in black ink, appearing to read "Andy Wanta".

Andy Wanta
Project Geologist

A handwritten signature in black ink, appearing to read "Jess Zielinski".

Jess Zielinski
Engineering Professional

A handwritten signature in black ink, appearing to read "Samuel Allen".

Sammy Allen
Project Manager

List of Attachments:

Figures

- Figure 1 – Site Location Map
- Figure 2 – Wellhead Sample Location Map
- Figure 3 – Tank Battery Sample Location Map
- Figure 4 – Asbestos Sample Location Map

Tables

- Table 1 – Laboratory Results Summary Table – Soil Samples

- Attachment A: Photolog
- Attachment B: Data Validation Reports
- Attachment C: Field Screening Results
- Attachment D: Laboratory Analytical Reports
- Attachment E: Closure Checklists

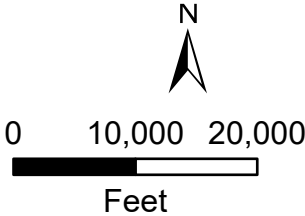
FIGURES

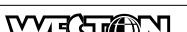
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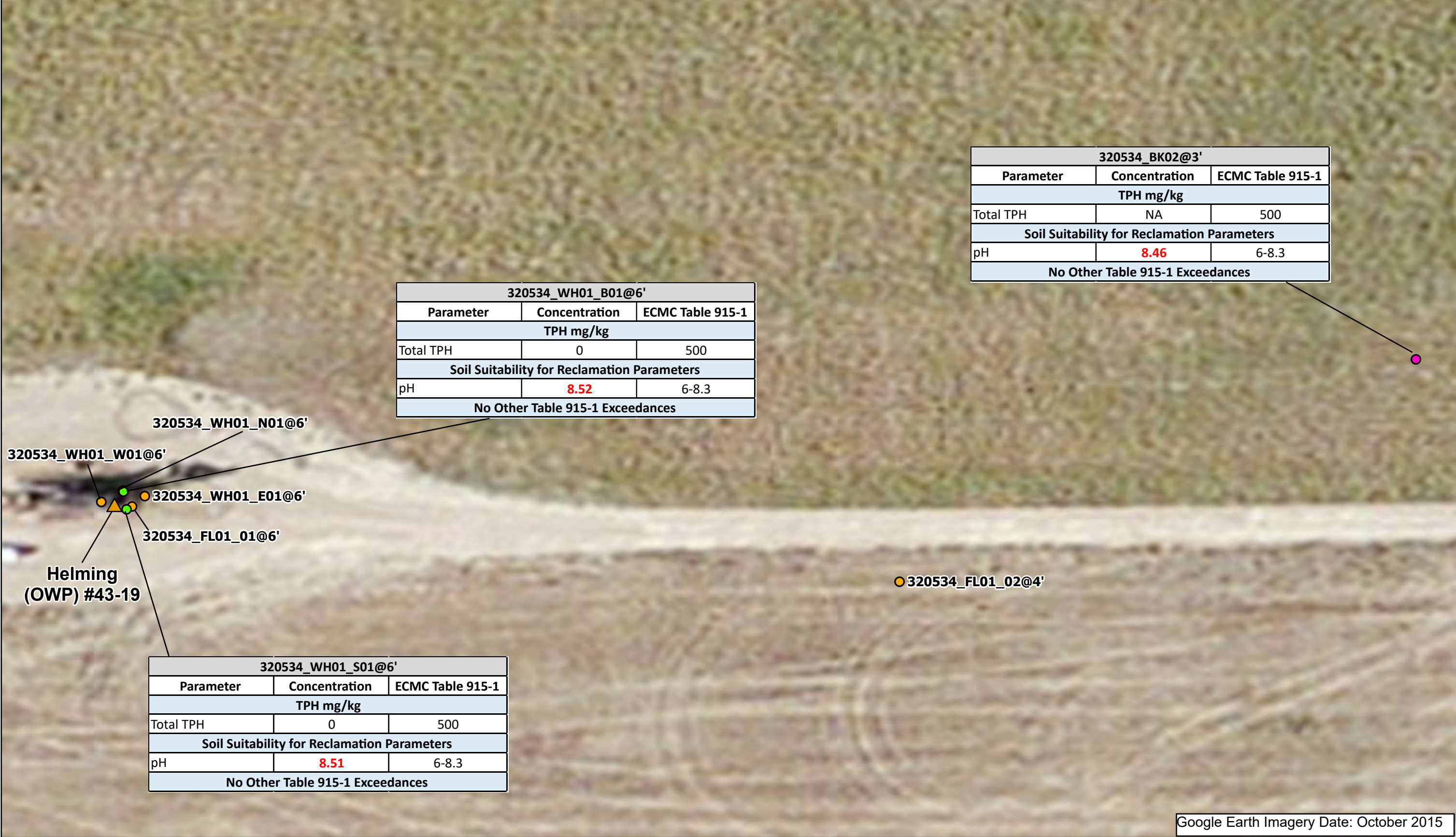
Legend

● Site Location



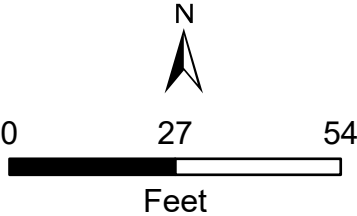
REPORT DATE: June 2024	FIGURE NO: 1	Helming #43-19 Tank Battery and Wellhead SITE LOCATION MAP LOCATION ID: 320534 FACILITY ID: 278973 & 485160 ENERGY AND CARBON MANAGEMENT COMMISSION
PROJECT: ECMC Orphan Well Program	CLIENT NAME: ECMC	
		
SCALE: 1:189,000		

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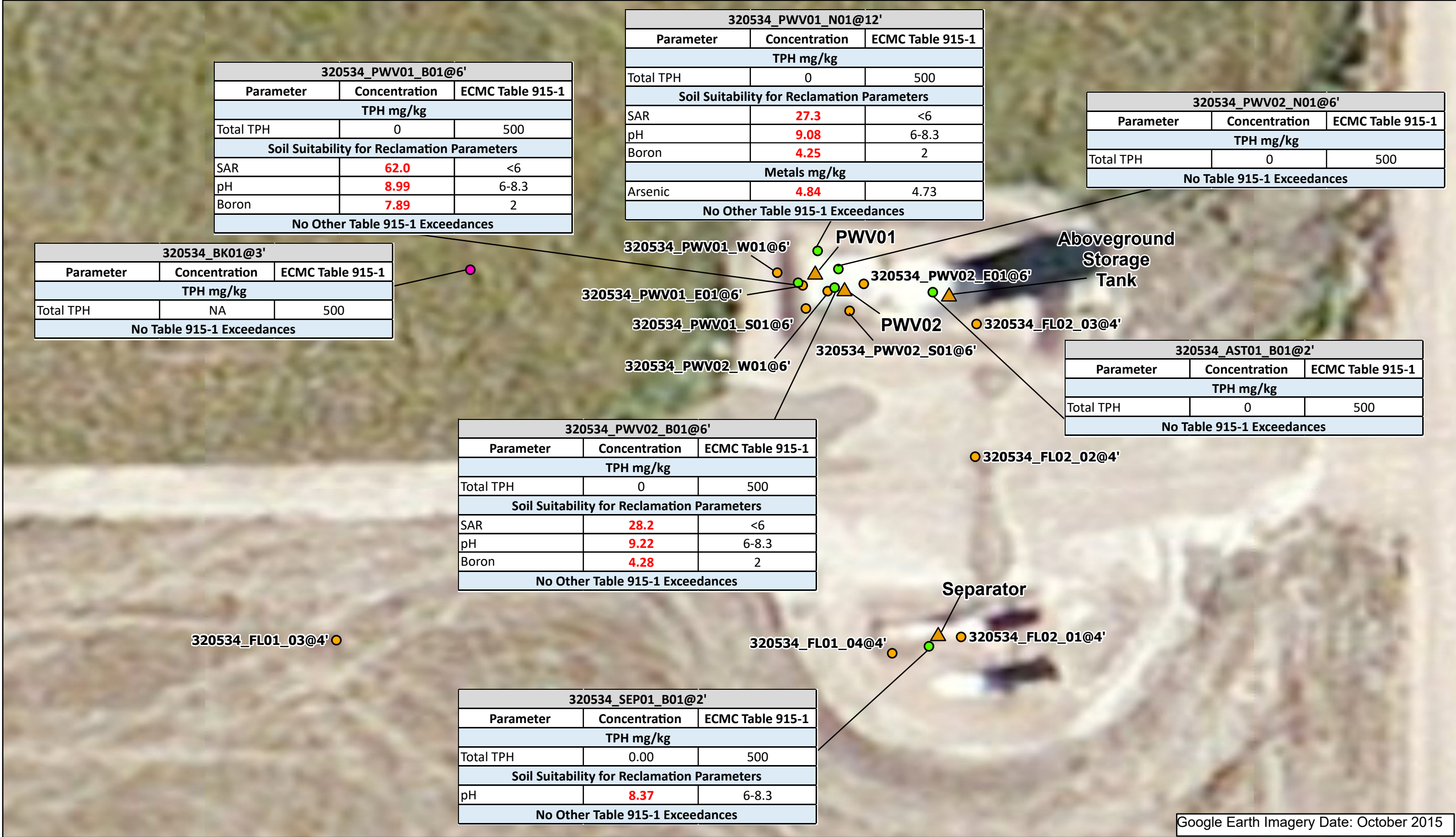
- Field Screened Sample Location
- Lab Analyzed Sample Location
- Background Sample Location
- Investigation Location



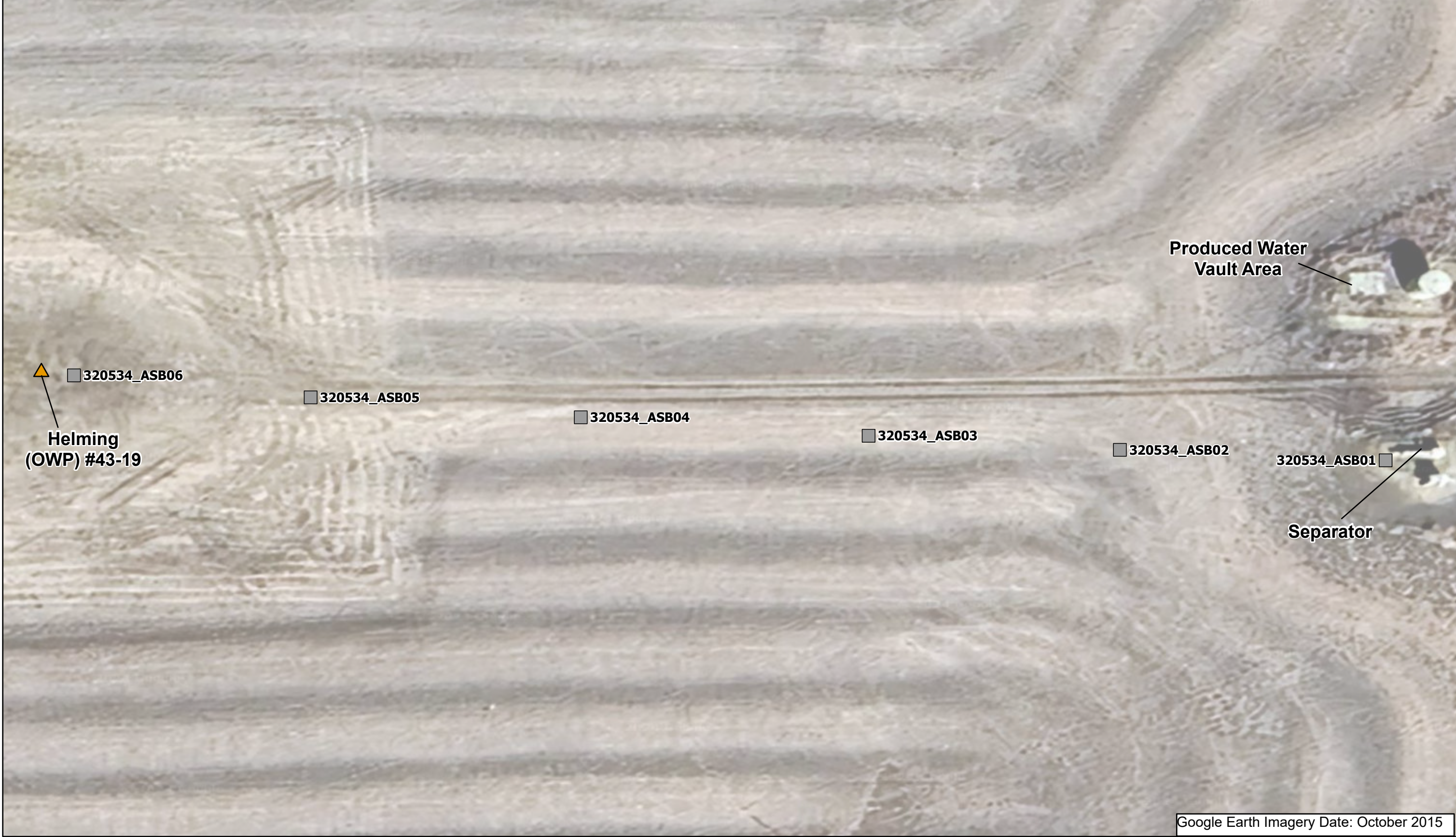
REPORT DATE: June 2024	FIGURE NO: 2
PROJECT: 16029.003.003	CLIENT NAME: ECMC
	SCALE: 1:375

Helming #43-19 (OWP)
SAMPLE LOCATION MAP -
WELLHEAD AREA
LOCATION ID: 320534
FACILITY ID: 278973
ENERGY AND CARBON MANAGEMENT COMMISSION




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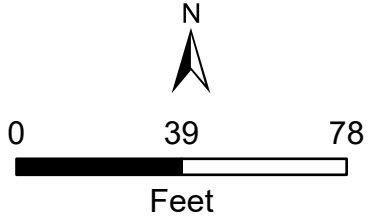



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Legend

-  No Asbestos Detected
-  Asbestos Detected
-  Investigation Location



REPORT DATE: June 2024	FIGURE NO: 4
PROJECT: 16029.003.003	CLIENT NAME: ECMC
	SCALE: 1:544

Helming #43-19 (OWP)
ASBESTOS SAMPLE LOCATION MAP
LOCATION ID: 320534
FACILITY ID: 278973
ENERGY AND CARBON MANAGEMENT COMMISSION

TABLES

Laboratory Results Summary Table
Helming 43-19 Tank Battery
Soil Samples

ECMC Soil Analytical Table - Helming (OWP) #43-19 Tank Battery			Organic Compounds in Soil (mg/kg)																											PAHs in Soil (mg/kg)								
ECMC Allowable Concentration (Soil) -->			500			500			500			500			1.2			490			5.8			58			30			27			1800			360		
Site Specific Background Concentration -->																																						
Location	Sample Date	Sample ID	TPH (sum of volatile, extractable, and recoverable hydrocarbons)			TPH (Total volatile [C6-C10] hydrocarbons)			TPH (total extractable [C10-C28] hydrocarbons)			TPH (total recoverable [C28-C36] hydrocarbons)			Benzene			Toluene			Ethylbenzene			Total Xylenes (sum of o-, m-, and p- isomers)			1,2,4-Trimethylbenzene			1,3,5-Trimethylbenzene			Anthracene			Acenaphthene		
			[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC			
Helming 43-19 Tank Battery	3/28/2024	320534_AST01_B01@2'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_B01@6'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_N01@12'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_B01@6'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_N01@6'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_SEP01_B01@2'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_B01@6'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_S01@6'	0			<0.200	Ua		<25.0	Ua		<100	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.00200	Ua		<0.020	Ua		<0.020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_BK01@3'	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Helming 43-19 Tank Battery	3/28/2024	320534_BK02@3'	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		

Notes:
ECMC - Energy and Carbon Management Commission
Orange Highlight - ECMC Table 915-1 TPH, BTEX, PAH, metal exceedance
Yellow Highlight - ECMC Table 915-1 soil suitability exceedance
Grey Highlight - below laboratory detection limit
NA - not analyzed
mg/kg - milligrams per kilogram
mmhos/com - millimhos per centimeter
[Conc] - reported concentration
Q - qualifier (reported by laboratory or data validation)
RC - reason code (reported by data validation)

*Per the Directors approval, the laboratory practical quantitation limit (“PQL”) for Chromium VI has been substituted for the Residential Soil Screening Level Concentration listed in Table 915-1.
**The Origins Analytical Lab Report refers to Electrical Conductivity (EC) as Specific Conductance (SC)
Note - Refer to Data Validation Report for Q and RC definitions

Laboratory Results Summary Table
Helming 43-19 Tank Battery
Soil Samples

ECMC Soil Analytical Table - Helming (OWP) #43-19 Tank Battery			PAHs in Soil (mg/kg)																													
ECMC Allowable Concentration (Soil) -->			1.1			0.11			1.1			11			110			0.11			240			240			1.1			2		
Site Specific Background Concentration -->																																
Location	Sample Date	Sample ID	Benzo(a)anthracene			Benzo(a)pyrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Chrysene			Dibenzo(a,h)anthracene			Fluoranthene			Fluorene			Indeno(1,2,3-cd)pyrene			Naphthalene		
			[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC
Helming 43-19 Tank Battery	3/28/2024	320534_AST01_B01@2'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.0020	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_B01@6'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_N01@12'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_B01@6'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_N01@6'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_SEP01_B01@2'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_B01@6'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_S01@6'	<0.005	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.020	Ua		<0.002	Ua	
Helming 43-19 Tank Battery	3/28/2024	320534_BK01@3'	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		
Helming 43-19 Tank Battery	3/28/2024	320534_BK02@3'	NA			NA			NA			NA			NA			NA			NA			NA			NA			NA		

Notes:

ECMC - Energy and Carbon Management Commission

Orange Highlight - ECMC Table 915-1 TPH, BTEX, PAH, metal exceedance

Yellow Highlight - ECMC Table 915-1 soil suitability exceedance

Grey Highlight - below laboratory detection limit

NA - not analyzed

mg/kg - milligrams per kilogram

mmhos/com - millimhos per centimeter

[Conc] - reported concentration

Q - qualifier (reported by laboratory or data validation)

RC - reason code (reported by data validation)

*Per the Directors approval, the laboratory practical quantitation limit (“PQL”) for Chromium VI has been substituted for the Residential Soil Screening Level Concentration listed in Table 915-1.

**The Origins Analytical Lab Report refers to Electrical Conductivity (EC) as Specific Conductance (SC)

Note - Refer to Data Validation Report for Q and RC definitions

Laboratory Results Summary Table
Helming 43-19 Tank Battery
Soil Samples

ECMC Soil Analytical Table - Helming (OWP) #43-19 Tank Battery			PAHs in Soil (mg/kg)									Soil Suitability for Reclamation Parameters												Metals (mg/kg)								
ECMC Allowable Concentration (Soil) -->			180			18			24			<4			<6			(6-8.3)			2			0.68			15000			71		
Site Specific Background Concentration -->																								4.73								
Location	Sample Date	Sample ID	Pyrene			1-Methylnapthalene			2-Methylnapthalene			Electrical Conductivity (EC) (mmhos/cm)**			Sodium Adsorption Ratio (Calculation)			pH (pH units)			Boron (mg/L)			Arsenic			Barium			Cadmium		
Helming 43-19 Tank Battery	3/28/2024	320534_AST01_B01@2'	<0.020	Ua		<0.002	Ua		<0.002	Ua		1.910			0.0551			8.09			<1.00			1.97			40.6			<0.0917		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_B01@6'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.998			62.0			8.99			7.89			4.47			117			0.171		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_N01@12'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.846			27.3			9.08			4.25			4.84			224			0.188		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_B01@6'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.776			28.2			9.22			4.28			4.27			145			0.186		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_N01@6'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.912			0.600			8.29			0.201			3.98			161			0.311		
Helming 43-19 Tank Battery	3/28/2024	320534_SEP01_B01@2'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.279			0.100			8.37			<1.00			2.93			92.5			0.254		
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_B01@6'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.436			1.97			8.52			<1.00			4.18			162			0.223		
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_S01@6'	<0.020	Ua		<0.002	Ua		<0.002	Ua		0.324			2.06			8.51			0.277			4.00			121			0.232		
Helming 43-19 Tank Battery	3/28/2024	320534_BK01@3'	NA			NA			NA			0.204			0.136			6.70			<1.00			3.42			127			0.278		
Helming 43-19 Tank Battery	3/28/2024	320534_BK02@3'	NA			NA			NA			0.312			0.558			8.46			0.301			4.15			153			0.344		

Notes:
ECMC - Energy and Carbon Management Commission
Orange Highlight - ECMC Table 915-1 TPH, BTEX, PAH, metal exceedance
Yellow Highlight - ECMC Table 915-1 soil suitability exceedance
Grey Highlight - below laboratory detection limit
NA - not analyzed
mg/kg - milligrams per kilogram
mmhos/com - millimhos per centimeter
[Conc] - reported concentration
Q - qualifier (reported by laboratory or data validation)
RC - reason code (reported by data validation)

*Per the Directors approval, the laboratory practical quantitation limit (“PQL”) for Chromium VI has been substituted for the Residential Soil Screening Level Concentration listed in Table 915-1.
**The Origins Analytical Lab Report refers to Electrical Conductivity (EC) as Specific Conductance (SC)
Note - Refer to Data Validation Report for Q and RC definitions

Laboratory Results Summary Table
Helming 43-19 Tank Battery
Soil Samples

ECMC Soil Analytical Table - Helming (OWP) #43-19 Tank Battery			Metals (mg/kg)																				
ECMC Allowable Concentration (Soil) -->			0.3*			3100			400			1500			390			390			23000		
Site Specific Background Concentration -->																							
Location	Sample Date	Sample ID	Chromium (VI)			Copper			Lead			Nickel			Selenium			Silver			Zinc		
			[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC	[Conc]	Q	RC
Helming 43-19 Tank Battery	3/28/2024	320534_AST01_B01@2'	<0.250	U		<9.17			4.20			3.76			<0.239			<0.0917			<33.9		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_B01@6'	<0.441	U		11.5			9.58			11.8			<0.236			<0.0906			44.0		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV01_N01@12'	<0.479	U		13.4			10.9			13.2			<0.244			<0.0937			53.7		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_B01@6'	<0.341	U		12.2			10.6			12.5			<0.245			<0.0942			47.8		
Helming 43-19 Tank Battery	3/28/2024	320534_PWV02_N01@6'	<0.391	U		15.3			13.9			13.6			<0.250			<0.0961			70.1		
Helming 43-19 Tank Battery	3/28/2024	320534_SEP01_B01@2'	<0.330	U		10.1			11.3			7.77			<0.266			<0.0869			42.8		
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_B01@6'	<0.346	U		14.1			15.9			11.9			<0.232			<0.0892			48.9		
Helming 43-19 Tank Battery	3/28/2024	320534_WH01_S01@6'	<0.346	U		14.0			14.5			11.7			<0.257			<0.0987			51.1		
Helming 43-19 Tank Battery	3/28/2024	320534_BK01@3'	<0.429	U		13.0			13.0			13.1			0.243			<0.0888			55.8		
Helming 43-19 Tank Battery	3/28/2024	320534_BK02@3'	<0.385	U		15.0			12.4			12.2			<0.234			<0.0899			71.0		

Notes:
ECMC - Energy and Carbon Management Commission
Orange Highlight - ECMC Table 915-1 TPH, BTEX, PAH, metal exceedance
Yellow Highlight - ECMC Table 915-1 soil suitability exceedance
Grey Highlight - below laboratory detection limit
NA - not analyzed
mg/kg - milligrams per kilogram
mmhos/com - millimhos per centimeter
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Q - qualifier (reported by laboratory or data validation)
RC - reason code (reported by data validation)

*Per the Directors approval, the laboratory practical quantitation limit (“PQL”) for Chromium VI has been substituted for the Residential Soil Screening Level Concentration listed in Table 915-1.
**The Origins Analytical Lab Report refers to Electrical Conductivity (EC) as Specific Conductance (SC)
Note - Refer to Data Validation Report for Q and RC definitions

ATTACHMENT A

PHOTOLOG

Photo Report for HELMING-63S62W/19NESE (1/29/2024)


Photo Info		
Photo Type:	Overview	
Photo Name:	Wellhead Overview	
Direction:	W	
Description:	Wellhead area and sign	
Photo Date/Time:	01/29/24 14:42	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	AST Overview	
Direction:	W	
Description:	AST remaining in-place	
Photo Date/Time:	01/29/24 14:44	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Overview	
Photo Name:	PWV overview	
Direction:	W	
Description:	Two concrete PWVs remaining in-place	
Photo Date/Time:	01/29/24 14:44	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Separator overview	
Direction:	S	
Description:	Horizontal separator remaining in-place	
Photo Date/Time:	01/29/24 14:45	
Photographer:	Nathan Fields	

Photo Report for HELMING-63S62W/19NESE (3/28/2024)



Photo Info		
Photo Type:	Overview	
Photo Name:	AST Overview	
Direction:	NE	
Description:	AST after it was moved from its original location	
Photo Date/Time:	03/28/24 08:21	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	AST	
Direction:	SW	
Description:	Back of AST showing valves	
Photo Date/Time:	03/28/24 08:22	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Overview	
Photo Name:	Flowlines	
Direction:	N	
Description:	Plastic flowlines that were pulled	
Photo Date/Time:	03/28/24 08:23	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	AST Location	
Direction:	NW	
Description:	AST footprint after excavation	
Photo Date/Time:	03/28/24 08:24	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Equipment	
Photo Name:	Overview	
Direction:	E	
Description:	Former separator and shed areas	
Photo Date/Time:	03/28/24 08:25	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Separator and flowline area	
Direction:	S	
Description:	Separator area with SACM flowlines pictured	
Photo Date/Time:	03/28/24 08:25	
Photographer:	Nathan Fields	



Photo Info		
Photo Type:	Overview	
Photo Name:	Flowline Wrap	
Direction:	W	
Description:	SACM wrap on riser	
Photo Date/Time:	03/28/24 08:26	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Offsite flowline trench	
Direction:	SW	
Description:	Minor deterioration of flowline wrap	
Photo Date/Time:	03/28/24 08:28	
Photographer:	Nathan Fields	



Photo Info		
Photo Type:	Overview	
Photo Name:	Flowline Trench	
Direction:	W	
Description:	Flowline trench showing flowline with SACM wrap	
Photo Date/Time:	03/28/24 08:29	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Flowline Riser	
Direction:	SW	
Description:	Flowline riser at wellhead with SACM wrap	
Photo Date/Time:	03/28/24 08:32	
Photographer:	Nathan Fields	



Photo Info		
Photo Type:	Overview	
Photo Name:	Flowline and wellhead	
Direction:	W	
Description:	Flowline riser with capped wellhead	
Photo Date/Time:	03/28/24 08:33	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Wellhead Sampling	
Direction:	NE	
Description:	Wellhead excavation and sample location	
Photo Date/Time:	03/28/24 09:49	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Overview	
Photo Name:	PWV Sampling	
Direction:	SE	
Description:	PWV excavation	
Photo Date/Time:	03/28/24 12:21	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Background Sample Location	
Direction:	E	
Description:	Background sample location	
Photo Date/Time:	03/28/24 12:28	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Overview	
Photo Name:	PWV Pit	
Direction:	NW	
Description:	PWV pit area after excavation of impacts	
Photo Date/Time:	03/28/24 13:50	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	PWV Spoil Pile	
Direction:	E	
Description:	PWV area with a pile of spoils shown in the background	
Photo Date/Time:	03/28/24 13:52	
Photographer:	Nathan Fields	

Photo Info		
Photo Type:	Site Overview	
Photo Name:	Background Sample Location	
Direction:	NW	
Description:	Background sample location	
Photo Date/Time:	03/28/24 13:52	
Photographer:	Nathan Fields	
Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	NW	
Description:	Former tank battery area	
Photo Date/Time:	06/05/24 12:35	
Photographer:	COGCC Admin	

Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	SW	
Description:	Meter shed and associated piping observed	
Photo Date/Time:	06/05/24 12:36	
Photographer:	COGCC Admin	
Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	W	
Description:	Former flowline area to wellhead	
Photo Date/Time:	06/05/24 12:36	
Photographer:	COGCC Admin	





Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	S	
Description:	Concrete debris observed at the former tank battery	
Photo Date/Time:	06/05/24 12:37	
Photographer:	COGCC Admin	
Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	E	
Description:	Piping scrap observed at former wellhead area	
Photo Date/Time:	06/05/24 12:40	
Photographer:	COGCC Admin	

Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	E	
Description:	Wellhead area	
Photo Date/Time:	06/05/24 12:40	
Photographer:	COGCC Admin	
Photo Info		
Photo Type:	Overview	
Photo Name:	Post-Decom Overview	
Direction:	E	
Description:	Land subsidence observed at former wellhead location	
Photo Date/Time:	06/05/24 12:41	
Photographer:	COGCC Admin	

ATTACHMENT B

DATA VALIDATION REPORTS

DATA VALIDATION REPORT

Energy and Carbon Management Commission Orphan Well Program

SAMPLE DELIVERY GROUP: Y401723

Prepared by
Weston Solutions, Inc.
1536 Cole Blvd., Bldg 4, Suite 375
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February 16, 2024



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I. INTRODUCTION

Task Order Title: Helming (OWP) 43-19

Contract: 149149

Weston Work Order No.: 16029.003.003

Sample Delivery Group: Y401723

Project Manager: Sammy Allen

Matrix: Oil/Water

QC Level: 2A

No. of Samples: 3

No. of Reanalyses/Dilutions: 0

Laboratory: Origins Laboratory, Inc.

TABLE I – SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_TENORM_AST01	Y401723-01	Oil	01/29/2024 14:00	Radiochemistry by Method 904-9320 Modified (TENORM) Radiochemistry by Method HASL-300 Po-01-RC Modified (TENORM) Radiochemistry by Method RP280 Modified (TENORM) Radiochemistry by Method 903.1 Modified (TENORM)
320534_TENORM_PWV01	Y401723-02	Water	01/29/2024 14:00	Radiochemistry by Method 904-9320 Modified (TENORM) Radiochemistry by Method HASL-300 Po-01-RC Modified (TENORM) Radiochemistry by Method RP280 Modified (TENORM) Radiochemistry by Method 903.1 Modified (TENORM)



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Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_TENORM_PWV02	Y401723-03	Water	01/29/2024 14:00	Radiochemistry by Method 904-9320 (TENORM) Radiochemistry by Method HASL-300 Po-01-RC (TENORM) Radiochemistry by Method RP280 (TENORM) Radiochemistry by Method 903.1 (TENORM)



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II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) Y401723:

- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- Custody seals were not present on coolers.



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TABLE II – DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected, as noted in the quantitation section of each method reviewed.	The analyte was analyzed for but was not detected, as noted in the sample results verification section of each method reviewed.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or "presumptively <u>identified</u> " as present, and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.



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TABLE III – REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	Not applicable.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was less than ($<$) 0.990.	Correlation coefficient (r) was $<$ 0.995.
R	Calibration relative response factor (RRF) was $<$ 0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS)/ or LCS duplicate (LCSD) %R was outside the control limits.	LCS/ or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike (<u>MS</u>)/matrix spike duplicate (MS /MSD) %R was outside control limits.	MS/ or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICS_A/ICS_AB) result was outside control limits.
I1	Not applicable.	ICP–mass spectrometry (ICP-MS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (bromofluorobenzene [BFB] or decafluorotriphenylphosphine [DFTPP]) was not compliant.	ICP-MS tune was not compliant.



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Reason Code	Organic	Inorganic
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated FB or EB as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
\$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



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III. METHODS: 904.0-9320, HASL-300 PO-01-RC, RP280, 903.1

Sabrina Wutzlhofer of Weston Solutions, Inc. (Weston) reviewed the SDG on February 16, 2024.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Colorado Department of Natural Resources Colorado Oil and Gas Conservation Commission Orphan Well Program Quality Assurance Project Plan (QAPP) Revision 1 (2023)*, *EPA Radiochemistry Methods 904.0-9320*, *DOE HASL-300 Po-01-RC*, *DOE RP280*, and *EPA 903.1 (TENORM)*.

III.1 HOLDING TIMES

Analytical holding time for all analyses were met; no data qualification required.

III.2 TUNING AND CALIBRATION

Tuning and calibration are not verified at Level 2A validation.

III.3 QUALITY CONTROL SAMPLES

III.3.1 METHOD BLANKS

Site sample 320534_TENORM_PWV01 is qualified as a non-detect (U) for Radium-228 at a concentration of 3.80 picoCuries per liter (pCi/L) because the calculated normalized difference between the sample and method blank are not considered significantly different at the 1% level of confidence.

Site sample 320534_TENORM_PWV02 is qualified as estimated (J) for Radium-228 at a concentration of 8.24 pCi/L because the calculated normalized difference between the sample and method blank are considered significantly different at the 5% level of confidence.

III.3.2 LABORATORY CONTROL SAMPLES

~~Laboratory control sample (LCS)~~ and ~~laboratory control sample duplicate (LCSD)~~ recoveries were within the laboratory control limits. ~~LCSD relative percent differences (RPDs)~~ were within the laboratory control limits. No data qualification is required.

III.3.3 LABORATORY DUPLICATES

Laboratory duplicate analyses were not performed on samples from this SDG. No data qualification is required.

III.3.4 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix spike analyses were not performed on samples from this SDG. Accuracy and precision were evaluated based upon LCS/LCSD results.

III.4 SURROGATES

Surrogates are not utilized for these radiochemistry analyses.

III.5 INTERNAL STANDARDS PERFORMANCE

The internal standard intensities are not evaluated at Level 2A validation.



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III.6 SAMPLE RESULT VERIFICATION

Sample results were not verified at Level 2A validation. Reported non-detects are valid to the minimum detectable activity (MDA).

III.7 FIELD QC SAMPLES

Weston evaluated field quality control (QC) samples and, if necessary, qualified samples based on method blanks and other laboratory QC results affecting the usability of the field QC data. Weston used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.7.1 TRIP BLANKS

No trip blanks were identified in this SDG.

III.7.2 FIELD AND EQUIPMENT BLANKS

No ~~field blank~~FBs or ~~equipment blank~~EBs were identified in this SDG.

III.7.3 FIELD DUPLICATES

No field duplicate samples were identified in this SDG.

DATA VALIDATION REPORT

Energy and Carbon Management Commission Orphan Well Program

SAMPLE DELIVERY GROUP: Y403842

Prepared by
Weston Solutions, Inc.
1536 Cole Blvd., Bldg 4, Suite 375
Lakewood, CO 80401

April 16, 2024



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I. INTRODUCTION

Task Order Title: Helming 43-19 Tank Battery

Contract: 149149

Weston Work Order No.: 16029.003.003

Sample Delivery Group: Y403842

Project Manager: Sammy Allen

Matrix: Soil

QC Level: 2A

No. of Samples: 11

No. of Reanalyses/Dilutions: 0

Laboratory: Origins Laboratory, Inc

TABLE I – SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_WH01_B01@6'	Y403842-01	Soil	03/28/2024 09:40	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_WH01_S01@6'	Y403842-02	Soil	03/28/2024 09:50	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]



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Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_SEP01_B01@2'	Y403842-03	Soil	03/28/2024 10:20	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_AST_B01@2'	Y403842-04	Soil	03/28/2024 10:40	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_PWV01_B01@6'	Y403842-05	Soil	03/28/2024 11:00	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]



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Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_PWV01_N01@12'	Y403842-06	Soil	03/28/2024 12:50	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_PWV02_B01@6'	Y403842-07	Soil	03/28/2024 11:10	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_PWV02_N01@6'	Y403842-08	Soil	03/28/2024 11:15	Boron (DTPA Sorbitol) DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D] Metals by Saturated Paste [EPA 6010] PAHs [EPA 8270E] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_BK01@3'	Y403842-09	Soil	03/28/2024 12:10	Boron (DTPA Sorbitol) Metals by Saturated Paste [EPA 6010] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]



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Sample Name	Lab Sample Name	Matrix	Collection Time	Method
320534_BK02@3'	Y403842-10	Soil	03/28/2024 12:30	Boron (DTPA Sorbitol) Metals by Saturated Paste [EPA 6010] pH in Soil [9045D] SAR by 20B Saturated Paste Specific Conductance [Mod 9050A] Table 915 Metals [EPA 6020B] Total Hexavalent Chromium [7196A]
320534_TB01	Y403842-11	Water	03/28/2024	DRO/ORO [EPA 8015D] GBTEX+TMBs [EPA 8260D]



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II. **SAMPLE MANAGEMENT**

According to the case narrative, sample condition upon receipt form, and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) Y403842:

- The laboratory received samples in this SDG on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0 °C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.



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TABLE II – DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for but was not detected, as noted in the quantitation section of each method reviewed.	The analyte was analyzed for but was not detected, as noted in the sample results verification section of each method reviewed.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or "presumptively" as present, and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.



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TABLE III – REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	Not applicable.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was less than ($<$) 0.990.	Correlation coefficient (r) was $<$ 0.995.
R	Calibration relative response factor (RRF) was $<$ 0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP–mass spectrometry (ICP-MS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (bromofluorobenzene [BFB] or decafluorotriphenylphosphine [DFTPP]) was not compliant.	ICP-MS tune was not compliant.



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Reason Code	Organic	Inorganic
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated FB or EB as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
\$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



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III. EPA METHODS: 7196A, 9045D, 9050AMOD, 20B SATURATED PASTE, 6010, 6020B, 8260D, 8015D, 8270E

Zachary Lawson of Weston Solutions, Inc., reviewed the SDG on April 16, 2024.

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Colorado Department of Natural Resources Energy and Carbon Management Commission Orphan Well Program Quality Assurance Project Plan (QAPP) Revision 1 (2023)*, EPA Method 7196A, EPA Method 9045D, EPA Method 9050AMod, Method 20B Saturated Paste, EPA Method 6010, EPA Method 6020B, EPA Method 8260D, EPA Method 8015D, EPA Method 8270E, *National Functional Guidelines for Inorganic Superfund Methods Data Review (2020)*, and *National Functional Guidelines for Organic Superfund Methods Data Review (2020)*.

III.1 HOLDING TIMES

Analytical holding time for all analyses were met with the following exception(s):

Samples analyzed for hydrogen ion concentration (pH) (9045D) were analyzed outside of the holding time. The pH value recorded for all associated samples is qualified as estimated (J).

III.2 TUNING AND CALIBRATION

Tuning and calibration are not verified at Level 2A validation.

III.3 QUALITY CONTROL SAMPLES

III.3.1 METHOD BLANKS

All method blanks were free from target compound contamination. No data qualification is required.

III.3.2 INTERFERENCE CHECK SAMPLES

Interference check standard (ICSA/ICSAB) recoveries are not evaluated at Level 2A validation.

III.3.3 LABORATORY CONTROL SAMPLES

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries were within the laboratory control limits. LCSD relative percent differences (RPDs) were within the laboratory control limits. No data qualification is required.

III.3.4 LABORATORY DUPLICATES

Laboratory duplicate analyses were performed on sample 320534_WH01_B01@6' for hexavalent chromium analyses. All duplicate RPDs were within acceptance criteria, no data qualification is required.

III.3.5 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix spike analyses were performed on sample 320534_WH01_B01@6' for the following analyses: GBTEX+TMBs, and hexavalent chromium. The percent recoveries and duplicate RPD values were within laboratory control limits with the following exceptions: The MS %R (53.6%) for hexavalent chromium recovered less than the control limits (75-125%). Parent sample 320534_WH01_B01@6' was non-detected for hexavalent chromium and was qualified as an estimated non-detect (UJ). Additionally, the MS/MSD percent recoveries (45.2/26.4%) for naphthalene recovered less than the control limits (70-



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130%). Parent sample 320534_WH01_B01@6' was non-detected for naphthalene and was qualified as an estimated non-detect (UJ).

III.3.6 SERIAL DILUTION

Serial dilution analysis was not required for this SDG. No data qualification is required.

III.4 SURROGATES

Surrogates were within the laboratory control limits. No data qualification is required.

III.5 INTERNAL STANDARDS PERFORMANCE

The internal standard intensities are not evaluated at Level 2A validation.

III.6 SAMPLE RESULT VERIFICATION

Sample results were not verified at Level 2A validation. Reported non-detects are valid to the reporting detection limit (RDL).

All site samples that were analyzed for Metals by Saturated Paste (EPA Method 6010) and Table 915 Metals (EPA Method 6020B) were analyzed at a 10x dilution. Additionally, boron by DTPA Sorbitol for sample 320534_BK01@3' was analyzed at a 10x dilution. RDLs were appropriately adjusted.

III.7 FIELD QC SAMPLES

Weston evaluated field quality control (QC) samples and, if necessary, qualified samples based on method blanks and other laboratory QC results affecting the usability of the field QC data. Weston used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.7.1 TRIP BLANKS

Sample 320534_TB01 was analyzed for DRO/ORO (EPA Method 8015D) and GBTEX-TMBs (EPA Method 8260B). All analytes were non-detect; therefore, no data qualification is required.

III.7.2 FIELD AND EQUIPMENT BLANKS

No field blanks or equipment blanks were identified in this SDG.

III.7.3 FIELD DUPLICATES

No field duplicate samples were identified in this SDG.

ATTACHMENT C

FIELD SCREENING RESULTS

Sample ID	Sample Description	PID Reading (ppm)	FID Reading (ppm)	Screening Date
320534_WH01_B01@6'	Wellhead 1	5.1	1.7	3/28/2024
320534_WH01_E01@6'	Wellhead 1	4.6	1.2	3/28/2024
320534_WH01_N01@6'	Wellhead 1	5.0	1.3	3/28/2024
320534_WH01_S01@6'	Wellhead 1	4.8	1.1	3/28/2024
320534_WH01_W01@6'	Wellhead 1	5.1	1.2	3/28/2024
320534_FL01_01@6'	Flowline 1 - Wellhead to Separator	4.1	0.5	3/28/2024
320534_FL01_02@4'	Flowline 1 - Wellhead to Separator	4.3	0.4	3/28/2024
320534_FL01_03@4'	Flowline 1 - Wellhead to Separator	5.0	1.0	3/28/2024
320534_FL01_04@4'	Flowline 1 - Wellhead to Separator	5.0	1.5	3/28/2024
320534_FL02_01@4'	Flowline 2 - Separator to AST	4.7	1.1	3/28/2024
320534_FL02_02@4'	Flowline 2 - Separator to AST	4.2	0.6	3/28/2024
320534_FL02_03@4'	Flowline 2 - Separator to AST	4.9	1.4	3/28/2024
320534_SEP01_B01@2'	Separator 1 - base	4.2	1.9	3/28/2024
320534_AST01_B01@2'	Aboveground Storage Tank	4.8	0.9	3/28/2024
320534_PWV01_B01@6'	Produced Water Vault 1 - base	2.0	0.2	3/28/2024
320534_PWV01_E01@6'	Produced Water Vault 1 - east	26	35	3/28/2024
320534_PWV01_E01@8'	Produced Water Vault 1 - east	4.6	4.3	3/28/2024
320534_PWV01_N01@6'	Produced Water Vault 1 - north	26	49	3/28/2024
320534_PWV01_N01@8'	Produced Water Vault 1 - north	60	52	3/28/2024
320534_PWV01_N01@10'	Produced Water Vault 1 - north	19	18	3/28/2024
320534_PWV01_N01@12'	Produced Water Vault 1 - north	2.0	3.0	3/28/2024
320534_PWV01_S01@6'	Produced Water Vault 1 - south	1.6	0.3	3/28/2024
320534_PWV01_W01@6'	Produced Water Vault 1 - west	1.8	1.7	3/28/2024
320534_PWV02_B01@6'	Produced Water Vault 2 - base	3.3	1.2	3/28/2024
320534_PWV02_E01@6'	Produced Water Vault 2 - east	3.1	1.3	3/28/2024
320534_PWV02_N01@6'	Produced Water Vault 2 - north	11	16	3/28/2024
320534_PWV02_S01@6'	Produced Water Vault 2 - south	0.3	0.5	3/28/2024
320534_PWV02_W01@6'	Produced Water Vault 2 - west	2.9	0.9	3/28/2024

Notes:

Highlighted cells indicate elevated PID/FID readings

ATTACHMENT D

LABORATORY ANALYTICAL REPORTS



February 14, 2024

Weston Solutions-Denver

Sammy Allen

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Project Name - Helming 43-19 Tank Battery

Project Number - 16029.003.003.0002

Attached are your analytical results for Helming 43-19 Tank Battery received by Origins Laboratory, Inc. January 29, 2024. This project is associated with Origins project number Y401723-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
320534_TENORM_AST01	Y401723-01	Oil	January 29, 2024 14:00	01/29/2024 15:48
320534_TENORM_PWV01	Y401723-02	Water	January 29, 2024 14:00	01/29/2024 15:48
320534_TENORM_PWV02	Y401723-03	Water	January 29, 2024 14:00	01/29/2024 15:48

Chain of Custody Modification Request

On 2/2/2024, Sammy Allen from Weston Solutions contacted Jordan Bynon via email regarding Y401723 requesting that the project name be revised to Helming 43-19 Tank Battery and the project number be revised to 16029.001.001.0002.

Requested modifications to the chain of custody were made by Jordan Bynon on 2/2/2024.

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jordan A. Bynon, Project Manager

Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4401723

Client: Weston

Client Project ID: ECML

Checklist Completed by: EHS

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 1/29/24

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid X Water Other:

Cooler Number/Temperature: 1 12.1 °C 1 °C 1 °C (Describe)

Thermometer ID: TC04

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		SD
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			NC
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

1/31/24
Date/Time Reviewed

Origins Laboratory, Inc.

J. Bynon

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

320534 TENORM AST01

1/29/2024 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	---------	----------	----------	-------

Y401723-01 (Oil)

GEL Laboratories, LLC

Lead-210 by DOE RP280 Modified

Lead-210	1.52	5.00	pCi/g	1	2562804	ST2	02/02/2024	02/12/2024	U
----------	------	------	-------	---	---------	-----	------------	------------	---

Polonium-210 by DOE EML HASL-300

Polonium-210	0.180	1.00	pCi/g	1	2562689	BV1	"	02/08/2024	U
--------------	-------	------	-------	---	---------	-----	---	------------	---

Radium-226 by EPA 903.1

Radium-226	0.168	1.00	pCi/g	1	2563205	MJ2	"	02/11/2024	U
------------	-------	------	-------	---	---------	-----	---	------------	---

Radium-228 by EPA 904.0

Radium-228	0.264	3.00	pCi/g	1	2562803	JE1	"	02/09/2024	U
------------	-------	------	-------	---	---------	-----	---	------------	---

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

320534 TENORM PWV01

1/29/2024 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	---------	----------	----------	-------

Y401723-02 (Water)

GEL Laboratories, LLC

Lead-210 by DOE RP280 Modified

Lead-210	-1.55	5.00	pCi/L	1	2561566	ST2	01/29/2024	02/10/2024	U
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Polonium-210 by DOE EML HASL-300

Polonium-210	9.02	1.00	pCi/L	1	2561387	BV1	"	02/08/2024	
--------------	------	------	-------	---	---------	-----	---	------------	--

Radium-226 by EPA 903.1

Radium-226	4.87	1.00	pCi/L	1	2561836	MJ2	"	02/08/2024	
------------	------	------	-------	---	---------	-----	---	------------	--

Radium-228 by EPA 904.0

Radium-228	3.80	3.00	pCi/L	1	2561562	JE1	"	02/09/2024	
------------	------	------	-------	---	---------	-----	---	------------	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

320534 TENORM PWV02

1/29/2024 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	---------	----------	----------	-------

Y401723-03 (Water)

GEL Laboratories, LLC

Lead-210 by DOE RP280 Modified

Lead-210	1.02	5.00	pCi/L	1	2561566	ST2	01/29/2024	02/10/2024	U
----------	------	------	-------	---	---------	-----	------------	------------	---

Polonium-210 by DOE EML HASL-300

Polonium-210	0.753	1.00	pCi/L	1	2561387	BV1	"	02/08/2024	U
--------------	-------	------	-------	---	---------	-----	---	------------	---

Radium-226 by EPA 903.1

Radium-226	6.56	1.00	pCi/L	1	2561836	MJ2	"	02/08/2024	
------------	------	------	-------	---	---------	-----	---	------------	--

Radium-228 by EPA 904.0

Radium-228	8.24	3.00	pCi/L	1	2561562	JE1	"	02/09/2024	
------------	------	------	-------	---	---------	-----	---	------------	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Lead-210 by DOE RP280 Modified - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2562804 - Dry Soil Prep										
BLANK (1205639243-BLK)					Prepared: Analyzed: 02/12/2024					
Lead-210	0.673	5.00	pCi/g				-			U
DUP (1205639244 D)		Source: Y401723-01			Prepared: 02/02/2024 Analyzed: 02/12/2024					
Lead-210	1.00	5.00	pCi/g		<		0-20	0	20	U
LCS (1205639245-BKS)					Prepared: Analyzed: 02/12/2024					
Lead-210	399	5.00	pCi/g	452		88.1	75-125			

Origins Laboratory, Inc.



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Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Lead-210 by DOE RP280 Modified - Quality Control

GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2561566 -										
BLANK (1205637079-BLK)					Prepared: Analyzed: 02/10/2024					
Lead-210	1.75	5.00	pCi/L				-			U
DUP (1205637080 D)					Source: Y401723-02 Prepared: Analyzed: 02/10/2024					
Lead-210	3.36	5.00	pCi/L		<		0-20	0	20	U
LCS (1205637081-BKS)					Prepared: Analyzed: 02/10/2024					
Lead-210	630	5.00	pCi/L	678		93	75-125			

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Polonium-210 by DOE EML HASL-300 - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2562689 - Dry Soil Prep										
BLANK (1205639038-BLK)					Prepared: Analyzed: 02/08/2024					
Polonium-210	-0.157	1.00	pCi/g				-			U
DUP (1205639039 D)					Source: Y401723-01 Prepared: 02/02/2024 Analyzed: 02/08/2024					
Polonium-210	0.00904	1.00	pCi/g		<		0-20	0	20	U
LCS (1205639040-BKS)					Prepared: Analyzed: 02/08/2024					
Polonium-210	9.46	1.00	pCi/g	8.17		116	75-125			

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Polonium-210 by DOE EML HASL-300 - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2561387 -										
BLANK (1205636745-BLK)					Prepared: Analyzed: 02/08/2024					
Polonium-210	0.347	1.00	pCi/L				-			U
DUP (1205636746 D)					Source: Y401723-03 Prepared: Analyzed: 02/08/2024					
Polonium-210	0.345	1.00	pCi/L		<		0-20	0	20	U
LCS (1205636747-BKS)					Prepared: Analyzed: 02/08/2024					
Polonium-210	28.5	1.00	pCi/L	25.0		114	75-125			

Origins Laboratory, Inc.



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Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Radium-226 by EPA 903.1 - Quality Control

GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2563205 - Dry Soil Prep										
BLANK (1205639920-BLK)					Prepared: Analyzed: 02/11/2024					
Radium-226	0.0257	1.00	pCi/g				-			U
DUP (1205639921 D)					Source: Y401723-01 Prepared: 02/02/2024 Analyzed: 02/11/2024					
Radium-226	0.0268	1.00	pCi/g		<		0-20	0	20	U
MS (1205639922 S)					Source: Y401723-01 Prepared: 02/02/2024 Analyzed: 02/11/2024					
Radium-226	20.3	1.00	pCi/g	26.0	<	77.8	75-125			
LCS (1205639923-BKS)					Prepared: Analyzed: 02/11/2024					
Radium-226	29.0	1.00	pCi/g	25.8		112	75-125			

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Radium-226 by EPA 903.1 - Quality Control GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2561836 -										
BLANK (1205637576-BLK)					Prepared: Analyzed: 02/08/2024					
Radium-226	0.114	1.00	pCi/L				-			U
DUP (1205637577 D)					Source: 653637001 Prepared: Analyzed: 02/08/2024					
Radium-226	17.1	0.999	pCi/L		20.1		0-20	16.2	20	
MS (1205637578 S)					Source: 653637001 Prepared: Analyzed: 02/08/2024					
Radium-226	176	0.999	pCi/L	130	20.1	120	75-125			
LCS (1205637579-BKS)					Prepared: Analyzed: 02/08/2024					
Radium-226	31.3	1.00	pCi/L	26.9		116	75-125			

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Radium-228 by EPA 904.0 - Quality Control

GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2562803 - Dry Soil Prep										
BLANK (1205639240-BLK)					Prepared: Analyzed: 02/09/2024					
Radium-228	0.361	3.00	pCi/g				-			U
DUP (1205639241 D)					Source: Y401723-01 Prepared: 02/02/2024 Analyzed: 02/09/2024					
Radium-228	-0.176	3.00	pCi/g		<		0-20	0	20	U
LCS (1205639242-BKS)					Prepared: Analyzed: 02/09/2024					
Radium-228	38.5	3.00	pCi/g	40.5		95.2	75-125			

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Radium-228 by EPA 904.0 - Quality Control

GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2561562 -										
BLANK (1205637070-BLK)					Prepared: Analyzed: 02/09/2024					
Radium-228	1.22	3.00	pCi/L				-			U
DUP (1205637071 D)					Source: 653327001 Prepared: Analyzed: 02/09/2024					
Radium-228	9.51	3.00	pCi/L		11.2		0-20	16.3	20	
LCS (1205637072-BKS)					Prepared: Analyzed: 02/09/2024					
Radium-228	79.5	3.00	pCi/L	76.0		105	75-125			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Notes and Definitions

U Result not detected above the detection limit

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



April 15, 2024

Weston Solutions-Denver

Sammy Allen

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Project Name - Helming 43-19 Tank Battery

Project Number - 16029.003.003.0002

Attached are your analytical results for Helming 43-19 Tank Battery received by Origins Laboratory, Inc. March 29, 2024. This project is associated with Origins project number Y403842-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
320534_WH01_B01@6'	Y403842-01	Soil	March 28, 2024 9:40	03/29/2024 12:01
320534_WH01_S01@6'	Y403842-02	Soil	March 28, 2024 9:50	03/29/2024 12:01
320534_SEP01_B01@2'	Y403842-03	Soil	March 28, 2024 10:20	03/29/2024 12:01
320534_AST01_B01@2'	Y403842-04	Soil	March 28, 2024 10:40	03/29/2024 12:01
320534_PWV01_B01@6'	Y403842-05	Soil	March 28, 2024 11:00	03/29/2024 12:01
320534_PWV01_N01@12'	Y403842-06	Soil	March 28, 2024 12:50	03/29/2024 12:01
320534_PWV02_B01@6'	Y403842-07	Soil	March 28, 2024 11:10	03/29/2024 12:01
320534_PWV02_N01@6'	Y403842-08	Soil	March 28, 2024 11:15	03/29/2024 12:01
320534_BK01@3'	Y403842-09	Soil	March 28, 2024 12:10	03/29/2024 12:01
320534_BK02@3'	Y403842-10	Soil	March 28, 2024 12:30	03/29/2024 12:01
320534_TB01	Y403842-11	Water	March 28, 2024 0:00	03/29/2024 12:01

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

www.originslaboratory.com page 1 of 2

4403842

ORIGINS LABORATORY, INC

Client: ECMC
Address: 1536 Cole Blvd, Bldg. 4, Suite 375, Lakewood, CO 80401
Telephone Number: 803-414-5429
Email Address: jordan.bynon@originslab.com, amy.zimmerman@originslab.com

Project Manager: Sammy Allen
Project Name: Helming 43-19
Project Number: 16029.003.003.0003
Samples Collected By: Zach Solow and Nate Fields

Fax: 303.265.9645 | Phone: 303.433.1322 | Denver, CO 80211 | 1725 Elk Place

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative	Matrix	Analysis	Sample Instructions
320534_WH01_B01@6'	3/28/2024	0940	3	X	Soil	(See below)	1
320534_WH01_S01@6'	3/28/2024	0955	3	X	Soil		2
320534_SEP01_B01@2'	3/28/2024	1020	3	X	Soil		3
320534_AST01_B01@2'	3/28/2024	1040	3	X	Soil		4
320534_PWW01_B01@6'	3/28/2024	1100	3	X	Soil		5
320534_PWW01_N01@12'	3/28/2024	1250	3	X	Soil		6
320534_PWW02_B01@6'	3/28/2024	1110	3	X	Soil		7
320534_PWW02_N01@6'	3/28/2024	1115	3	X	Soil		8
320534_BK01@3'	3/28/2024	1210	3	X	Soil		9
320534_BK02@3'	3/28/2024	1230	3	X	Soil		10
Relinquished By: <i>Nathan Fields</i>	Date: 3/29/24	Time: 1201	Received By: <i>EHS</i>	Date: 3/28/24	Time: 1201	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard	

Origins Laboratory, Inc.

J. Bynon

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

www.originslaboratory.com

page 2 of 2

4403842

ORIGINS LABORATORY, INC

Client: **ECMC**
Address: 1536 Cole Blvd, Bldg. 4, Suite 375, Lakewood, CO 80401
Telephone Number: 803-414-5429
Email Address: jordan.bynon@westonsolutions.com

Project Manager: Sammy Allen
Project Name: Helming 43-19
Project Number: 16029.003.003.0003
Samples Collected by: Zach Solow and Nate Fields

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative	Matrix	Analysis	Sample Instructions
320534_TB01	3/28/2024	0000	2	Unpreserved	Soil	(See below)	1 Trip Blank - BTEX, THB, TPH low freq
				HCl			2 Full ECMC Table 915-1
				HNO ₃			3 Full ECMC Table 915-1
				Other			4 Full ECMC Table 915-1
				Groundwater			5 Full ECMC Table 915-1
				Other			6 Full ECMC Table 915-1
				Unpreserved			7 Full ECMC Table 915-1
				HCl			8 Full ECMC Table 915-1
				HNO ₃			9 Soil Sampling (EC, pH, SAR, boron, nitrate)
				Other			10 Trip Blank - BTEX, THB, TPH low freq
Relinquished By: <i>Nathan Fields</i>	Date: 3/29/24	Time: 1201	Received By: <i>SHS</i>	Date: 3/29/24	Time: 1201	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:		

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

J. Bynon

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 7403842

Client: ECMC

Client Project ID: Helming

Checklist Completed by: EHS

Shipped Via: HO

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 3/29/12

Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☒ Water ☐ Other: _____

Cooler Number/Temperature: 1 16.4 °C 1 °C 1 °C (Describe) °C

Thermometer ID: 7004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		NC
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: JB (Project Manager)

Date/Time Reviewed: 4/1/12

Origins Laboratory, Inc.

J. Bynon

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 B01@6'
3/28/2024 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.295	0.101	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	110 %	50-150	"	"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130	"	"	"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 B01@6'
3/28/2024 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	98.0 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	116 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	1.23	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	1.95	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 B01@6'
3/28/2024 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-01 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.8 %	60-130	"	"	"
Surrogate: Anthracene-d10	105 %	60-130	"	"	"
Surrogate: Pyrene-d10	87.6 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	94.9 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.52	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	1.97	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.436	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 B01@6'
3/28/2024 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-01 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.18	0.259	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	162	8.92	"	"	"	"	"
Cadmium	0.223	0.0892	"	"	"	"	"
Copper	14.1	8.92	"	"	"	"	"
Lead	15.9	0.892	"	"	"	"	"
Nickel	11.9	0.892	"	"	"	"	"
Selenium	ND	0.232	"	"	"	"	"
Silver	ND	0.0892	"	"	"	"	"
Zinc	48.9	33.0	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.138	0.346	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 S01@6'
3/28/2024 9:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-02 (Soil)

Boron (DTPA Sorbitol)

Boron	0.277	0.101	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	103 %	50-150	"	"	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130	"	"	"	"	"
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 S01@6'
3/28/2024 9:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-02 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	96.4 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	115 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	0.881	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	1.68	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 S01@6'
3/28/2024 9:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-02 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.2 %	60-130	"	"	"
Surrogate: Anthracene-d10	99.2 %	60-130	"	"	"
Surrogate: Pyrene-d10	91.1 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	96.7 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.51	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	2.06	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.324	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 WH01 S01@6'
3/28/2024 9:50:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-02 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.00	0.286	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	121	9.87	"	"	"	"	"
Cadmium	0.232	0.0987	"	"	"	"	"
Copper	14.0	9.87	"	"	"	"	"
Lead	14.5	0.987	"	"	"	"	"
Nickel	11.7	0.987	"	"	"	"	"
Selenium	ND	0.257	"	"	"	"	"
Silver	ND	0.0987	"	"	"	"	"
Zinc	51.1	36.5	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.138	0.346	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 SEP01 B01@2'
3/28/2024 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-03 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	0.101	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	107 %	50-150		"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130		"	"	"
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 SEP01 B01@2'
3/28/2024 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-03 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	97.6 %	70-130				B4C29 40	03/29/2024	04/05/2024	
Surrogate: 4-Bromofluorobenzene	115 %	70-130				"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	1.52	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024	
Magnesium	ND	0.823	"	"	"	"	"	
Sodium	ND	0.435	"	"	"	"	"	

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 SEP01 B01@2'
3/28/2024 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-03 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	98.9 %	60-130	"	"	"
Surrogate: Anthracene-d10	107 %	60-130	"	"	"
Surrogate: Pyrene-d10	89.2 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	105 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.37	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	0.100	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.279	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 SEP01 B01@2'
3/28/2024 10:20:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-03 (Soil)

Table 915 metals by EPA 6020B

Arsenic	2.93	0.252	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	92.5	8.69	"	"	"	"	"
Cadmium	0.254	0.0869	"	"	"	"	"
Copper	10.1	8.69	"	"	"	"	"
Lead	11.3	0.869	"	"	"	"	"
Nickel	7.77	0.869	"	"	"	"	"
Selenium	ND	0.226	"	"	"	"	"
Silver	ND	0.0869	"	"	"	"	"
Zinc	42.8	32.2	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.132	0.330	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 AST01 B01@2'
3/28/2024 10:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-04 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	0.0985	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	102 %	50-150		"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	105 %	70-130		"	"	"
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 AST01 B01@2'
3/28/2024 10:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-04 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	97.8 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	117 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	12.7	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	3.73	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 AST01 B01@2'
3/28/2024 10:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-04 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.0 %	60-130	"	"	"
Surrogate: Anthracene-d10	100 %	60-130	"	"	"
Surrogate: Pyrene-d10	93.6 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	104 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.09	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	0.0551	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.91	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 AST01 B01@2'
3/28/2024 10:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-04 (Soil)

Table 915 metals by EPA 6020B

Arsenic	1.97	0.266	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	40.6	9.17	"	"	"	"	"
Cadmium	ND	0.0917	"	"	"	"	"
Copper	ND	9.17	"	"	"	"	"
Lead	4.20	0.917	"	"	"	"	"
Nickel	3.76	0.917	"	"	"	"	"
Selenium	ND	0.239	"	"	"	"	"
Silver	ND	0.0917	"	"	"	"	"
Zinc	ND	33.9	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.0999	0.250	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 B01@6'
3/28/2024 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-05 (Soil)

Boron (DTPA Sorbitol)

Boron	7.89	0.102	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	100 %	50-150	"	"	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	116 %	70-130	"	"	"	"	"
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 B01@6'
3/28/2024 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-05 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	94.6 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	115 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	ND	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	19.1	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 B01@6'
3/28/2024 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-05 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.6 %	60-130	"	"	"
Surrogate: Anthracene-d10	94.8 %	60-130	"	"	"
Surrogate: Pyrene-d10	92.4 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	95.0 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.99	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	62.0	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.998	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 B01@6'
3/28/2024 11:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-05 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.47	0.263	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	117	9.06	"	"	"	"	"
Cadmium	0.171	0.0906	"	"	"	"	"
Copper	11.5	9.06	"	"	"	"	"
Lead	9.58	0.906	"	"	"	"	"
Nickel	11.8	0.906	"	"	"	"	"
Selenium	ND	0.236	"	"	"	"	"
Silver	ND	0.0906	"	"	"	"	"
Zinc	44.0	33.5	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.177	0.441	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 N01@12'
3/28/2024 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-06 (Soil)

Boron (DTPA Sorbitol)

Boron	4.25	0.0994	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	101 %	50-150	"	"	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	115 %	70-130	"	"	"	"	"
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 N01@12'
3/28/2024 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-06 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	94.6 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	117 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	ND	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	7.21	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 N01@12'
3/28/2024 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-06 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.2 %	60-130	"	"	"
Surrogate: Anthracene-d10	96.4 %	60-130	"	"	"
Surrogate: Pyrene-d10	89.9 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	93.7 %	60-130	"	"	"

pH in Soil by 9045D

pH	9.08	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	27.3	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.846	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV01 N01@12'

3/28/2024 12:50:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-06 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.84	0.272	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	224	9.37	"	"	"	"	"
Cadmium	0.188	0.0937	"	"	"	"	"
Copper	13.4	9.37	"	"	"	"	"
Lead	10.9	0.937	"	"	"	"	"
Nickel	13.2	0.937	"	"	"	"	"
Selenium	ND	0.244	"	"	"	"	"
Silver	ND	0.0937	"	"	"	"	"
Zinc	53.7	34.7	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.192	0.479	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 B01@6'
3/28/2024 11:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-07 (Soil)

Boron (DTPA Sorbitol)

Boron	4.28	0.100	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	96.8 %	50-150	"	"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	114 %	70-130	"	"	"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 B01@6'

3/28/2024 11:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-07 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	95.6 %	70-130				B4C29 40	03/29/2024	04/05/2024	
Surrogate: 4-Bromofluorobenzene	117 %	70-130				"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	ND	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024	
Magnesium	ND	0.823	"	"	"	"	"	
Sodium	7.30	0.435	"	"	"	"	"	

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 B01@6'
3/28/2024 11:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-07 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	98.4 %	60-130	"	"	"
Surrogate: Anthracene-d10	105 %	60-130	"	"	"
Surrogate: Pyrene-d10	89.5 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	94.8 %	60-130	"	"	"

pH in Soil by 9045D

pH	9.22	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	28.2	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.776	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 B01@6'
3/28/2024 11:10:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-07 (Soil)

Table 915 metals by EPA 6020B

Arsenic	4.27	0.273	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	145	9.42	"	"	"	"	"
Cadmium	0.186	0.0942	"	"	"	"	"
Copper	12.2	9.42	"	"	"	"	"
Lead	10.6	0.942	"	"	"	"	"
Nickel	12.5	0.942	"	"	"	"	"
Selenium	ND	0.245	"	"	"	"	"
Silver	ND	0.0942	"	"	"	"	"
Zinc	47.8	34.9	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.137	0.341	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 N01@6'
3/28/2024 11:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-08 (Soil)

Boron (DTPA Sorbitol)

Boron	0.201	0.100	mg/L	1	B4D0105	04/01/2024	04/02/2024	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B4C2942	03/29/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	102 %	50-150	"	"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B4C2940	03/29/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Benzene	ND	0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND	0.00200	"	"	"	"	"	Ua
Toluene	ND	0.00200	"	"	"	"	"	Ua
Xylenes, total	ND	0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	108 %	70-130	"	"	"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 N01@6'
3/28/2024 11:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-08 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	96.6 %	70-130	B4C29 40	03/29/2024	04/05/2024
Surrogate: 4-Bromofluorobenzene	116 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	5.31	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	2.34	0.823	"	"	"	"	"
Sodium	1.17	0.435	"	"	"	"	"

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
2-Methylnaphthalene	ND	0.002	"	"	"	"	"	Ua
Acenaphthene	ND	0.020	"	"	"	"	"	Ua
Anthracene	ND	0.020	"	"	"	"	"	Ua
Benzo (a) anthracene	ND	0.005	"	"	"	"	"	Ua
Benzo (a) pyrene	ND	0.020	"	"	"	"	"	Ua
Benzo (b) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Benzo (k) fluoranthene	ND	0.020	"	"	"	"	"	Ua
Chrysene	ND	0.020	"	"	"	"	"	Ua
Dibenz (a,h) anthracene	ND	0.020	"	"	"	"	"	Ua
Fluoranthene	ND	0.020	"	"	"	"	"	Ua

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 N01@6'
3/28/2024 11:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-08 (Soil)

PAH by EPA 8270E

Fluorene	ND	0.020	mg/kg	1	B4D0532	04/05/2024	04/09/2024	Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	"	"	Ua
Naphthalene	ND	0.002	"	"	"	"	"	Ua
Pyrene	ND	0.020	"	"	"	"	"	Ua

Surrogate: Fluorene-d10	99.6 %	60-130	"	"	"
Surrogate: Anthracene-d10	99.9 %	60-130	"	"	"
Surrogate: Pyrene-d10	90.9 %	60-130	"	"	"
Surrogate: Benzo (a) pyrene-d12	96.4 %	60-130	"	"	"

pH in Soil by 9045D

pH	8.29	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	0.600	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.912	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 PWV02 N01@6'
3/28/2024 11:15:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-08 (Soil)

Table 915 metals by EPA 6020B

Arsenic	3.98	0.279	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	161	9.61	"	"	"	"	"
Cadmium	0.311	0.0961	"	"	"	"	"
Copper	15.3	9.61	"	"	"	"	"
Lead	13.9	0.961	"	"	"	"	"
Nickel	13.6	0.961	"	"	"	"	"
Selenium	ND	0.250	"	"	"	"	"
Silver	ND	0.0961	"	"	"	"	"
Zinc	70.1	35.6	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.156	0.391	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 BK01@3'

3/28/2024 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-09 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	1.00	mg/L	10	B4D0105	04/01/2024	04/03/2024
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Metals by Saturated Paste by EPA 6010

Calcium	0.786	0.499	meq/L	"	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	6.70		pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	0.136	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.204	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Arsenic	3.42	0.258	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	127	8.88	"	"	"	"	"
Cadmium	0.278	0.0888	"	"	"	"	"
Copper	13.0	8.88	"	"	"	"	"

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

320534 BK01@3'

3/28/2024 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y403842-09 (Soil)

Table 915 metals by EPA 6020B

Lead	13.0	0.888	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Nickel	13.1	0.888	"	"	"	"	"
Selenium	0.243	0.231	"	"	"	"	"
Silver	ND	0.0888	"	"	"	"	"
Zinc	55.8	32.9	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.171	0.429	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 BK02@3'

3/28/2024 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-10 (Soil)

Boron (DTPA Sorbitol)

Boron	0.301	0.101	mg/L	1	B4D0105	04/01/2024	04/02/2024
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Metals by Saturated Paste by EPA 6010

Calcium	1.42	0.499	meq/L	10	[CALC]	03/30/2024	04/02/2024
Magnesium	ND	0.823	"	"	"	"	"
Sodium	0.577	0.435	"	"	"	"	"

pH in Soil by 9045D

pH	8.46	pH Units	1	B4C3009	03/30/2024	04/01/2024
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SAR by 20B Saturated Paste

SAR	0.558	0.0100	SAR	1	B4C3004	03/30/2024	04/02/2024
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.312	0.00500	mmhos/cm	1	B4C3009	03/30/2024	04/01/2024
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Table 915 metals by EPA 6020B

Arsenic	4.15	0.261	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Barium	153	8.99	"	"	"	"	"
Cadmium	0.344	0.0899	"	"	"	"	"
Copper	15.6	8.99	"	"	"	"	"

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 BK02@3'

3/28/2024 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-10 (Soil)

Table 915 metals by EPA 6020B

Lead	12.4	0.899	mg/kg	10	B4C2921	03/29/2024	04/03/2024
Nickel	12.2	0.899	"	"	"	"	"
Selenium	ND	0.234	"	"	"	"	"
Silver	ND	0.0899	"	"	"	"	"
Zinc	71.2	33.3	"	"	"	"	"

Total Metals by 7196A

Hexavalent Chromium	ND	0.154	0.385	mg/kg dry	1	2590641	04/03/2024	04/03/2024	U
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

320534 TB01

3/28/2024 12:00:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y403842-11 (Water)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		5.00	mg/L	1	B4D0222	04/02/2024	04/06/2024	Ua
Residual Range Organics (C28-C40)	ND		10.0	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	94.8 %	50-150	"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	1.00	ug/L	1	B4D0328	04/03/2024	04/05/2024	Ua
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	Ua
Benzene	ND	1.00	"	"	"	"	"	Ua
Ethylbenzene	ND	1.00	"	"	"	"	"	Ua
Toluene	ND	1.00	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	ND	100	"	"	"	"	"	Ua

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130	"	"	"
Surrogate: Toluene-d8	94.7 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	94.7 %	70-130	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2940 - EPA 5030 (soil)										
Blank (B4C2940-BLK1)					Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							Ua
1,3,5-Trimethylbenzene	ND	0.00200	"							Ua
Benzene	ND	0.00200	"							Ua
Ethylbenzene	ND	0.00200	"							Ua
Naphthalene	ND	0.00380	"							Ua
Toluene	ND	0.00200	"							Ua
Xylenes, total	ND	0.00200	"							Ua
Gasoline Range Hydrocarbons	ND	0.200	"							Ua
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.15		"	0.125		117	70-130			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.


Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2940 - EPA 5030 (soil)										
LCS (B4C2940-BS1)					Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	0.106	0.00200	mg/kg	0.100		106	70-130			
1,3,5-Trimethylbenzene	0.106	0.00200	"	0.100		106	70-130			
Benzene	0.0987	0.00200	"	0.100		98.7	70-130			
Ethylbenzene	0.103	0.00200	"	0.100		103	70-130			
Naphthalene	0.0922	0.00380	"	0.100		92.2	70-130			
Toluene	0.0993	0.00200	"	0.100		99.3	70-130			
o-Xylene	0.103	0.00200	"	0.100		103	70-130			
m,p-Xylene	0.209	0.00400	"	0.200		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.0	70-130			

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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2940 - EPA 5030 (soil)										
Matrix Spike (B4C2940-MS1)		Source: Y403842-01			Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	0.0708	0.00200	mg/kg	0.100	ND	70.8	70-130			
1,3,5-Trimethylbenzene	0.0712	0.00200	"	0.100	ND	71.2	70-130			
Benzene	0.0849	0.00200	"	0.100	ND	84.9	70-130			
Ethylbenzene	0.0773	0.00200	"	0.100	ND	77.3	70-130			
Naphthalene	0.0452	0.00380	"	0.100	ND	45.2	70-130			QM-07
Toluene	0.0770	0.00200	"	0.100	ND	77.0	70-130			
o-Xylene	0.0706	0.00200	"	0.100	ND	70.6	70-130			
m,p-Xylene	0.151	0.00400	"	0.200	ND	75.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		91.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2940 - EPA 5030 (soil)										
Matrix Spike Dup (B4C2940-MSD1)			Source: Y403842-01		Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	0.0740	0.00200	mg/kg	0.100	ND	74.0	70-130	4.50	20	
1,3,5-Trimethylbenzene	0.0737	0.00200	"	0.100	ND	73.7	70-130	3.37	20	
Benzene	0.0954	0.00200	"	0.100	ND	95.4	70-130	11.6	20	
Ethylbenzene	0.0822	0.00200	"	0.100	ND	82.2	70-130	6.14	20	
Naphthalene	0.0589	0.00380	"	0.100	ND	58.9	70-130	26.4	20	QM-07
Toluene	0.0835	0.00200	"	0.100	ND	83.5	70-130	8.12	20	
o-Xylene	0.0765	0.00200	"	0.100	ND	76.5	70-130	8.03	20	
m,p-Xylene	0.160	0.00400	"	0.200	ND	80.2	70-130	5.75	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2942 - EPA 3550B

Blank (B4C2942-BLK1)

Prepared: 03/29/2024 Analyzed: 04/06/2024

Diesel (C10-C28)	ND	25.0	mg/kg							Ua
Residual Range Organics (C28-C40)	ND	100	"							Ua
Surrogate: o-Terphenyl	26		"	24.9		106	50-150			

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Jordan A. Bynon, Project Manager

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2942 - EPA 3550B

LCS (B4C2942-BS1)

Prepared: 03/29/2024 Analyzed: 04/06/2024

Diesel (C10-C28)	970	50.0	mg/kg	1000		97.0	70-130			
Residual Range Organics (C28-C40)	1070	200	"	1000		107	70-130			
Surrogate: o-Terphenyl	60		"	49.8		121	50-150			

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Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2942 - EPA 3550B

Matrix Spike (B4C2942-MS1)		Source: Y403839-01			Prepared: 03/29/2024 Analyzed: 04/06/2024					
Diesel (C10-C28)	858	50.0	mg/kg	1000	ND	85.8	70-130			
Residual Range Organics (C28-C40)	933	200	"	1000	ND	93.3	70-130			
Surrogate: o-Terphenyl	51		"	49.8		102	50-150			

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Weston Solutions-Denver

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Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2942 - EPA 3550B

Matrix Spike Dup (B4C2942-MSD1)		Source: Y403839-01			Prepared: 03/29/2024 Analyzed: 04/06/2024					
Diesel (C10-C28)	842	50.0	mg/kg	1000	ND	84.2	70-130	1.90	35	
Residual Range Organics (C28-C40)	923	200	"	1000	ND	92.3	70-130	1.06	35	
Surrogate: o-Terphenyl	59		"	49.8		118	50-150			

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Weston Solutions-Denver
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Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2947 - EPA 5030B (Water)										
Blank (B4C2947-BLK1)					Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	ND	2.00	ug/L							Ua
1,3,5-Trimethylbenzene	ND	2.00	"							Ua
Benzene	ND	1.00	"							Ua
Ethylbenzene	ND	1.00	"							Ua
Naphthalene	ND	2.00	"							Ua
Toluene	ND	1.00	"							Ua
Xylenes, total	ND	1.00	"							Ua
Surrogate: 1,2-Dichloroethane-d4	76		"	62.5		121	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.6	70-130			

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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2947 - EPA 5030B (Water)										
LCS (B4C2947-BS1)					Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	50.9	2.00	ug/L	50.0		102	70-130			
1,3,5-Trimethylbenzene	50.2	2.00	"	50.0		100	70-130			
Benzene	46.3	1.00	"	50.0		92.7	70-130			
Ethylbenzene	48.5	1.00	"	50.0		97.0	70-130			
m,p-Xylene	95.3	2.00	"	100		95.3	70-130			
Naphthalene	46.1	2.00	"	50.0		92.2	70-130			
o-Xylene	51.4	1.00	"	50.0		103	70-130			
Toluene	51.8	1.00	"	50.0		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5		116	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2947 - EPA 5030B (Water)

Matrix Spike (B4C2947-MS1)		Source: Y403838-01			Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	54.7	2.00	ug/L	50.0	0.180	109	70-130			
1,3,5-Trimethylbenzene	54.0	2.00	"	50.0	0.090	108	70-130			
Benzene	55.8	1.00	"	50.0	ND	112	70-130			
Ethylbenzene	52.6	1.00	"	50.0	ND	105	70-130			
m,p-Xylene	101	2.00	"	100	ND	101	70-130			
Naphthalene	49.9	2.00	"	50.0	1.06	97.8	70-130			
o-Xylene	51.6	1.00	"	50.0	ND	103	70-130			
Toluene	57.9	1.00	"	50.0	ND	116	70-130			
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5		117	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.9	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Jordan A. Bynon, Project Manager

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C2947 - EPA 5030B (Water)										
Matrix Spike Dup (B4C2947-MSD1)			Source: Y403838-01		Prepared: 03/29/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	51.4	2.00	ug/L	50.0	0.180	102	70-130	6.28	20	
1,3,5-Trimethylbenzene	50.6	2.00	"	50.0	0.090	101	70-130	6.48	20	
Benzene	52.7	1.00	"	50.0	ND	105	70-130	5.71	20	
Ethylbenzene	50.1	1.00	"	50.0	ND	100	70-130	5.00	20	
m,p-Xylene	95.1	2.00	"	100	ND	95.1	70-130	5.64	20	
Naphthalene	53.7	2.00	"	50.0	1.06	105	70-130	7.27	20	
o-Xylene	48.9	1.00	"	50.0	ND	97.8	70-130	5.39	20	
Toluene	54.4	1.00	"	50.0	ND	109	70-130	6.29	20	
Surrogate: 1,2-Dichloroethane-d4	77		"	62.5		123	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.0	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0222 - EPA 3511 Mod.

Blank (B4D0222-BLK1)

Prepared: 04/02/2024 Analyzed: 04/06/2024

Diesel (C10-C28)	ND	5.00	mg/L							Ua
Residual Range Organics (C28-C40)	ND	10.0	"							Ua
Surrogate: o-Terphenyl	4.4		"	4.98		87.8	50-150			

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Jordan A. Bynon, Project Manager

Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0222 - EPA 3511 Mod.

LCS (B4D0222-BS1)

Prepared: 04/02/2024 Analyzed: 04/06/2024

Diesel (C10-C28)	82.6	5.00	mg/L	100		82.6	70-130			
Residual Range Organics (C28-C40)	86.4	10.0	"	100		86.4	70-130			
Surrogate: o-Terphenyl	6.6		"	4.98		133	50-150			

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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0222 - EPA 3511 Mod.

LCS Dup (B4D0222-BSD1)

Prepared: 04/02/2024 Analyzed: 04/06/2024

Diesel (C10-C28)	90.6	5.00	mg/L	100		90.6	70-130	9.19	20	
Residual Range Organics (C28-C40)	92.3	10.0	"	100		92.3	70-130	6.50	20	
Surrogate: o-Terphenyl	5.7		"	4.98		115	50-150			

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Extractable Petroleum Hydrocarbons by 8015D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4D0328 - EPA 5030B (Water)										
Blank (B4D0328-BLK1)					Prepared: 04/03/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	ND	1.00	ug/L							Ua
1,3,5-Trimethylbenzene	ND	1.00	"							Ua
Benzene	ND	1.00	"							Ua
Ethylbenzene	ND	1.00	"							Ua
m,p-Xylene	ND	2.00	"							Ua
Naphthalene	ND	4.00	"							Ua
o-Xylene	ND	1.00	"							Ua
Toluene	ND	1.00	"							Ua
Gasoline Range Hydrocarbons	ND	100	"							Ua
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	70-130			
Surrogate: Toluene-d8	66		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		93.8	70-130			

Origins Laboratory, Inc.



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1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
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Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4D0328 - EPA 5030B (Water)										
LCS (B4D0328-BS1)					Prepared: 04/03/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	47.0	1.00	ug/L	50.0		93.9	70-130			
1,3,5-Trimethylbenzene	46.5	1.00	"	50.0		92.9	70-130			
Benzene	47.7	1.00	"	50.0		95.4	70-130			
Ethylbenzene	44.5	1.00	"	50.0		89.0	70-130			
m,p-Xylene	87.8	2.00	"	100		87.8	70-130			
Naphthalene	41.8	4.00	"	50.0		83.7	70-130			
o-Xylene	45.0	1.00	"	50.0		90.0	70-130			
Toluene	45.5	1.00	"	50.0		91.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.6	70-130			
Surrogate: Toluene-d8	57		"	62.5		90.7	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4D0328 - EPA 5030B (Water)										
Matrix Spike (B4D0328-MS1)		Source: Y404034-01			Prepared: 04/03/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	36.8	1.00	ug/L	50.0	0.190	73.3	70-130			
1,3,5-Trimethylbenzene	38.4	1.00	"	50.0	0.070	76.6	70-130			
Benzene	36.7	1.00	"	50.0	ND	73.4	70-130			
Ethylbenzene	36.7	1.00	"	50.0	ND	73.3	70-130			
m,p-Xylene	74.7	2.00	"	100	ND	74.7	70-130			
Naphthalene	29.4	4.00	"	50.0	0.520	57.8	70-130			QM-07
o-Xylene	33.7	1.00	"	50.0	ND	67.5	70-130			QM-07
Toluene	33.4	1.00	"	50.0	ND	66.9	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	54		"	62.5		86.2	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	69		"	62.5		111	70-130			

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1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4D0328 - EPA 5030B (Water)										
Matrix Spike Dup (B4D0328-MSD1)			Source: Y404034-01		Prepared: 04/03/2024 Analyzed: 04/05/2024					
1,2,4-Trimethylbenzene	53.4	1.00	ug/L	50.0	0.190	106	70-130	36.7	20	QR-02
1,3,5-Trimethylbenzene	55.3	1.00	"	50.0	0.070	110	70-130	36.0	20	QR-02
Benzene	64.1	1.00	"	50.0	ND	128	70-130	54.4	20	QR-02
Ethylbenzene	53.0	1.00	"	50.0	ND	106	70-130	36.5	20	QR-02
m,p-Xylene	105	2.00	"	100	ND	105	70-130	33.8	20	QR-02
Naphthalene	48.5	4.00	"	50.0	0.520	96.0	70-130	48.9	20	QR-02
o-Xylene	48.0	1.00	"	50.0	ND	96.1	70-130	35.0	20	QR-02
Toluene	54.3	1.00	"	50.0	ND	109	70-130	47.5	20	QR-02
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.5	70-130			
Surrogate: Toluene-d8	57		"	62.5		91.5	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	70-130			

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Metals by EPA 6000/7000 Series Methods - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2921 - EPA 3050B

Blank (B4C2921-BLK1)

Prepared: 03/29/2024 Analyzed: 04/03/2024

Arsenic	ND	0.290	mg/kg
Barium	ND	10.0	"
Cadmium	ND	0.100	"
Copper	ND	10.0	"
Lead	ND	1.00	"
Nickel	ND	1.00	"
Selenium	ND	0.260	"
Silver	ND	0.100	"
Zinc	ND	37.0	"

LCS (B4C2921-BS1)

Prepared: 03/29/2024 Analyzed: 04/03/2024

Arsenic	4.40	0.290	mg/kg	5.00	88.0	80-120
Barium	423	10.0	"	500	84.6	80-120
Cadmium	4.59	0.100	"	5.00	91.8	80-120
Copper	46.0	10.0	"	50.0	92.1	80-120
Lead	4.59	1.00	"	5.00	91.8	80-120
Nickel	4.09	1.00	"	5.00	81.8	80-120
Selenium	8.79	0.260	"	9.50	92.5	80-120
Silver	5.05	0.100	"	5.00	101	80-120
Zinc	48.9	37.0	"	50.0	97.8	80-120

Matrix Spike (B4C2921-MS1)

Source: Y403839-01

Prepared: 03/29/2024 Analyzed: 04/03/2024

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Metals by EPA 6000/7000 Series Methods - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C2921 - EPA 3050B

Matrix Spike (B4C2921-MS1)		Source: Y403839-01			Prepared: 03/29/2024 Analyzed: 04/03/2024					
Arsenic	8.26	0.261	mg/kg	4.50	3.89	97.1	75-125			
Barium	619	9.00	"	450	218	89.3	75-125			
Cadmium	4.23	0.0900	"	4.50	0.151	90.6	75-125			
Copper	50.8	9.00	"	45.0	8.46	94.1	75-125			
Lead	12.1	0.900	"	4.50	8.03	90.5	75-125			
Nickel	13.0	0.900	"	4.50	8.27	106	75-125			
Selenium	7.95	0.234	"	8.55	0.177	90.9	75-125			
Silver	4.61	0.0900	"	4.50	ND	102	75-125			
Zinc	76.6	33.3	"	45.0	32.5	98.1	75-125			
Matrix Spike Dup (B4C2921-MSD1)		Source: Y403839-01			Prepared: 03/29/2024 Analyzed: 04/03/2024					
Arsenic	8.23	0.265	mg/kg	4.57	3.89	94.8	75-125	0.403	20	
Barium	602	9.15	"	457	218	84.0	75-125	2.83	20	
Cadmium	4.20	0.0915	"	4.57	0.151	88.5	75-125	0.735	20	
Copper	49.2	9.15	"	45.7	8.46	88.9	75-125	3.34	20	
Lead	12.3	0.915	"	4.57	8.03	92.7	75-125	1.38	20	
Nickel	12.9	0.915	"	4.57	8.27	102	75-125	0.917	20	
Selenium	7.50	0.238	"	8.69	0.177	84.2	75-125	5.89	20	
Silver	4.54	0.0915	"	4.57	ND	99.2	75-125	1.60	20	
Zinc	75.5	33.9	"	45.7	32.5	94.1	75-125	1.45	20	

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0532 - EPA 3580

Blank (B4D0532-BLK1)

Prepared: 04/05/2024 Analyzed: 04/09/2024

1-Methylnaphthalene	ND	0.002	mg/kg							Ua
2-Methylnaphthalene	ND	0.002	"							Ua
Acenaphthene	ND	0.020	"							Ua
Anthracene	ND	0.020	"							Ua
Benzo (a) anthracene	ND	0.005	"							Ua
Benzo (a) pyrene	ND	0.020	"							Ua
Benzo (b) fluoranthene	ND	0.020	"							Ua
Benzo (g,h,i) perylene	ND	0.020	"							Ua
Benzo (k) fluoranthene	ND	0.020	"							Ua
Chrysene	ND	0.020	"							Ua
Dibenz (a,h) anthracene	ND	0.020	"							Ua
Fluoranthene	ND	0.020	"							Ua
Fluorene	ND	0.020	"							Ua
Indeno (1,2,3-cd) pyrene	ND	0.020	"							Ua
Naphthalene	ND	0.002	"							Ua
Phenanthrene	ND	0.020	"							Ua
Pyrene	ND	0.020	"							Ua

Surrogate: Fluorene-d10	200		ug/kg	200	97.9	60-130
Surrogate: Anthracene-d10	190		"	200	95.5	60-130
Surrogate: Pyrene-d10	190		"	200	94.7	60-130
Surrogate: Benzo (a) pyrene-d12	200		"	200	99.7	60-130

LCS (B4D0532-BS1)

Prepared: 04/05/2024 Analyzed: 04/09/2024

1-Methylnaphthalene	0.195	0.002	mg/kg	0.200	97.5	70-130
2-Methylnaphthalene	0.193	0.002	"	0.200	96.4	70-130
Acenaphthene	0.199	0.020	"	0.200	99.6	70-130
Anthracene	0.201	0.020	"	0.200	101	70-130

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0532 - EPA 3580

LCS (B4D0532-BS1)

Prepared: 04/05/2024 Analyzed: 04/09/2024

Benzo (a) anthracene	0.208	0.005	mg/kg	0.200		104	70-130
Benzo (a) pyrene	0.196	0.020	"	0.200		98.1	70-130
Benzo (b) fluoranthene	0.194	0.020	"	0.200		97.0	70-130
Benzo (g,h,i) perylene	0.202	0.020	"	0.200		101	70-130
Benzo (k) fluoranthene	0.186	0.020	"	0.200		93.2	70-130
Chrysene	0.193	0.020	"	0.200		96.7	70-130
Dibenz (a,h) anthracene	0.195	0.020	"	0.200		97.6	70-130
Fluoranthene	0.215	0.020	"	0.200		107	70-130
Fluorene	0.199	0.020	"	0.200		99.6	70-130
Indeno (1,2,3-cd) pyrene	0.225	0.020	"	0.200		112	70-130
Naphthalene	0.210	0.002	"	0.200		105	70-130
Phenanthrene	0.206	0.020	"	0.200		103	70-130
Pyrene	0.189	0.020	"	0.200		94.5	70-130
Surrogate: Fluorene-d10	200		ug/kg	200		98.2	60-130
Surrogate: Anthracene-d10	210		"	200		106	60-130
Surrogate: Pyrene-d10	190		"	200		92.7	60-130
Surrogate: Benzo (a) pyrene-d12	190		"	200		94.5	60-130

Matrix Spike (B4D0532-MS1)

Source: Y403835-01

Prepared: 04/05/2024 Analyzed: 04/09/2024

1-Methylnaphthalene	0.199	0.002	mg/kg	0.200	ND	99.3	70-130
2-Methylnaphthalene	0.195	0.002	"	0.200	ND	97.7	70-130
Acenaphthene	0.194	0.020	"	0.200	ND	97.0	70-130
Anthracene	0.189	0.020	"	0.200	ND	94.5	70-130
Benzo (a) anthracene	0.195	0.005	"	0.200	ND	97.7	70-130
Benzo (a) pyrene	0.192	0.020	"	0.200	ND	96.2	70-130
Benzo (b) fluoranthene	0.190	0.020	"	0.200	ND	95.1	70-130
Benzo (g,h,i) perylene	0.194	0.020	"	0.200	ND	97.0	70-130

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4D0532 - EPA 3580

Matrix Spike (B4D0532-MS1)		Source: Y403835-01			Prepared: 04/05/2024 Analyzed: 04/09/2024					
Benzo (k) fluoranthene	0.185	0.020	mg/kg	0.200	ND	92.4	70-130			
Chrysene	0.192	0.020	"	0.200	ND	96.1	70-130			
Dibenz (a,h) anthracene	0.194	0.020	"	0.200	ND	97.0	70-130			
Fluoranthene	0.217	0.020	"	0.200	ND	109	70-130			
Fluorene	0.198	0.020	"	0.200	ND	99.0	70-130			
Indeno (1,2,3-cd) pyrene	0.197	0.020	"	0.200	ND	98.3	70-130			
Naphthalene	0.196	0.002	"	0.200	0.0009	97.7	70-130			
Phenanthrene	0.197	0.020	"	0.200	ND	98.7	70-130			
Pyrene	0.173	0.020	"	0.200	ND	86.6	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	180		"	200		91.2	60-130			
Surrogate: Pyrene-d10	170		"	200		86.9	60-130			
Surrogate: Benzo (a) pyrene-d12	190		"	200		93.6	60-130			

Matrix Spike Dup (B4D0532-MSD1)		Source: Y403835-01			Prepared: 04/05/2024 Analyzed: 04/09/2024					
1-Methylnaphthalene	0.163	0.002	mg/kg	0.200	ND	81.5	70-130	19.8	20	
2-Methylnaphthalene	0.164	0.002	"	0.200	ND	81.9	70-130	17.5	20	
Acenaphthene	0.163	0.020	"	0.200	ND	81.3	70-130	17.7	20	
Anthracene	0.166	0.020	"	0.200	ND	83.0	70-130	13.0	20	
Benzo (a) anthracene	0.170	0.005	"	0.200	ND	84.8	70-130	14.1	20	
Benzo (a) pyrene	0.166	0.020	"	0.200	ND	83.1	70-130	14.6	20	
Benzo (b) fluoranthene	0.158	0.020	"	0.200	ND	78.8	70-130	18.6	20	
Benzo (g,h,i) perylene	0.165	0.020	"	0.200	ND	82.3	70-130	16.4	20	
Benzo (k) fluoranthene	0.169	0.020	"	0.200	ND	84.3	70-130	9.16	20	
Chrysene	0.171	0.020	"	0.200	ND	85.4	70-130	11.8	20	
Dibenz (a,h) anthracene	0.158	0.020	"	0.200	ND	79.2	70-130	20.1	20	QR-02
Fluoranthene	0.187	0.020	"	0.200	ND	93.5	70-130	14.9	20	

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4D0532 - EPA 3580										
Matrix Spike Dup (B4D0532-MSD1)		Source: Y403835-01			Prepared: 04/05/2024 Analyzed: 04/09/2024					
Fluorene	0.174	0.020	mg/kg	0.200	ND	86.9	70-130	13.1	20	
Indeno (1,2,3-cd) pyrene	0.161	0.020	"	0.200	ND	80.3	70-130	20.1	20	QR-02
Naphthalene	0.163	0.002	"	0.200	0.0009	80.8	70-130	18.8	20	
Phenanthrene	0.164	0.020	"	0.200	ND	82.0	70-130	18.5	20	
Pyrene	0.146	0.020	"	0.200	ND	72.8	70-130	17.4	20	
Surrogate: Fluorene-d10	200		ug/kg	200		101	60-130			
Surrogate: Anthracene-d10	180		"	200		88.8	60-130			
Surrogate: Pyrene-d10	180		"	200		88.9	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		97.6	60-130			

Origins Laboratory, Inc.



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Jordan A. Bynon, Project Manager

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Classical Chemistry Parameters - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4C3004 - Saturated Paste Metals

Blank (B4C3004-BLK1)

Prepared: 03/30/2024 Analyzed: 04/02/2024

SAR	ND	0.0100	SAR
Calcium PPM	ND	10.0	mg/L
Magnesium PPM	ND	10.0	"
Sodium PPM	ND	10.0	"

Duplicate (B4C3004-DUP1)

Source: Y403839-01

Prepared: 03/30/2024 Analyzed: 04/02/2024

Calcium PPM	4.30	10.0	mg/L	3.94	8.74	50
SAR	ND	0.0100	SAR	13.1	200	
Magnesium PPM	0.970	10.0	mg/L	0.900	7.49	50
Sodium PPM	119	10.0	"	111	6.57	50

Batch B4D0105 - DTPA Sorbitol Preparation

Blank (B4D0105-BLK1)

Prepared: 04/01/2024 Analyzed: 04/02/2024

Boron	ND	0.100	mg/L
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Duplicate (B4D0105-DUP1)

Source: Y403839-06

Prepared: 04/01/2024 Analyzed: 04/02/2024

Boron	3.47	0.0986	mg/L	3.12	10.6	50
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Origins Laboratory, Inc.



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Jordan A. Bynon, Project Manager

Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Saturated Paste - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4C3009 - Saturated Paste pH/EC										
Blank (B4C3009-BLK1)					Prepared: 03/30/2024 Analyzed: 04/01/2024					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B4C3009-DUP1)					Source: Y403839-01 Prepared: 03/30/2024 Analyzed: 04/01/2024					
pH	8.90		pH Units		8.86			0.450	25	
Specific Conductance (EC)	0.548	0.00500	mmhos/cm		0.505			8.22	25	

Origins Laboratory, Inc.



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Weston Solutions-Denver
1536 Cole Blvd, Bldg 4, Ste 375
Lakewood CO 80401

Sammy Allen
Project Number: 16029.003.003.0002
Project: Helming 43-19 Tank Battery

Total Metals by 7196A - Quality Control GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2590641 - SW846 3060A										
BLANK (1205691981-BLK)					Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	ND	0.295	mg/kg				-			U
LCS (1205691982-BKS)					Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	3.27	0.321	mg/kg	3.21		102	80-120			
DUP (1205691983 D)					Source: 660938001 Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	0.353	0.471	mg/kg dry		0.246		0-50	35.5	50	J
MS (1205691984 S)					Source: 660938001 Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	1.78	0.471	mg/kg dry	4.71	0.246	32.6	75-125			
DUP (1205691985 D)					Source: Y403842-01 Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	ND	0.346	mg/kg dry		<0.138		0-50	N/A	50	U
MS (1205691986 S)					Source: Y403842-01 Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	1.85	0.346	mg/kg dry	3.46	<0.138	53.6	75-125			
ILCS (1205691987-ILCS)					Prepared: 04/03/2024 Analyzed: 04/03/2024					
Hexavalent Chromium	5.06	0.248	mg/kg	5.00		101	80-120			

Origins Laboratory, Inc.



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Weston Solutions-Denver

1536 Cole Blvd, Bldg 4, Ste 375

Lakewood CO 80401

Sammy Allen

Project Number: 16029.003.003.0002

Project: Helming 43-19 Tank Battery

Notes and Definitions

Ua Sample is Non-Detect.

U Result not detected above the detection limit

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

J Greater than the detection limit but less than the reporting limit

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

Origins Laboratory, Inc.



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Jordan A. Bynon, Project Manager

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0309065

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client: BROADBENT & ASSOCIATES, INC. Job# / P.O. #: 24-11-113-211
Address: 12760 STROH RANCH WAY, STE 101 Date Received: 03/29/2024
PARKER CO 80134 Date Analyzed: 04/05/2024
Collected: 03/28/2024 Date Reported: 04/05/2024
Project Name: WESTON-HELMING 43-19 Submitted By: KYLE VIRVA
Address: Collected By:
EPA Method: App.E to Sub.E of 40 CFR Part 763 and EPA/600/R-93

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents
0309065-001 320534_ASB01		Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%
0309065-002 320534_ASB02		Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%
0309065-003 320534_ASB03		Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%
0309065-004 320534_ASB04		LAYER 1 Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%
		LAYER 2 Paper Wrap, Brown	No	None Detected	Cellulose Fiber 95% Carbonates Gypsum Quartz Binder/Filler 5%
0309065-005 320534_ASB05		Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%
0309065-006 320534_ASB06		Tar Impregnated Pipe Wrap, Black	No	None Detected	Fibrous Glass 20% Carbonates Quartz Binder/Filler 80%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0309065

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client: BROADBENT & ASSOCIATES, INC. Job# / P.O. #: 24-11-113-211
Address: 12760 STROH RANCH WAY, STE 101 Date Received: 03/29/2024
PARKER CO 80134 Date Analyzed: 04/05/2024
Collected: 03/28/2024 Date Reported: 04/05/2024
Project Name: WESTON-HELMING 43-19 Submitted By: KYLE VIRVA
Address: Collected By:
EPA Method: App.E to Sub.E of 40 CFR Part 763 and EPA/600/R-93

Lab ID	Sample	Layer Name /	Asbestos	Asbestos Type	Non-Asbestos
Client ID	Location	Sample Description	Detected	(%)	Constituents



Analyst - Matt Kettler



Signatory - Lab Director - Kurt Kettler

Distinctly stratified, easily separable layers of samples are analyzed as subsamples of the whole and are reported separately for each discernible layer. All analyses are derived from calibrated visual estimate and measured in area percent unless otherwise noted. The report applies to the standards or procedures identified and to the sample(s) tested. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. This report is for the exclusive use of the addressed client and will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. The report shall not be reproduced except in full, without written approval by our laboratory. The samples not destroyed in testing are retained a maximum of sixty days. The laboratory measurement of uncertainty for the test method is approximately less than 1 by area percent. Accredited by the National Institute of Standards and Technology, Voluntary Laboratory Accreditation Program for selected test method(s) for asbestos. The accreditation or any reports generated by this laboratory in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

ATTACHMENT E

CLOSURE CHECKLISTS

Flowline Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:	<input checked="" type="checkbox"/>	Tank Battery Closure	<input checked="" type="checkbox"/>	Wellhead Closure		Pit Closure	<input checked="" type="checkbox"/>	Partially Buried Vault Closure
Site Name & COGCC Facility Number: Helming (OWP) #43-19; Facility ID 485160		Date: March 28, 2024					Remediation Project #: 32255	
Associated Wells: Helming (OWP) #43-19		Age of Site: 19 years					Number of Photos Attached: 21	
Starting point: (GPS coordinates and descriptions) FL01 - 39.77267031, -104.36046985; FL02 - 39.77256162, -104.35863594								
End point: (GPS coordinates and descriptions) FL01 - 39.77255091, -104.35868106; FL02 - 39.77276644, -104.35862583								
USCS Soil Type: SM						Estimated Depth to Groundwater: 24 ft		
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed +								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) None observed								
Flowlines								
Flowline type	FL01 (off-location)	FL02 (on-location)						
Depth	4	4						
Age	Unknown	Unknown						
Length	~525 ft	~75 ft						
Construction Material	Steel	Steel						
Were flowlines pulled?	No	Yes						
Visual Integrity of lines	Good	Good						
Visual impacts if trenched	None observed	None observed						
PID Readings if trenched	5.0 ppm (highest)	4.9 ppm (highest)						
Sample taken? Location/Sample ID#	-	-						
Photo Number(s)	-	-						
Other observations regarding on location flowlines: FL01 was left in place at the time of the investigation because the flowline wrapping material was suspected asbestos containing material. However, subsequent sampling indicated that there was no asbestos in the flowline wrapping material								
Summary								
Was impacted soil identified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards								
Total number of samples field screened: 7					Total number of samples collected: 0			
Highest PID Reading: 5.0 ppm					Total number of samples submitted to lab for analysis: 0			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: NA					Estimated spill volume: NA			
Lateral extent: NA					Volume of soil removed: NA			
Is additional investigation required? No								
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater: -					Was remedial groundwater removal conducted? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Date Groundwater was encountered: -					Commencement date of removal: -			
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed prior to sampling: -			
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> No					Volume of groundwater removed post sampling: -			
Total number of samples collected: -					Total Volume of groundwater removed: -			
Total number of samples submitted to lab for analysis: -								

Buried or Partially Buried Vessel Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional attachments (optional):	<input type="checkbox"/>	Pit Closure	<input checked="" type="checkbox"/>	Wellhead Closure	<input checked="" type="checkbox"/>	Flowline Closure	<input checked="" type="checkbox"/>	Tank Battery Closure
Site Name & COGCC Facility Number: Helming (OWP) #43-19; Facility ID 485160		Date: March 28, 2024						Remediation Project #: 32255
Associated Wells: Helming (OWP) #43-19		Age of Site: 19 years						Number of Photos Attached: 21
Location: (GPS coordinates of vault or southeastern tank berm for multiple) 39.77279026, -104.35871878								Estimated Facility Size (acres): 0.45

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Impacts observed at the PWV01 excavation location in the north sidewall down to 8 ft bgs. The impacted soil was removed (<10yd).

USCS Soil Type: SM	Estimated Depth to Groundwater: 24 ft
-----------------------	--

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

Impacts observed in the PWV01 excavation location at the north sidewall down to 8 ft bgs. The impacted soil removed and it was less than 10 cy.

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)

None observed

Buried or Partially Buried Vessels

Tank Contents	Produced Water	Produced Water							
Size (barrels)	<100 BBLs	<100 BBLs							
Age	Unknown	Unknown							
Construction Material	Concrete	Concrete							
Visual Integrity of Tank	-	-							
Condition of Tank Footprint	Poor	Good							
PID Readings	60 ppm (highest)	11 ppm (highest)							
Condition of dump line	NA	NA							
PID Readings	60 ppm	11 ppm							
Sample taken? Location/Sample ID#	320534_PWV01_B01@6' and 320534_PWV01_N01@1' Z	320534_PWV02_B01@6' and 320534_PWV02_N01@6' +							
Photo Number(s)	-	-							

Other observations regarding partially buried vessels:

Impacted soil observed at PWV01 location was removed

Summary

Was impacted soil identified?	
<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes - less than 10 cubic yards
<input type="checkbox"/> Yes - more than 10 cubic yards	
Total number of samples field screened: 14	Total number of samples collected: 4
Highest PID Reading: 60 ppm	Total number of samples submitted to lab for analysis: 4
If more than 10 cubic yards of impacted soil were observed:	
Vertical extent: 8 ft bgs	Estimated spill volume: <10 cy
Lateral extent: North sidewall	Volume of soil removed: <10 cy
Is additional investigation required?	
Elevated SAR remains in-place	
Was groundwater encountered during the investigation?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils	
Measured depth to groundwater: -	Was remedial groundwater removal conducted? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Groundwater was encountered: -	Commencement date of removal: -
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No	Volume of groundwater removed prior to sampling: -
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Volume of groundwater removed post sampling: -
Total number of samples collected: -	Total Volume of groundwater removed:
Total number of samples submitted to lab for analysis: --	

Third Party Operator									
Removal Date									
Sample taken? Location/Sample ID									
PID Readings									
Photo Number(s)									
Other Facility Equipment									
Equipment type									
Equipment Condition									
Age									
Soil impacts observed during									
PID Readings									
Sample taken? Location/Sample ID									
Photo Number(s)									
Other observations regarding other facility or third party equipment:									
Summary									
Was impacted soil identified? <input checked="" type="checkbox"/> No Yes - less than 10 cubic yards Yes - more than 10 cubic yards									
Total number of samples field screened: 2					Total number of samples collected: 2				
Highest PID Reading: 4.8 ppm					Total number of samples submitted to lab for analysis: 2				
If more than 10 cubic yards of impacted soil were observed:									
Vertical extent: NA					Estimated spill volume: NA				
Lateral extent: NA					Volume of soil removed: NA				
Is additional investigation required? No									
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils									
Measured depth to groundwater: -					Was remedial groundwater removal conducted? Yes No				
Date Groundwater was encountered: -					Commencement date of removal: -				
Sheen on groundwater? Yes No					Volume of groundwater removed prior to sampling: -				
Free product observed? Yes No					Volume of groundwater removed post sampling: -				
Total number of samples collected: -					Total Volume of groundwater removed: -				
Total number of samples submitted to lab for analysis: -									

Wellhead Closure Checklist								
COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form								
Additional attachments (optional):		Pit Closure	✕	Tank Battery Closure	✕	Flowline Closure	✕	Partially Buried Vault Closure
Site Name & COGCC Facility Number: Helming (OWP) #43-19; Facility ID 278973		Date: March 28, 2024					Remediation Project #: 32255	
Associated Wells: Helming (OWP) #43-19		Age of Site: 19 years					Number of Photos Attached: 21	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 39.772684, -104.36047778						Estimated Facility Size (acres): 0.19		
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)								
Good, no impacts observed at the wellhead location								
USCS Soil Type: SM				Estimated Depth to Groundwater: 24 ft				
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Wellhead(s)								
Well API	05-001-09548							
Age	19 years							
Condition of Surface around wellhead (staining present, etc.)	Good, no impacts							
PID Readings	5.1 ppm (highest)							
Condition of subsurface (staining present, etc.)	Good, no impacts							
PID Readings	5.1 ppm (highest)							
Sample taken? Location/Sample ID	320534_WH01_B01@6' and 320534_WH01_S01@6'							
Photo Number(s)	-							
Other observations regarding wellheads:								
-								
Summary								
Was impacted soil identified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - less than 10 cubic yards <input type="checkbox"/> Yes - more than 10 cubic yards								
Total number of samples field screened: 5				Total number of samples collected: 2				
Highest PID Reading: 5.1 ppm				Total number of samples submitted to lab for analysis: 2				
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: NA				Estimated spill volume: NA				
Lateral extent: NA				Volume of soil removed: NA				
Is additional investigation required? No								
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - not impacted or in contact with impacted soils <input type="checkbox"/> Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater: _				Was remedial groundwater removal conducted? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Date Groundwater was encountered: _				Commencement date of removal: _				
Sheen on groundwater? <input type="checkbox"/> Yes <input type="checkbox"/> No				Volume of groundwater removed prior to sampling: _				
Free product observed? <input type="checkbox"/> Yes <input type="checkbox"/> No				Volume of groundwater removed post sampling: _				
Total number of samples collected: _				Total Volume of groundwater removed: _				
Total number of samples submitted to lab for analysis: _								