



**VIA ELECTRONIC MAIL –**

August 18, 2023

Jake Janicek  
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**Subject: Facility Decommissioning Sampling  
YELLOW CREEK FEDERAL 27-13-1  
Piceance Creek  
Rio Blanco, Colorado**

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Piceance LLC (Caerus), completed excavation oversight, field soil screening, confirmation, stockpile, and site-specific background soil sampling related to the decommissioning of production well YELLOW CREEK FEDERAL #27-13-1 and associated production infrastructure at the YELLOW CREEK FEDERAL-61N98W 27NWSW [YELLOW CREEK FEDERAL (YCF) 27-13-1] (Location ID: 316449) (Site). The samples were collected pursuant to the Colorado Oil and Gas Conservation Commission (COGCC) Rule 913.c.(9): *Decommissioning of Oil and Gas Facilities*. Initial decommissioning activities associated with the Site can be found in Document Number (DN) 403178569 and under COGCC Remediation Project Number (RPN) 26222. All supplemental decommissioning and Site clean-up activities can be referenced in DN (403498320). The Site is located in the Caerus' Piceance Creek area of operation in Rio Blanco, Colorado (Figure 1).

**STOCKPILE SOIL SAMPLING ACTIVITIES - YCF 27-13-1**

On April 11, 2023, WSP personnel conducted stockpile field soil screening and confirmation sampling activities at the Site associated with the decommissioning of production well YELLOW CREEK FEDERAL #27-13-1 American Petroleum Institute (API) number 103-10550. Additionally, WSP intended to conduct field soil screening and sampling within the decommissioned production well excavation footprint. However, approximately one foot of stormwater was present at the base of the production well excavation and therefore these activities were postponed until a later visit.

One stockpile containing excavated soils unearthed from around the decommissioned production well footprint were systematically divided into five equal sections for stockpile soil collection. Aliquot soil samples were collected from each section and thoroughly mixed to provide a representative profile for each stockpile. Each aliquot included in the five-point composite soil sample was collected at a depth of approximately half of the thickness of the stockpile at each sample location. The aliquots which comprised of the stockpile composite soil sample were combined and field screened by a geologist for the presence or absence of hydrocarbons via visual and olfactory senses as well as using a handheld photoionization detector (PID). Collected soils were placed into clean Ziplock ® gallon bags and the sensor tip of a PID was sealed into the bag to field screen for volatile organic compounds (VOCs).

The representative stockpile sample was collected in clean, laboratory-prepared containers and submitted to Pace Analytical (Pace) of Mt. Juliet, Tennessee for analysis of COGCC Table 915-1 [20230411-YCF 27-13-1-(STOCK)] and for waste characterization analysis [20230411-YCF 27-13-1-(WC-PILE)]. Field soil screening results are summarized in the table below and a soil screening photolog is included in Enclosure A. The stockpile aliquot soil sample locations as well as the extent of the stockpile and excavation are illustrated on Figure 2.

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### Field Soil Screening Results – April 11, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230411-YCF 27-13-1-(STOCK)	4.8	Hydrocarbon odor, no staining	Full Table 915-1
20230411-YCF 27-13-1-(WC-PILE)	4.8	Hydrocarbon odor, no staining	Waste Characterization

Key:

PID – photoionization detector

ppm – parts per million

## CONFIRMATION SOIL SAMPLING ACTIVITIES - YCF 27-13-1

On May 5, 2023, a WSP geologist returned to the Site post wellhead abandonment to conduct field soil screening and confirmation soil sampling at the base of the decommissioned production well YELLOW CREEK FEDERAL #27-13-1 (API 103-10550). MK Hydrovac Inc. (MK) of Parachute, Colorado was contracted by Caerus to provide hydro-vacuum (hydro-vac) services to remove the stormwater that had accumulated in the production well excavation footprint to allow for sample collection. Prior to sampling, the base and all sidewalls of the excavation decommissioned production well were characterized using visual and olfactory observations by a WSP geologist for the presence or absence of hydrocarbon and VOCs. Inside the abandoned production well excavation footprint one soil sample was collected from the base of the decommissioned wellhead at 8 feet below ground surface (bgs) using a hand auger [20230505-YCF 27-13-1 SWD-(FCWHYCF27131)]. Each of the four sidewalls of the decommissioned wellhead excavation footprint were field screened, but given that no impacts were observed, no samples were collected from the sidewalls. Soil screening results are summarized in the table below.

### Field Soil Screening Results – May 5, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230505-YCF 27-13-1-(FCHW-YCF27131)@8	3.7	No odor or staining	Full Table 915-1
20230505-YCF 27-13-1-(WW)@4	0.0	No odor or staining	Not submitted
20230505-YCF 27-13-1-(NW)@4	0.0	No odor or staining	Not submitted
20230505-YCF 27-13-1-(EW)@4	0.0	No odor or staining	Not submitted
20230505-YCF 27-13-1-(SW)@4	0.0	No odor or staining	Not submitted

Key:

PID – photoionization detector

ppm – parts per million

Additionally, on May 5, 2023, six site-specific background soil samples were collected from three locations to the north, east, and west of the Site from comparable, nearby, non-impacted, native soil per COGCC Rule 915.e.(2). The site-specific soil samples were collected at depths of 1-foot and 2 feet bgs, respectively. All samples were collected using either a spade shovel or hand auger. The wellhead base excavation confirmation soil sample was placed into a clean, laboratory-prepared container and submitted to Pace for laboratory analysis of COGCC Table 915-1. All site-specific background soil samples were submitted to Pace for laboratory analysis of COGCC Table 915-1 metals, electrical conductivity (EC), sodium adsorption ratio (SAR), pH and boron (water soluble). The field screening and confirmation soil sample locations from sample activities completed on May 5, 2023 are depicted on Figure 3. A photolog of field decommissioning activities that occurred at the Site on May 5, 2023 is included in Enclosure A.

Between June 13 and 15, 2023, a WSP geologist returned to the Site to conduct pothole delineation and excavation oversight to remove the remaining impacted material following the initial investigation from the base and surrounding the YELLOW CREEK FEDERAL #27-13-1 production well. Whites Construction and Excavation, LLC (Whites) of Meeker, Colorado, was contracted by Caerus to provide excavation services to assist with the removal of impacted soils at the Site. Pothole delineation activities of the decommissioned well included field soil screening and confirmation soil sampling, which were completed in tandem with source removal activities using the excavator operated by Whites personnel. A total of five potholes (soil borings) were advanced, one immediately adjacent to the decommissioned production well and one in each cardinal direction of the existing production well excavation footprint. All potholes were advanced to 13.5 feet bgs or to mechanical refusal and total depths ranged from 12 feet bgs to 13.5 feet bgs. As each pothole was advanced soils were field screened at three-foot intervals to the pothole terminus. One confirmation soil sample was collected at the base of the wellhead excavation at a depth of 13.5 feet bgs and four confirmation soil samples were collected from each sidewall of the excavation at depths ranging from 12 feet bgs to 13.5 feet bgs. All confirmation soil samples were field screened as previously described.



No hydrocarbon staining or odors were observed in any of the confirmation soil samples. An estimated 250 cubic yards of impacted material was excavated immediately surrounding the decommissioned production well. All excavation confirmation soil samples were collected from the excavator bucket due to the vertical depth of the excavation extent. In addition to the five-wellhead excavation confirmation soil samples, one confirmation soil sample was collected from beneath previous sample locations of associated former production equipment 20220817-YCF 27-13-1(Meter Skid) and 20220817-YCF 27-13-1(Pad Vault) to confirm removal of documented boron and pH exceedances. The soils beneath the former production equipment were removed via mechanical excavation to depths of 2 feet bgs and 3 feet bgs, respectively. The field soil screening results of the confirmation soil samples are summarized in the table below. The decommissioned wellhead excavation extent, excavation confirmation soil samples, and other associated production equipment soil sample locations from June 2023 are depicted on Figure 4.

#### Field Soil Screening Results – June 13 through 15, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230613-YCF 27-13-1 SWD-(BASE)@10	165	Odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(BASE)@11	67.8	Odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(BASE)@13.5	11.8	No odor or staining	Full Table 915-1
20230613-YCF 27-13-1 SWD-(EW01)@6	1.0	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(EW01)@9	2.8	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(EW01)@12	4.5	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(EW01)@13.5	2.4	No odor or staining	Full Table 915-1
20230613-YCF 27-13-1 SWD-(NW01)@3	1.0	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(NW01)@6	1.3	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(NW01)@9	0.9	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(NW01)@12	0.7	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(NW01)@13	0.6	No odor or staining	Full Table 915-1
20230613-YCF 27-13-1 SWD-(SW01)@6	1.6	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(SW01)@9	4.8	No odor or staining	Not Submitted
20230613-YCF 27-13-1 SWD-(SW01)@12	11.2	No odor or staining	Full Table 915-1
20230614-YCF 27-13-1 SWD-(WW01)@3	6.8	No odor or staining	Not Submitted
20230614-YCF 27-13-1 SWD-(WW01)@6	8.2	No odor or staining	Not Submitted
20230614-YCF 27-13-1 SWD-(WW01)@9	1.7	No odor or staining	Not Submitted
20230614-YCF 27-13-1 SWD-(WW01)@12	4.7	No odor or staining	Not Submitted
20230614-YCF 27-13-1 SWD-(WW01)@13.5	5.3	No odor or staining	Full Table 915-1
20230614-YCF 27-13-1 SWD-(FC-PL)@2	1.1	No odor or staining	Arsenic, boron, pH, and SAR
20230615-YCF 27-13-1 SWD-FC-PL(FC-MH)@3	2.4	No odor or staining	Arsenic, boron, pH, and SAR

Key:

PID – photoionization detector

ppm – parts per million

All confirmation soil samples were collected in clean, laboratory-prepared containers and submitted to Pace for laboratory analysis. All wellhead excavation confirmation soil samples were submitted for analysis of constituents listed under COGCC Table 915-1. The two confirmation soil samples associated with former Meter Skid and Pad Vault locations were submitted under a previously approved reduced suite (DN 403178569) that included arsenic, SAR, pH, and boron (water soluble). All site-specific background soil samples were submitted for analysis of COGCC Table 915-1 metals, SAR, EC, pH, and boron (water soluble).

On July 3, 2023, WSP personnel returned to the Site to remove a previously confirmed SAR exceedance associated with previous sample location 20220817-YCF 27-13-1(Access Rd Vault). Using a hydro-vacuum (hydro-vac) truck operated by Western Slope Oilfield Services, Inc (WCO) of Rifle, Colorado soils were excavated from the base of the vault to a total depth of 3 feet bgs below the pipeline flange where one confirmation soil sample [20230703-YCF 27-13-1 SWD-(FC-PL)@3] was collected. No hydrocarbon odors or staining were observed during the advancement of hydro-vac excavation or during field soil screening activities. The confirmation soil sample was prepared for laboratory submittal to Pace for analysis of arsenic, pH, SAR, and boron (water soluble) (DN 403178569). The July



3, 2023, vault soil sample location is depicted on the attached Figure 5. A photolog of activities that occurred at the Site on July 3, 2023 is included in Enclosure A. The below table summarizes the field soil screening PID reading from the July 3, 2023 vault sample collection activities and a photolog is included in Enclosure A.

#### Field Soil Screening Results – July 3, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230703-YCF 27-13-1 SWD-(FC-PL)@3	5.5	No odor, no staining	Arsenic, pH, SAR, and Boron

Key:

PID – photoionization detector

ppm – parts per million

On July 10, 2023, WSP returned to the Site to continue delineation excavation activities associated with the SAR exceedances surrounding the decommissioned YELLOW CREEK FEDERAL #27-13-1 production well, to the remove the pH exceedance beneath former pipeline vault sample location 20230614-YCF 27-13-1 SWD-(FC-PL)@2, and to collect site-specific background samples using the excavator. WSP directed excavation activities completed by Whites to remove SAR exceedances from the previous excavation footprint. The base excavation depth was 13 feet bgs on arrival. The excavation base was advanced to 14 feet bgs before mechanical refusal was encountered. One base confirmation soil sample was collected for submittal directly from the excavator bucket [20230710-YCF 27-13-1 SWD-(BASE02)@14]. The excavation perimeter was advanced laterally an additional two feet along all sidewalls and soils were field screened for staining and odor as each sidewall was advanced. Confirmation soil samples were collected from the north and west sidewalls of the excavation [20230710-YCF 27-13-1 SWD-(NW02)@12 and 20230710-YCF 27-13-1 SWD-(WW02)@12]. Due to elevated PID values, and a hydrocarbon odor observed along the south and east sidewalls an additional 2 feet laterally along each wall perimeter was excavated. Sidewall confirmation soil samples [20230710-YCF 27-13-1 SWD-(SW02)@12, and 20230710-YCF 27-13-1 SWD-(EW02)@12] were collected from the south and east sidewalls after removing approximately four feet of material from the previous excavation extent. In addition, one confirmation soil sample [20230710-YCF 27-13-1 SWD-(FC-PL-01)@4] was collected from the previous sample location 20230614-YCF 27-13-1 SWD-(FC-PL)@2 at the former on-pad vault location, as the previous sample exhibited a pH exceedance. The collected soils were field screened for presence or absence of hydrocarbon odors and staining at a depth of 4 feet bgs.

Lastly, on July 10, 2023, WSP personnel collected site specific background soil samples from two native, undisturbed locations to the north and south of the working pad surface. A total of 10 site-specific background soil samples were collected for laboratory analysis. Both background potholes were advanced to total depths of 10 feet bgs and samples were collected at each 2-foot interval for submittal using an excavator operated by Whites.

All confirmation and site-specific background soil samples were collected directly from the excavator bucket. All confirmation soil samples were field screened as previously described. All five excavation confirmation soil samples were submitted for laboratory analysis of COGCC Table 915-1 constituents. The confirmation soil sample collected from the former on-pad vault location was submitted for laboratory analysis under a previously reduced suite [DN: 403178569] which included arsenic, boron, pH, and SAR. All site-specific background soil samples were submitted for laboratory analysis of COGCC Table 915-1 metals, SAR, EC, pH, and boron. All soil samples were submitted to Pace for laboratory analysis. All soil sample collection locations from July 10, 2023 are depicted on the attached Figure 5. A photolog of field decommissioning activities that occurred at the Site on July 10, 2023 is included in Enclosure A. The below table details July investigative field screening results.

#### Field Soil Screening Results – July 10, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230710-YCF 27-13-1 SWD-(BASE02)@14	64.7	No odor or staining	Full Table 915-1
20230710-YCF 27-13-1 SWD-(WW02)@12	1.7	No odor or staining	Full Table 915-1
20230710-YCF 27-13-1 SWD-(NW02)@12	1.1	No odor or staining	Full Table 915-1
20230710-YCF 27-13-1 SWD-(EW02)@12	0.4	No odor or staining	Full Table 915-1
20230710-YCF 27-13-1 SWD-(SW02)@12	1.2	No odor or staining	Full Table 915-1
20230710-YCF 27-13-1 SWD-(FC-PL-01)@4	0.8	No odor or staining	Arsenic, boron, pH, and SAR





Key:

PID – photoionization detector

ppm – parts per million

On August 1 and 2, 2023, WSP returned to the Site to continue delineation activities in response to the total petroleum hydrocarbon (TPH) exceedance observed in previously collected confirmation soil sample [20230710-YCF 27-13-1 SWD-(WW02)@12] collected from the west sidewall of the decommissioned production well YELLOW CREEK FEDERAL #27-13-1 excavation footprint. Using an excavator operated by Whites, the western sidewall was pulled back laterally approximately 3 feet and advanced vertically in 3-foot intervals to a total depth of 12 feet bgs in order to methodically characterize and field screen soils. A total of three base samples were collected and field screened from the base footprint of the west sidewall excavation expansion from depths ranging from 12 to 14 feet bgs. Once vertical clearance was achieved, the three new walls [NW, WW, and SW] of the western excavation expansion were methodically screen in 3-foot intervals to 12 feet bgs. During the investigative field screening process, the southernmost wall was pulled back laterally an additional approximate 5 feet based on visual staining, hydrocarbon odor, and PID readings. All soil samples were collected directly from the excavator bucket and field screened as previously described. PID field screening values for the base and sidewalls of the excavation expansion are summarized in the table below.

#### Field Soil Screening Results – August 1 and 2, 2023

Sample ID	PID (ppm)	Notes	Submitted for Analysis
20230801-YCF 27-13-1 SWD-(BASE03)@3	39.4	No odor or staining	No
20230801-YCF 27-13-1 SWD-(BASE03)@6	39.9	Odor/Staining	No
20230801-YCF 27-13-1 SWD-(BASE03)@9	42.0	No odor or staining	No
20230801-YCF 27-13-1 SWD-(BASE03)@12	1.0	No odor or staining	No
20230801-YCF 27-13-1 SWD-(BASE04)@11	79	Odor/Staining	No
20230801-YCF 27-13-1 SWD-(BASE05)@12	8.5	Odor/Mild Staining	No
20230801-YCF 27-13-1 SWD-(BASE05)@13	12.3	Mild Odor/Mild Staining	No
20230801-YCF 27-13-1 SWD-(BASE05)@14	2.9	Faint Odor/No Staining	Full Table 915-1
20230802-YCF 27-13-1 SWD-(SW03)@3	11.3	No odor or staining	No
20230802-YCF 27-13-1 SWD-(SW03)@6	2.7	No odor or staining	No
20230802-YCF 27-13-1 SWD-(SW03)@8	2.6	No odor or staining	No
20230802-YCF 27-13-1 SWD-(SW03)@12	6.2	No odor or staining	Full Table 915-1
20230802-YCF 27-13-1 SWD-(NW03)@3	10.7	No odor or staining	No
20230802-YCF 27-13-1 SWD-(NW03)@6	11.4	No odor or staining	No
20230802-YCF 27-13-1 SWD-(NW03)@9	2.4	No odor or staining	No
20230802-YCF 27-13-1 SWD-(NW03)@12	3.0	No odor or staining	Full Table 915-1
20230802-YCF 27-13-1 SWD-(WW03)@3	1.1	No odor or staining	No
20230802-YCF 27-13-1 SWD-(WW03)@6	3.4	No odor or staining	No
20230802-YCF 27-13-1 SWD-(WW03)@9	1.8	No odor or staining	No
20230802-YCF 27-13-1 SWD-(WW03)@12	2.8	No odor or staining	Full Table 915-1

Key:

PID – photoionization detector

ppm – parts per million

A total of four confirmation soil samples were submitted to Pace for laboratory analysis of COGCC Table 915-1 constituents. Soil field screening locations, the excavation extent, and the stockpile extent as of August 2, 2023, is detailed on Figure 6. A photolog of field decommissioning activities that occurred at the Site on August 1 and 2, 2023 is included in Enclosure A.



## ANALYTICAL RESULTS - YCF 27-13-1

Laboratory analytical results of the stockpile confirmation soil sample collected from the Site on April 11, 2023, indicate exceedances of the COGCC Table 915-1 Protection of Groundwater Soil Screening Level Concentrations (PGSSLCs) for arsenic, boron, copper, and lead and exceedances of the COGCC Table 915-1 Cleanup Concentrations (CCs) for pH and SAR. The documented exceedances are summarized in the table below and on Figure 7.

### Summary of Stockpile Soil Analytical Exceedances – April 11, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230411-YCF 27-13-1-(STOCK)	Arsenic	mg/kg	0.29 (M)	<b>3.38</b>
	Barium	mg/kg	82 (M)	<b>5,770</b>
	Copper	mg/kg	46 (M)	<b>48.1</b>
	Lead	mg/kg	14 (M)	<b>42.0</b>
	pH	SU	6 – 8.3	<b>8.91</b>
	SAR	Unitless	<6	<b>7.96</b>

Key:

mg/kg - milligrams per kilogram

SU - standard unit

COGCC - Colorado Oil and Gas Conservation Commission

M - maximum containment level

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

< - indicates reported value is less than the laboratory method detection limit

Laboratory analytical results of the decommissioned production well confirmation soil sample collected on May 5, 2023, indicates exceedances of the COGCC Table 915-1 PGSSLC for arsenic, barium, cadmium, lead, benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene and exceedances of the COGCC Table 915-1 CCs for pH and TPH. The exceedances are summarized in the table below and on Figure 8.

### Summary of Confirmation Soil Analytical Exceedances – May 5, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230505-YCF 27-13-1 SWD-(FCWHYCF27131)	Arsenic	mg/kg	0.29 (M)	<b>2.61</b>
	Barium	mg/kg	82 (M)	<b>3,100</b>
	Cadmium	mg/kg	0.38 (M)	<b>1.63</b>
	Lead	mg/kg	14 (M)	<b>71.8</b>
	pH	SU	6 – 8.3	<b>11.6</b>
	TPH	mg/kg	500	<b>1,328</b>
	Benzene	mg/kg	0.0026 (M)	<b>0.00400</b>
	1,2,4-trimethylbenzene	mg/kg	0.0081 (R)	<b>0.0550</b>
	1,3,5-trimethylbenzene	mg/kg	0.0087 (R)	<b>0.165</b>
	1-methylnaphthalene	mg/kg	0.006 (R)	<b>0.112</b>
	2-methylnaphthalene	mg/kg	0.019 (R)	<b>0.197</b>
	Naphthalene	mg/kg	0.0038 (R)	<b>0.123</b>

Key:

mg/kg - milligrams per kilogram

SU - standard unit

COGCC - Colorado Oil and Gas Conservation Commission

M - maximum containment level

R - risk based

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

< - indicates reported value is less than the laboratory method detection limit



Laboratory analytical results of the six site-specific background soil samples collected on May 5, 2023, indicate exceedances of the COGCC Table 915-1 PGSSLC for arsenic, barium, and nickel and exceedances of the COGCC Table 915-1 CCs for pH. The exceedances are summarized in the table below and on Figure 9.

### Summary of Site-Specific Background Soil Analytical Exceedances – May 5, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230505-YCFBG-(YCF 27-13-1-N)@1	Arsenic	mg/kg	0.29 (M)	<b>3.16</b>
	Barium	mg/kg	82 (M)	<b>241</b>
	pH	SU	6 – 8.3	<b>8.40</b>
20230505-YCFBG-(YCF 27-13-1-N)@2	Arsenic	mg/kg	0.29 (M)	<b>4.25</b>
	Barium	mg/kg	82 (M)	<b>355</b>
	Nickel	mg/kg	26 (R)	<b>33.1</b>
	pH	SU	6 – 8.3	<b>8.42</b>
20230505-YCFBG-(YCF 27-13-1-W)@1	pH	SU	6 – 8.3	<b>8.96</b>
20230505-YCFBG-(YCF 27-13-1-W)@2	Arsenic	mg/kg	0.29 (M)	<b>2.65</b>
	Barium	mg/kg	82 (M)	<b>163</b>
	Nickel	mg/kg	26 (R)	<b>28.1</b>
	pH	SU	6 – 8.3	<b>9.78</b>
20230505-YCFBG-(YCF 27-13-1-E)@1	Arsenic	mg/kg	0.29 (M)	<b>1.94</b>
	Barium	mg/kg	82 (M)	<b>137</b>
	pH	SU	6 – 8.3	<b>8.59</b>
20230505-YCFBG-(YCF 27-13-1-E)@2	Arsenic	mg/kg	0.29 (M)	<b>2.57</b>
	Barium	mg/kg	82 (M)	<b>187</b>
	pH	SU	6 – 8.3	<b>9.49</b>

Key:

mg/kg - milligrams per kilogram

SU - standard unit

COGCC - Colorado Oil and Gas Conservation Commission

M - maximum containment level

R - risk based

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

< - indicates reported value is less than the laboratory method detection limit



Laboratory analytical results of the abandoned production well confirmation soil samples and associated equipment soil samples collected from June 13 through 15, 2023 indicates exceedances of the COGCC Table 915-1 PGSSLC for arsenic, barium, cadmium, lead, selenium, and exceedances of the COGCC Table 915-1 CCs for pH and SAR. The exceedances are summarized in the table below and on Figure 10.

### Summary of Confirmation Soil Analytical Exceedances – June 13 through 15, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230613-YCF 27-13-1 SWD-(BASE01)@13.5	Arsenic	mg/kg	0.29 (M)	<b>3.33</b>
	Barium	mg/kg	82 (M)	<b>309</b>
	pH	SU	6 – 8.3	<b>9.05</b>
	SAR	Unitless	<6	<b>7.20</b>
20230613-YCF 27-13-1 SWD-(NW01)@13	Arsenic	mg/kg	0.29 (M)	<b>3.91</b>
	Barium	mg/kg	82 (M)	<b>252</b>
	Selenium	mg/kg	0.26 (M)	<b>0.266</b>
	pH	SU	6 – 8.3	<b>8.77</b>
	SAR	Unitless	<6	<b>8.48</b>
20230613-YCF 27-13-1 SWD-(EW01)@13.5	Arsenic	mg/kg	0.29 (M)	<b>2.81</b>
	Barium	mg/kg	82 (M)	<b>331</b>
	pH	SU	6 – 8.3	<b>8.74</b>
	SAR	Unitless	<6	<b>6.72</b>
20230614 YCF 27-13-1 SWD-(SW01)@12	Arsenic	mg/kg	0.29 (M)	<b>3.64</b>
	Barium	mg/kg	82 (M)	<b>196</b>
	Cadmium	mg/kg	0.38 (M)	<b>0.105</b>
	pH	SU	6 – 8.3	<b>8.92</b>
	SAR	Unitless	<6	<b>6.32</b>
20230614 YCF 27-13-1 SWD-(WW01)@13.5	Arsenic	mg/kg	0.29 (M)	<b>7.81</b>
	Barium	mg/kg	82 (M)	<b>1,130</b>
	Cadmium	mg/kg	0.38 (M)	<b>3.78</b>
	Lead	mg/kg	14 (M)	<b>16.2</b>
	Selenium	mg/kg	0.26 (M)	<b>4.39</b>
	pH	SU	6 – 8.3	<b>9.06</b>
	SAR	Unitless	<6	<b>7.24</b>
20230614-YCF 27-13-1 SWD-(FC-PL)@2	Arsenic	mg/kg	0.29 (M)	<b>3.23</b>
	pH	SU	6 – 8.3	<b>5.89</b>
20230615-YCF 27-13-1 SWD-(FC-MH)@3	Arsenic	mg/kg	0.29 (M)	<b>3.86</b>
	pH	SU	6 – 8.3	<b>9.50</b>

Key:  
mg/kg - milligrams per kilogram  
SU - standard unit  
COGCC - Colorado Oil and Gas Conservation Commission  
M - maximum containment level

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level  
< - indicates reported value is less than the laboratory method detection limit

Laboratory analytical results of the confirmation soil sample collected from the access road vault collected on July 3, 2023, indicated exceedances of the COGCC Table 915-1 CCs for pH and SAR. The decommissioned production well excavation confirmation soil samples collected on July 10, 2023 indicates exceedances of the COGCC Table



915-1 PGSSLC for arsenic, barium, lead, selenium, and exceedances of the COGCC Table 915-1 CCs for pH and TPH. The exceedances are summarized in the table below and on Figure 11.

### Summary of Confirmation Soil Analytical Exceedances – July 3 and 10, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230703-YCF 27-13-1-(FC-PL)@3	pH	SU	6 – 8.3	<b>9.50</b>
	SAR	Unitless	<6	<b>7.24</b>
20230710-YCF 27-13-1 SWD-(BASE02)@14	Arsenic	mg/kg	0.29 (M)	<b>3.57</b>
	Barium	mg/kg	82 (M)	<b>1,620</b>
	Lead	mg/kg	14 (M)	<b>15.2</b>
	Selenium	mg/kg	0.26 (M)	<b>0.382</b>
	pH	SU	6 – 8.3	<b>8.80</b>
20230710-YCF 27-13-1 SWD-(WW-02)@12	Arsenic	mg/kg	0.29 (M)	<b>4.01</b>
	Barium	mg/kg	82 (M)	<b>2,740</b>
	Lead	mg/kg	14 (M)	<b>16.1</b>
	Selenium	mg/kg	0.26 (M)	<b>0.384</b>
	pH	SU	6 – 8.3	<b>8.58</b>
	TPH	mg/kg	500	<b>656.0504</b>
20230710-YCF 27-13-1 SWD-(NW-02)@12	Arsenic	mg/kg	0.29 (M)	<b>3.60</b>
	Barium	mg/kg	82 (M)	<b>1,470</b>
	Selenium	mg/kg	0.26 (M)	<b>0.365</b>
	pH	SU	6 – 8.3	<b>8.81</b>
20230710-YCF 27-13-1 SWD-(EW-02)@12	Arsenic	mg/kg	0.29 (M)	<b>3.98</b>
	Barium	mg/kg	82 (M)	<b>848</b>
	Selenium	mg/kg	0.26 (M)	<b>0.496</b>
	pH	SU	6 – 8.3	<b>8.87</b>
20230710-YCF 27-13-1 SWD-(SW-02)@12	Arsenic	mg/kg	0.29 (M)	<b>3.04</b>
	Barium	mg/kg	82 (M)	<b>904</b>
	Chromium (VI)	mg/kg	0.00067 (R)	<b>0.255</b>
	Lead	mg/kg	14 (M)	<b>16.5</b>
	Selenium	mg/kg	0.26 (M)	<b>0.356</b>
	pH	SU	6 – 8.3	<b>9.07</b>
20230710-YCF 27-13-1 SWD-(FC-PL-01)@4	Arsenic	mg/kg	0.29 (M)	<b>3.35</b>
	pH	SU	6 – 8.3	<b>8.90</b>

Key:  
mg/kg - milligrams per kilogram  
SU - standard unit  
COGCC - Colorado Oil and Gas Conservation Commission  
M - maximum containment level

R - risk based  
**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level  
< - indicates reported value is less than the laboratory method detection limit

Laboratory analytical results of the 10 site-specific background soil samples collected on July 10, 2023 indicate exceedances of the COGCC Table 915-1 PGSSLC for arsenic, barium, chromium, nickel, selenium, and exceedances of the COGCC Table 915-1 CCs for boron, EC, pH, and SAR. The exceedances are summarized in the table below and on Figure 12.





### Summary of Site-Specific Background Soil Analytical Exceedances – July 10, 2023

Background Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230710-YCFBG-(YCF 27-13-1-N)@2	Arsenic	mg/kg	0.29 (M)	<b>5.91</b>
	Barium	mg/kg	82 (M)	<b>334</b>
	Selenium	mg/kg	0.26 (M)	<b>0.527</b>
	EC	mmhos/cm	<4	<b>4.900</b>
	SAR	unitless	<6	<b>10.5</b>
20230710-YCFBG-(YCF 27-13-1-N)@4	Arsenic	mg/kg	0.29 (M)	<b>3.83</b>
	Barium	mg/kg	82 (M)	<b>761</b>
	Selenium	mg/kg	0.26 (M)	<b>0.437</b>
	EC	mmhos/cm	<4	<b>4.260</b>
	SAR	unitless	<6	<b>9.14</b>
20230710-YCFBG-(YCF 27-13-1-N)@6	Arsenic	mg/kg	0.29 (M)	<b>2.90</b>
	Barium	mg/kg	82 (M)	<b>385</b>
	Chromium (VI)	mg/kg	0.00067 (R)	<b>0.277</b>
	Selenium	mg/kg	0.26 (M)	<b>0.343</b>
	SAR	unitless	<6	<b>6.51</b>
20230710-YCFBG-(YCF 27-13-1-N)@8	Arsenic	mg/kg	0.29 (M)	<b>7.43</b>
	Barium	mg/kg	82 (M)	<b>380</b>
	Selenium	mg/kg	0.26 (M)	<b>0.383</b>
	pH	SU	6 – 8.3	<b>8.95</b>
	SAR	unitless	<6	<b>7.85</b>
20230710-YCFBG-(YCF 27-13-1-N)@10	Arsenic	mg/kg	0.29 (M)	<b>7.44</b>
	Barium	mg/kg	82 (M)	<b>287</b>
	Selenium	mg/kg	0.26 (M)	<b>0.306</b>
	pH	SU	6 – 8.3	<b>8.96</b>
20230710-YCFBG-(YCF 27-13-1-S)@2	Arsenic	mg/kg	0.29 (M)	<b>2.99</b>
	Barium	mg/kg	82 (M)	<b>793</b>
	Selenium	mg/kg	0.26 (M)	<b>0.904</b>
	EC	mmhos/cm	<4	<b>5.610</b>
	SAR	unitless	<6	<b>9.01</b>
20230710-YCFBG-(YCF 27-13-1-S)@4	Arsenic	mg/kg	0.29 (M)	<b>6.12</b>
	Barium	mg/kg	82 (M)	<b>279</b>
	Nickel	mg/kg	26 (R)	<b>27.5</b>
	Selenium	mg/kg	0.26 (M)	<b>0.288</b>
	pH	SU	6 – 8.3	<b>8.58</b>
20230710-YCFBG-(YCF 27-13-1-S)@6	Arsenic	mg/kg	0.29 (M)	<b>4.48</b>
	Barium	mg/kg	82 (M)	<b>286</b>
	Selenium	mg/kg	0.26 (M)	<b>0.380</b>
20230710-YCFBG-(YCF 27-13-1-S)@8	Arsenic	mg/kg	0.29 (M)	<b>3.94</b>
	Barium	mg/kg	82 (M)	<b>276</b>
	Selenium	mg/kg	0.26 (M)	<b>0.342</b>
20230710-YCFBG-(YCF 27-13-1-S)@10	Arsenic	mg/kg	0.29 (M)	<b>3.86</b>
	Barium	mg/kg	82 (M)	<b>265</b>
	Selenium	mg/kg	0.26 (M)	<b>0.404</b>

Key:

mg/kg - milligrams per kilogram

SU - standard unit

COGCC - Colorado Oil and Gas Conservation Commission

M - maximum containment level

R - risk based

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

< - indicates reported value is less than the laboratory method detection limit



Laboratory analytical results of the decommissioned production well excavation expansion confirmation soil samples collected on August 1 and 2, 2023 indicates exceedances of the COGCC Table 915-1 PGSSLC for arsenic, barium, lead, selenium, and exceedances of the COGCC Table 915-1 CCs for pH and SAR. The exceedances are summarized in the table below and on Figure 13.

#### Summary of Confirmation Soil Analytical Exceedances – August 1 and 2, 2023

Confirmation Soil Sample ID	COGCC Table 915-1 Contaminants of Concern	Units	COGCC Protection of Groundwater Soil Screening Level Concentrations	Confirmation Soil Sample Concentration
20230801-YCF 27-13-1 SWD-(BASE05)@14	Arsenic	mg/kg	0.29 (M)	<b>4.06</b>
	Barium	mg/kg	82 (M)	<b>188</b>
	pH	SU	6 – 8.3	<b>8.74</b>
20230802-YCF 27-13-1 SWD-(SW03)@12	Arsenic	mg/kg	0.29 (M)	<b>3.25</b>
	Barium	mg/kg	82 (M)	<b>295</b>
	Selenium	mg/kg	0.26 (M)	<b>0.299</b>
	pH	SU	6 – 8.3	<b>8.50</b>
	SAR	unitless	<6	<b>7.82</b>
20230802-YCF 27-13-1 SWD-(NW03)@12	Arsenic	mg/kg	0.29 (M)	<b>2.98</b>
	Barium	mg/kg	82 (M)	<b>579</b>
	Selenium	mg/kg	0.26 (M)	<b>0.313</b>
	pH	SU	6 – 8.3	<b>8.62</b>
	SAR	unitless	<6	<b>8.55</b>
20230802-YCF 27-13-1 SWD-(WW03)@12	Arsenic	mg/kg	0.29 (M)	<b>3.02</b>
	Barium	mg/kg	82 (M)	<b>184</b>
	Selenium	mg/kg	0.26 (M)	<b>0.293</b>
	pH	SU	6 – 8.3	<b>8.65</b>
	SAR	unitless	<6	<b>7.44</b>

Key:  
 mg/kg - milligrams per kilogram  
 SU - standard unit  
 COGCC - Colorado Oil and Gas Conservation Commission  
 M - maximum containment level

R - risk based  
 BOLD - indicates result exceeds the COGCC protection of groundwater soil screening concentration level  
 < - indicates reported value is less than the laboratory method detection limit

All other analytes were either below the laboratory method detection limit (MDL) or within the COGCC Table 915-1 PGSSLCs. However, it should be noted that the laboratory MDL for chromium (VI) is 0.255 mg/kg, which is greater than the COGCC Table 915-1 PGSSLC of 0.00067 mg/kg. The laboratory analytical reports are included in Enclosure B and the results are summarized in Table 1.

## CONCLUSIONS - YELLOW CREEK FEDERAL 27-13-1

Based on the analytical data provided herein, of all the decommissioning confirmation soil sampling activities completed associated with the facility closure of the YELLOW CREEK FEDERAL-61N98W 27NWSW (YCF 27-13-1) (Location ID: 316449) there are remaining COGCC Table 915-1 exceedances of arsenic, barium, cadmium, chromium (VI), selenium, lead, pH, and SAR associated with the decommissioned production well, and Table 915-1 exceedances of SAR and pH associated with the decommissioned pipeline vault locations. WSP on behalf of Caerus recommends the above-mentioned exceedances be addressed per COGCC Rule 915 e.(2)C. as outlined in the “Remediation Summary” and “Operator Comments” of Supplemental Form 27 DN 403498320 (Figure 14).

Please reference DN 403178569 for initial decommissioning confirmation soil sample locations, sampling summaries and soil analytical results. The laboratory analytical report from the initial decommissioning confirmation sampling is included in Enclosure B and results are summarized in Table 2. The decommissioning sample locations are referenced on the Figure 15.



All excavated and stockpiled soils removed during the various decommissioning work representative of approximately 1,569.61 cubic yards of soil will be transported and disposed of at the Wray Gulch Landfill in Rio Blanco County under Special Waster Identification Number 230621.

Based on the data provided, WSP recommends that Caerus request "No Further Action" and closure of 26222. This recommendation is based on the reasonings stated above and in COGCC DN 403498320.

Please contact us at (970) 618-4514 or (970) 658-7025 if you have any questions regarding this report or require additional information.

Kind regards,

A handwritten signature in blue ink, appearing to read 'D. Held'.

Dustin Held  
Sr. Consultant, Environmental Geologist

A handwritten signature in blue ink, appearing to read 'Parker Coit'.

Parker Coit, P.G.  
Lead Consultant, Geologist

Encl.

## FIGURES



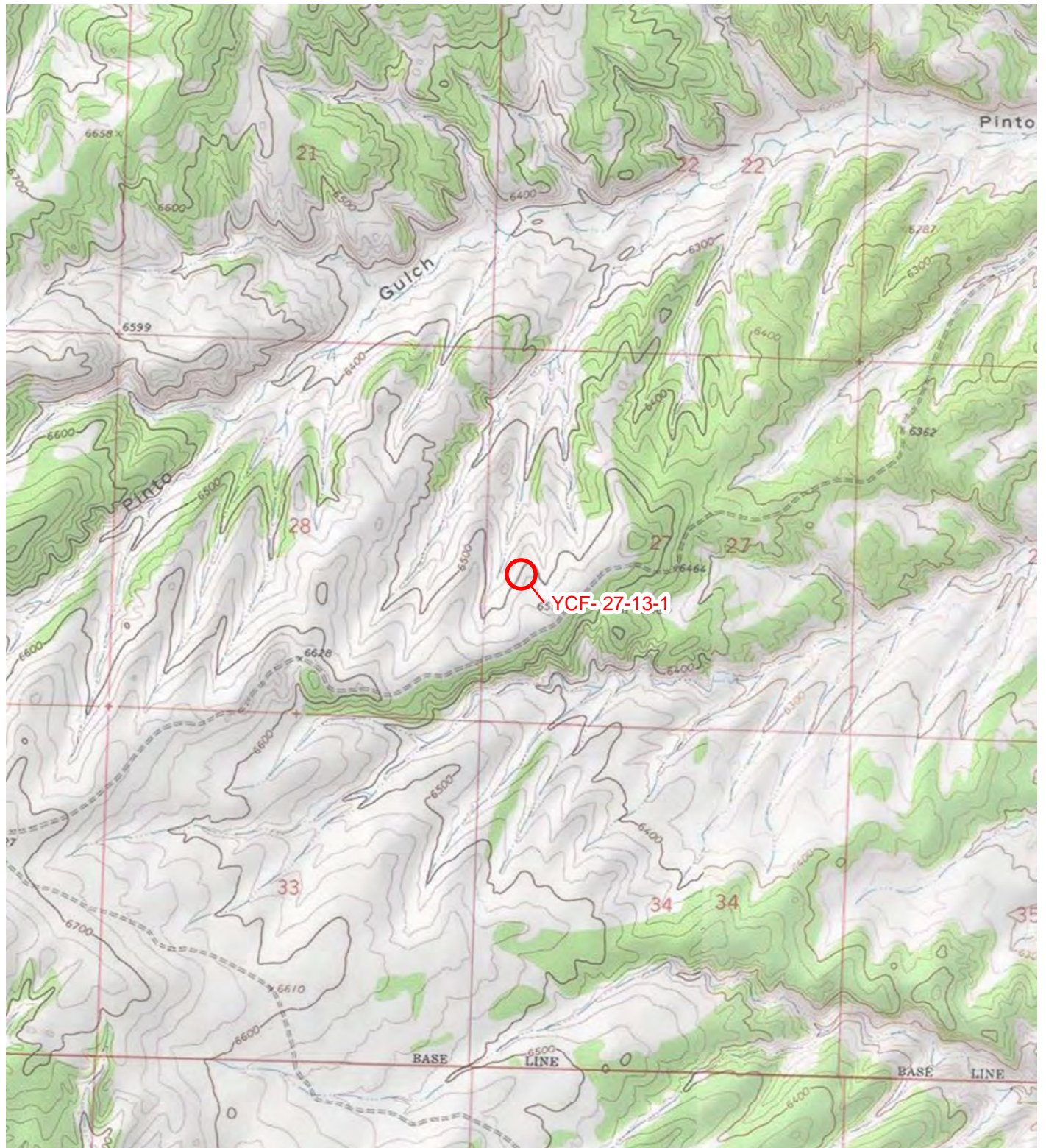
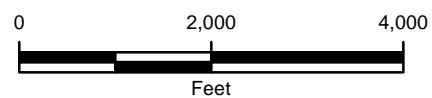


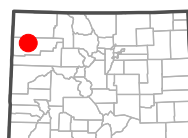
IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION



COLORADO



**FIGURE 1**  
**SITE LOCATION MAP**  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC



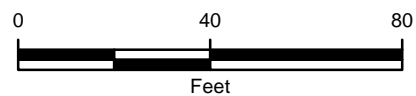




IMAGE COURTESY OF GOOGLE EARTH (2015)

# **LEGEND**

- ▲ ALIQUOT SOIL SAMPLE
- EXCAVATION EXTENT (4/11/2023)
- STOCKPILE



**FIGURE 2**  
**SAMPLE LOCATION MAP**  
 APRIL 11, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC

**wsp**

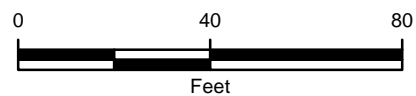




IMAGE COURTESY OF GOOGLE EARTH (2015)

## LEGEND

- SOIL SAMPLE
- ▲ BACKGROUND SOIL SAMPLE
- EXCAVATION EXTENT (5/5/2023)



**FIGURE 3**  
**SAMPLE LOCATION MAP**  
 MAY 5, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC

**wsp**

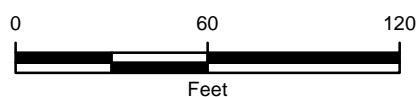




IMAGE COURTESY OF GOOGLE EARTH (2015)

## LEGEND

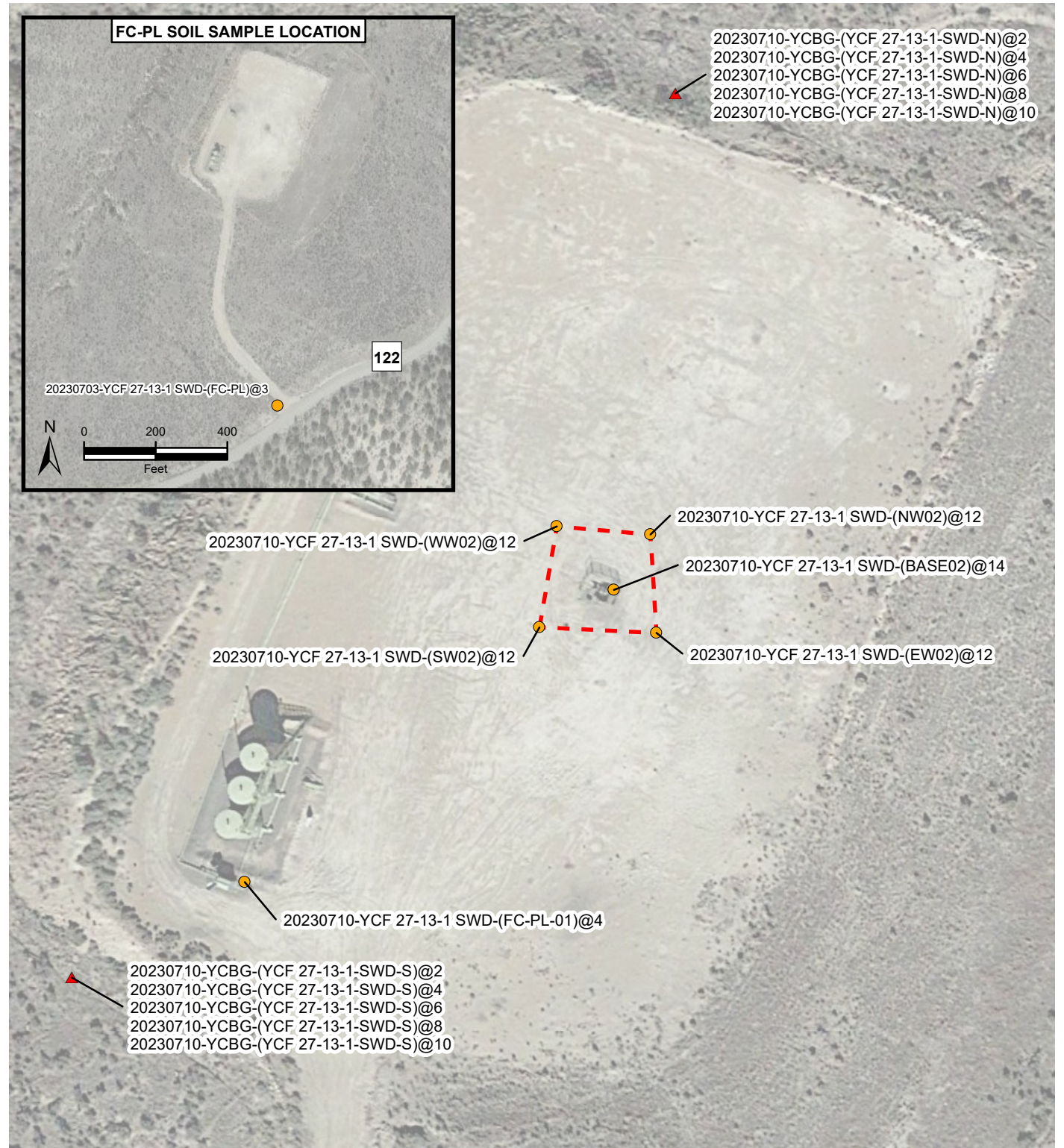
- SOIL SAMPLE
- EXCAVATION EXTENT (6/14/2023)



**FIGURE 4**  
**SAMPLE LOCATION MAP**  
 JUNE 13-15, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC

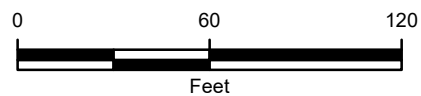






## LEGEND

- SOIL SAMPLE
- ▲ BACKGROUND SOIL SAMPLE
- EXCAVATION EXTENT (7/10/2023)



**FIGURE 5**  
**SAMPLE LOCATION MAP**  
 JULY 3 & 10, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC



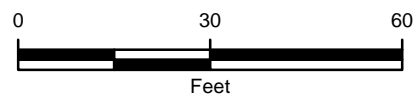




IMAGES COURTESY OF WSP (8/2/2023) & ESRI/MAXAR (2021)

## LEGEND

- SOIL SAMPLE
- - - EXCAVATION EXTENT (8/2/2023)
- STOCKPILE  
(TO BE DISPOSED OF AT WRAY GULCH LANDFILL  
IN RIO BLANCO COUNTY UNDER SPECIAL WASTER  
IDENTIFICATION NUMBER 230621)



**FIGURE 6**  
**SAMPLE LOCATION MAP**  
 AUGUST 1 & 2, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC





SAMPLE ID  
SAMPLE DATE  
As: ARSENIC (mg/kg)  
Ba: BARIUM (mg/kg)  
Cu: COPPER (mg/kg)  
Pb: LEAD (mg/kg)  
pH: SCIENTIFIC UNIT  
SAR: SODIUM ADSORPTION RATIO  
**BOLD INDICATES RESULT EXCEEDS THE COGCC PROJECTION OF**  
**GROUNDWATER SOIL SCREENING CONCENTRATION LEVEL**  
COGCC: COLORADO OIL AND GAS CONSERVATION COMMISSION  
mg/kg: MILLIGRAMS PER KILOGRAM

20230411-YCF 27-13-1 SWD-(STOCK)  
4/11/2023  
As: **3.38**  
Ba: **5.770**  
Cu: **48.1**  
Pb: **42.0**  
pH: **8.91**  
SAR: **7.96**

LEGEND




-  ALIQUOT SOIL SAMPLE
-  EXCAVATION EXTENT (4/11/2023)
-  STOCKPILE

IMAGE COURTESY OF GOOGLE EARTH (2015)

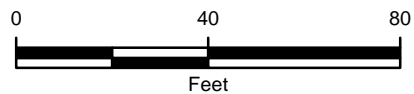


FIGURE 7  
SOIL ANALYTICAL EXCEEDANCES  
APRIL 11, 2023  
YCF- 27-13-1  
SEC 27-T1N-R98W  
RIO BLANCO COUNTY, COLORADO  
CAERUS PICEANCE LLC



SAMPLE ID @ FEET BELOW GROUND SURFACE  
 SAMPLE DATE  
 As: ARSENIC (mg/kg)  
 Ba: BARIUM (mg/kg)  
 Cd: CADMIUM (mg/kg)  
 Pb: LEAD (mg/kg)  
 pH: SCIENTIFIC UNIT  
 TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)  
 B: BENZENE (mg/kg)  
 1,2,4-TMB: 1,2,4-TRIMETHYLBENZENE (mg/kg)  
 1,3,5-TMB: 1,3,5-TRIMETHYLBENZENE (mg/kg)  
 1-MNAPH: 1-METHYLNAPHTHALENE (mg/kg)  
 2-MNAPH: 2-METHYLNAPHTHALENE (mg/kg)  
 NAPH: NAPHTHALENE (mg/kg)  
**BOLD INDICATES RESULT EXCEEDS THE COGCC PROJECTION OF**  
**GROUNDWATER SOIL SCREENING CONCENTRATION LEVEL**  
 COGCC: COLORADO OIL AND GAS CONSERVATION COMMISSION  
 mg/kg: MILLIGRAMS PER KILOGRAM

20230505-YCF 27-13-1-(WW)@4

20230505-YCF 27-13-1-(NW)@4

20230505-YCF 27-13-1-(SW)@4

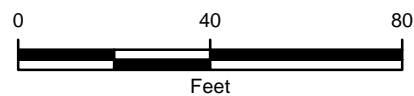
20230505-YCF 27-13-1-(EW)@4

20230505-YCF 27-13-1-(FCWH-YCF27-13-1)@8  
 5/5/2023  
 As: **2.61**  
 Ba: **3,100**  
 Cd: **1.63**  
 Pb: **71.8**  
 pH: **11.6**  
 TPH: **1,328**  
 B: **0.00400**  
 1,2,4-TMB: **0.0550**  
 1,3,5-TMB: **0.165**  
 1-MNAPH: **0.112**  
 2-MNAPH: **0.197**  
 NAPH: **0.123**

## LEGEND

- SOIL SAMPLE
- ▲ BACKGROUND SOIL SAMPLE
- EXCAVATION EXTENT (5/5/2023)

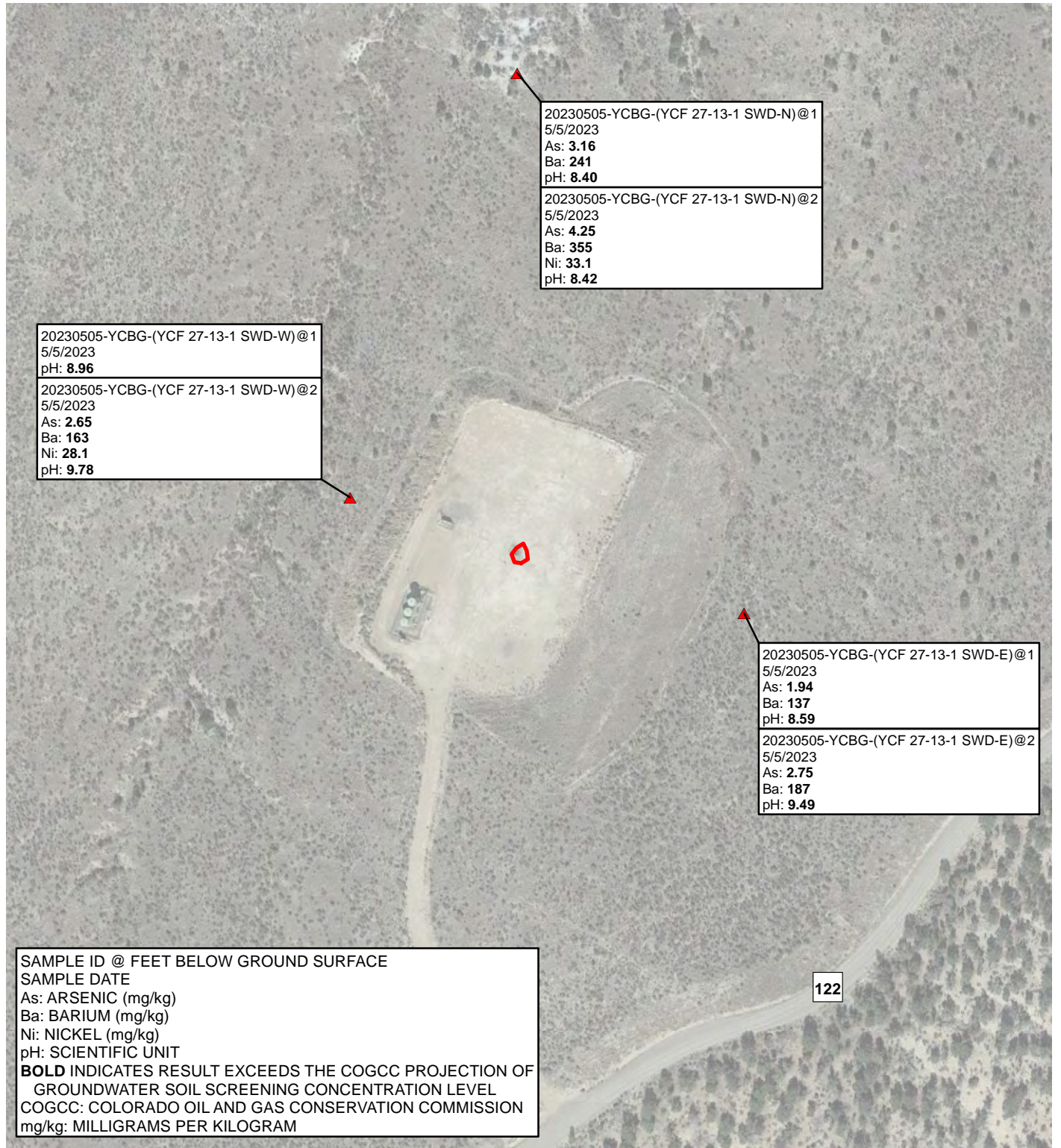
IMAGE COURTESY OF GOOGLE EARTH (2015)



**FIGURE 8**  
**SOIL ANALYTICAL EXCEEDANCES**  
**MAY 5, 2023**  
**YCF- 27-13-1**  
**SEC 27-T1N-R98W**  
**RIO BLANCO COUNTY, COLORADO**  
**CAERUS PICEANCE LLC**

**wsp**





## LEGEND

- ▲ BACKGROUND SOIL SAMPLE
- EXCAVATION EXTENT (5/5/2023)

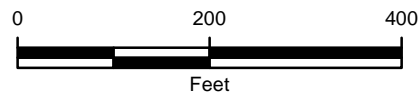


FIGURE 9  
BACKGROUND SOIL ANALYTICAL EXCEEDANCES  
MAY 5, 2023  
YCF- 27-13-1  
SEC 27-T1N-R98W  
RIO BLANCO COUNTY, COLORADO  
CAERUS PICEANCE LLC

wsp



SAMPLE ID @ FEET BELOW GROUND SURFACE  
 SAMPLE DATE  
 As: ARSENIC (mg/kg)  
 Ba: BARIUM (mg/kg)  
 Cd: CADMIUM (mg/kg)  
 Pb: LEAD (mg/kg)  
 Se: SELENIUM (mg/kg)  
 pH: SCIENTIFIC UNIT  
 SAR: SODIUM ADSORPTION RATIO  
**BOLD INDICATES RESULT EXCEEDS THE COGCC PROJECTION OF  
 GROUNDWATER SOIL SCREENING CONCENTRATION LEVEL**  
 COGCC: COLORADO OIL AND GAS CONSERVATION COMMISSION  
 mg/kg: MILLIGRAMS PER KILOGRAM

20230614-YCF 27-13-1 SWD-(WW-01)@13.5  
 6/14/2023  
 As: **7.81**  
 Ba: **1,130**  
 Cd: **3.78**  
 Pb: **16.2**  
 Se: **4.39**  
 pH: **9.06**  
 SAR: **7.24**

20230613-YCF 27-13-1 SWD-(NW-01)@13  
 6/13/2023  
 As: **3.91**  
 Ba: **252**  
 Se: **0.266**  
 pH: **8.77**  
 SAR: **8.48**

20230614-YCF 27-13-1 SWD-(SW-01)@12  
 6/14/2023  
 As: **3.64**  
 Ba: **196**  
 Cd: **0.105**  
 pH: **8.92**  
 SAR: **6.32**

20230613-YCF 27-13-1 SWD-(EW-01)@13.5  
 6/13/2023  
 As: **2.81**  
 Ba: **331**  
 pH: **8.74**  
 SAR: **6.72**

20230613-YCF 27-13-1 SWD-(BASE01)@13.5  
 6/13/2023  
 As: **3.33**  
 Ba: **309**  
 pH: **9.05**  
 SAR: **7.20**

20230614-YCF 27-13-1 SWD-(FC-PL)@2  
 6/14/2023  
 As: **3.23**  
 pH: **5.89**

20230615-YCF 27-13-1 SWD (FC-MH)@3  
 6/15/2023  
 As: **3.86**  
 pH: **9.50**

## LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT (6/14/2023)

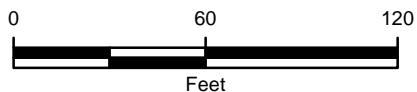


IMAGE COURTESY OF GOOGLE EARTH (2015)

FIGURE 10  
 SOIL ANALYTICAL EXCEEDANCES  
 JUNE 13-15, 2023  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC

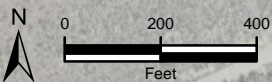




# FC-PL SOIL SAMPLE LOCATION

20230703-YCF 27-13-1 SWD-(FC-PL)@3  
7/3/2023  
pH: **9.60**  
SAR: **9.32**

122



SAMPLE ID @ FEET BELOW GROUND SURFACE  
SAMPLE DATE  
As: ARSENIC (mg/kg)  
Ba: BARIUM (mg/kg)  
Cd: CADMIUM (mg/kg)  
Pb: LEAD (mg/kg)  
Se: SELENIUM (mg/kg)  
pH: SCIENTIFIC UNIT  
SAR: SODIUM ADSORPTION RATIO  
TPH: TOTAL PETROLEUM HYDROCARBONS (mg/kg)  
**BOLD INDICATES RESULT EXCEEDS THE COGCC PROJECTION OF**  
**GROUNDWATER SOIL SCREENING CONCENTRATION LEVEL**  
COGCC: COLORADO OIL AND GAS CONSERVATION COMMISSION  
mg/kg: MILLIGRAMS PER KILOGRAM

20230710-YCF 27-13-1 SWD-(NW-02)@12  
7/10/2023  
As: **3.60**  
Ba: **1,470**  
Se: **0.365**  
pH: **8.81**

20230710-YCF 27-13-1 SWD-(WW-02)@12  
7/10/2023  
As: **4.01**  
Ba: **2,740**  
Pb: **16.1**  
Se: **0.384**  
pH: **8.58**  
TPH: **656.0504**

20230710-YCF 27-13-1 SWD-(BASE02)@14  
7/10/2023  
As: **3.57**  
Ba: **1,620**  
Pb: **15.2**  
Se: **0.382**  
pH: **8.80**

20230710-YCF 27-13-1 SWD-(SW-02)@12  
7/10/2023  
As: **3.04**  
Ba: **904**  
Ch(VI): **0.255**  
Pb: **16.5**  
Se: **0.356**  
pH: **9.07**

20230710-YCF 27-13-1 SWD-(EW-02)@12  
7/10/2023  
As: **3.98**  
Ba: **848**  
Se: **0.496**  
pH: **8.87**

20230710-YCF 27-13-1 SWD-(FC-PL-01)@4  
7/10/2023  
As: **3.35**  
pH: **8.90**

## LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT (7/10/2023)

IMAGE COURTESY OF GOOGLE EARTH (2015)

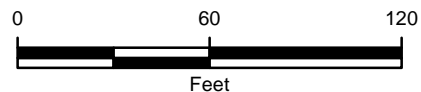


FIGURE 11  
SOIL ANALYTICAL EXCEEDANCES  
JULY 3 & 10, 2023  
YCF- 27-13-1  
SEC 27-T1N-R98W  
RIO BLANCO COUNTY, COLORADO  
CAERUS PICEANCE LLC





**SAMPLE ID @ FEET BELOW GROUND SURFACE**

**SAMPLE DATE**

As: ARSENIC (mg/kg)

Ba: BARIUM (mg/kg)

Cd: CADMIUM (mg/kg)

Pb: LEAD (mg/kg)

Ni: NICKEL (mg/kg)

Se: SELENIUM (mg/kg)

pH: SCIENTIFIC UNIT

EC: ELECTRICAL CONDUCTIVITY (mmhos/cm)

SAR: SODIUM ADSORPTION RATIO

**BOLD INDICATES RESULT EXCEEDS THE COGCC PROJECTION OF  
GROUNDWATER SOIL SCREENING CONCENTRATION LEVEL**

COGCC: COLORADO OIL AND GAS CONSERVATION COMMISSION

mg/kg: MILLIGRAMS PER KILOGRAM

mmhos/cm: MILLIMHOS PER CENTIMETER

20230710-YCBG-(YCF 27-13-1-SWD-N)@2  
7/10/2023  
As: **5.91**  
Ba: **334**  
Se: **0.0527**  
EC: **4.900**  
SAR: **10.5**

20230710-YCBG-(YCF 27-13-1-SWD-N)@4  
7/10/2023  
As: **3.83**  
Ba: **761**  
Se: **0.437**  
EC: **4.260**  
SAR: **9.14**

20230710-YCBG-(YCF 27-13-1-SWD-N)@6  
7/10/2023  
As: **2.90**  
Ba: **385**  
Cd: **0.277**  
Se: **0.343**  
SAR: **6.51**

20230710-YCBG-(YCF 27-13-1-SWD-N)@8  
7/10/2023  
As: **7.43**  
Ba: **380**  
Se: **0.383**  
pH: **8.95**  
SAR: **7.85**

20230710-YCBG-(YCF 27-13-1-SWD-N)@10  
7/10/2023  
As: **7.44**  
Ba: **287**  
Se: **0.306**  
pH: **8.96**

20230710-YCBG-(YCF 27-13-1-SWD-S)@2  
7/10/2023  
As: **2.99**  
Ba: **793**  
Se: **0.904**  
EC: **5.610**  
SAR: **9.01**

20230710-YCBG-(YCF 27-13-1-SWD-S)@4  
7/10/2023  
As: **6.12**  
Ba: **279**  
Ni: **27.5**  
Se: **0.288**  
pH: **8.58**

20230710-YCBG-(YCF 27-13-1-SWD-S)@6  
7/10/2023  
As: **4.48**  
Ba: **286**  
Se: **0.380**

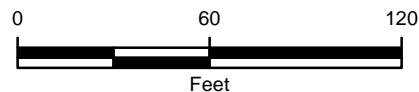
20230710-YCBG-(YCF 27-13-1-SWD-S)@8  
7/10/2023  
As: **3.94**  
Ba: **276**  
Se: **0.342**

20230710-YCBG-(YCF 27-13-1-SWD-S)@10  
7/10/2023  
As: **3.86**  
Ba: **265**  
Se: **0.404**

**LEGEND**

- ▲ BACKGROUND SOIL SAMPLE
- EXCAVATION EXTENT (7/10/2023)

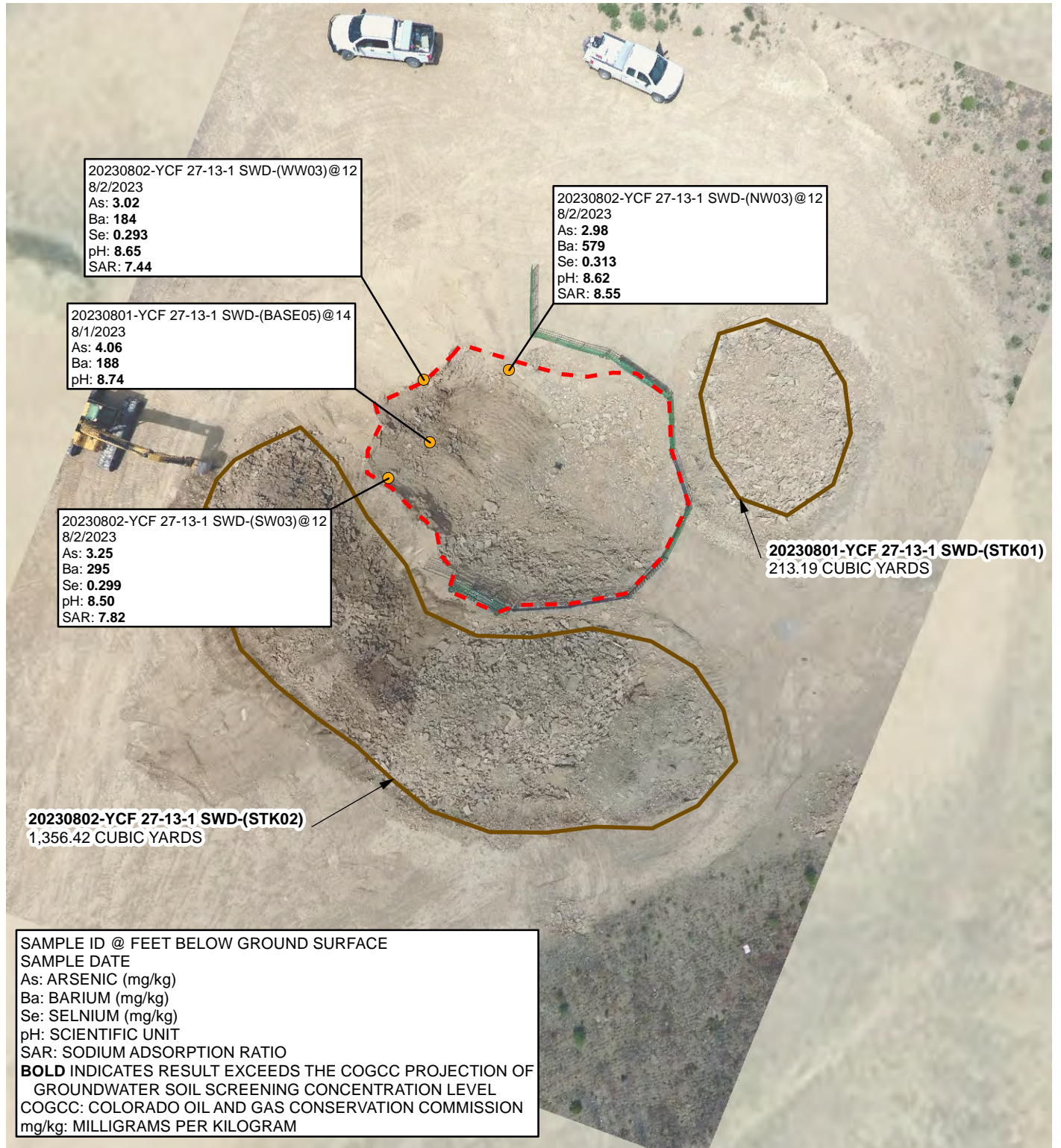
IMAGE COURTESY OF GOOGLE EARTH (2015)



**FIGURE 12**  
**BACKGROUND SOIL ANALYTICAL EXCEEDANCES**  
**JULY 10, 2023**  
**YCF- 27-13-1**  
**SEC 27-T1N-R98W**  
**RIO BLANCO COUNTY, COLORADO**  
**CAERUS PICEANCE LLC**

**wsp**

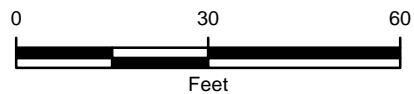




IMAGES COURTESY OF WSP (8/2/2023) & ESRI/MAXAR (2021)

## LEGEND

- SOIL SAMPLE
- - - EXCAVATION EXTENT (8/2/2023)
- STOCKPILE  
(TO BE DISPOSED OF AT WRAY GULCH LANDFILL  
IN RIO BLANCO COUNTY UNDER SPECIAL WASTER  
IDENTIFICATION NUMBER 230621)



**FIGURE 13**  
**SOIL ANALYTICAL EXCEEDANCES**  
**AUGUST 1 & 2, 2023**  
**YCF- 27-13-1**  
**SEC 27-T1N-R98W**  
**RIO BLANCO COUNTY, COLORADO**  
**CAERUS PICEANCE LLC**





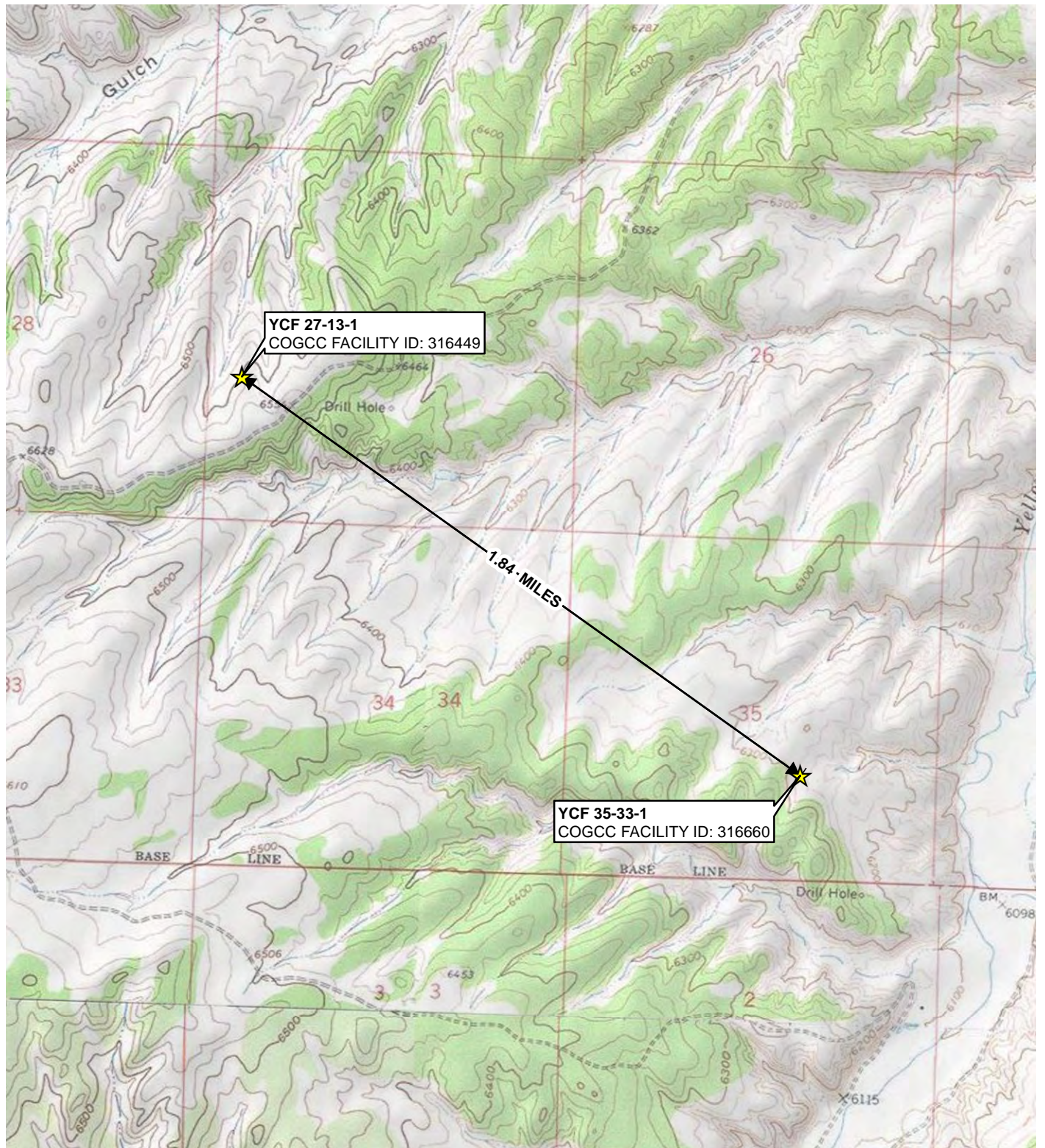
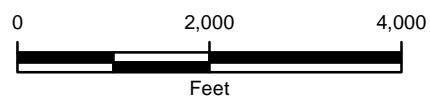


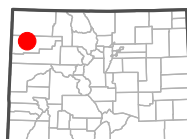
IMAGE COURTESY OF ESRI/USGS

## LEGEND

★ SITE LOCATION



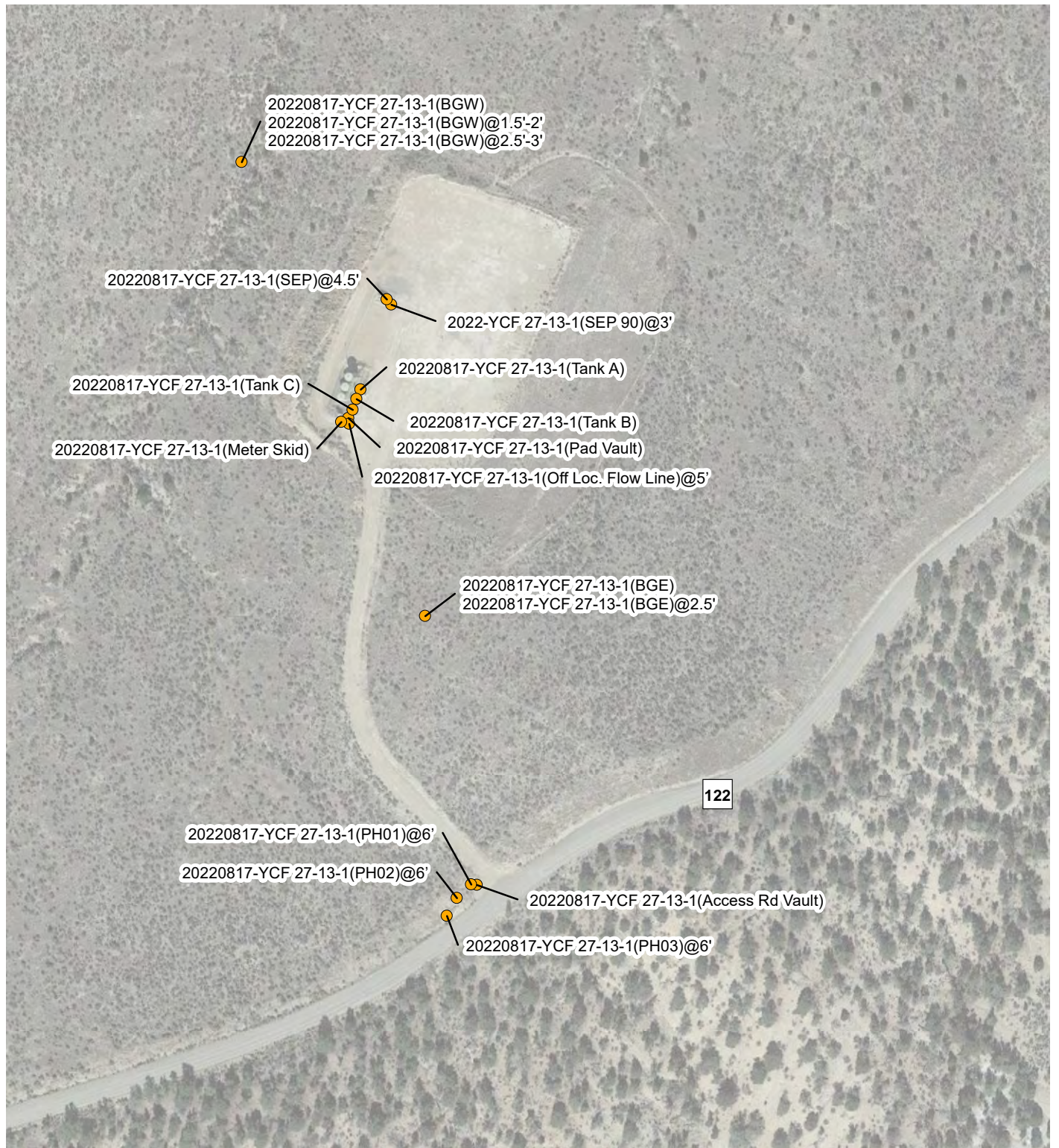
COLORADO



**FIGURE 14**  
**GEOGRAPHIC PROXIMITY LOCATION MAP**  
 YCF- 27-13-1  
 SEC 27-T1N-R98W  
 RIO BLANCO COUNTY, COLORADO  
 CAERUS PICEANCE LLC







## LEGEND

● SOIL SAMPLE

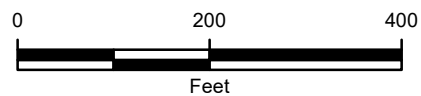


FIGURE 15  
SAMPLE LOCATION MAP  
AUGUST 17, 2022  
YCF- 27-13-1  
SEC 27-T1N-R98W  
RIO BLANCO COUNTY, COLORADO  
CAERUS PICEANCE LLC

wsp

## TABLES

TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES				
				20230411-YCF 27-13-1 SWD-(STOCK)	20230505-YCF 27-13-1 SWD-(FCWHYCF27131)	20230613-YCF 27-13-1 SWD-(BASE01)@13.5	20230613-YCF 27-13-1 SWD-(NW01)@13	20230613-YCF 27-13-1 SWD-(EW01)@13.5
Sample Date				4/11/2023	5/5/2023	6/13/2023	6/13/2023	6/13/2023
Sample Depth (feet)				NA	NA	13.5	13	13.5
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	3.38	2.61	3.33	3.91	2.81
Barium	15,000	82 (M)	mg/kg	5,770	3,100	309	252	331
Boron	2	2	mg/l	0.625	0.529	0.168	0.180	0.149
Cadmium	71	0.38 (M)	mg/kg	ND	1.63	ND	0.0890	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	48.1	43.8	10.7	9.97	11.0
Lead	400	14 (M)	mg/kg	42.0	71.8	9.86	10.9	10.7
Nickel	1,500	26 (R)	mg/kg	22.8	19.0	23.3	23.9	21.0
Selenium	390	0.26 (M)	mg/kg	ND	ND	0.250	0.266	0.238
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	224	226	50.9	45.9	44.7
EC	<4	<4	mmhos/cm	0.807	1.810	0.334	0.435	0.380
pH	6 - 8.3	6 - 8.3	SU	8.91	11.6	9.05	8.77	8.74
SAR	<6	<6	unitless	7.96	4.68	7.20	8.48	6.72
TPH-GRO			mg/kg	ND	4.13	0.0299	0.0919	0.0332
TPH-DRO			mg/kg	130	508	19.0	9.85	8.19
TPH-ORO			mg/kg	270	816	29.2	18.7	10.7
TPH	500	500	mg/kg	400	1328	48.2299	28.6419	18.9232
Benzene	1.2	0.0026 (M)	mg/kg	ND	0.00400	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	0.0330	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	0.00404	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	0.103	0.00128	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	0.0550	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	0.165	ND	ND	ND
Anthracene	1,800	5.8 (R)	mg/kg	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	ND
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	mg/kg	ND	0.00718	ND	ND	ND
Fluorene	240	0.54 (R)	mg/kg	ND	0.0381	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	0.112	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	0.197	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	0.123	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	ND	0.0207	ND	ND	ND

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)



TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES				
				20230614 YCF 27-13-1 SWD-(SW01)@12	20230614 YCF 27-13-1 SWD-(WW01)@13.5	20230614-YCF 27-13-1 SWD-(FC-PL)@2	20230615-YCF 27-13-1 SWD-(FC-MH)@3	20230703-YCF 27-13-1-(FC-PL)@3
Sample Date				6/14/2023	6/14/2023	6/14/2023	6/15/2023	7/3/2023
Sample Depth (feet)				12	13.5	2	3	3
Sample Type				Confirmation	Confirmation	Cnfirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	<b>3.64</b>	<b>7.81</b>	<b>3.23</b>	<b>3.86</b>	<0.518
Barium	15,000	82 (M)	mg/kg	<b>196</b>	<b>1,130</b>	NA	NA	NA
Boron	2	2	mg/l	0.130	0.283	0.284	0.114	0.261
Cadmium	71	0.38 (M)	mg/kg	<b>0.105</b>	<b>3.78</b>	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	11.7	17.2	NA	NA	NA
Lead	400	14 (M)	mg/kg	11.3	<b>16.2</b>	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	24.2	30.1	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	0.250	<b>4.39</b>	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	ND	0.260	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	50.5	51.6	NA	NA	NA
EC	<4	<4	mmhos/cm	0.318	0.344	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	<b>8.92</b>	<b>9.06</b>	<b>5.89</b>	<b>9.50</b>	<b>9.60</b>
SAR	<6	<6	unitless	<b>6.32</b>	<b>7.24</b>	1.70	1.59	<b>9.32</b>
TPH-GRO			mg/kg	0.0318	0.0362	NA	NA	NA
TPH-DRO			mg/kg	1.66	17.7	NA	NA	NA
TPH-ORO			mg/kg	3.29	60.5	NA	NA	NA
TPH	500	500	mg/kg	4.9818	78.2362	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	ND	ND	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	NA	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	ND	ND	NA	NA	NA
Acenaphthene	360	0.55 (R)	mg/kg	ND	ND	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	ND	ND	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	ND	ND	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	ND	ND	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	ND	ND	NA	NA	NA

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES				
				20230710-YCF 27-13-1 SWD-(BASE-02)@14	20230710-YCF 27-13-1 SWD-(WW-02)@12	20230710-YCF 27-13-1 SWD-(NW-02)@12	20230710-YCF 27-13-1 SWD-(EW-02)@12	20230710-YCF 27-13-1 SWD-(SW-02)@12
Sample Date				7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023
Sample Depth (feet)				14	12	12	12	12
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	<b>3.57</b>	<b>4.01</b>	<b>3.60</b>	<b>3.98</b>	<b>3.04</b>
Barium	15,000	82 (M)	mg/kg	<b>1,620</b>	<b>2,740</b>	<b>1,470</b>	<b>848</b>	<b>904</b>
Boron	2	2	mg/l	0.260	0.397	0.345	0.162	0.306
Cadmium	71	0.38 (M)	mg/kg	0.113	0.159	0.127	0.136	0.116
Chromium (VI)	0.3	0.00067 (R)	mg/kg	<0.255	<0.255	<0.255	<0.255	<b>0.255</b>
Copper	3,100	46 (M)	mg/kg	13.9	18.7	18.6	17.2	14.7
Lead	400	14 (M)	mg/kg	<b>15.2</b>	<b>16.1</b>	14.0	12.4	<b>16.5</b>
Nickel	1,500	26 (R)	mg/kg	20.3	23.7	22.4	23.7	21.4
Selenium	390	0.26 (M)	mg/kg	<b>0.382</b>	<b>0.384</b>	<b>0.365</b>	<b>0.496</b>	<b>0.356</b>
Silver	390	0.8 (R)	mg/kg	<0.0865	<0.0865	<0.0865	<0.0865	<0.0865
Zinc	23,000	370 (R)	mg/kg	59.4	78.5	58.3	50.2	45.9
EC	<4	<4	mmhos/cm	0.460	1.040	0.501	0.376	0.525
pH	6 - 8.3	6 - 8.3	SU	<b>8.80</b>	<b>8.58</b>	<b>8.81</b>	<b>8.87</b>	<b>9.07</b>
SAR	<6	<6	unitless	3.49	4.22	3.10	2.83	3.48
TPH-GRO			mg/kg	0.0404	0.0504	0.0435	0.0440	0.0387
TPH-DRO			mg/kg	76.0	152	68.5	37.7	23.9
TPH-ORO			mg/kg	224	504	208	110	54.6
TPH	500	500	mg/kg	300.0404	<b>656.0504</b>	276.5435	147.7440	78.5387
Benzene	1.2	0.0026 (M)	mg/kg	<0.000467	<0.000467	<0.000467	<0.000467	<0.000467
Toluene	490	0.69 (M)	mg/kg	<0.00130	0.00134	<0.00130	0.00131	0.00131
Ethylbenzene	5.8	0.78 (M)	mg/kg	<0.000737	<0.000737	<0.000737	<0.000737	<0.000737
Total Xylenes	58	9.9 (M)	mg/kg	<0.000880	<0.000880	<0.000880	<0.000880	<0.000880
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	0.00324	0.00171	<0.00158	<0.00158	<0.00158
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
Anthracene	1,800	5.8 (R)	mg/kg	<0.00209	<0.00209	<0.00209	<0.00209	<0.00209
Acenaphthene	360	0.55 (R)	mg/kg	<0.00230	<0.00230	<0.00230	<0.00230	<0.00230
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	<0.00173	<0.00173	<0.00173	<0.00173	<0.00173
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	<0.00153	<0.00153	<0.00153	<0.00153	<0.00153
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	<0.00215	<0.00215	<0.00215	<0.00215	<0.00215
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	<0.00179	<0.00179	<0.00179	<0.00179	<0.00179
Chrysene	110	9 (R)	mg/kg	<0.00232	<0.00232	<0.00232	<0.00232	<0.00232
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	<0.00172	<0.00172	<0.00172	<0.00172	<0.00172
Fluoranthene	240	8.9 (R)	mg/kg	<0.00227	<0.00227	<0.00227	<0.00227	<0.00227
Fluorene	240	0.54 (R)	mg/kg	<0.00205	<0.00205	<0.00205	<0.00205	<0.00205
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	<0.00181	<0.00181	<0.00181	<0.00181	<0.00181
1-methylnaphthalene	18	0.006 (R)	mg/kg	<0.00449	<0.00449	<0.00449	<0.00449	<0.00449
2-methylnaphthalene	24	0.019 (R)	mg/kg	<0.00427	0.00447	<0.00427	<0.00427	<0.00427
Naphthalene	2	0.0038 (R)	mg/kg	<0.00408	<0.00408	<0.00408	<0.00408	<0.00408
Pyrene	180	1.3 (R)	mg/kg	0.00274	0.00325	0.00283	<0.00200	<0.00200

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES				
				20230710-YCF 27-13-1 SWD-(FC-PL-01)@4	20230801-YCF 27-13-1 SWD-(BASE05)@14	20230802-YCF 27-13-1 SWD-(SW03)@12	20230802-YCF 27-13-1 SWD-(NW03)@12	20230802-YCF 27-13-1 SWD-(WW03)@12
Sample Date				7/10/2023	8/1/2023	8/2/2023	8/2/2023	8/2/2023
Sample Depth (feet)				4	14	12	12	12
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	<b>3.35</b>	<b>4.06</b>	<b>3.25</b>	<b>2.98</b>	<b>3.02</b>
Barium	15,000	82 (M)	mg/kg	NA	<b>188</b>	<b>295</b>	<b>579</b>	<b>184</b>
Boron	2	2	mg/l	0.505	0.156	0.0907	0.170	0.163
Cadmium	71	0.38 (M)	mg/kg	NA	<0.0855	0.108	0.104	<0.0855
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	<0.255	<0.255	<0.255	<0.255
Copper	3,100	46 (M)	mg/kg	NA	10.5	12.7	12.9	9.96
Lead	400	14 (M)	mg/kg	NA	10.0	11.9	12.7	9.51
Nickel	1,500	26 (R)	mg/kg	NA	25.2	22.7	23.5	20.5
Selenium	390	0.26 (M)	mg/kg	NA	0.257	<b>0.299</b>	<b>0.313</b>	<b>0.293</b>
Silver	390	0.8 (R)	mg/kg	NA	<0.0865	<0.0865	<0.0865	<0.0865
Zinc	23,000	370 (R)	mg/kg	NA	46.3	45.0	45.4	41.7
EC	<4	<4	mmhos/cm	NA	0.431	0.532	0.491	0.491
pH	6 - 8.3	6 - 8.3	SU	<b>8.90</b>	<b>8.74</b>	<b>8.50</b>	<b>8.62</b>	<b>8.65</b>
SAR	<6	<6	unitless	0.824	4.18	<b>7.82</b>	<b>8.55</b>	<b>7.44</b>
TPH-GRO			mg/kg	NA	<0.0217	<0.0217	<0.0217	<0.0217
TPH-DRO			mg/kg	NA	26.0	9.51	13.0	2.41
TPH-ORO			mg/kg	NA	52.5	25.8	38.3	4.00
TPH	500	500	mg/kg	NA	78.5	35.31	51.3	6.41
Benzene	1.2	0.0026 (M)	mg/kg	NA	<0.000467	<0.000467	<0.000467	<0.000467
Toluene	490	0.69 (M)	mg/kg	NA	<0.00130	<0.00130	<0.00130	<0.00130
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	<0.000737	<0.000737	<0.000737	<0.000737
Total Xylenes	58	9.9 (M)	mg/kg	NA	<0.000880	0.00120	<0.000880	0.000916
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	<0.00158	<0.00158	<0.00158	<0.00158
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	<0.00200	<0.00200	<0.00200	<0.00200
Anthracene	1,800	5.8 (R)	mg/kg	NA	<0.00209	<0.00209	<0.00209	<0.00209
Acenaphthene	360	0.55 (R)	mg/kg	NA	<0.00230	<0.00230	<0.00230	<0.00230
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	<0.00173	<0.00173	<0.00173	<0.00173
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	<0.00153	<0.00153	<0.00153	<0.00153
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	<0.00215	<0.00215	<0.00215	<0.00215
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	<0.00179	<0.00179	<0.00179	<0.00179
Chrysene	110	9 (R)	mg/kg	NA	<0.00232	<0.00232	<0.00232	<0.00232
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	<0.00172	<0.00172	<0.00172	<0.00172
Fluoranthene	240	8.9 (R)	mg/kg	NA	<0.00227	<0.00227	<0.00227	<0.00227
Fluorene	240	0.54 (R)	mg/kg	NA	<0.00205	<0.00205	<0.00205	<0.00205
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	<0.00181	<0.00181	<0.00181	<0.00181
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	<0.00449	<0.00449	<0.00449	<0.00449
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	<0.00427	<0.00427	0.00447	<0.00427
Naphthalene	2	0.0038 (R)	mg/kg	NA	<0.00408	<0.00408	<0.00408	<0.00408
Pyrene	180	1.3 (R)	mg/kg	NA	<0.00200	<0.00200	<0.00200	<0.00200

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS  
YCF 27-13-1  
RIO BLANCO COUNTY, COLORADO  
CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SAMPLES				
				20220817-YCF 27-13-1(BGW)	20220817-YCF 27-13-1(BGW)@1.5-2'	20220817-YCF 27-13-1(BGW)@2.5-3'	20220817-YCF 27-13-1(BGE)	20220817-YCF 27-13-1(BGE) @ 2.5'
Sample Date				8/17/2022	8/17/2022	8/17/2022	8/17/2022	8/12/2022
Sample Depth (feet)				0-1	1.5-2	2.5-3	0-1	2.5
Sample Type				Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	<b>3.68</b>	<b>2.73</b>	<b>2.22</b>	<b>2.31</b>	<b>2.35</b>
Barium	15,000	82 (M)	mg/kg	NA	NA	<b>258</b>	NA	<b>275</b>
Boron	2	2	mg/l	ND	ND	ND	0.885	0.843
Cadmium	71	0.38 (M)	mg/kg	NA	NA	ND	NA	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	ND	NA	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	10.7	NA	20.9
Lead	400	14 (M)	mg/kg	NA	NA	8.12	NA	9.19
Nickel	1,500	26 (R)	mg/kg	NA	NA	17.7	NA	19.3
Selenium	390	0.26 (M)	mg/kg	NA	NA	ND	NA	ND
Silver	390	0.8 (R)	mg/kg	NA	NA	ND	NA	ND
Zinc	23,000	370 (R)	mg/kg	NA	NA	36.0	NA	38.5
EC	<4	<4	mmhos/cm	0.148	0.102	0.129	0.235	0.711
pH	6 - 8.3	6 - 8.3	SU	<b>8.31</b>	<b>8.40</b>	<b>8.48</b>	8.16	<b>8.73</b>
SAR	<6	<6	unitless	0.108	0.161	0.413	0.313	<b>6.59</b>
TPH-GRO			mg/kg	NA	NA	ND	NA	ND
TPH-DRO			mg/kg	NA	NA	ND	NA	13.1
TPH-ORO			mg/kg	NA	NA	ND	NA	11.8
TPH	500	500	mg/kg	NA	NA	ND	NA	24.9
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA	ND	NA	ND
Toluene	490	0.69 (M)	mg/kg	NA	NA	ND	NA	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA	ND	NA	ND
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA	0.0220	NA	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA	ND	NA	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA	ND	NA	ND
Anthracene	1,800	5.8 (R)	mg/kg	NA	NA	ND	NA	ND
Acenaphthene	360	0.55 (R)	mg/kg	NA	NA	ND	NA	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	ND	NA	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	ND	NA	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	ND	NA	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	ND	NA	ND
Chrysene	110	9 (R)	mg/kg	NA	NA	ND	NA	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	ND	NA	ND
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	ND	NA	ND
Fluorene	240	0.54 (R)	mg/kg	NA	NA	ND	NA	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	ND	NA	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA	ND	NA	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	ND	NA	ND
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	ND	NA	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	ND	NA	ND

**NOTES:**  
**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level  
COGCC - Colorado Oil and Gas Conservation Commission  
EC- electrical conductivity  
mg/l - milligrams per liter  
mg/kg - milligrams per kilogram  
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TPH-ORO - total petroleum hydrocarbons- oil range organics  
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TPH-DRO - total petroleum hydrocarbons-diesel range organics  
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO  
NA - analyte not analyzed  
ND - analyte not detected  
R - risk based  
MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SAMPLES				
				20230710-YCFBG-(YCF 27-13-1-N)@2	20230710-YCFBG-(YCF 27-13-1-N)@4	20230710-YCFBG-(YCF 27-13-1-N)@6	20230710-YCFBG-(YCF 27-13-1-N)@8	20230710-YCFBG-(YCF 27-13-1-N)@10
Sample Date				7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023
Sample Depth (feet)				2	4	6	8	10
Sample Type				Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	<b>5.91</b>	<b>3.83</b>	<b>2.90</b>	<b>7.43</b>	<b>7.44</b>
Barium	15,000	82 (M)	mg/kg	<b>334</b>	<b>761</b>	<b>385</b>	<b>380</b>	<b>287</b>
Boron	2	2	mg/l	1.23	0.754	0.245	0.104	0.220
Cadmium	71	0.38 (M)	mg/kg	0.178	0.220	0.276	0.110	0.141
Chromium (VI)	0.3	0.00067 (R)	mg/kg	<0.255	<0.255	<b>0.277</b>	<0.255	<0.255
Copper	3,100	46 (M)	mg/kg	15.5	15.5	20.4	12.7	13.3
Lead	400	14 (M)	mg/kg	12.4	11.2	13.5	13.6	12.0
Nickel	1,500	26 (R)	mg/kg	22.1	20.2	21.6	22.6	25.7
Selenium	390	0.26 (M)	mg/kg	<b>0.527</b>	<b>0.437</b>	<b>0.343</b>	<b>0.383</b>	<b>0.306</b>
Silver	390	0.8 (R)	mg/kg	<0.0865	<0.0865	<0.0865	<0.0865	<0.0865
Zinc	23,000	370 (R)	mg/kg	45.7	47.2	44.7	46	48.0
EC	<4	<4	mmhos/cm	<b>4.900</b>	<b>4.260</b>	1.320	0.414	0.430
pH	6 - 8.3	6 - 8.3	SU	8.07	8.03	8.23	<b>8.95</b>	<b>8.96</b>
SAR	<6	<6	unitless	<b>10.5</b>	<b>9.14</b>	<b>6.51</b>	<b>7.85</b>	4.73
TPH-GRO			mg/kg	NA	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

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ND - analyte not detected

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MCL - maxium containment level (M)



TABLE 1

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SAMPLES				
				20230710-YCFBG-(YCF 27-13-1-S)@2	20230710-YCFBG-(YCF 27-13-1-S)@4	20230710-YCFBG-(YCF 27-13-1-S)@6	20230710-YCFBG-(YCF 27-13-1-S)@8	20230710-YCFBG-(YCF 27-13-1-S)@10
Sample Date				7/10/2023	7/10/2023	7/10/2023	7/10/2023	7/10/2023
Sample Depth (feet)				2	4	6	8	10
Sample Type				Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	<b>2.99</b>	<b>6.12</b>	<b>4.48</b>	<b>3.94</b>	<b>3.86</b>
Barium	15,000	82 (M)	mg/kg	<b>793</b>	<b>279</b>	<b>286</b>	<b>276</b>	<b>265</b>
Boron	2	2	mg/l	2.00	0.233	0.721	1.02	0.918
Cadmium	71	0.38 (M)	mg/kg	0.215	0.101	0.132	0.154	0.115
Chromium (VI)	0.3	0.00067 (R)	mg/kg	<0.255	<0.255	<0.255	<0.255	<0.255
Copper	3,100	46 (M)	mg/kg	14.5	11.8	12.1	13.0	13.7
Lead	400	14 (M)	mg/kg	9.61	10.6	9.50	10.0	10.1
Nickel	1,500	26 (R)	mg/kg	20.4	<b>27.5</b>	24.3	20.9	21.1
Selenium	390	0.26 (M)	mg/kg	<b>0.904</b>	<b>0.288</b>	<b>0.380</b>	<b>0.342</b>	<b>0.404</b>
Silver	390	0.8 (R)	mg/kg	<0.0865	<0.0865	<0.0865	<0.0865	<0.0865
Zinc	23,000	370 (R)	mg/kg	41.7	48.1	47.0	41.8	42.0
EC	<4	<4	mmhos/cm	<b>5.610</b>	0.853	1.690	1.330	1.590
pH	6 - 8.3	6 - 8.3	SU	8.09	<b>8.58</b>	8.25	8.24	7.98
SAR	<6	<6	unitless	<b>9.01</b>	5.75	2.24	2.37	1.78
TPH-GRO			mg/kg	NA	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

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TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 2

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES					
				20220817-YCF 27-13-1 (ACCESS RD. VAULT)	20220817-YCF 27-13-1 (PH01) @ 6'	20220817-YCF 27-13-1 (TANK A)	20220817-YCF 27-13-1 (TANK B)	20220817-YCF 27-13-1 (TANK C)	20220817-YCF 27-13-1 (SEP) @ 4.5'
Sample Date				8/17/2022	8/17/2022	8/17/2022	8/17/2022	8/17/2022	8/17/2022
Sample Depth (feet)				0-1	6	0-1	0-1	0-1	4.5
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	5.48	3.54	3.45	4.79	3.50	9.40
Barium	15,000	82 (M)	mg/kg	299	217	189	205	205	339
Boron	2	2	mg/l	5.23	0.471	ND	ND	ND	0.267
Cadmium	71	0.38 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	16.8	12.2	17.9	18.3	15.7	19.3
Lead	400	14 (M)	mg/kg	10.9	8.20	4.89	5.45	6.16	19.6
Nickel	1,500	26 (R)	mg/kg	27.4	21.0	41.1	41.6	34.7	29.9
Selenium	390	0.26 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	166	39.5	39.4	38.9	39.7	47.5
EC	<4	<4	mmhos/cm	3.170	0.432	0.245	0.146	0.217	0.335
pH	6 - 8.3	6 - 8.3	SU	8.33	8.91	9.43	9.49	9.61	9.51
SAR	<6	<6	unitless	8.25	1.20	1.02	1.13	2.84	2.86
TPH-GRO			mg/kg	0.170	ND	ND	ND	ND	ND
TPH-DRO			mg/kg	61.1	4.64	4.98	ND	ND	ND
TPH-ORO			mg/kg	108	8.02	ND	ND	ND	ND
TPH	500	500	mg/kg	169.270	12.66	4.98	ND	ND	ND
Benzene	1.2	0.0026 (M)	mg/kg	0.00940	ND	ND	ND	ND	0.00240
Toluene	490	0.69 (M)	mg/kg	0.0357	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Anthracene	1,800	5.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND	0.0161	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND	0.0299	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	0.0109	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	0.0223	ND
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND	0.0182	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	mg/kg	ND	ND	ND	ND	0.0171	ND
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	0.0158	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	ND	ND	ND	ND	0.0151	ND

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

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SAR - sodium adsorption ratio

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TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 2

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES					
				20220817-YCF 27-13-1 (SEP 90) @ 3'	20220817-YCF 27-13-1 (PAD VAULT)	20220817-YCF 27-13-1 (METER SKID)	20220817-YCF 27-13-1 (OFF LOC. FL) @ 5'	20220817-YCF 27-13-1 (PH02) @ 6'	20220817-YCF 27-13-1 (PH03) @ 6'
Sample Date				8/17/2022	8/17/2022	8/17/2022	8/17/2022	8/17/2022	8/17/2022
Sample Depth (feet)				3	0-1	0-1	5	6	6
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	3.73	2.53	3.00	2.59	2.59	3.52
Barium	15,000	82 (M)	mg/kg	262	182	175	259	214	278
Boron	2	2	mg/l	0.325	3.91	3.33	0.227	0.566	1.94
Cadmium	71	0.38 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	16.7	12.8	12.3	16.5	11.8	12.1
Lead	400	14 (M)	mg/kg	5.18	7.07	7.78	8.52	9.16	8.99
Nickel	1,500	26 (R)	mg/kg	39.2	18.2	20.0	21.4	20.4	22.5
Selenium	390	0.26 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	38.0	33.4	36.9	38.7	35.3	38.7
EC	<4	<4	mmhos/cm	0.173	0.904	0.282	0.289	0.708	1.860
pH	6 - 8.3	6 - 8.3	SU	9.29	9.02	9.43	9.09	8.84	8.34
SAR	<6	<6	unitless	2.34	5.66	3.31	1.95	5.22	14.9
TPH-GRO			mg/kg	ND	ND	ND	ND	ND	ND
TPH-DRO			mg/kg	ND	6.37	ND	ND	4.22	18.6
TPH-ORO			mg/kg	ND	6.47	ND	ND	4.64	19.8
TPH	500	500	mg/kg	ND	12.84	ND	ND	8.86	38.4
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Anthracene	1,800	5.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	ND	ND	ND	ND	ND	ND

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

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SAR - sodium adsorption ratio

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TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 2

SOIL ANALYTICAL RESULTS

YCF 27-13-1

RIO BLANCO COUNTY, COLORADO

CAERUS PICEANCE LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SAMPLES					
				20230505-YCFBG-(YCF 27-13-1-N)@1	20230505-YCFBG-(YCF 27-13-1-N)@2	20230505-YCFBG-(YCF 27-13-1-W)@1	20230505-YCFBG-(YCF 27-13-1-W)@2	20230505-YCFBG-(YCF 27-13-1-E)@1	20230505-YCFBG-(YCF 27-13-1-E)@2
Sample Date				5/5/2023	5/5/2023	5/5/2023	5/5/2023	5/5/2023	5/5/2023
Sample Depth (feet)				1	2	1	2	1	2
Sample Type				Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	3.16	4.25	ND	2.65	1.94	2.75
Barium	15,000	82 (M)	mg/kg	241	355	11.1	163	137	187
Boron	2	2	mg/l	0.295	0.331	ND	0.331	0.252	0.359
Cadmium	71	0.38 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	10.5	14.8	ND	12.0	11.1	14.6
Lead	400	14 (M)	mg/kg	8.71	13.0	ND	11.0	7.64	10.5
Nickel	1,500	26 (R)	mg/kg	12.5	33.1	3.67	28.1	13.2	17.1
Selenium	390	0.26 (M)	mg/kg	ND	ND	ND	ND	ND	ND
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	32.0	58.3	ND	47.6	27.3	39.1
EC	<4	<4	mmhos/cm	0.174	0.235	0.222	0.565	0.215	0.583
pH	6 - 8.3	6 - 8.3	SU	8.40	8.42	8.96	9.78	8.59	9.49
SAR	<6	<6	unitless	0.0787	0.182	0.688	1.37	0.581	1.74
TPH-GRO			mg/kg	NA	NA	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening concentration level

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EC- electrical conductivity

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TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)



## ENCLOSURE A – SOIL SCREENING PHOTOLOG

PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 Stockpile Sampling	31404550.013

Photo No.	Date	
1	April 11, 2023	
Overview of wellhead excavation and stockpile, View northeast		

Photo No.	Date	
2	April 11, 2023	
Overview of wellhead excavation, View west		



PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 Stockpile Sampling	31404550.013

Photo No.	Date	
3	April 11, 2023	
Stockpile overview, View southwest		

Photo No.	Date	
4	April 11, 2023	
Stockpile overview, View west		



PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 Stockpile Sampling	31404550.013

Photo No.	Date	
5	April 11, 2023	
Aliquot 01 – 03 sample location overview, View east		

Photo No.	Date	
6	April 11, 2023	
Aliquot 04 sample location overview, View west		

PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 Stockpile Sampling	31404550.013

Photo No.	Date	
7	April 11, 2023	
Aliquot 05 sample location overview, View southwest		





PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1	31404550.013

Photo No.	Date	
1	May 5, 2023	
Excavation Overview; Facing east		

Photo No.	Date	
2	May 5, 2023	
Wellhead Sample 20230505-YCF 27-13-1-(FCWH- YCF27-13-1)@8		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1

31404550.013

Photo No.

3

Date

May 5, 2023

Background Sample  
20230505-YCFBG-(YCF 27-13-1-  
W)@1 facing west



Photo No.

4

Date

May 5, 2023

Background Sample  
20230505-YCFBG-(YCF 27-13-1-  
W)@2 facing west





# PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1

31404550.013

Photo No.

Date

5

May 5, 2023

Background Sample  
20230505-YCFBG-(YCF 27-13-1-  
N)@1 facing east.



Photo No.

Date

6

May 5, 2023

Background Sample  
20230505-YCFBG-(YCF 27-13-1-  
S)@1 facing north





# PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1

31404550.013

Photo No.

7

Date

May 5, 2023

Background Sample  
20230505-YCFBG-(YCF 27-13-1-  
S)@1 facing north



Photo No.

8

Date

May 5, 2023

East excavation screening wall at 4ft  
bgs





# PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1

31404550.013

Photo No.

9

Date

May 5, 2023

North excavation screening wall at  
4ft bgs



Photo No.

10

Date

May 5, 2023

South excavation screening wall





PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1	31404550.013

Photo No.	Date	
11	May 5, 2023	
West excavation screening wall at 4ft bgs		

# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
1	June 13, 2023	
Overview of wellhead excavation, view northeast		


Photo No.	Date	
2	June 13, 2023	
Overview of wellhead excavation, view southeast		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
3	June 13, 2023	
Stockpile and excavation overview, view north		

Photo No.	Date	
4	June 14, 2023	
Dumpline removal area, view north		<div> <p> Date &amp; Time: Wed Jun 14 08:38:44 MDT 2023  Position: +040.02447 / -108.38565  Altitude: 6528ft  Datum: WGS-84  Azimuth/Bearing: 069° N69E 1227mils (True)  Zoom: 1X  YCF 27-13-1  Dumpline Removal </p> </div> 

# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
5	June 14, 2023	
Western wall excavation overview, view west		 <p> Date &amp; Time: Wed Jun 14 05:46:06 MDT 2023  Position: 4688.02436° / -108.36538°  Altitude: 6520ft  Datum: WGS-84  Azimuth/Bearing: 320° N40W15889mils (true)  Zoom: 1x  YCF 27-13-1  W Wall </p>

Photo No.	Date	
6	June 14, 2023	
Historic vault sample location overview, view north		 <p> Date &amp; Time: Wed Jun 14 05:55:54 MDT 2023  Position: 4688.02436° / -108.36538°  Altitude: 6520ft  Datum: WGS-84  Azimuth/Bearing: 100° West 15889mils (true)  Zoom: 1x  YCF 27-13-1  W Wall </p>



PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
7	June 15, 2023	
Historic meter skid sample location overview, view north		<div><p>Date &amp; Time: Thu Jun 15 09:55:30 MDT 2023 Position: -040 02407' / -108 38605' Altitude: 6534ft Datum: WGS-84 Azimuth/Bearing: 075° N75E 1333mils (True) Zoom: 1X YCF 27-13-1 Meter House</p></div>



PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020

Photo No.	Date	
1	July 3, 2023	
Excavation area/vault overview before starting soil removal		

Photo No.	Date	
2	July 3, 2023	
Site overview before starting soil removal within vault; View south		





PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1 SWD – Facility Decommissioning

31404550.020

Photo No.

2

Date

July 33, 2023

Vault excavated down to 2 feet  
below ground surface (bgs)



Photo No.

3

Date

July 3, 2023

Site/hydro-vac crew overview,  
View southeast





PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020


Photo No.	Date	
4	July 3, 2023	
Site excavated down to 3 feet from ground surface.		

Photo No.	Date	
5	July 03, 2023	
Site secured after work is finished; View southeast		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020
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Photo No.	Date	
1	July 10, 2023	
Overview of wellhead excavation; View east		

Photo No.	Date	
2	July 10, 2023	
Overview of wellhead excavation; View north		

# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020
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Photo No.	Date	
3	July 10, 2023	
Background pothole north location; View south		

Photo No.	Date	
4	July 10, 2023	
Background potholing at 10 feet bgs [20230710-YCBG-(YCF 27-13-1-SWD-N)@10]; View east		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020
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Photo No.	Date	
5	July 10, 2023	
Excavation to 4 feet bgs of abandoned pipeline vault location [20230710-YCF 27-13-1 SWD-(FC-PL-01)@4]; View northeast		

Photo No.	Date	
6	July 10, 2023	
Background pothole south location; View west		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020
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Photo No.	Date	
7	July 10, 2023	
Background pothole at 10 feet bgs, south location [20230710-YCBG-(YCF 27-13-1-SWD-S)@10]; View east		

Photo No.	Date	
8	July 10, 2023	
Excavation overview; View north		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.020
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Photo No.	Date	
9	July 10, 2023	
Northern background pothole location backfilled; View northwest		

Photo No.	Date	
10	July 10, 2023	
Southern background pothole location backfilled; View west		



PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013

Photo No.	Date	
1	August 1, 2023	
Beginning western wall excavation, view west		

Photo No.	Date	
2	August 1, 2023	
Beginning western wall excavation, view west		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
3	August 1, 2023	
Western wall excavation and stockpiles, view west		

Photo No.	Date	
4	August 1, 2023	
Impacted soil pocket observed during western wall excavation, view south		



**PHOTOGRAPHIC LOG**

<b>Caerus Piceance LLC</b>	<b>YCF 27-13-1 SWD – Facility Decommissioning</b>	<b>31404550.013</b>
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<b>Photo No.</b>	<b>Date</b>	
5	August 1, 2023	
Removal of impacted soils during western wall excavation, view west		

<b>Photo No.</b>	<b>Date</b>	
6	August 1, 2023	
Removal of impacted soils during western wall excavation, view south		



**PHOTOGRAPHIC LOG**

<b>Caerus Piceance LLC</b>	<b>YCF 27-13-1 SWD – Facility Decommissioning</b>	<b>31404550.013</b>
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<b>Photo No.</b>	<b>Date</b>	
7	August 1, 2023	
Removal of impacted soils during western wall excavation, view west		

<b>Photo No.</b>	<b>Date</b>	
8	August 1, 2023	
Aerial in-progress excavation overview; view west		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013
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Photo No.	Date	
9	August 1, 2023	
Aerial in-progress excavation overview; view south		

Photo No.	Date	
10	August 2, 2023	
Western wall excavation, view west		



# PHOTOGRAPHIC LOG

Caerus Piceance LLC

YCF 27-13-1 SWD – Facility Decommissioning

31404550.013

Photo No.

Date

11

August 2, 2023

Western wall excavation,  
view west



Photo No.

Date

12

August 2, 2023

Aerial post-sample collection  
overview,  
view west



PHOTOGRAPHIC LOG		
Caerus Piceance LLC	YCF 27-13-1 SWD – Facility Decommissioning	31404550.013

Photo No.	Date	
13	August 2, 2023	
Aerial post-sample collection overview		



## ENCLOSURE B – LABORATORY ANALYTICAL REPORTS

## Caerus Oil and Gas

Sample Delivery Group: L1614222  
Samples Received: 05/09/2023  
Project Number: YCF 27-13-1  
Description: YCF 27-13-1 Closure  
Site: YCF 27-13-1  
Report To: Brett M. , Jake J. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

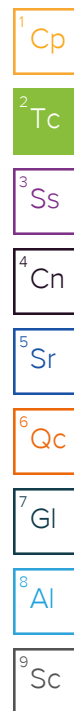
## Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



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# SAMPLE SUMMARY

20230505-YCF 27-13-1 SWD-(FCWHYCF27131) L1614222-01 Solid				Collected by	Collected date/time	Received date/time	
					05/05/23 10:25	05/09/23 09:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Calculated Results	WG2057348	1	05/12/23 16:34	05/12/23 16:34	CCE	Mt. Juliet, TN	<sup>1</sup> Cp
Wet Chemistry by Method 7199	WG2057052	1	05/11/23 08:06	05/13/23 15:10	VSS	Mt. Juliet, TN	<sup>2</sup> Tc
Wet Chemistry by Method 9045D	WG2057674	1	05/11/23 09:35	05/11/23 13:00	MCC	Mt. Juliet, TN	<sup>3</sup> Ss
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN	
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:57	SPL	Mt. Juliet, TN	<sup>4</sup> Cn
Metals (ICPMS) by Method 6020	WG2057494	20	05/12/23 01:55	05/13/23 11:43	SJM	Mt. Juliet, TN	
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 11:07	SJM	Mt. Juliet, TN	<sup>5</sup> Sr
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 16:40	05/13/23 11:08	DWR	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2059688	1	05/11/23 16:40	05/14/23 12:23	DWR	Mt. Juliet, TN	<sup>6</sup> Qc
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059494	20	05/15/23 09:14	05/16/23 00:40	JAS	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2059491	1	05/15/23 09:10	05/15/23 19:44	AMG	Mt. Juliet, TN	<sup>7</sup> Gl
							<sup>8</sup> Al
							<sup>9</sup> Sc



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

## Report Revision History

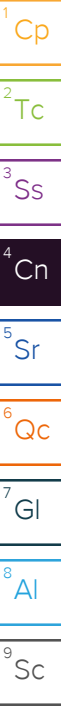
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Level II Report - Version 1: 05/17/23 10:50

## Project Narrative

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Report reissued for updated sample ID



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.68		1	05/12/2023 16:34	WG2057348

1  
Cp

2  
Tc

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/13/2023 15:10	<a href="#">WG2057052</a>

3  
Ss

4  
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	11.6	<a href="#">T8</a>	1	05/11/2023 13:00	<a href="#">WG2057674</a>

5  
Sr

6  
Qc

Sample Narrative:

L1614222-01 WG2057674: 11.61 at 20.7C

7  
Gl

8  
Al

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1810		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

9  
Sc

Sample Narrative:

L1614222-01 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.529		0.200	1	05/16/2023 10:57	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.61		1.00	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Barium	3100		10.0	20	05/13/2023 11:43	<a href="#">WG2057494</a>
Cadmium	1.63		1.00	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Copper	43.8		5.00	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Lead	71.8		2.00	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Nickel	19.0		2.50	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Selenium	ND		2.50	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Silver	ND		0.500	5	05/13/2023 11:07	<a href="#">WG2057494</a>
Zinc	226		25.0	5	05/13/2023 11:07	<a href="#">WG2057494</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4.13		0.100	1	05/13/2023 11:08	<a href="#">WG2059385</a>
(S) a,a,a-Trifluorotoluene(FID)	79.7		77.0-120		05/13/2023 11:08	<a href="#">WG2059385</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00400		0.00100	1	05/14/2023 12:23	<a href="#">WG2059688</a>
Toluene	0.0330		0.00500	1	05/14/2023 12:23	<a href="#">WG2059688</a>
Ethylbenzene	0.00404		0.00250	1	05/14/2023 12:23	<a href="#">WG2059688</a>
Xylenes, Total	0.103		0.00650	1	05/14/2023 12:23	<a href="#">WG2059688</a>
1,2,4-Trimethylbenzene	0.0550	<a href="#">J4</a>	0.00500	1	05/14/2023 12:23	<a href="#">WG2059688</a>
1,3,5-Trimethylbenzene	0.165		0.00500	1	05/14/2023 12:23	<a href="#">WG2059688</a>
(S) Toluene-d8	103		75.0-131		05/14/2023 12:23	<a href="#">WG2059688</a>
(S) 4-Bromofluorobenzene	116		67.0-138		05/14/2023 12:23	<a href="#">WG2059688</a>
(S) 1,2-Dichloroethane-d4	96.1		70.0-130		05/14/2023 12:23	<a href="#">WG2059688</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	508		80.0	20	05/16/2023 00:40	<a href="#">WG2059494</a>
C28-C36 Motor Oil Range	816		80.0	20	05/16/2023 00:40	<a href="#">WG2059494</a>
(S) o-Terphenyl	82.7	<a href="#">J7</a>	18.0-148		05/16/2023 00:40	<a href="#">WG2059494</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Anthracene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Benzo(a)anthracene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Benzo(a)pyrene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Chrysene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Fluoranthene	0.00718		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Fluorene	0.0381		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
1-Methylnaphthalene	0.112		0.0200	1	05/15/2023 19:44	<a href="#">WG2059491</a>
2-Methylnaphthalene	0.197		0.0200	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Naphthalene	0.123		0.0200	1	05/15/2023 19:44	<a href="#">WG2059491</a>
Pyrene	0.0207		0.00600	1	05/15/2023 19:44	<a href="#">WG2059491</a>
(S) p-Terphenyl-d14	87.3		23.0-120		05/15/2023 19:44	<a href="#">WG2059491</a>
(S) Nitrobenzene-d5	145		14.0-149		05/15/2023 19:44	<a href="#">WG2059491</a>
(S) 2-Fluorobiphenyl	86.3		34.0-125		05/15/2023 19:44	<a href="#">WG2059491</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3924698-1 05/13/23 13:21

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1614576-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1614576-02 05/13/23 15:31 • (DUP) R3924698-7 05/13/23 15:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

L1613016-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1613016-02 05/13/23 16:02 • (DUP) R3924698-8 05/13/23 16:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	1610	1370	100	16.2		20

Laboratory Control Sample (LCS)

(LCS) R3924698-2 05/13/23 13:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.5	105	80.0-120	

L1613016-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1613016-01 05/13/23 13:32 • (MS) R3924698-3 05/13/23 13:37 • (MSD) R3924698-4 05/13/23 13:42

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	4.93	26.6	26.2	108	106	1	75.0-125			1.53	20

L1613016-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1613016-01 05/13/23 13:32 • (MS) R3924698-5 05/13/23 13:47

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	646	4.93	776	120	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1614328-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1614328-02 05/11/23 13:00 • (DUP) R3923719-2 05/11/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	5.46	5.38	1	1.48	<u>J3</u>	1

Sample Narrative:

OS: 5.46 at 20.5C

DUP: 5.38 at 20.5C

L1614328-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1614328-15 05/11/23 13:00 • (DUP) R3923719-3 05/11/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.36	7.44	1	1.08	<u>J3</u>	1

Sample Narrative:

OS: 7.36 at 20.9C

DUP: 7.44 at 20.9C

Laboratory Control Sample (LCS)

(LCS) R3923719-1 05/11/23 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 20.4C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3924972-1 05/15/23 14:22

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1614021-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1614021-07 05/15/23 14:22 • (DUP) R3924972-3 05/15/23 14:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3260	3260	1	0.000		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1614220-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614220-03 05/15/23 14:22 • (DUP) R3924972-4 05/15/23 14:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	222	220	1	0.903		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3924972-2 05/15/23 14:22

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1110	98.9	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3925382-1 05/16/23 09:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	0.0258	⬇	0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3925382-2 05/16/23 09:56 • (LCSD) R3925382-3 05/16/23 09:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.14	1.15	114	115	80.0-120			1.02	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3924475-2 05/13/23 10:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3924475-3 05/13/23 10:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.4	89.4	80.0-120	
Barium	100	90.8	90.8	80.0-120	
Cadmium	100	94.4	94.4	80.0-120	
Copper	100	84.7	84.7	80.0-120	
Lead	100	89.8	89.8	80.0-120	
Nickel	100	90.7	90.7	80.0-120	
Selenium	100	96.1	96.1	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	89.7	89.7	80.0-120	

L1614220-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614220-03 05/13/23 10:17 • (MS) R3924475-6 05/13/23 10:27 • (MSD) R3924475-7 05/13/23 10:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	83.9	94.5	83.6	94.1	5	75.0-125			11.8	20
Barium	100	11.1	187	200	176	188	5	75.0-125	J5	J5	6.32	20
Cadmium	100	ND	88.9	102	88.9	102	5	75.0-125			14.2	20
Copper	100	ND	83.3	92.5	82.0	91.2	5	75.0-125			10.5	20
Lead	100	ND	93.6	106	92.3	104	5	75.0-125			12.1	20
Nickel	100	3.67	112	122	109	119	5	75.0-125			8.57	20
Selenium	100	ND	89.1	98.4	89.1	98.4	5	75.0-125			9.91	20
Silver	20.0	ND	17.1	19.0	85.6	95.2	5	75.0-125			10.6	20
Zinc	100	ND	122	135	116	129	5	75.0-125		J5	9.79	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3924601-2 05/13/23 08:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	96.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3924601-1 05/13/23 08:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.78	105	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			109	77.0-120	

L1614573-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-02 05/13/23 14:13 • (MS) R3924601-3 05/13/23 16:16 • (MSD) R3924601-4 05/13/23 16:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	4.20	5.25	75.4	94.4	1	10.0-151			22.2	28
(S) a,a,a-Trifluorotoluene(FID)					106	109		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3925553-2 05/14/23 07:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	107			75.0-131
(S) 4-Bromofluorobenzene	91.7			67.0-138
(S) 1,2-Dichloroethane-d4	95.1			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3925553-1 05/14/23 06:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.101	80.8	70.0-123	
Toluene	0.125	0.103	82.4	75.0-121	
Ethylbenzene	0.125	0.112	89.6	74.0-126	
Xylenes, Total	0.375	0.302	80.5	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.0874	69.9	70.0-126	J4
1,3,5-Trimethylbenzene	0.125	0.0923	73.8	73.0-127	
(S) Toluene-d8			105	75.0-131	
(S) 4-Bromofluorobenzene			96.6	67.0-138	
(S) 1,2-Dichloroethane-d4			99.2	70.0-130	

L1614238-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614238-03 05/14/23 12:42 • (MS) R3925553-3 05/14/23 17:05 • (MSD) R3925553-4 05/14/23 17:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.152	ND	0.104	0.0996	83.9	80.3	1	10.0-149			4.32	37
Toluene	0.152	ND	0.115	0.115	90.1	90.1	1	10.0-156			0.000	38
Ethylbenzene	0.152	0.00290	0.112	0.107	88.0	84.0	1	10.0-160			4.57	38
Xylenes, Total	0.454	ND	0.317	0.310	83.7	81.8	1	10.0-160			2.23	38
1,2,4-Trimethylbenzene	0.152	ND	0.0928	0.0971	71.8	75.3	1	10.0-160			4.53	36
1,3,5-Trimethylbenzene	0.152	0.00968	0.0937	0.103	67.8	75.3	1	10.0-160			9.46	38
(S) Toluene-d8					107	110		75.0-131				
(S) 4-Bromofluorobenzene					97.4	94.6		67.0-138				
(S) 1,2-Dichloroethane-d4					90.4	89.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3925151-2 05/15/23 18:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	84.2			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3925151-1 05/15/23 17:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	26.0	52.0	50.0-150	
(S) o-Terphenyl			60.8	18.0-148	

L1614228-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614228-03 05/16/23 01:50 • (MS) R3925151-3 05/16/23 02:04 • (MSD) R3925151-4 05/16/23 02:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.2	648	587	678	0.000	60.7	5	50.0-150	V		14.4	20
(S) o-Terphenyl					77.1	78.7		18.0-148				

Sample Narrative:

OS: Cannot run at lower dilution due to viscosity of extract

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3924997-2 05/15/23 13:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	108			23.0-120
(S) Nitrobenzene-d5	94.8			14.0-149
(S) 2-Fluorobiphenyl	85.3			34.0-125

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Laboratory Control Sample (LCS)

(LCS) R3924997-1 05/15/23 13:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0727	90.9	50.0-120	
Anthracene	0.0800	0.0761	95.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0809	101	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0826	103	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0774	96.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0718	89.8	42.0-120	
Chrysene	0.0800	0.0870	109	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0781	97.6	47.0-125	
Fluoranthene	0.0800	0.0844	105	49.0-129	
Fluorene	0.0800	0.0847	106	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0840	105	46.0-125	
1-Methylnaphthalene	0.0800	0.0837	105	51.0-121	
2-Methylnaphthalene	0.0800	0.0791	98.9	50.0-120	
Naphthalene	0.0800	0.0784	98.0	50.0-120	
Pyrene	0.0800	0.0875	109	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3924997-1 05/15/23 13:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			107	23.0-120	
(S) Nitrobenzene-d5			110	14.0-149	
(S) 2-Fluorobiphenyl			105	34.0-125	

L1614496-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614496-02 05/15/23 14:32 • (MS) R3924997-3 05/15/23 14:50 • (MSD) R3924997-4 05/15/23 15:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0797	ND	0.0488	0.0639	61.0	82.3	1	14.0-127			26.8	27
Anthracene	0.0797	ND	0.0502	0.0684	62.8	88.1	1	10.0-145	J3		30.7	30
Benzo(a)anthracene	0.0797	ND	0.0529	0.0717	66.1	92.4	1	10.0-139	J3		30.2	30
Benzo(b)fluoranthene	0.0797	ND	0.0487	0.0709	60.9	91.4	1	10.0-140	J3		37.1	36
Benzo(k)fluoranthene	0.0797	ND	0.0545	0.0709	68.1	91.4	1	10.0-137			26.2	31
Benzo(a)pyrene	0.0797	ND	0.0545	0.0739	68.1	95.2	1	10.0-141			30.2	31
Chrysene	0.0797	ND	0.0635	0.0801	79.4	103	1	10.0-145			23.1	30
Dibenz(a,h)anthracene	0.0797	ND	0.0615	0.0778	76.9	100	1	10.0-132			23.4	31
Fluoranthene	0.0797	ND	0.0497	0.0769	62.1	99.1	1	10.0-153	J3		43.0	33
Fluorene	0.0797	ND	0.0539	0.0729	67.4	93.9	1	11.0-130	J3		30.0	29
Indeno(1,2,3-cd)pyrene	0.0797	ND	0.0526	0.0733	65.8	94.5	1	10.0-137	J3		32.9	32
1-Methylnaphthalene	0.0797	ND	0.0609	0.0746	76.1	96.1	1	10.0-142			20.2	28
2-Methylnaphthalene	0.0797	ND	0.0576	0.0691	72.0	89.0	1	10.0-137			18.2	28
Naphthalene	0.0797	ND	0.0637	0.0711	79.6	91.6	1	10.0-135			11.0	27
Pyrene	0.0797	ND	0.0518	0.0790	64.8	102	1	10.0-148	J3		41.6	35
(S) p-Terphenyl-d14					64.9	85.8		23.0-120				
(S) Nitrobenzene-d5					95.8	84.7		14.0-149				
(S) 2-Fluorobiphenyl					63.4	70.2		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

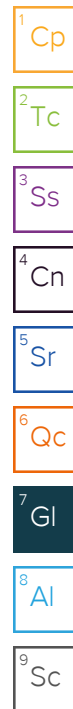
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Caerus Piceance LLC  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Billing Information:

Same as above

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



Report to:  
bmiddleton@caerusoilandgas.com

Email To:  
bmiddleton@caerusoilandgas.com

Project  
Description: YCF 27-13-1 Release Closure

City/State  
Collected: Yellow Creek, CO

Phone:  
Fax:  
Client Project #  
YCF 27-13-1

Lab Project #  
YCF 27-13-1

Collected by (print):  
Site/Facility ID #  
YCF 27-13-1

P.O. #  
YCF 27-13-1

Collected by (signature):  
Rush? (Lab MUST Be Notified)  
\_\_\_\_ Same Day \_\_\_\_ Five Day  
\_\_\_\_ Next Day \_\_\_\_ 5 Day (Rad Only)  
\_\_\_\_ Two Day \_\_\_\_ 10 Day (Rad Only)  
\_\_\_\_ Three Day  
Immediately  
Packed on Ice N \_\_\_\_ Y ☒

Quote #  
Date Results Needed  
Standard TAT

No. of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
20230505-YCF27-13-1-FC-WH-YCF27-13-1-098	G	S	6	5-5-23	10:25	3

TPH- GRO, DRO, ORO

BTEX

TABLE 915-1- PAH's

SAR, EC, pH, Boron

TABLE 915-1- Metals

L# 41614222  
E181

Acctnum:  
Template:  
Prelogin:  
TSR:  
PB:

Shipped Via:  
Remarks Sample # (lab only)

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

Samples returned via:  
\_\_\_\_ UPS \_\_\_\_ FedEx \_\_\_\_ Courier

Tracking #

6126 6537 5721

pH \_\_\_\_ Temp \_\_\_\_  
Flow \_\_\_\_ Other \_\_\_\_

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP ☐ Y ☐ N  
COC Signed/Accurate: ☒ Y ☐ N  
Bottles arrive intact: ☒ Y ☐ N  
Correct bottles used: ☒ Y ☐ N  
Sufficient volume sent: ☒ Y ☐ N  
If Applicable  
VOA Zero Headspace: ☐ Y ☐ N  
Preservation Correct/Checked: ☐ Y ☐ N

Relinquished by: (Signature)

Date: 5823  
Time: 1330

Received by: (Signature)

Trip Blank Received: Yes/No  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date: 5823  
Time: 1600

Received by: (Signature)

Temp: 13.1°C  
4.4 to 4.4  
3

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:  
Time:

Received for lab by: (Signature)

Date: 5-9-23  
Time: 430

Hold:  
Condition:  
NCF / OK



**Caerus Oil and Gas**

Sample Delivery Group: L1614220  
Samples Received: 05/09/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Closure  
Site: YCF 27-13-1 SWD  
Report To: Brett Middleton, Jake Janicek  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

## 20230505-YCFBG-(YCF 27-13-1-N)@1 L1614220-01 Solid

Collected by  
Collected date/time  
Received date/time

05/05/23 12:00 05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:11	05/12/23 16:11	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 17:42	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:41	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 10:37	SJM	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## 20230505-YCFBG-(YCF 27-13-1-N)@2 L1614220-02 Solid

Collected by  
Collected date/time  
Received date/time

05/05/23 12:10 05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:14	05/12/23 16:14	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 17:48	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:44	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 10:40	SJM	Mt. Juliet, TN

## 20230505-YCFBG-(YCF 27-13-1-W)@1 L1614220-03 Solid

Collected by  
Collected date/time  
Received date/time

05/05/23 12:30 05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:17	05/12/23 16:17	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 17:53	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:46	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 10:17	SJM	Mt. Juliet, TN

## 20230505-YCFBG-(YCF 27-13-1-W)@2 L1614220-04 Solid

Collected by  
Collected date/time  
Received date/time

05/05/23 12:35 05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:25	05/12/23 16:25	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 17:58	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:49	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 10:57	SJM	Mt. Juliet, TN

## [20230505-YCFBG-(YCF 27-13-1-E)@1 L1614220-05 Solid

Collected by  
Collected date/time  
Received date/time

05/05/23 12:53 05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:28	05/12/23 16:28	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 18:34	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:52	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 11:00	SJM	Mt. Juliet, TN



# SAMPLE SUMMARY

20230505-YCFBG-(YCF 27-13-1-E)@2 L1614220-06 Solid

Collected by

Collected date/time

Received date/time

05/05/23 13:00

05/09/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057348	1	05/12/23 16:31	05/12/23 16:31	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2059545	1	05/14/23 07:06	05/15/23 18:39	SJC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059899	1	05/15/23 08:42	05/15/23 14:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057362	1	05/13/23 20:38	05/16/23 10:55	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057494	5	05/12/23 01:55	05/13/23 11:03	SJM	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

## Report Revision History

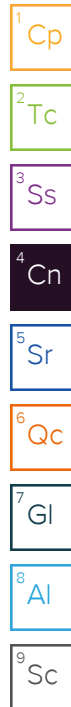
---

Level II Report - Version 1: 05/19/23 14:49

## Project Narrative

---

Sample IDs corrected per request



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0787		1	05/12/2023 16:11	WG2057348

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 17:42	<a href="#">WG2059545</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	<a href="#">T8</a>	1	05/11/2023 17:39	<a href="#">WG2057827</a>

Sample Narrative:  
L1614220-01 WG2057827: 8.4 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	174		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

Sample Narrative:  
L1614220-01 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.295		0.0167	0.200	1	05/16/2023 10:41	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.16		0.100	1.00	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Barium	241		0.152	2.50	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Cadmium	0.117	<a href="#">J</a>	0.0855	1.00	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Copper	10.5		0.132	5.00	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Lead	8.71		0.0990	2.00	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Nickel	12.5		0.197	2.50	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Selenium	0.252	<a href="#">J</a>	0.180	2.50	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Silver	U		0.0865	0.500	5	05/13/2023 10:37	<a href="#">WG2057494</a>
Zinc	32.0		0.740	25.0	5	05/13/2023 10:37	<a href="#">WG2057494</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.182		1	05/12/2023 16:14	WG2057348

1  
Cp

2  
Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 17:48	<a href="#">WG2059545</a>

3  
Ss

4  
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	<a href="#">T8</a>	1	05/11/2023 17:39	<a href="#">WG2057827</a>

5  
Sr

6  
Qc

Sample Narrative:

L1614220-02 WG2057827: 8.42 at 20.8C

7  
Gl

8  
Al

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	235		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

9  
Sc

Sample Narrative:

L1614220-02 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.331		0.0167	0.200	1	05/16/2023 10:44	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.25		0.100	1.00	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Barium	355		0.152	2.50	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Cadmium	0.231	<a href="#">J</a>	0.0855	1.00	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Copper	14.8		0.132	5.00	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Lead	13.0		0.0990	2.00	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Nickel	33.1		0.197	2.50	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Selenium	0.338	<a href="#">J</a>	0.180	2.50	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Silver	U		0.0865	0.500	5	05/13/2023 10:40	<a href="#">WG2057494</a>
Zinc	58.3		0.740	25.0	5	05/13/2023 10:40	<a href="#">WG2057494</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.688		1	05/12/2023 16:17	WG2057348

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 17:53	<a href="#">WG2059545</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.96	<a href="#">T8</a>	1	05/11/2023 17:39	<a href="#">WG2057827</a>

Sample Narrative:  
L1614220-03 WG2057827: 8.96 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	222		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

Sample Narrative:  
L1614220-03 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.196	<a href="#">B J</a>	0.0167	0.200	1	05/16/2023 10:46	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.349	<a href="#">J</a>	0.100	1.00	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Barium	11.1		0.152	2.50	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Cadmium	U		0.0855	1.00	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Copper	1.27	<a href="#">J</a>	0.132	5.00	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Lead	1.24	<a href="#">J</a>	0.0990	2.00	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Nickel	3.67		0.197	2.50	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Selenium	U		0.180	2.50	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Silver	U		0.0865	0.500	5	05/13/2023 10:17	<a href="#">WG2057494</a>
Zinc	5.82	<a href="#">J</a>	0.740	25.0	5	05/13/2023 10:17	<a href="#">WG2057494</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.37		1	05/12/2023 16:25	WG2057348

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U	J5	0.255	1.00	1	05/15/2023 17:58	WG2059545

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.78	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:  
L1614220-04 WG2057827: 9.78 at 20.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	565		10.0	1	05/15/2023 14:22	WG2059899

Sample Narrative:  
L1614220-04 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.331		0.0167	0.200	1	05/16/2023 10:49	WG2057362

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.65		0.100	1.00	5	05/13/2023 10:57	WG2057494
Barium	163		0.152	2.50	5	05/13/2023 10:57	WG2057494
Cadmium	0.133	J	0.0855	1.00	5	05/13/2023 10:57	WG2057494
Copper	12.0		0.132	5.00	5	05/13/2023 10:57	WG2057494
Lead	11.0		0.0990	2.00	5	05/13/2023 10:57	WG2057494
Nickel	28.1		0.197	2.50	5	05/13/2023 10:57	WG2057494
Selenium	0.400	J	0.180	2.50	5	05/13/2023 10:57	WG2057494
Silver	U		0.0865	0.500	5	05/13/2023 10:57	WG2057494
Zinc	47.6		0.740	25.0	5	05/13/2023 10:57	WG2057494

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.581		1	05/12/2023 16:28	WG2057348

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 18:34	<a href="#">WG2059545</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.59	<a href="#">T8</a>	1	05/11/2023 17:39	<a href="#">WG2057827</a>

Sample Narrative:  
L1614220-05 WG2057827: 8.59 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	215		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

Sample Narrative:  
L1614220-05 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.252	<a href="#">B</a>	0.0167	0.200	1	05/16/2023 10:52	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.94		0.100	1.00	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Barium	137		0.152	2.50	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Cadmium	0.109	<a href="#">J</a>	0.0855	1.00	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Copper	11.1		0.132	5.00	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Lead	7.64		0.0990	2.00	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Nickel	13.2		0.197	2.50	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Selenium	U		0.180	2.50	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Silver	U		0.0865	0.500	5	05/13/2023 11:00	<a href="#">WG2057494</a>
Zinc	27.3		0.740	25.0	5	05/13/2023 11:00	<a href="#">WG2057494</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.74		1	05/12/2023 16:31	WG2057348

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 18:39	<a href="#">WG2059545</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.49	<a href="#">T8</a>	1	05/11/2023 17:39	<a href="#">WG2057827</a>

Sample Narrative:  
L1614220-06 WG2057827: 9.49 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	583		10.0	1	05/15/2023 14:22	<a href="#">WG2059899</a>

Sample Narrative:  
L1614220-06 WG2059899: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.359		0.0167	0.200	1	05/16/2023 10:55	<a href="#">WG2057362</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.75		0.100	1.00	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Barium	187		0.152	2.50	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Cadmium	0.117	<a href="#">J</a>	0.0855	1.00	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Copper	14.6		0.132	5.00	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Lead	10.5		0.0990	2.00	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Nickel	17.1		0.197	2.50	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Selenium	0.379	<a href="#">J</a>	0.180	2.50	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Silver	U		0.0865	0.500	5	05/13/2023 11:03	<a href="#">WG2057494</a>
Zinc	39.1		0.740	25.0	5	05/13/2023 11:03	<a href="#">WG2057494</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3925141-1 05/15/23 17:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1614220-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1614220-06 05/15/23 18:39 • (DUP) R3925141-7 05/15/23 18:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

L1615474-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1615474-04 05/15/23 19:37 • (DUP) R3925141-8 05/15/23 19:42

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3925141-2 05/15/23 17:37

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1614220-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614220-04 05/15/23 17:58 • (MS) R3925141-3 05/15/23 18:03 • (MSD) R3925141-4 05/15/23 18:08

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	19.0	18.4	95.2	92.2	1	75.0-125			3.24	20

L1614220-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1614220-04 05/15/23 17:58 • (MS) R3925141-5 05/15/23 18:14

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	638	U	857	134	50	75.0-125	J5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1614220-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614220-03 05/11/23 17:39 • (DUP) R3923806-2 05/11/23 17:39

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.96	8.95	1	0.112		1

Sample Narrative:

OS: 8.96 at 20.5C

DUP: 8.95 at 20.5C

L1614573-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1614573-02 05/11/23 17:39 • (DUP) R3923806-3 05/11/23 17:39

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.27	8.34	1	0.843		1

Sample Narrative:

OS: 8.27 at 20.6C

DUP: 8.34 at 20.1C

Laboratory Control Sample (LCS)

(LCS) R3923806-1 05/11/23 17:39

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 20.6C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3924972-1 05/15/23 14:22

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1614021-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1614021-07 05/15/23 14:22 • (DUP) R3924972-3 05/15/23 14:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3260	3260	1	0.000		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1614220-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614220-03 05/15/23 14:22 • (DUP) R3924972-4 05/15/23 14:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	222	220	1	0.903		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3924972-2 05/15/23 14:22

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1110	98.9	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3925382-1 05/16/23 09:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	0.0258	⬇	0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3925382-2 05/16/23 09:56 • (LCSD) R3925382-3 05/16/23 09:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.14	1.15	114	115	80.0-120			1.02	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3924475-2 05/13/23 10:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3924475-3 05/13/23 10:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.4	89.4	80.0-120	
Barium	100	90.8	90.8	80.0-120	
Cadmium	100	94.4	94.4	80.0-120	
Copper	100	84.7	84.7	80.0-120	
Lead	100	89.8	89.8	80.0-120	
Nickel	100	90.7	90.7	80.0-120	
Selenium	100	96.1	96.1	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	89.7	89.7	80.0-120	

L1614220-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614220-03 05/13/23 10:17 • (MS) R3924475-6 05/13/23 10:27 • (MSD) R3924475-7 05/13/23 10:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	0.349	83.9	94.5	83.6	94.1	5	75.0-125			11.8	20
Barium	100	11.1	187	200	176	188	5	75.0-125	J5	J5	6.32	20
Cadmium	100	U	88.9	102	88.9	102	5	75.0-125			14.2	20
Copper	100	1.27	83.3	92.5	82.0	91.2	5	75.0-125			10.5	20
Lead	100	1.24	93.6	106	92.3	104	5	75.0-125			12.1	20
Nickel	100	3.67	112	122	109	119	5	75.0-125			8.57	20
Selenium	100	U	89.1	98.4	89.1	98.4	5	75.0-125			9.91	20
Silver	20.0	U	17.1	19.0	85.6	95.2	5	75.0-125			10.6	20
Zinc	100	5.82	122	135	116	129	5	75.0-125		J5	9.79	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

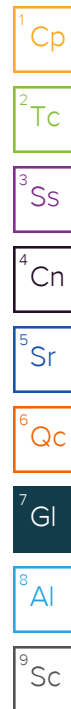
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		


<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





<b>Caerus Oil &amp; Gas LLC</b> <b>143 Diamond Avenue</b> <b>Parachute, CO 81635</b> <b>970-285-9606</b>				Billing Information:				Pres Chk		Analysis / Container / Preservative										Chain of Custody Page <u>1</u> of <u>1</u>	
				Same as above																 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Report to: <b>bmiddleton@caerusoilandgas.com</b>				Email To: <b>bmiddleton@caerusoilandgas.com</b>																12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Project Description: <b>YCF 27-13-1 SWD Closure</b>				City/State Collected: <b>Yellow Creek, CO</b>																	
Phone: Fax:		Client Project # <b>YCF 27-13-1 SWD</b>		Lab Project # <b>YCF 27-13-1 SWD</b>																	
Collected by (print):		Site/Facility ID # <b>YCF 27-13-1 SWD</b>		P.O. # <b>YCF 27-13-1 SWD</b>																	
Collected by (signature):		<b>Rush?</b> (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #																	
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>				Date Results Needed <b>Standard TAT</b>		No. of Cntrs															
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time															
20230505-YCFBG-(YCF 27-13-1-N)@1		Grab	SS	1	5/5/2023	1200	2	X	X												
20230505-YCFBG-(YCF 27-13-1-N)@2		Grab	SS	2	5/5/2023	1210	2	X	X												
20230505-YCFBG-(YCF 27-13-1-W)@1		Grab	SS	1	5/5/2023	1230	2	X	X												
20230505-YCFBG-(YCF 27-13-1-W)@2		Grab	SS	2	5/5/2023	1235	2	X	X												
20230505-YCFBG-(YCF 27-13-1-S)@1		Grab	SS	1	5/5/2023	1253	2	X	X												
20230505-YCFBG-(YCF 27-13-1-S)@2		Grab	SS	2	5/5/2023	1300	2	X	X												
* Matrix: SS - Soil   AIR - Air   F - Filter GW - Groundwater   B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:				pH _____ Temp _____ Flow _____ Other _____				Sample Receipt Check <input checked="" type="checkbox"/> COC Seal Present/Intact: <input checked="" type="checkbox"/> N <input type="checkbox"/> Y COC Signed/Accurate: <input checked="" type="checkbox"/> N <input type="checkbox"/> Y Bottles arrive intact: <input checked="" type="checkbox"/> N <input type="checkbox"/> Y Correct bottles used: <input checked="" type="checkbox"/> N <input type="checkbox"/> Y Sufficient volume sent: <input checked="" type="checkbox"/> N <input type="checkbox"/> Y If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N											
Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier		Tracking # <u>6126 6537 5721</u>																			
Relinquished by: (Signature)		Date: <u>5/8/23</u>	Time: <u>1130</u>	Received by: (Signature)		Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		HCL / MeOH TBR													
Relinquished by: (Signature)		Date: <u>5/8/23</u>	Time: <u>1600</u>	Received by: (Signature)		Temp: °C <u>4.4</u>		Bottles Received: <u>12</u>		If preservation required by Login: Date/Time											
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature)		Date: <u>5-9-23</u>		Time: <u>930</u>		Hold:				Condition: NCF / <u>OK</u>							

**Caerus Oil and Gas**

Sample Delivery Group: L1626902  
Samples Received: 06/16/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. , Brett M. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



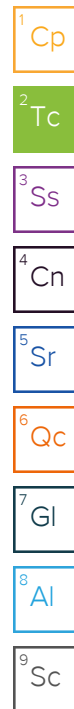
Jason Romer  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

20230614 YCF 27-13-1 SWD-(SW01)@12 L1626902-01 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 08:55

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2080661	1	06/27/23 15:24	06/27/23 15:24	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2079985	1	06/20/23 04:08	06/21/23 02:52	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2080185	1	06/19/23 09:28	06/19/23 11:44	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2079569	1	06/21/23 08:30	06/21/23 10:41	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2080733	1	06/25/23 07:51	06/27/23 15:01	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2079798	5	06/18/23 09:58	06/19/23 04:16	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2082716	1	06/20/23 13:30	06/23/23 14:45	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2081271	1	06/20/23 13:30	06/21/23 05:10	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2082311	1	06/23/23 05:39	06/23/23 16:10	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2082022	1	06/21/23 16:09	06/22/23 05:35	AED	Mt. Juliet, TN

20230614 YCF 27-13-1 SWD-(WW01)@13.5 L1626902-02 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 09:35

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2080661	1	06/27/23 15:27	06/27/23 15:27	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2079985	1	06/20/23 04:08	06/21/23 02:57	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2080185	1	06/19/23 09:28	06/19/23 11:44	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2079569	1	06/21/23 08:30	06/21/23 10:41	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2083423	1	06/26/23 21:22	06/27/23 21:35	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2079798	10	06/18/23 09:58	06/19/23 19:55	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2079798	5	06/18/23 09:58	06/19/23 04:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2079798	5	06/18/23 09:58	06/19/23 19:51	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2081447	1	06/20/23 13:30	06/22/23 01:32	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2081271	1	06/20/23 13:30	06/21/23 05:29	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2082311	1	06/23/23 05:39	06/23/23 17:22	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2082022	1	06/21/23 16:09	06/22/23 05:52	AED	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jason Romer  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.32		1	06/27/2023 15:24	WG2080661

1  
Cp

2  
Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	06/21/2023 02:52	<a href="#">WG2079985</a>

3  
Ss

4  
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.92	<a href="#">T8</a>	1	06/19/2023 11:44	<a href="#">WG2080185</a>

5  
Sr

6  
Qc

Sample Narrative:

L1626902-01 WG2080185: 8.92 at 21.4C

7  
Gl

8  
Al

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	318		10.0	1	06/21/2023 10:41	<a href="#">WG2079569</a>

9  
Sc

Sample Narrative:

L1626902-01 WG2079569: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.130	<a href="#">J</a>	0.0167	0.200	1	06/27/2023 15:01	<a href="#">WG2080733</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.64		0.100	1.00	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Barium	196		0.152	2.50	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Cadmium	0.105	<a href="#">J</a>	0.0855	1.00	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Copper	11.7		0.132	5.00	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Lead	11.3		0.0990	2.00	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Nickel	24.2		0.197	2.50	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Selenium	0.250	<a href="#">J</a>	0.180	2.50	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Silver	U		0.0865	0.500	5	06/19/2023 04:16	<a href="#">WG2079798</a>
Zinc	50.5		0.740	25.0	5	06/19/2023 04:16	<a href="#">WG2079798</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0318	<a href="#">J</a>	0.0217	0.100	1	06/23/2023 14:45	<a href="#">WG2082716</a>
(S) a,a,a-Trifluorotoluene(FID)	97.2			77.0-120		06/23/2023 14:45	<a href="#">WG2082716</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	06/21/2023 05:10	<a href="#">WG2081271</a>
Toluene	U		0.00130	0.00500	1	06/21/2023 05:10	<a href="#">WG2081271</a>
Ethylbenzene	U		0.000737	0.00250	1	06/21/2023 05:10	<a href="#">WG2081271</a>
Xylenes, Total	U		0.000880	0.00650	1	06/21/2023 05:10	<a href="#">WG2081271</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	06/21/2023 05:10	<a href="#">WG2081271</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	06/21/2023 05:10	<a href="#">WG2081271</a>
(S) Toluene-d8	112			75.0-131		06/21/2023 05:10	<a href="#">WG2081271</a>
(S) 4-Bromofluorobenzene	92.6			67.0-138		06/21/2023 05:10	<a href="#">WG2081271</a>
(S) 1,2-Dichloroethane-d4	104			70.0-130		06/21/2023 05:10	<a href="#">WG2081271</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1.66	<u>J</u>	1.61	4.00	1	06/23/2023 16:10	<a href="#">WG2082311</a>
C28-C36 Motor Oil Range	3.29	<u>J</u>	0.274	4.00	1	06/23/2023 16:10	<a href="#">WG2082311</a>
(S) o-Terphenyl	54.7			18.0-148		06/23/2023 16:10	<a href="#">WG2082311</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Anthracene	U		0.00230	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Chrysene	U		0.00232	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Fluoranthene	U		0.00227	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Fluorene	U		0.00205	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	06/22/2023 05:35	<a href="#">WG2082022</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Naphthalene	U		0.00408	0.0200	1	06/22/2023 05:35	<a href="#">WG2082022</a>
Pyrene	U		0.00200	0.00600	1	06/22/2023 05:35	<a href="#">WG2082022</a>
(S) p-Terphenyl-d14	66.9			23.0-120		06/22/2023 05:35	<a href="#">WG2082022</a>
(S) Nitrobenzene-d5	86.4			14.0-149		06/22/2023 05:35	<a href="#">WG2082022</a>
(S) 2-Fluorobiphenyl	72.2			34.0-125		06/22/2023 05:35	<a href="#">WG2082022</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	7.24		1	06/27/2023 15:27	WG2080661

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	06/21/2023 02:57	<a href="#">WG2079985</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	9.06	<a href="#">T8</a>	1	06/19/2023 11:44	<a href="#">WG2080185</a>

Sample Narrative:

L1626902-02 WG2080185: 9.06 at 20.9C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	344		10.0	1	06/21/2023 10:41	<a href="#">WG2079569</a>

Sample Narrative:

L1626902-02 WG2079569: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.283		0.0167	0.200	1	06/27/2023 21:35	<a href="#">WG2083423</a>

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	7.81		0.100	1.00	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Barium	1130		0.304	5.00	10	06/19/2023 19:55	<a href="#">WG2079798</a>
Cadmium	3.78		0.0855	1.00	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Copper	17.2		0.132	5.00	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Lead	16.2		0.0990	2.00	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Nickel	30.1		0.197	2.50	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Selenium	4.39		0.180	2.50	5	06/19/2023 19:51	<a href="#">WG2079798</a>
Silver	0.260	<a href="#">J</a>	0.0865	0.500	5	06/19/2023 04:20	<a href="#">WG2079798</a>
Zinc	51.6		0.740	25.0	5	06/19/2023 04:20	<a href="#">WG2079798</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.0362	<a href="#">B J</a>	0.0217	0.100	1	06/22/2023 01:32	<a href="#">WG2081447</a>
(S) a,a,a-Trifluorotoluene(FID)	102			77.0-120		06/22/2023 01:32	<a href="#">WG2081447</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	06/21/2023 05:29	<a href="#">WG2081271</a>
Toluene	U		0.00130	0.00500	1	06/21/2023 05:29	<a href="#">WG2081271</a>
Ethylbenzene	U		0.000737	0.00250	1	06/21/2023 05:29	<a href="#">WG2081271</a>
Xylenes, Total	U		0.000880	0.00650	1	06/21/2023 05:29	<a href="#">WG2081271</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	06/21/2023 05:29	<a href="#">WG2081271</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	06/21/2023 05:29	<a href="#">WG2081271</a>
(S) Toluene-d8	112			75.0-131		06/21/2023 05:29	<a href="#">WG2081271</a>
(S) 4-Bromofluorobenzene	90.4			67.0-138		06/21/2023 05:29	<a href="#">WG2081271</a>
(S) 1,2-Dichloroethane-d4	106			70.0-130		06/21/2023 05:29	<a href="#">WG2081271</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	17.7		1.61	4.00	1	06/23/2023 17:22	<a href="#">WG2082311</a>
C28-C36 Motor Oil Range	60.5		0.274	4.00	1	06/23/2023 17:22	<a href="#">WG2082311</a>
(S) o-Terphenyl	49.0			18.0-148		06/23/2023 17:22	<a href="#">WG2082311</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Anthracene	U		0.00230	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Chrysene	U		0.00232	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Fluoranthene	U		0.00227	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Fluorene	U		0.00205	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	06/22/2023 05:52	<a href="#">WG2082022</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Naphthalene	U		0.00408	0.0200	1	06/22/2023 05:52	<a href="#">WG2082022</a>
Pyrene	U		0.00200	0.00600	1	06/22/2023 05:52	<a href="#">WG2082022</a>
(S) p-Terphenyl-d14	65.9			23.0-120		06/22/2023 05:52	<a href="#">WG2082022</a>
(S) Nitrobenzene-d5	74.9			14.0-149		06/22/2023 05:52	<a href="#">WG2082022</a>
(S) 2-Fluorobiphenyl	55.4			34.0-125		06/22/2023 05:52	<a href="#">WG2082022</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3939153-1 06/21/23 00:19

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1626599-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1626599-03 06/21/23 01:03 • (DUP) R3939153-7 06/21/23 01:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

L1626902-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1626902-02 06/21/23 02:57 • (DUP) R3939153-8 06/21/23 03:02

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3939153-2 06/21/23 00:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.49	94.9	80.0-120	

L1626599-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1626599-02 06/21/23 00:37 • (MS) R3939153-4 06/21/23 00:47 • (MSD) R3939153-5 06/21/23 00:52

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	20.4	19.2	102	96.0	1	75.0-125			5.99	20

L1626599-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1626599-02 06/21/23 00:37 • (MS) R3939153-6 06/21/23 00:57

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	U	585	91.0	50	75.0-125	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1626739-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1626739-12 06/19/23 11:44 • (DUP) R3938352-2 06/19/23 11:44

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.81	7.79	1	0.256		1

Sample Narrative:

OS: 7.81 at 21.4C

DUP: 7.79 at 21.3C

L1626902-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1626902-01 06/19/23 11:44 • (DUP) R3938352-3 06/19/23 11:44

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.92	8.91	1	0.112		1

Sample Narrative:

OS: 8.92 at 21.4C

DUP: 8.91 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3938352-1 06/19/23 11:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.03 at 20.7C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3939318-1 06/21/23 10:41

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1626599-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1626599-03 06/21/23 10:41 • (DUP) R3939318-3 06/21/23 10:41

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	380	371	1	2.40		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1626899-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1626899-13 06/21/23 10:41 • (DUP) R3939318-4 06/21/23 10:41

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	168	165	1	1.92		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3939318-2 06/21/23 10:41

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	328	100	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3941893-1 06/27/23 14:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3941893-2 06/27/23 14:05 • (LCSD) R3941893-3 06/27/23 14:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.12	1.15	112	115	80.0-120			1.96	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3942176-1 06/27/23 21:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3942176-2 06/27/23 21:29 • (LCSD) R3942176-3 06/27/23 21:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	1.01	100	101	80.0-120			1.15	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3938557-1 06/19/23 02:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3938557-2 06/19/23 02:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.8	95.8	80.0-120	
Barium	100	91.6	91.6	80.0-120	
Cadmium	100	98.6	98.6	80.0-120	
Copper	100	88.7	88.7	80.0-120	
Lead	100	92.6	92.6	80.0-120	
Nickel	100	96.0	96.0	80.0-120	
Selenium	100	115	115	80.0-120	
Silver	20.0	19.4	97.1	80.0-120	
Zinc	100	91.0	91.0	80.0-120	

L1626888-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1626888-11 06/19/23 02:38 • (MS) R3938557-5 06/19/23 02:48 • (MSD) R3938557-6 06/19/23 02:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.8	6.39	101	101	94.8	95.0	5	75.0-125			0.265	20
Barium	99.8	57.7	134	142	76.6	84.2	5	75.0-125			5.53	20
Cadmium	99.8	0.103	98.1	99.0	97.9	98.9	5	75.0-125			0.930	20
Copper	99.8	19.2	105	105	85.4	86.3	5	75.0-125			0.881	20
Lead	99.8	13.8	104	104	89.9	90.4	5	75.0-125			0.488	20
Nickel	99.8	22.5	117	116	94.8	93.2	5	75.0-125			1.41	20
Selenium	99.8	0.302	115	116	115	116	5	75.0-125	E	E	0.820	20
Silver	20.0	U	18.6	18.9	93.0	94.3	5	75.0-125			1.36	20
Zinc	99.8	46.7	133	135	86.8	88.7	5	75.0-125			1.42	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3940018-2 06/21/23 21:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0304	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	103			77.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3940018-1 06/21/23 21:04 • (LCSD) R3940018-3 06/21/23 22:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.53	4.89	82.4	88.9	72.0-127			7.64	20
(S) a,a,a-Trifluorotoluene(FID)				112	114	77.0-120				

1  
Cp

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Tc

3  
Ss

4  
Cn

5  
Sr

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Qc

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Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3940832-2 06/23/23 12:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	96.6			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3940832-1 06/23/23 11:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.31	115	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			111	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3939923-1 06/20/23 22:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	0.00103	U	0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	110			75.0-131
(S) 4-Bromofluorobenzene	87.3			67.0-138
(S) 1,2-Dichloroethane-d4	108			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3939923-2 06/20/23 23:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.126	101	70.0-123	
Toluene	0.125	0.134	107	75.0-121	
Ethylbenzene	0.125	0.130	104	74.0-126	
Xylenes, Total	0.375	0.358	95.5	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.123	98.4	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.128	102	73.0-127	
(S) Toluene-d8			109	75.0-131	
(S) 4-Bromofluorobenzene			88.9	67.0-138	
(S) 1,2-Dichloroethane-d4			107	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3940859-1 06/23/23 15:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	53.8			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3940859-2 06/23/23 15:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.1	64.2	50.0-150	
(S) o-Terphenyl			76.3	18.0-148	

L1626902-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1626902-01 06/23/23 16:10 • (MS) R3940859-3 06/23/23 16:23 • (MSD) R3940859-4 06/23/23 16:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.8	1.66	34.1	31.6	65.1	59.9	1	50.0-150			7.61	20
(S) o-Terphenyl					59.0	52.6		18.0-148				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

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Qc

7  
Gl

8  
Al

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Sc

Method Blank (MB)

(MB) R3939849-2 06/22/23 00:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	69.9			23.0-120
(S) Nitrobenzene-d5	77.1			14.0-149
(S) 2-Fluorobiphenyl	72.9			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3939849-1 06/22/23 00:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0580	72.5	50.0-120	
Anthracene	0.0800	0.0610	76.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0643	80.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0522	65.3	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0505	63.1	49.0-125	
Benzo(a)pyrene	0.0800	0.0524	65.5	42.0-120	
Chrysene	0.0800	0.0575	71.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0507	63.4	47.0-125	
Fluoranthene	0.0800	0.0620	77.5	49.0-129	
Fluorene	0.0800	0.0618	77.3	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0567	70.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0571	71.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0613	76.6	50.0-120	
Naphthalene	0.0800	0.0565	70.6	50.0-120	
Pyrene	0.0800	0.0571	71.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3939849-1 06/22/23 00:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			68.8	23.0-120	
(S) Nitrobenzene-d5			82.4	14.0-149	
(S) 2-Fluorobiphenyl			74.0	34.0-125	

L1626902-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1626902-02 06/22/23 05:52 • (MS) R3939849-3 06/22/23 06:10 • (MSD) R3939849-4 06/22/23 06:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	U	0.0474	0.0446	59.3	55.8	1	14.0-127			6.09	27
Anthracene	0.0800	U	0.0489	0.0443	61.1	55.4	1	10.0-145			9.87	30
Benzo(a)anthracene	0.0800	U	0.0522	0.0485	65.3	60.6	1	10.0-139			7.35	30
Benzo(b)fluoranthene	0.0800	U	0.0393	0.0347	49.1	43.4	1	10.0-140			12.4	36
Benzo(k)fluoranthene	0.0800	U	0.0399	0.0365	49.9	45.6	1	10.0-137			8.90	31
Benzo(a)pyrene	0.0800	U	0.0473	0.0432	59.1	54.0	1	10.0-141			9.06	31
Chrysene	0.0800	U	0.0468	0.0431	58.5	53.9	1	10.0-145			8.23	30
Dibenz(a,h)anthracene	0.0800	U	0.0403	0.0370	50.4	46.3	1	10.0-132			8.54	31
Fluoranthene	0.0800	U	0.0502	0.0444	62.8	55.5	1	10.0-153			12.3	33
Fluorene	0.0800	U	0.0489	0.0463	61.1	57.9	1	11.0-130			5.46	29
Indeno(1,2,3-cd)pyrene	0.0800	U	0.0422	0.0384	52.7	48.0	1	10.0-137			9.43	32
1-Methylnaphthalene	0.0800	U	0.0472	0.0441	59.0	55.1	1	10.0-142			6.79	28
2-Methylnaphthalene	0.0800	U	0.0516	0.0473	64.5	59.1	1	10.0-137			8.70	28
Naphthalene	0.0800	U	0.0458	0.0421	57.3	52.6	1	10.0-135			8.42	27
Pyrene	0.0800	U	0.0450	0.0406	56.3	50.8	1	10.0-148			10.3	35
(S) p-Terphenyl-d14					56.0	60.4		23.0-120				
(S) Nitrobenzene-d5					76.4	68.3		14.0-149				
(S) 2-Fluorobiphenyl					64.5	61.6		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# ACCREDITATIONS & LOCATIONS

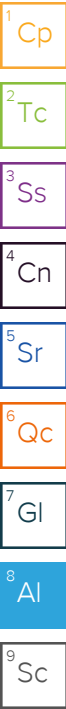
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Hold:	Condition: NCF / OK
-------	------------------------

**Caerus Oil and Gas**

Sample Delivery Group: L1626909  
Samples Received: 06/16/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. , Brett M. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Jason Romer  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

20230614-YCF 27-13-1 SWD-(FC-PL)@2 L1626909-01 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 10:05

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2080662	1	06/24/23 01:33	06/24/23 01:33	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2080185	1	06/19/23 09:28	06/19/23 11:44	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2080734	1	06/22/23 16:41	06/23/23 10:20	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2079798	5	06/18/23 09:58	06/19/23 04:23	LD	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jason Romer  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.70		1	06/24/2023 01:33	WG2080662

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	5.89	T8	1	06/19/2023 11:44	<a href="#">WG2080185</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1626909-01 WG2080185: 5.89 at 21C

<sup>5</sup>Sr

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.284		0.0167	0.200	1	06/23/2023 10:20	<a href="#">WG2080734</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.23		0.100	1.00	5	06/19/2023 04:23	<a href="#">WG2079798</a>

<sup>8</sup>Al

<sup>9</sup>Sc



L1626739-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1626739-12 06/19/23 11:44 • (DUP) R3938352-2 06/19/23 11:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.81	7.79	1	0.256		1

Sample Narrative:

OS: 7.81 at 21.4C

DUP: 7.79 at 21.3C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1626902-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1626902-01 06/19/23 11:44 • (DUP) R3938352-3 06/19/23 11:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.92	8.91	1	0.112		1

Sample Narrative:

OS: 8.92 at 21.4C

DUP: 8.91 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3938352-1 06/19/23 11:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.03 at 20.7C

Method Blank (MB)

(MB) R3940661-1 06/23/23 10:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3940661-2 06/23/23 10:14 • (LCSD) R3940661-3 06/23/23 10:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.05	106	105	80.0-120			1.30	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3938557-1 06/19/23 02:31

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3938557-2 06/19/23 02:35

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	95.8	95.8	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1626888-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1626888-11 06/19/23 02:38 • (MS) R3938557-5 06/19/23 02:48 • (MSD) R3938557-6 06/19/23 02:52

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	6.39	101	101	94.8	95.0	5	75.0-125			0.265	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.
----	---

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



# ACCREDITATIONS & LOCATIONS

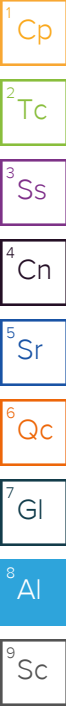
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
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Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



[illegible]

June 26, 2023

## Caerus Oil and Gas

Sample Delivery Group: L1627267  
Samples Received: 06/17/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. , Brett M. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Jason Romer  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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Al: Accreditations & Locations	10
Sc: Sample Chain of Custody	11

<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc



# SAMPLE SUMMARY

20230615-YCF 27-13-1 SWD-(FC-MH)@3 L1627267-01 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/15/23 10:05

Received date/time  
06/17/23 09:10

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2080662	1	06/24/23 02:17	06/24/23 02:17	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2081263	1	06/21/23 09:05	06/21/23 11:00	MCC	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2080734	1	06/22/23 16:41	06/23/23 11:12	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2081571	5	06/21/23 08:18	06/21/23 22:41	LD	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jason Romer  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.59		1	06/24/2023 02:17	WG2080662

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.50	T8	1	06/21/2023 11:00	WG2081263

3  
Ss

4  
Cn

Sample Narrative:  
L1627267-01 WG2081263: 9.5 at 21.9C

5  
Sr

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.114	J	0.0167	0.200	1	06/23/2023 11:12	WG2080734

6  
Qc

7  
Gl

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.86		0.100	1.00	5	06/21/2023 22:41	WG2081571

8  
Al

9  
Sc

L1626780-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1626780-06 06/21/23 11:00 • (DUP) R3939376-2 06/21/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.31	8.39	1	0.958		1

Sample Narrative:

OS: 8.31 at 22.6C

DUP: 8.39 at 22.4C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1627621-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1627621-06 06/21/23 11:00 • (DUP) R3939376-3 06/21/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	9.90	9.92	1	0.202		1

Sample Narrative:

OS: 9.9 at 21.5C

DUP: 9.92 at 21.4C

Laboratory Control Sample (LCS)

(LCS) R3939376-1 06/21/23 11:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 20.8C



Method Blank (MB)

(MB) R3940661-1 06/23/23 10:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3940661-2 06/23/23 10:14 • (LCSD) R3940661-3 06/23/23 10:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.05	106	105	80.0-120			1.30	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3939720-1 06/21/23 21:23

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3939720-2 06/21/23 21:27

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	98.7	98.7	80.0-120	

L1627678-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1627678-01 06/21/23 21:30 • (MS) R3939720-5 06/21/23 21:40 • (MSD) R3939720-6 06/21/23 21:44

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	99.8	3.39	97.4	98.0	94.0	94.6	5	75.0-125			0.610	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
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Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

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[illegible]

## Caerus Oil and Gas

Sample Delivery Group: L1630720  
Samples Received: 06/16/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. , Brett M. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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Cn: Case Narrative	4	
Sr: Sample Results	5	<sup>3</sup> Ss
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20230614 YCF 27-13-1 SWD-(WW01)@13.5 L1630720-02	6	<sup>4</sup> Cn
Gl: Glossary of Terms	7	<sup>5</sup> Sr
Al: Accreditations & Locations	8	
Sc: Sample Chain of Custody	9	<sup>6</sup> Gl
		<sup>7</sup> Al
		<sup>8</sup> Sc

# SAMPLE SUMMARY

20230614 YCF 27-13-1 SWD-(SW01)@12 L1630720-01 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 08:55

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2087305	1	07/07/23 01:57	07/07/23 01:57	ZSA	Mt. Juliet, TN

20230614 YCF 27-13-1 SWD-(WW01)@13.5 L1630720-02 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 09:35

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2087305	1	07/07/23 02:00	07/07/23 02:00	ZSA	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Gl

<sup>7</sup>Al

<sup>8</sup>Sc



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.01		1	07/07/2023 01:57	WG2087305

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Gl

<sup>7</sup>Al

<sup>8</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.87		1	07/07/2023 02:00	WG2087305

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

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<sup>7</sup>Al

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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.





# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
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Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

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**Caerus Oil & Gas LLC**  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Same as above

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 6 of 1

12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# ~~1620720~~  
G162  
L1630720

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks	Sample # (lab only)
---------	---------------------

Report to:  
bmiddleton@caerusoilandgas.com

Email To: [bmiddleton@caerusoilandgas.com](mailto:bmiddleton@caerusoilandgas.com)

Project	YCF 27-13-1 SWD
Description:	Facility Decommissioning

City/State  
Collected: **Yellow Creek, CO**

Phone:	Client Project #
Fax:	YCF 27-13-1 SWD

Lab Project #  
YCF 27-13-1 SWD

Collected by (print): <b>Korey Kennedy</b>	Site/Facility ID # <b>YCF 27-13-1 SWD</b>
---	--

P.O. #  
YCF 27-13-1 SWD

Collected by (signature): Louise Henry

**Rush? (Lab MUST Be Notified)**

<input type="checkbox"/> Same Day	<input type="checkbox"/> Five Day
<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day (Rad Only)
<input type="checkbox"/> Two Day	<input type="checkbox"/> 10 Day (Rad Only)
<input type="checkbox"/> Three Day	

Immediately \_\_\_\_\_

Packed on Ice N ☐ Y ☒ X

Quote # \_\_\_\_\_

Date Results Needed \_\_\_\_\_

**Standard TAT**

[illegible][illegible]

\* Matrix:  
SS - Soil    AIR - Air    F - Filter  
GW - Groundwater    B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
 UPS      FedEx      Courier

Tracking # 6126 6537 3648

Relinquished by : (Signature)

Date: 6/5/23	Time: 1200
--------------	------------

Received by: (Signature)

Trip Blank Received: Yes / No  
HCL / MeOH  
TBR

Relinquished by : (Signature)

Date: 6/14/23	Time: 1500
---------------	------------

Received by: (Signature)

Temp:	°C	Bottles Received:
4.5 + 0 = 4.5		6

Relinquished by : (Signature)

Date:	Time:
-------	-------

Received for lab by: (Signature)

Date: 6/16/23 Time: 09:15

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
<u>If Applicable</u>			
VOA Zero Headspace:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

If preservation required by Login: Date/Time

Hold:	Condition: NCF / OK
-------	------------------------

**L1626902 - CAERUSPCO - relog**

R2/R3/R4/RX/EX

Please relog -01 and -02 for SAR. Standard TAT

Time estimate: 0h

Time spent: 0h

**Members**



Chris Ward




Jason Romer

## Caerus Oil and Gas

Sample Delivery Group: L1630720  
Samples Received: 06/16/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. , Brett M. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



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20230614 YCF 27-13-1 SWD-(WW01)@13.5    L1630720-02	6	<sup>4</sup> Cn
Gl: Glossary of Terms	7	<sup>5</sup> Sr
Al: Accreditations & Locations	8	
Sc: Sample Chain of Custody	9	<sup>6</sup> Gl
		<sup>7</sup> Al
		<sup>8</sup> Sc

# SAMPLE SUMMARY

20230614 YCF 27-13-1 SWD-(SW01)@12 L1630720-01 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 08:55

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2087305	1	07/07/23 01:57	07/07/23 01:57	ZSA	Mt. Juliet, TN

20230614 YCF 27-13-1 SWD-(WW01)@13.5 L1630720-02 Solid

Collected by  
Korey Kennedy

Collected date/time  
06/14/23 09:35

Received date/time  
06/16/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2087305	1	07/07/23 02:00	07/07/23 02:00	ZSA	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

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Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.01		1	07/07/2023 01:57	WG2087305

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Gl

<sup>7</sup>Al

<sup>8</sup>Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.87		1	07/07/2023 02:00	WG2087305

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

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Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
-----------	-------------

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



**Caerus Oil & Gas LLC**  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Same as above

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 6 of 1

12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L# ~~1620720~~  
G162  
L1630720

Acctnum:

Template:

Prelogin:

TSR:

P8:

Shipped Via:

Remarks	Sample # (lab only)
---------	---------------------

Report to:  
bmiddleton@caerusoilandgas.com

Email To: [bmiddleton@caerusoilandgas.com](mailto:bmiddleton@caerusoilandgas.com)

Project	YCF 27-13-1 SWD
Description:	Facility Decommissioning

City/State  
Collected: **Yellow Creek, CO**

Phone:	Client Project #
Fax:	YCF 27-13-1 SWD

Lab Project #  
YCF 27-13-1 SWD

Collected by (print): <b>Korey Kennedy</b>	Site/Facility ID # <b>YCF 27-13-1 SWD</b>
---	--

P.O. #  
YCF 27-13-1 SWD

Collected by (signature): Louie Henry

**Rush? (Lab MUST Be Notified)**

<input type="checkbox"/> Same Day	<input type="checkbox"/> Five Day
<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day (Rad Only)
<input type="checkbox"/> Two Day	<input type="checkbox"/> 10 Day (Rad Only)
<input type="checkbox"/> Three Day	

Immediately \_\_\_\_\_

Packed on Ice N ☐ Y ☒ X

Quote # \_\_\_\_\_

Date Results Needed \_\_\_\_\_

**Standard TAT**

[illegible][illegible]

\* Matrix:  
SS - Soil    AIR - Air    F - Filter  
GW - Groundwater    B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
 UPS      FedEx      Courier

Tracking # 6126 6537 3648

Relinquished by : (Signature)

Date: 6/5/23	Time: 1200
--------------	------------

Received by: (Signature)

Trip Blank Received: Yes / No  
HCL / MeOH  
TBR

Relinquished by : (Signature)

Date:	6/18/23	Time:	1500
-------	---------	-------	------

Received by: (Signature)

Temp:	°C	Bottles Received:
4.5 + 0 = 4.5		6

Relinquished by : (Signature)

Date:	Time:
-------	-------

Received for lab by: (Signature)

Date: 6/16/23 Time: 09:15

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
<u>If Applicable</u>			
VOA Zero Headspace:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

If preservation required by Login: Date/Time

Hold:	Condition: NCF / OK
-------	------------------------



**L1626902 - CAERUSPCO - relog**

R2/R3/R4/RX/EX

Please relog -01 and -02 for SAR. Standard TAT

Time estimate: 0h

Time spent: 0h

**Members**



Chris Ward



Jason Romer

**Caerus Oil and Gas**

Sample Delivery Group: L1633310  
Samples Received: 07/08/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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Al: Accreditations & Locations	10	<sup>8</sup> Al
Sc: Sample Chain of Custody	11	<sup>9</sup> Sc

# SAMPLE SUMMARY

20230703-YCF 27-13-1-(FC-PL)@3 L1633310-01 Solid

Collected by  
Matthew Yousif

Collected date/time  
07/03/23 10:20

Received date/time  
07/08/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2091359	1	07/17/23 12:29	07/17/23 12:29	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2091852	1	07/10/23 08:38	07/10/23 14:00	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2091591	1	07/09/23 11:16	07/11/23 18:04	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2091364	1	07/11/23 10:16	07/17/23 14:19	ZSA	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.32		1	07/17/2023 12:29	WG2091359

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.60	T8	1	07/10/2023 14:00	WG2091852

3  
Ss

4  
Cn

Sample Narrative:

L1633310-01 WG2091852: 9.6 at 22.3C

5  
Sr

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	U		0.518	2.00	1	07/11/2023 18:04	WG2091591
Boron	U		1.67	10.0	1	07/11/2023 18:04	WG2091591

6  
Qc

7  
Gl

8  
Al

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.261		0.0167	0.200	1	07/17/2023 14:19	WG2091364

9  
Sc

L1633305-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1633305-02 07/10/23 14:00 • (DUP) R3946769-2 07/10/23 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.15	8.14	1	0.123		1

Sample Narrative:

OS: 8.15 at 22.8C

DUP: 8.14 at 22.8C



L1633305-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1633305-03 07/10/23 14:00 • (DUP) R3946769-3 07/10/23 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.21	8.20	1	0.122		1

Sample Narrative:

OS: 8.21 at 22.7C

DUP: 8.2 at 22.7C

Laboratory Control Sample (LCS)

(LCS) R3946769-1 07/10/23 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 22.4C

Method Blank (MB)

(MB) R3947457-1 07/11/23 17:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Boron	U		1.67	10.0

Laboratory Control Sample (LCS)

(LCS) R3947457-2 07/11/23 17:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.6	92.6	80.0-120	
Boron	100	90.0	90.0	80.0-120	

L1633160-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1633160-16 07/11/23 17:29 • (MS) R3947457-5 07/11/23 17:38 • (MSD) R3947457-6 07/11/23 17:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	6.60	111	111	104	105	1	75.0-125			0.356	20
Boron	100	U	100	103	100	103	1	75.0-125			2.72	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3949375-1 07/17/23 13:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3949375-2 07/17/23 13:43 • (LCSD) R3949375-3 07/17/23 13:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.955	0.969	95.5	96.9	80.0-120			1.41	20

1

Cp

2

Tc

3

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Sr

6

Qc

7

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Al

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Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

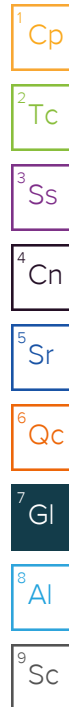
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.
----	---



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



[illegible]



July 24, 2023

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Caerus Oil and Gas

Sample Delivery Group: L1634623  
Samples Received: 07/12/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Blair Rollins  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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20230710-YCFBG-(YCF 27-13-1-N)@6 L1634623-03	8
20230710-YCFBG-(YCF 27-13-1-N)@8 L1634623-04	9
20230710-YCFBG-(YCF 27-13-1-N)@10 L1634623-05	10
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20230710-YCFBG-(YCF 27-13-1-S)@8 L1634623-09	14
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<b>Al: Accreditations &amp; Locations</b>	<b>22</b>
<b>Sc: Sample Chain of Custody</b>	<b>23</b>

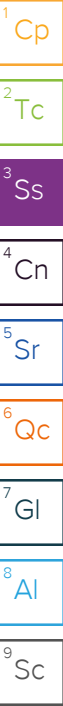
<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

## 20230710-YCFBG-(YCF 27-13-1-N)@2 L1634623-01 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 12:50  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:36	07/21/23 16:36	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 06:44	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:19	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 10:52	SJM	Mt. Juliet, TN



## 20230710-YCFBG-(YCF 27-13-1-N)@4 L1634623-02 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 12:55  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:39	07/21/23 16:39	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 06:49	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:23	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 10:55	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-N)@6 L1634623-03 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 13:00  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:42	07/21/23 16:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:00	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:25	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 10:59	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-N)@8 L1634623-04 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 13:10  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:45	07/21/23 16:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:36	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:28	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:18	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-N)@10 L1634623-05 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 13:15  
Received date/time 07/12/23 08:45

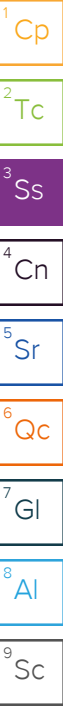
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:47	07/21/23 16:47	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:41	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:30	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:21	SJM	Mt. Juliet, TN

# SAMPLE SUMMARY

## 20230710-YCFBG-(YCF 27-13-1-S)@2 L1634623-06 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 14:05  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:50	07/21/23 16:50	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:46	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:34	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:24	SJM	Mt. Juliet, TN



## 20230710-YCFBG-(YCF 27-13-1-S)@4 L1634623-07 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 14:10  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094009	1	07/21/23 16:58	07/21/23 16:58	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:51	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:42	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:28	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-S)@6 L1634623-08 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 14:20  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:30	07/21/23 18:30	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 07:57	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:45	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:31	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-S)@8 L1634623-09 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 14:25  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:32	07/21/23 18:32	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 08:02	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:48	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:34	SJM	Mt. Juliet, TN

## 20230710-YCFBG-(YCF 27-13-1-S)@10 L1634623-10 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 14:35  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:35	07/21/23 18:35	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/14/23 09:19	07/17/23 08:07	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094830	1	07/14/23 09:18	07/14/23 12:40	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:51	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:37	SJM	Mt. Juliet, TN

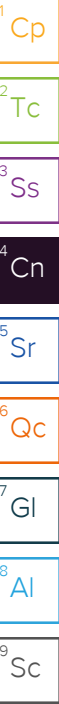


# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.5		1	07/21/2023 16:36	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 06:44	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.07	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-01 WG2094830: 8.07 at 23.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4900		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-01 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.23		0.0167	0.200	1	07/21/2023 14:19	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.91		0.100	1.00	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Barium	334		0.152	2.50	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Cadmium	0.178	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Copper	15.5		0.132	5.00	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Lead	12.4		0.0990	2.00	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Nickel	22.1		0.197	2.50	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Selenium	0.527	<a href="#">J</a>	0.180	2.50	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 10:52	<a href="#">WG2094731</a>
Zinc	45.7		0.740	25.0	5	07/18/2023 10:52	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.14		1	07/21/2023 16:39	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 06:49	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.03	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-02 WG2094830: 8.03 at 23.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4260		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-02 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.754		0.0167	0.200	1	07/21/2023 14:23	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.83		0.100	1.00	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Barium	761		0.152	2.50	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Cadmium	0.220	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Copper	15.5		0.132	5.00	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Lead	11.2		0.0990	2.00	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Nickel	20.2		0.197	2.50	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Selenium	0.437	<a href="#">J</a>	0.180	2.50	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 10:55	<a href="#">WG2094731</a>
Zinc	47.2		0.740	25.0	5	07/18/2023 10:55	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.51		1	07/21/2023 16:42	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.277	J J3 J6	0.255	1.00	1	07/17/2023 07:00	WG2094521

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.23	T8	1	07/14/2023 12:40	WG2094830

Sample Narrative:  
L1634623-03 WG2094830: 8.23 at 24C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1320		10.0	1	07/15/2023 11:37	WG2095337

Sample Narrative:  
L1634623-03 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.245		0.0167	0.200	1	07/21/2023 14:25	WG2099116

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.90		0.100	1.00	5	07/18/2023 10:59	WG2094731
Barium	385		0.152	2.50	5	07/18/2023 10:59	WG2094731
Cadmium	0.276	J	0.0855	1.00	5	07/18/2023 10:59	WG2094731
Copper	20.4		0.132	5.00	5	07/18/2023 10:59	WG2094731
Lead	13.5		0.0990	2.00	5	07/18/2023 10:59	WG2094731
Nickel	21.6		0.197	2.50	5	07/18/2023 10:59	WG2094731
Selenium	0.343	J	0.180	2.50	5	07/18/2023 10:59	WG2094731
Silver	U		0.0865	0.500	5	07/18/2023 10:59	WG2094731
Zinc	44.7		0.740	25.0	5	07/18/2023 10:59	WG2094731

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.85		1	07/21/2023 16:45	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 07:36	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.95	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-04 WG2094830: 8.95 at 23.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	414		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-04 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.104	<a href="#">J</a>	0.0167	0.200	1	07/21/2023 14:28	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.43		0.100	1.00	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Barium	380		0.152	2.50	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Cadmium	0.110	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Copper	12.7		0.132	5.00	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Lead	13.6		0.0990	2.00	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Nickel	22.6		0.197	2.50	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Selenium	0.383	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:18	<a href="#">WG2094731</a>
Zinc	46.0		0.740	25.0	5	07/18/2023 11:18	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.73		1	07/21/2023 16:47	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 07:41	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.96	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-05 WG2094830: 8.96 at 23.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	430		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-05 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.220		0.0167	0.200	1	07/21/2023 14:30	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.44		0.100	1.00	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Barium	287		0.152	2.50	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Cadmium	0.141	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Copper	13.3		0.132	5.00	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Lead	12.0		0.0990	2.00	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Nickel	25.7		0.197	2.50	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Selenium	0.306	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:21	<a href="#">WG2094731</a>
Zinc	48.0		0.740	25.0	5	07/18/2023 11:21	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.01		1	07/21/2023 16:50	WG2094009

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 07:46	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.09	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-06 WG2094830: 8.09 at 23.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	5610		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-06 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	2.00		0.0167	0.200	1	07/21/2023 14:34	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.99		0.100	1.00	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Barium	793		0.152	2.50	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Cadmium	0.215	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Copper	14.5		0.132	5.00	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Lead	9.61		0.0990	2.00	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Nickel	20.4		0.197	2.50	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Selenium	0.904	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:24	<a href="#">WG2094731</a>
Zinc	41.7		0.740	25.0	5	07/18/2023 11:24	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.75		1	07/21/2023 16:58	WG2094009

1  
Cp

2  
Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 07:51	<a href="#">WG2094521</a>

3  
Ss

4  
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

5  
Sr

6  
Qc

Sample Narrative:

L1634623-07 WG2094830: 8.58 at 23.6C

7  
Gl

8  
Al

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	853		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

9  
Sc

Sample Narrative:

L1634623-07 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.233		0.0167	0.200	1	07/21/2023 14:42	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.12		0.100	1.00	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Barium	279		0.152	2.50	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Cadmium	0.101	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Copper	11.8		0.132	5.00	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Lead	10.6		0.0990	2.00	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Nickel	27.5		0.197	2.50	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Selenium	0.288	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:28	<a href="#">WG2094731</a>
Zinc	48.1		0.740	25.0	5	07/18/2023 11:28	<a href="#">WG2094731</a>



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.24		1	07/21/2023 18:30	WG2094011

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 07:57	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.25	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-08 WG2094830: 8.25 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1690		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-08 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.721		0.0167	0.200	1	07/21/2023 14:45	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.48		0.100	1.00	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Barium	286		0.152	2.50	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Cadmium	0.132	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Copper	12.1		0.132	5.00	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Lead	9.50		0.0990	2.00	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Nickel	24.3		0.197	2.50	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Selenium	0.380	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:31	<a href="#">WG2094731</a>
Zinc	47.0		0.740	25.0	5	07/18/2023 11:31	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.37		1	07/21/2023 18:32	WG2094011

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 08:02	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.24	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-09 WG2094830: 8.24 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1330		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-09 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.02		0.0167	0.200	1	07/21/2023 14:48	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.94		0.100	1.00	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Barium	276		0.152	2.50	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Cadmium	0.154	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Copper	13.0		0.132	5.00	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Lead	10.0		0.0990	2.00	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Nickel	20.9		0.197	2.50	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Selenium	0.342	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:34	<a href="#">WG2094731</a>
Zinc	41.8		0.740	25.0	5	07/18/2023 11:34	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.78		1	07/21/2023 18:35	WG2094011

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 08:07	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	<a href="#">T8</a>	1	07/14/2023 12:40	<a href="#">WG2094830</a>

Sample Narrative:  
L1634623-10 WG2094830: 7.98 at 23.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1590		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:  
L1634623-10 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.918		0.0167	0.200	1	07/21/2023 14:51	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.86		0.100	1.00	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Barium	265		0.152	2.50	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Cadmium	0.115	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Copper	13.7		0.132	5.00	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Lead	10.1		0.0990	2.00	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Nickel	21.1		0.197	2.50	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Selenium	0.404	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:37	<a href="#">WG2094731</a>
Zinc	42.0		0.740	25.0	5	07/18/2023 11:37	<a href="#">WG2094731</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3949209-1 07/17/23 06:31

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1634623-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-02 07/17/23 06:49 • (DUP) R3949209-3 07/17/23 06:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

L1634625-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1634625-04 07/17/23 08:38 • (DUP) R3949209-8 07/17/23 08:43

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	0.355	1	200	J P1	20

Laboratory Control Sample (LCS)

(LCS) R3949209-2 07/17/23 06:39

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.0	100	80.0-120	

L1634623-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1634623-03 07/17/23 07:00 • (MS) R3949209-7 07/17/23 07:20

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	641	0.277	437	68.2	50	75.0-125	J6

L1634623-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634623-03 07/17/23 07:00 • (MS) R3949209-5 07/17/23 07:10 • (MSD) R3949209-6 07/17/23 07:15

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	0.277	13.5	16.6	66.1	81.5	1	75.0-125	J6	J3	20.5	20

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc



L1634648-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1634648-08 07/14/23 12:40 • (DUP) R3948689-2 07/14/23 12:40

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.70	8.69	1	0.115		1

Sample Narrative:

OS: 8.7 at 23.3C

DUP: 8.69 at 23.4C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1635075-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1635075-01 07/14/23 12:40 • (DUP) R3948689-3 07/14/23 12:40

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.96	7.96	1	0.000		1

Sample Narrative:

OS: 7.96 at 23.4C

DUP: 7.96 at 23.3C

Laboratory Control Sample (LCS)

(LCS) R3948689-1 07/14/23 12:40

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 23C

Method Blank (MB)

(MB) R3948953-1 07/15/23 11:37

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1634623-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-09 07/15/23 11:37 • (DUP) R3948953-3 07/15/23 11:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1330	1310	1	1.67		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1634623-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-10 07/15/23 11:37 • (DUP) R3948953-4 07/15/23 11:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1590	1580	1	0.633		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3948953-2 07/15/23 11:37

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	700	95.6	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3951358-1 07/21/23 14:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3951358-2 07/21/23 14:11 • (LCSD) R3951358-3 07/21/23 14:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.11	106	111	80.0-120			4.92	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3949738-1 07/18/23 10:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3949738-2 07/18/23 10:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.2	94.2	80.0-120	
Barium	100	90.0	90.0	80.0-120	
Cadmium	100	93.9	93.9	80.0-120	
Copper	100	87.1	87.1	80.0-120	
Lead	100	88.3	88.3	80.0-120	
Nickel	100	92.1	92.1	80.0-120	
Selenium	100	94.9	94.9	80.0-120	
Silver	20.0	18.1	90.6	80.0-120	
Zinc	100	89.3	89.3	80.0-120	

L1634625-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634625-02 07/18/23 10:36 • (MS) R3949738-5 07/18/23 10:46 • (MSD) R3949738-6 07/18/23 10:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.01	106	109	102	105	5	75.0-125			2.68	20
Barium	100	2890	2870	3720	0.000	830	5	75.0-125	E V	E J3 V	25.7	20
Cadmium	100	0.159	111	108	110	108	5	75.0-125			2.46	20
Copper	100	18.7	118	118	99.6	99.3	5	75.0-125			0.256	20
Lead	100	16.1	119	121	103	105	5	75.0-125			1.44	20
Nickel	100	23.7	120	123	96.8	99.7	5	75.0-125			2.39	20
Selenium	100	0.384	113	112	112	112	5	75.0-125			0.490	20
Silver	20.0	U	21.2	21.1	106	105	5	75.0-125			0.280	20
Zinc	100	78.5	152	151	73.2	72.4	5	75.0-125	J6	J6	0.537	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

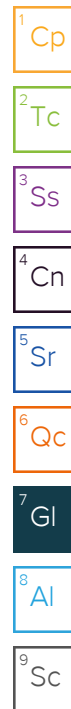
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.





# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



**Caerus Oil & Gas LLC**  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Hold:	Condition NCF / O
-------	----------------------

**Caerus Oil and Gas**

Sample Delivery Group: L1634624  
Samples Received: 07/12/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

20230710-YCF 27-13-1 SWD-(FC-PL-01)@4 L1634624-01 Solid

Collected by  
Ben Herrmann

Collected date/time  
07/10/23 13:35

Received date/time  
07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:38	07/21/23 18:38	SPL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:54	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:41	SJM	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.824		1	07/21/2023 18:38	WG2094011

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.90	T8	1	07/14/2023 11:00	<a href="#">WG2094816</a>

3  
Ss

4  
Cn

Sample Narrative:

L1634624-01 WG2094816: 8.9 at 23.5C

5  
Sr

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.505		0.0167	0.200	1	07/21/2023 14:54	<a href="#">WG2099116</a>

6  
Qc

7  
Gl

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.35		0.100	1.00	5	07/18/2023 11:41	<a href="#">WG2094731</a>

8  
Al

9  
Sc

L1634452-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1634452-01 07/14/23 11:00 • (DUP) R3948617-2 07/14/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.60	8.58	1	0.233		1

Sample Narrative:

OS: 8.6 at 23.7C

DUP: 8.58 at 23.7C

L1634848-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1634848-01 07/14/23 11:00 • (DUP) R3948617-3 07/14/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	11.8	11.8	1	0.0849		1

Sample Narrative:

OS: 11.77 at 23.3C

DUP: 11.78 at 23.4C

Laboratory Control Sample (LCS)

(LCS) R3948617-1 07/14/23 11:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 22.7C



Method Blank (MB)

(MB) R3951358-1 07/21/23 14:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3951358-2 07/21/23 14:11 • (LCSD) R3951358-3 07/21/23 14:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.11	106	111	80.0-120			4.92	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3949738-1 07/18/23 10:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3949738-2 07/18/23 10:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.2	94.2	80.0-120	

L1634625-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634625-02 07/18/23 10:36 • (MS) R3949738-5 07/18/23 10:46 • (MSD) R3949738-6 07/18/23 10:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.01	106	109	102	105	5	75.0-125			2.68	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



# GLOSSARY OF TERMS

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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.
----	---

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# ACCREDITATIONS & LOCATIONS

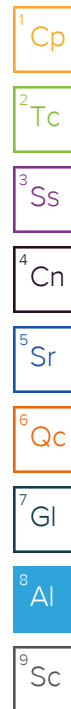
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
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Illinois	200008	Oklahoma	9915
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Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Caerus Oil & Gas LLC  
143 Diamond Avenue  
Parachute, CO 81635  
970-285-9606

Billing Information:

Same as above

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L#

1220

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks

Sample # (lab only)

Report to:  
bmiddleton@caerusoilandgas.com

Email To:  
bmiddleton@caerusoilandgas.com

Project YCF 27-13-1 SWD  
Description: Facility Decommissioning

City/State  
Collected: Yellow Creek, CO

Phone:  
Fax:

Client Project #  
YCF 27-13-1 SWD

Lab Project #  
YCF 27-13-1 SWD

Collected by (print):  
Ben Herrmann

Site/Facility ID #  
YCF 27-13-1 SWD

P.O. #  
YCF 27-13-1 SWD

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

Standard TAT

No.  
of  
Cntrs

Immediately  
Packed on Ice N Y X

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

20230710-YCF 27-13-1 SWD-(FC-PL-01)@4

Grab

SS

4

7/10/2023

13:35

1

Arsenic

SAR, pH, Boron

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

Samples returned via:

UPS FedEx Courier

Tracking #

6426 8306 6570

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N  
COC Signed/Accurate: ☒ Y ☐ N  
Bottles arrive intact: ☒ Y ☐ N  
Correct bottles used: ☒ Y ☐ N  
Sufficient volume sent: ☒ Y ☐ N  
If Applicable  
VOA Zero Headspace: ☒ Y ☐ N  
Preservation Correct/Checked: ☒ Y ☐ N

Relinquished by: (Signature)

Date:

7/11/2023

Time:

8:30

Received by: (Signature)

Trip Blank Received: Yes ☒ No ☐  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

7/11/23

Time:

1330

Received by: (Signature)

Temp 63.6°C Bottles Received: 1  
3.7+0=3.7

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 7-12-23 Time: 845

If preservation required by Login: Date/Time

Hold:

Condition:  
NCF / OK

## Caerus Oil and Gas

Sample Delivery Group: L1634625  
Samples Received: 07/12/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Blair Rollins  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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## Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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<b>Al: Accreditations &amp; Locations</b>	<b>28</b>
<b>Sc: Sample Chain of Custody</b>	<b>29</b>



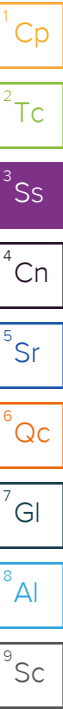


# SAMPLE SUMMARY

20230710-YCF 27-13-1 SWD-(BASE-02)@14 L1634625-01 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 09:10  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:41	07/21/23 18:41	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/13/23 16:05	07/17/23 08:12	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 14:57	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	10	07/14/23 07:16	07/18/23 12:21	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:44	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2095150	1	07/13/23 19:57	07/14/23 17:11	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2094987	1	07/13/23 19:57	07/14/23 19:03	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2095307	10	07/15/23 07:49	07/15/23 17:50	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2095964	1	07/17/23 08:46	07/18/23 06:20	MBE	Mt. Juliet, TN



20230710-YCF 27-13-1 SWD-(WW-02)@12 L1634625-02 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 10:45  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:43	07/21/23 18:43	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/13/23 16:05	07/17/23 08:17	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 15:00	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	20	07/14/23 07:16	07/18/23 12:18	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 10:36	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2095150	1	07/13/23 19:57	07/14/23 17:34	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2094987	1	07/14/23 12:05	07/14/23 19:21	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2095307	5	07/15/23 07:49	07/15/23 17:25	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2095964	1	07/17/23 08:46	07/18/23 07:14	MBE	Mt. Juliet, TN

20230710-YCF 27-13-1 SWD-(NW-02)@12 L1634625-03 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 11:00  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:46	07/21/23 18:46	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/13/23 16:05	07/17/23 08:23	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 15:02	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	10	07/14/23 07:16	07/18/23 12:24	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:47	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2095150	1	07/13/23 19:57	07/14/23 17:57	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2094987	1	07/13/23 19:57	07/14/23 19:40	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2095541	5	07/17/23 15:44	07/18/23 12:55	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2095964	1	07/17/23 08:46	07/18/23 06:03	MBE	Mt. Juliet, TN

20230710-YCF 27-13-1 SWD-(EW-02)@12 L1634625-04 Solid

Collected by Ben Herrmann  
Collected date/time 07/10/23 11:20  
Received date/time 07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:49	07/21/23 18:49	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/13/23 16:05	07/17/23 08:38	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 15:05	CCE	Mt. Juliet, TN

# SAMPLE SUMMARY

20230710-YCF 27-13-1 SWD-(EW-02)@12 L1634625-04 Solid

Collected by  
Ben Herrmann

Collected date/time  
07/10/23 11:20

Received date/time  
07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 11:58	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2095150	1	07/13/23 19:57	07/14/23 18:20	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2094987	1	07/13/23 19:57	07/14/23 19:59	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2095541	5	07/17/23 15:44	07/18/23 13:08	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2095964	1	07/17/23 08:46	07/18/23 04:52	MBE	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

20230710-YCF 27-13-1 SWD-(SW-02)@12 L1634625-05 Solid

Collected by  
Ben Herrmann

Collected date/time  
07/10/23 12:10

Received date/time  
07/12/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2094011	1	07/21/23 18:52	07/21/23 18:52	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2094521	1	07/13/23 16:05	07/17/23 08:49	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2094816	1	07/14/23 08:54	07/14/23 11:00	SJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2095337	1	07/15/23 06:44	07/15/23 11:37	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2099116	1	07/21/23 09:46	07/21/23 15:08	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	10	07/14/23 07:16	07/18/23 12:28	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2094731	5	07/14/23 07:16	07/18/23 12:01	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2095150	1	07/13/23 19:57	07/14/23 18:44	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2094987	1	07/13/23 19:57	07/14/23 20:19	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2095541	5	07/17/23 15:44	07/18/23 12:15	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2095964	1	07/17/23 08:46	07/18/23 05:28	MBE	Mt. Juliet, TN

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

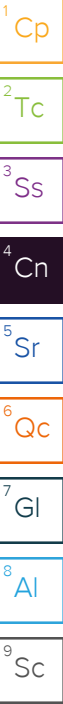
<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.49		1	07/21/2023 18:41	WG2094011

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 08:12	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.80	<a href="#">T8</a>	1	07/14/2023 11:00	<a href="#">WG2094816</a>

Sample Narrative:

L1634625-01 WG2094816: 8.8 at 23.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	460		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:

L1634625-01 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.260		0.0167	0.200	1	07/21/2023 14:57	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.57		0.100	1.00	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Barium	1620		0.304	5.00	10	07/18/2023 12:21	<a href="#">WG2094731</a>
Cadmium	0.113	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Copper	13.9		0.132	5.00	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Lead	15.2		0.0990	2.00	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Nickel	20.3		0.197	2.50	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Selenium	0.382	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:44	<a href="#">WG2094731</a>
Zinc	59.4		0.740	25.0	5	07/18/2023 11:44	<a href="#">WG2094731</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0404	<a href="#">B J</a>	0.0217	0.100	1	07/14/2023 17:11	<a href="#">WG2095150</a>
(S) a,a,a-Trifluorotoluene(FID)	96.1			77.0-120		07/14/2023 17:11	<a href="#">WG2095150</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/14/2023 19:03	<a href="#">WG2094987</a>
Toluene	U		0.00130	0.00500	1	07/14/2023 19:03	<a href="#">WG2094987</a>
Ethylbenzene	U		0.000737	0.00250	1	07/14/2023 19:03	<a href="#">WG2094987</a>
Xylenes, Total	U		0.000880	0.00650	1	07/14/2023 19:03	<a href="#">WG2094987</a>
1,2,4-Trimethylbenzene	0.00324	<u>J</u>	0.00158	0.00500	1	07/14/2023 19:03	<a href="#">WG2094987</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/14/2023 19:03	<a href="#">WG2094987</a>
(S) Toluene-d8	115			75.0-131		07/14/2023 19:03	<a href="#">WG2094987</a>
(S) 4-Bromofluorobenzene	99.2			67.0-138		07/14/2023 19:03	<a href="#">WG2094987</a>
(S) 1,2-Dichloroethane-d4	71.1			70.0-130		07/14/2023 19:03	<a href="#">WG2094987</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	76.0		16.1	40.0	10	07/15/2023 17:50	<a href="#">WG2095307</a>
C28-C36 Motor Oil Range	224		2.74	40.0	10	07/15/2023 17:50	<a href="#">WG2095307</a>
(S) o-Terphenyl	43.8			18.0-148		07/15/2023 17:50	<a href="#">WG2095307</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Anthracene	U		0.00230	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Chrysene	U		0.00232	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Fluoranthene	U		0.00227	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Fluorene	U		0.00205	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	07/18/2023 06:20	<a href="#">WG2095964</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Naphthalene	U		0.00408	0.0200	1	07/18/2023 06:20	<a href="#">WG2095964</a>
Pyrene	0.00274	<u>J</u>	0.00200	0.00600	1	07/18/2023 06:20	<a href="#">WG2095964</a>
(S) p-Terphenyl-d14	65.3			23.0-120		07/18/2023 06:20	<a href="#">WG2095964</a>
(S) Nitrobenzene-d5	38.6			14.0-149		07/18/2023 06:20	<a href="#">WG2095964</a>
(S) 2-Fluorobiphenyl	62.5			34.0-125		07/18/2023 06:20	<a href="#">WG2095964</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	4.22		1	07/21/2023 18:43	WG2094011

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 08:17	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.58	<a href="#">T8</a>	1	07/14/2023 11:00	<a href="#">WG2094816</a>

Sample Narrative:

L1634625-02 WG2094816: 8.58 at 23.2C

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte						
Specific Conductance	1040		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:

L1634625-02 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.397		0.0167	0.200	1	07/21/2023 15:00	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Arsenic	4.01		0.100	1.00	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Barium	2740		0.608	10.0	20	07/18/2023 12:18	<a href="#">WG2094731</a>
Cadmium	0.159	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Copper	18.7		0.132	5.00	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Lead	16.1		0.0990	2.00	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Nickel	23.7		0.197	2.50	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Selenium	0.384	<a href="#">J</a>	0.180	2.50	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 10:36	<a href="#">WG2094731</a>
Zinc	78.5	<a href="#">J6</a>	0.740	25.0	5	07/18/2023 10:36	<a href="#">WG2094731</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
TPH (GC/FID) Low Fraction	0.0504	<a href="#">B J</a>	0.0217	0.100	1	07/14/2023 17:34	<a href="#">WG2095150</a>
(S) a,a,a-Trifluorotoluene(FID)	95.9			77.0-120		07/14/2023 17:34	<a href="#">WG2095150</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/14/2023 19:21	<a href="#">WG2094987</a>
Toluene	0.00134	<a href="#">BJ</a>	0.00130	0.00500	1	07/14/2023 19:21	<a href="#">WG2094987</a>
Ethylbenzene	U		0.000737	0.00250	1	07/14/2023 19:21	<a href="#">WG2094987</a>
Xylenes, Total	U		0.000880	0.00650	1	07/14/2023 19:21	<a href="#">WG2094987</a>
1,2,4-Trimethylbenzene	0.00171	<a href="#">J</a>	0.00158	0.00500	1	07/14/2023 19:21	<a href="#">WG2094987</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/14/2023 19:21	<a href="#">WG2094987</a>
(S) Toluene-d8	114			75.0-131		07/14/2023 19:21	<a href="#">WG2094987</a>
(S) 4-Bromofluorobenzene	95.0			67.0-138		07/14/2023 19:21	<a href="#">WG2094987</a>
(S) 1,2-Dichloroethane-d4	75.1			70.0-130		07/14/2023 19:21	<a href="#">WG2094987</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	152		8.05	20.0	5	07/15/2023 17:25	<a href="#">WG2095307</a>
C28-C36 Motor Oil Range	504		1.37	20.0	5	07/15/2023 17:25	<a href="#">WG2095307</a>
(S) o-Terphenyl	55.0			18.0-148		07/15/2023 17:25	<a href="#">WG2095307</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Anthracene	U		0.00230	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Chrysene	U		0.00232	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Fluoranthene	U		0.00227	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Fluorene	U		0.00205	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	07/18/2023 07:14	<a href="#">WG2095964</a>
2-Methylnaphthalene	0.00447	<a href="#">J</a>	0.00427	0.0200	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Naphthalene	U		0.00408	0.0200	1	07/18/2023 07:14	<a href="#">WG2095964</a>
Pyrene	0.00325	<a href="#">J</a>	0.00200	0.00600	1	07/18/2023 07:14	<a href="#">WG2095964</a>
(S) p-Terphenyl-d14	67.0			23.0-120		07/18/2023 07:14	<a href="#">WG2095964</a>
(S) Nitrobenzene-d5	40.8			14.0-149		07/18/2023 07:14	<a href="#">WG2095964</a>
(S) 2-Fluorobiphenyl	66.8			34.0-125		07/18/2023 07:14	<a href="#">WG2095964</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	3.10		1	07/21/2023 18:46	WG2094011

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	07/17/2023 08:23	<a href="#">WG2094521</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.81	<a href="#">T8</a>	1	07/14/2023 11:00	<a href="#">WG2094816</a>

Sample Narrative:

L1634625-03 WG2094816: 8.81 at 23.2C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	501		10.0	1	07/15/2023 11:37	<a href="#">WG2095337</a>

Sample Narrative:

L1634625-03 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.345		0.0167	0.200	1	07/21/2023 15:02	<a href="#">WG2099116</a>

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	3.60		0.100	1.00	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Barium	1470		0.304	5.00	10	07/18/2023 12:24	<a href="#">WG2094731</a>
Cadmium	0.127	<a href="#">J</a>	0.0855	1.00	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Copper	18.6		0.132	5.00	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Lead	14.0		0.0990	2.00	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Nickel	22.4		0.197	2.50	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Selenium	0.365	<a href="#">J</a>	0.180	2.50	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Silver	U		0.0865	0.500	5	07/18/2023 11:47	<a href="#">WG2094731</a>
Zinc	58.3		0.740	25.0	5	07/18/2023 11:47	<a href="#">WG2094731</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.0435	<a href="#">B J</a>	0.0217	0.100	1	07/14/2023 17:57	<a href="#">WG2095150</a>
(S) a,a,a-Trifluorotoluene(FID)	94.5			77.0-120		07/14/2023 17:57	<a href="#">WG2095150</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/14/2023 19:40	<a href="#">WG2094987</a>
Toluene	U		0.00130	0.00500	1	07/14/2023 19:40	<a href="#">WG2094987</a>
Ethylbenzene	U		0.000737	0.00250	1	07/14/2023 19:40	<a href="#">WG2094987</a>
Xylenes, Total	U		0.000880	0.00650	1	07/14/2023 19:40	<a href="#">WG2094987</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/14/2023 19:40	<a href="#">WG2094987</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/14/2023 19:40	<a href="#">WG2094987</a>
(S) Toluene-d8	114			75.0-131		07/14/2023 19:40	<a href="#">WG2094987</a>
(S) 4-Bromofluorobenzene	95.6			67.0-138		07/14/2023 19:40	<a href="#">WG2094987</a>
(S) 1,2-Dichloroethane-d4	72.3			70.0-130		07/14/2023 19:40	<a href="#">WG2094987</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	68.5		8.05	20.0	5	07/18/2023 12:55	<a href="#">WG2095541</a>
C28-C36 Motor Oil Range	208		1.37	20.0	5	07/18/2023 12:55	<a href="#">WG2095541</a>
(S) o-Terphenyl	47.9			18.0-148		07/18/2023 12:55	<a href="#">WG2095541</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Anthracene	U		0.00230	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Chrysene	U		0.00232	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Fluoranthene	U		0.00227	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Fluorene	U		0.00205	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	07/18/2023 06:03	<a href="#">WG2095964</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Naphthalene	U		0.00408	0.0200	1	07/18/2023 06:03	<a href="#">WG2095964</a>
Pyrene	0.00283	U	0.00200	0.00600	1	07/18/2023 06:03	<a href="#">WG2095964</a>
(S) p-Terphenyl-d14	64.9			23.0-120		07/18/2023 06:03	<a href="#">WG2095964</a>
(S) Nitrobenzene-d5	38.0			14.0-149		07/18/2023 06:03	<a href="#">WG2095964</a>
(S) 2-Fluorobiphenyl	64.0			34.0-125		07/18/2023 06:03	<a href="#">WG2095964</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	2.83		1	07/21/2023 18:49	WG2094011

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Wet Chemistry by Method 7199

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Hexavalent Chromium	U	P1	0.255	1.00	1	07/17/2023 08:38	WG2094521

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.87	T8	1	07/14/2023 11:00	WG2094816

Sample Narrative:

L1634625-04 WG2094816: 8.87 at 23.2C

Wet Chemistry by Method 9050AMod

	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Analyte						
Specific Conductance	376		10.0	1	07/15/2023 11:37	WG2095337

Sample Narrative:

L1634625-04 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Analyte							
Hot Water Sol. Boron	0.162	J	0.0167	0.200	1	07/21/2023 15:05	WG2099116

Metals (ICPMS) by Method 6020

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
Arsenic	3.98		0.100	1.00	5	07/18/2023 11:58	WG2094731
Barium	848		0.152	2.50	5	07/18/2023 11:58	WG2094731
Cadmium	0.136	J	0.0855	1.00	5	07/18/2023 11:58	WG2094731
Copper	17.2		0.132	5.00	5	07/18/2023 11:58	WG2094731
Lead	12.4		0.0990	2.00	5	07/18/2023 11:58	WG2094731
Nickel	23.7		0.197	2.50	5	07/18/2023 11:58	WG2094731
Selenium	0.496	J	0.180	2.50	5	07/18/2023 11:58	WG2094731
Silver	U		0.0865	0.500	5	07/18/2023 11:58	WG2094731
Zinc	50.2		0.740	25.0	5	07/18/2023 11:58	WG2094731

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Analyte							
TPH (GC/FID) Low Fraction	0.0440	B J	0.0217	0.100	1	07/14/2023 18:20	WG2095150
(S) a,a,a-Trifluorotoluene(FID)	94.8			77.0-120		07/14/2023 18:20	WG2095150



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/14/2023 19:59	<a href="#">WG2094987</a>
Toluene	0.00131	<a href="#">B J</a>	0.00130	0.00500	1	07/14/2023 19:59	<a href="#">WG2094987</a>
Ethylbenzene	U		0.000737	0.00250	1	07/14/2023 19:59	<a href="#">WG2094987</a>
Xylenes, Total	U		0.000880	0.00650	1	07/14/2023 19:59	<a href="#">WG2094987</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/14/2023 19:59	<a href="#">WG2094987</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/14/2023 19:59	<a href="#">WG2094987</a>
(S) Toluene-d8	116			75.0-131		07/14/2023 19:59	<a href="#">WG2094987</a>
(S) 4-Bromofluorobenzene	100			67.0-138		07/14/2023 19:59	<a href="#">WG2094987</a>
(S) 1,2-Dichloroethane-d4	75.2			70.0-130		07/14/2023 19:59	<a href="#">WG2094987</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	37.7		8.05	20.0	5	07/18/2023 13:08	<a href="#">WG2095541</a>
C28-C36 Motor Oil Range	110		1.37	20.0	5	07/18/2023 13:08	<a href="#">WG2095541</a>
(S) o-Terphenyl	49.4			18.0-148		07/18/2023 13:08	<a href="#">WG2095541</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Anthracene	U		0.00230	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Chrysene	U		0.00232	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Fluoranthene	U		0.00227	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Fluorene	U		0.00205	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	07/18/2023 04:52	<a href="#">WG2095964</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Naphthalene	U		0.00408	0.0200	1	07/18/2023 04:52	<a href="#">WG2095964</a>
Pyrene	U		0.00200	0.00600	1	07/18/2023 04:52	<a href="#">WG2095964</a>
(S) p-Terphenyl-d14	69.3			23.0-120		07/18/2023 04:52	<a href="#">WG2095964</a>
(S) Nitrobenzene-d5	47.5			14.0-149		07/18/2023 04:52	<a href="#">WG2095964</a>
(S) 2-Fluorobiphenyl	73.1			34.0-125		07/18/2023 04:52	<a href="#">WG2095964</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	3.48		1	07/21/2023 18:52	WG2094011

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	0.255	J	0.255	1.00	1	07/17/2023 08:49	WG2094521

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	9.07	T8	1	07/14/2023 11:00	WG2094816

Sample Narrative:

L1634625-05 WG2094816: 9.07 at 23.3C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	525		10.0	1	07/15/2023 11:37	WG2095337

Sample Narrative:

L1634625-05 WG2095337: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.306		0.0167	0.200	1	07/21/2023 15:08	WG2099116

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	3.04		0.100	1.00	5	07/18/2023 12:01	WG2094731
Barium	904		0.304	5.00	10	07/18/2023 12:28	WG2094731
Cadmium	0.116	J	0.0855	1.00	5	07/18/2023 12:01	WG2094731
Copper	14.7		0.132	5.00	5	07/18/2023 12:01	WG2094731
Lead	16.5		0.0990	2.00	5	07/18/2023 12:01	WG2094731
Nickel	21.4		0.197	2.50	5	07/18/2023 12:01	WG2094731
Selenium	0.356	J	0.180	2.50	5	07/18/2023 12:01	WG2094731
Silver	U		0.0865	0.500	5	07/18/2023 12:01	WG2094731
Zinc	45.9		0.740	25.0	5	07/18/2023 12:01	WG2094731

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.0387	B J	0.0217	0.100	1	07/14/2023 18:44	WG2095150
(S) a,a,a-Trifluorotoluene(FID)	95.4			77.0-120		07/14/2023 18:44	WG2095150

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	07/14/2023 20:19	<a href="#">WG2094987</a>
Toluene	U		0.00130	0.00500	1	07/14/2023 20:19	<a href="#">WG2094987</a>
Ethylbenzene	U		0.000737	0.00250	1	07/14/2023 20:19	<a href="#">WG2094987</a>
Xylenes, Total	U		0.000880	0.00650	1	07/14/2023 20:19	<a href="#">WG2094987</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/14/2023 20:19	<a href="#">WG2094987</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/14/2023 20:19	<a href="#">WG2094987</a>
(S) Toluene-d8	117			75.0-131		07/14/2023 20:19	<a href="#">WG2094987</a>
(S) 4-Bromofluorobenzene	97.4			67.0-138		07/14/2023 20:19	<a href="#">WG2094987</a>
(S) 1,2-Dichloroethane-d4	73.4			70.0-130		07/14/2023 20:19	<a href="#">WG2094987</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	23.9		8.05	20.0	5	07/18/2023 12:15	<a href="#">WG2095541</a>
C28-C36 Motor Oil Range	54.6		1.37	20.0	5	07/18/2023 12:15	<a href="#">WG2095541</a>
(S) o-Terphenyl	53.9			18.0-148		07/18/2023 12:15	<a href="#">WG2095541</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Anthracene	U		0.00230	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Chrysene	U		0.00232	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Fluoranthene	U		0.00227	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Fluorene	U		0.00205	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	07/18/2023 05:28	<a href="#">WG2095964</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Naphthalene	U		0.00408	0.0200	1	07/18/2023 05:28	<a href="#">WG2095964</a>
Pyrene	U		0.00200	0.00600	1	07/18/2023 05:28	<a href="#">WG2095964</a>
(S) p-Terphenyl-d14	70.3			23.0-120		07/18/2023 05:28	<a href="#">WG2095964</a>
(S) Nitrobenzene-d5	45.0			14.0-149		07/18/2023 05:28	<a href="#">WG2095964</a>
(S) 2-Fluorobiphenyl	71.2			34.0-125		07/18/2023 05:28	<a href="#">WG2095964</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3949209-1 07/17/23 06:31

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1634623-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-02 07/17/23 06:49 • (DUP) R3949209-3 07/17/23 06:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

L1634625-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1634625-04 07/17/23 08:38 • (DUP) R3949209-8 07/17/23 08:43

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	0.355	1	200	J P1	20

Laboratory Control Sample (LCS)

(LCS) R3949209-2 07/17/23 06:39

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.0	100	80.0-120	

L1634623-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1634623-03 07/17/23 07:00 • (MS) R3949209-7 07/17/23 07:20

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	641	0.277	437	68.2	50	75.0-125	J6

L1634623-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634623-03 07/17/23 07:00 • (MS) R3949209-5 07/17/23 07:10 • (MSD) R3949209-6 07/17/23 07:15

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	0.277	13.5	16.6	66.1	81.5	1	75.0-125	J6	J3	20.5	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1634452-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1634452-01 07/14/23 11:00 • (DUP) R3948617-2 07/14/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.60	8.58	1	0.233		1

Sample Narrative:

OS: 8.6 at 23.7C

DUP: 8.58 at 23.7C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1634848-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1634848-01 07/14/23 11:00 • (DUP) R3948617-3 07/14/23 11:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	11.8	11.8	1	0.0849		1

Sample Narrative:

OS: 11.77 at 23.3C

DUP: 11.78 at 23.4C

Laboratory Control Sample (LCS)

(LCS) R3948617-1 07/14/23 11:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 22.7C



Method Blank (MB)

(MB) R3948953-1 07/15/23 11:37

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1634623-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-09 07/15/23 11:37 • (DUP) R3948953-3 07/15/23 11:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1330	1310	1	1.67		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1634623-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1634623-10 07/15/23 11:37 • (DUP) R3948953-4 07/15/23 11:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1590	1580	1	0.633		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3948953-2 07/15/23 11:37

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	700	95.6	85.0-115	

Sample Narrative:

LCS: at 25C

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3951358-1 07/21/23 14:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3951358-2 07/21/23 14:11 • (LCSD) R3951358-3 07/21/23 14:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.11	106	111	80.0-120			4.92	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3949738-1 07/18/23 10:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

Laboratory Control Sample (LCS)

(LCS) R3949738-2 07/18/23 10:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.2	94.2	80.0-120	
Barium	100	90.0	90.0	80.0-120	
Cadmium	100	93.9	93.9	80.0-120	
Copper	100	87.1	87.1	80.0-120	
Lead	100	88.3	88.3	80.0-120	
Nickel	100	92.1	92.1	80.0-120	
Selenium	100	94.9	94.9	80.0-120	
Silver	20.0	18.1	90.6	80.0-120	
Zinc	100	89.3	89.3	80.0-120	

L1634625-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634625-02 07/18/23 10:36 • (MS) R3949738-5 07/18/23 10:46 • (MSD) R3949738-6 07/18/23 10:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.01	106	109	102	105	5	75.0-125			2.68	20
Barium	100	2890	2870	3720	0.000	830	5	75.0-125	E V	E J3 V	25.7	20
Cadmium	100	0.159	111	108	110	108	5	75.0-125			2.46	20
Copper	100	18.7	118	118	99.6	99.3	5	75.0-125			0.256	20
Lead	100	16.1	119	121	103	105	5	75.0-125			1.44	20
Nickel	100	23.7	120	123	96.8	99.7	5	75.0-125			2.39	20
Selenium	100	0.384	113	112	112	112	5	75.0-125			0.490	20
Silver	20.0	U	21.2	21.1	106	105	5	75.0-125			0.280	20
Zinc	100	78.5	152	151	73.2	72.4	5	75.0-125	J6	J6	0.537	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3949856-2 07/14/23 16:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0260	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	98.3			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3949856-1 07/14/23 16:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.05	73.6	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			97.8	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3949609-3 07/14/23 11:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	0.00173	U	0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	116			75.0-131
(S) 4-Bromofluorobenzene	95.4			67.0-138
(S) 1,2-Dichloroethane-d4	76.1			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3949609-1 07/14/23 10:12 • (LCSD) R3949609-2 07/14/23 10:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.117	0.108	93.6	86.4	70.0-123			8.00	20
Toluene	0.125	0.133	0.125	106	100	75.0-121			6.20	20
Ethylbenzene	0.125	0.120	0.109	96.0	87.2	74.0-126			9.61	20
Xylenes, Total	0.375	0.364	0.324	97.1	86.4	72.0-127			11.6	20
1,2,4-Trimethylbenzene	0.125	0.0972	0.0931	77.8	74.5	70.0-126			4.31	20
1,3,5-Trimethylbenzene	0.125	0.102	0.102	81.6	81.6	73.0-127			0.000	20
(S) Toluene-d8				110	112	75.0-131				
(S) 4-Bromofluorobenzene				97.4	94.4	67.0-138				
(S) 1,2-Dichloroethane-d4				86.4	75.8	70.0-130				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3948994-1 07/15/23 14:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	67.6			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3948994-2 07/15/23 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.5	69.0	50.0-150	
(S) o-Terphenyl			63.4	18.0-148	

L1634625-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634625-01 07/15/23 17:50 • (MS) R3948994-3 07/15/23 18:02 • (MSD) R3948994-4 07/15/23 18:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.8	76.0	109	103	66.3	54.2	10	50.0-150			5.66	20
(S) o-Terphenyl					47.3	38.1		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3949842-1 07/18/23 09:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.480	⬇	0.274	4.00
(S) o-Terphenyl	58.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3949842-2 07/18/23 09:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.4	70.8	50.0-150	
(S) o-Terphenyl			63.5	18.0-148	

L1634952-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1634952-01 07/18/23 10:33 • (MS) R3949842-3 07/18/23 10:45 • (MSD) R3949842-4 07/18/23 10:58

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.4	8.64	45.0	44.0	73.6	71.4	1	50.0-150			2.25	20
(S) o-Terphenyl					49.5	43.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3949853-2 07/18/23 00:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	80.9			23.0-120
(S) Nitrobenzene-d5	46.5			14.0-149
(S) 2-Fluorobiphenyl	81.9			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3949853-1 07/18/23 00:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0531	66.4	50.0-120	
Anthracene	0.0800	0.0543	67.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0527	65.9	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0508	63.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0522	65.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0472	59.0	42.0-120	
Chrysene	0.0800	0.0572	71.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0564	70.5	47.0-125	
Fluoranthene	0.0800	0.0634	79.3	49.0-129	
Fluorene	0.0800	0.0606	75.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0574	71.8	46.0-125	
1-Methylnaphthalene	0.0800	0.0593	74.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0581	72.6	50.0-120	
Naphthalene	0.0800	0.0522	65.3	50.0-120	
Pyrene	0.0800	0.0513	64.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3949853-1 07/18/23 00:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			74.8	23.0-120	
(S) Nitrobenzene-d5			45.9	14.0-149	
(S) 2-Fluorobiphenyl			75.8	34.0-125	

L1635912-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1635912-02 07/18/23 03:24 • (MS) R3949853-3 07/18/23 03:41 • (MSD) R3949853-4 07/18/23 03:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0784	U	0.0588	0.0550	75.0	71.6	1	14.0-127			6.68	27
Anthracene	0.0784	U	0.0552	0.0514	70.4	66.9	1	10.0-145			7.13	30
Benzo(a)anthracene	0.0784	U	0.0550	0.0522	70.2	68.0	1	10.0-139			5.22	30
Benzo(b)fluoranthene	0.0784	U	0.0566	0.0532	72.2	69.3	1	10.0-140			6.19	36
Benzo(k)fluoranthene	0.0784	U	0.0571	0.0532	72.8	69.3	1	10.0-137			7.07	31
Benzo(a)pyrene	0.0784	U	0.0597	0.0562	76.1	73.2	1	10.0-141			6.04	31
Chrysene	0.0784	U	0.0622	0.0589	79.3	76.7	1	10.0-145			5.45	30
Dibenz(a,h)anthracene	0.0784	U	0.0625	0.0578	79.7	75.3	1	10.0-132			7.81	31
Fluoranthene	0.0784	U	0.0682	0.0643	87.0	83.7	1	10.0-153			5.89	33
Fluorene	0.0784	U	0.0668	0.0625	85.2	81.4	1	11.0-130			6.65	29
Indeno(1,2,3-cd)pyrene	0.0784	U	0.0602	0.0564	76.8	73.4	1	10.0-137			6.52	32
1-Methylnaphthalene	0.0784	U	0.0649	0.0612	82.8	79.7	1	10.0-142			5.87	28
2-Methylnaphthalene	0.0784	U	0.0642	0.0602	81.9	78.4	1	10.0-137			6.43	28
Naphthalene	0.0784	U	0.0586	0.0546	74.7	71.1	1	10.0-135			7.07	27
Pyrene	0.0784	U	0.0590	0.0556	75.3	72.4	1	10.0-148			5.93	35
(S) p-Terphenyl-d14					85.1	82.9		23.0-120				
(S) Nitrobenzene-d5					47.2	49.1		14.0-149				
(S) 2-Fluorobiphenyl					86.8	85.0		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

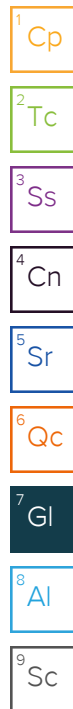
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.





# ACCREDITATIONS & LOCATIONS

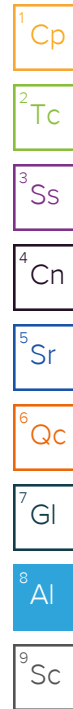
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



**Caerus Oil & Gas LLC**  
**143 Diamond Avenue**  
**Parachute, CO 81635**  
**970-285-9606**

Condition:  
NCF // OK

Shipped Via:

Remarks	Sample # (lab only)
---------	---------------------

	-01
	-02
	-03
	-04
	-05

### Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y	N
COC Signed/Accurate:		Y	N
Bottles arrive intact:		Y	N
Correct bottles used:		Y	N
Sufficient volume sent:		Y	N
<u>If Applicable</u>			
VOA Zero HeadSpace:		Y	N
Preservation Correct/Checked:		Y	N

If preservation required by Login: Date/Time

**Caerus Oil and Gas**

Sample Delivery Group: L1642650  
Samples Received: 08/04/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. / Brett M. / Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



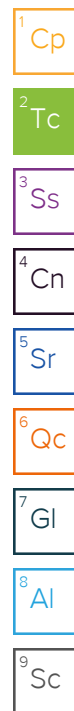
Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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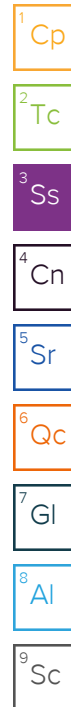


# SAMPLE SUMMARY

20230802-YCF 27-13-1 SWD-(SW03)@12 L1642650-01 Solid

Collected by K. Moreland  
Collected date/time 08/02/23 10:45  
Received date/time 08/04/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2109873	1	08/09/23 10:46	08/09/23 10:46	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2108819	1	08/07/23 05:33	08/08/23 06:46	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2108408	1	08/05/23 14:00	08/09/23 09:52	MCC	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2109245	1	08/08/23 12:00	08/08/23 15:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2109880	1	08/08/23 14:32	08/10/23 23:49	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	20	08/06/23 08:43	08/08/23 20:22	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	5	08/06/23 08:43	08/08/23 19:16	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2109707	1	08/08/23 08:36	08/08/23 11:46	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2110879	1	08/08/23 08:36	08/09/23 21:43	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2110329	1	08/09/23 05:51	08/10/23 01:07	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2110352	1	08/09/23 16:21	08/10/23 15:19	AED	Mt. Juliet, TN



20230802-YCF 27-13-1 SWD-(NW03)@12 L1642650-02 Solid

Collected by K. Moreland  
Collected date/time 08/02/23 12:10  
Received date/time 08/04/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2109873	1	08/09/23 10:49	08/09/23 10:49	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2108819	1	08/07/23 05:33	08/08/23 06:51	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2108647	1	08/06/23 09:18	08/06/23 13:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2109245	1	08/08/23 12:00	08/08/23 15:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2109880	1	08/08/23 14:32	08/10/23 23:52	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	5	08/06/23 08:43	08/08/23 19:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	50	08/06/23 08:43	08/08/23 20:25	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2109707	1	08/08/23 08:36	08/08/23 12:04	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2110879	1	08/08/23 08:36	08/09/23 22:03	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2110329	1	08/09/23 05:51	08/10/23 00:27	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2110352	1	08/09/23 16:21	08/10/23 15:36	AED	Mt. Juliet, TN

20230802-YCF 27-13-1 SWD-(WW03)@12 L1642650-03 Solid

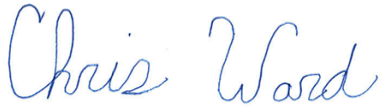
Collected by K. Moreland  
Collected date/time 08/02/23 13:40  
Received date/time 08/04/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2110866	1	08/10/23 20:57	08/10/23 20:57	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2108819	1	08/07/23 05:33	08/08/23 07:01	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2108647	1	08/06/23 09:18	08/06/23 13:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2109245	1	08/08/23 12:00	08/08/23 15:30	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2110763	1	08/09/23 15:10	08/10/23 22:30	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	20	08/06/23 08:43	08/08/23 20:29	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2108534	5	08/06/23 08:43	08/08/23 19:23	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2109707	1	08/08/23 08:36	08/08/23 12:23	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2110879	1	08/08/23 08:36	08/09/23 22:22	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2110392	1	08/09/23 16:52	08/10/23 18:53	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2110352	1	08/09/23 16:21	08/10/23 15:54	AED	Mt. Juliet, TN



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.82		1	08/09/2023 10:46	WG2109873

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	08/08/2023 06:46	<a href="#">WG2108819</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.50	<a href="#">T8</a>	1	08/09/2023 09:52	<a href="#">WG2108408</a>

Sample Narrative:  
L1642650-01 WG2108408: 8.5 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	532		10.0	1	08/08/2023 15:30	<a href="#">WG2109245</a>

Sample Narrative:  
L1642650-01 WG2109245: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.0907	<a href="#">J</a>	0.0167	0.200	1	08/10/2023 23:49	<a href="#">WG2109880</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.25		0.100	1.00	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Barium	295		0.608	10.0	20	08/08/2023 20:22	<a href="#">WG2108534</a>
Cadmium	0.108	<a href="#">J</a>	0.0855	1.00	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Copper	12.7		0.132	5.00	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Lead	11.9		0.0990	2.00	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Nickel	22.7		0.197	2.50	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Selenium	0.299	<a href="#">J</a>	0.180	2.50	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Silver	U		0.0865	0.500	5	08/08/2023 19:16	<a href="#">WG2108534</a>
Zinc	45.0		0.740	25.0	5	08/08/2023 19:16	<a href="#">WG2108534</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/08/2023 11:46	<a href="#">WG2109707</a>
(S) a,a,a-Trifluorotoluene(FID)	99.7			77.0-120		08/08/2023 11:46	<a href="#">WG2109707</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/09/2023 21:43	<a href="#">WG2110879</a>
Toluene	U		0.00130	0.00500	1	08/09/2023 21:43	<a href="#">WG2110879</a>
Ethylbenzene	U		0.000737	0.00250	1	08/09/2023 21:43	<a href="#">WG2110879</a>
Xylenes, Total	0.00120	J	0.000880	0.00650	1	08/09/2023 21:43	<a href="#">WG2110879</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/09/2023 21:43	<a href="#">WG2110879</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/09/2023 21:43	<a href="#">WG2110879</a>
(S) Toluene-d8	110			75.0-131		08/09/2023 21:43	<a href="#">WG2110879</a>
(S) 4-Bromofluorobenzene	100			67.0-138		08/09/2023 21:43	<a href="#">WG2110879</a>
(S) 1,2-Dichloroethane-d4	109			70.0-130		08/09/2023 21:43	<a href="#">WG2110879</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.51		1.61	4.00	1	08/10/2023 01:07	<a href="#">WG2110329</a>
C28-C36 Motor Oil Range	25.8		0.274	4.00	1	08/10/2023 01:07	<a href="#">WG2110329</a>
(S) o-Terphenyl	42.1			18.0-148		08/10/2023 01:07	<a href="#">WG2110329</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Anthracene	U		0.00230	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Chrysene	U		0.00232	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Fluoranthene	U		0.00227	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Fluorene	U		0.00205	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/10/2023 15:19	<a href="#">WG2110352</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Naphthalene	U		0.00408	0.0200	1	08/10/2023 15:19	<a href="#">WG2110352</a>
Pyrene	U		0.00200	0.00600	1	08/10/2023 15:19	<a href="#">WG2110352</a>
(S) p-Terphenyl-d14	90.4			23.0-120		08/10/2023 15:19	<a href="#">WG2110352</a>
(S) Nitrobenzene-d5	67.6			14.0-149		08/10/2023 15:19	<a href="#">WG2110352</a>
(S) 2-Fluorobiphenyl	78.6			34.0-125		08/10/2023 15:19	<a href="#">WG2110352</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.55		1	08/09/2023 10:49	WG2109873

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	08/08/2023 06:51	<a href="#">WG2108819</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.62	<a href="#">T8</a>	1	08/06/2023 13:00	<a href="#">WG2108647</a>

Sample Narrative:  
L1642650-02 WG2108647: 8.62 at 24.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	491		10.0	1	08/08/2023 15:30	<a href="#">WG2109245</a>

Sample Narrative:  
L1642650-02 WG2109245: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.170	<a href="#">J</a>	0.0167	0.200	1	08/10/2023 23:52	<a href="#">WG2109880</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.98		0.100	1.00	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Barium	579		1.52	25.0	50	08/08/2023 20:25	<a href="#">WG2108534</a>
Cadmium	0.104	<a href="#">J</a>	0.0855	1.00	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Copper	12.9		0.132	5.00	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Lead	12.7		0.0990	2.00	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Nickel	23.5		0.197	2.50	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Selenium	0.313	<a href="#">J</a>	0.180	2.50	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Silver	U		0.0865	0.500	5	08/08/2023 19:20	<a href="#">WG2108534</a>
Zinc	45.4		0.740	25.0	5	08/08/2023 19:20	<a href="#">WG2108534</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/08/2023 12:04	<a href="#">WG2109707</a>
(S) a,a,a-Trifluorotoluene(FID)	99.1			77.0-120		08/08/2023 12:04	<a href="#">WG2109707</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/09/2023 22:03	<a href="#">WG2110879</a>
Toluene	U		0.00130	0.00500	1	08/09/2023 22:03	<a href="#">WG2110879</a>
Ethylbenzene	U		0.000737	0.00250	1	08/09/2023 22:03	<a href="#">WG2110879</a>
Xylenes, Total	U		0.000880	0.00650	1	08/09/2023 22:03	<a href="#">WG2110879</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/09/2023 22:03	<a href="#">WG2110879</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/09/2023 22:03	<a href="#">WG2110879</a>
(S) Toluene-d8	109			75.0-131		08/09/2023 22:03	<a href="#">WG2110879</a>
(S) 4-Bromofluorobenzene	104			67.0-138		08/09/2023 22:03	<a href="#">WG2110879</a>
(S) 1,2-Dichloroethane-d4	114			70.0-130		08/09/2023 22:03	<a href="#">WG2110879</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	13.0		1.61	4.00	1	08/10/2023 00:27	<a href="#">WG2110329</a>
C28-C36 Motor Oil Range	38.3		0.274	4.00	1	08/10/2023 00:27	<a href="#">WG2110329</a>
(S) o-Terphenyl	46.9			18.0-148		08/10/2023 00:27	<a href="#">WG2110329</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Anthracene	U		0.00230	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Chrysene	U		0.00232	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Fluoranthene	U		0.00227	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Fluorene	U		0.00205	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/10/2023 15:36	<a href="#">WG2110352</a>
2-Methylnaphthalene	0.00447	U	0.00427	0.0200	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Naphthalene	U		0.00408	0.0200	1	08/10/2023 15:36	<a href="#">WG2110352</a>
Pyrene	U		0.00200	0.00600	1	08/10/2023 15:36	<a href="#">WG2110352</a>
(S) p-Terphenyl-d14	79.4			23.0-120		08/10/2023 15:36	<a href="#">WG2110352</a>
(S) Nitrobenzene-d5	64.8			14.0-149		08/10/2023 15:36	<a href="#">WG2110352</a>
(S) 2-Fluorobiphenyl	74.9			34.0-125		08/10/2023 15:36	<a href="#">WG2110352</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.44		1	08/10/2023 20:57	WG2110866

1  
Cp

2  
Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	08/08/2023 07:01	<a href="#">WG2108819</a>

3  
Ss

4  
Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.65	<a href="#">T8</a>	1	08/06/2023 13:00	<a href="#">WG2108647</a>

5  
Sr

6  
Qc

Sample Narrative:

L1642650-03 WG2108647: 8.65 at 24.4C

7  
Gl

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	491		10.0	1	08/08/2023 15:30	<a href="#">WG2109245</a>

8  
Al

9  
Sc

Sample Narrative:

L1642650-03 WG2109245: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.163	<a href="#">J</a>	0.0167	0.200	1	08/10/2023 22:30	<a href="#">WG2110763</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.02		0.100	1.00	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Barium	184		0.608	10.0	20	08/08/2023 20:29	<a href="#">WG2108534</a>
Cadmium	U		0.0855	1.00	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Copper	9.96		0.132	5.00	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Lead	9.51		0.0990	2.00	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Nickel	20.5		0.197	2.50	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Selenium	0.293	<a href="#">J</a>	0.180	2.50	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Silver	U		0.0865	0.500	5	08/08/2023 19:23	<a href="#">WG2108534</a>
Zinc	41.7		0.740	25.0	5	08/08/2023 19:23	<a href="#">WG2108534</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/08/2023 12:23	<a href="#">WG2109707</a>
(S) a,a,a-Trifluorotoluene(FID)	103			77.0-120		08/08/2023 12:23	<a href="#">WG2109707</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/09/2023 22:22	<a href="#">WG2110879</a>
Toluene	U		0.00130	0.00500	1	08/09/2023 22:22	<a href="#">WG2110879</a>
Ethylbenzene	U		0.000737	0.00250	1	08/09/2023 22:22	<a href="#">WG2110879</a>
Xylenes, Total	0.000916	J	0.000880	0.00650	1	08/09/2023 22:22	<a href="#">WG2110879</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/09/2023 22:22	<a href="#">WG2110879</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/09/2023 22:22	<a href="#">WG2110879</a>
(S) Toluene-d8	112			75.0-131		08/09/2023 22:22	<a href="#">WG2110879</a>
(S) 4-Bromofluorobenzene	98.9			67.0-138		08/09/2023 22:22	<a href="#">WG2110879</a>
(S) 1,2-Dichloroethane-d4	108			70.0-130		08/09/2023 22:22	<a href="#">WG2110879</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.41	J	1.61	4.00	1	08/10/2023 18:53	<a href="#">WG2110392</a>
C28-C36 Motor Oil Range	4.00	J	0.274	4.00	1	08/10/2023 18:53	<a href="#">WG2110392</a>
(S) o-Terphenyl	51.9			18.0-148		08/10/2023 18:53	<a href="#">WG2110392</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Anthracene	U		0.00230	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Chrysene	U		0.00232	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Fluoranthene	U		0.00227	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Fluorene	U		0.00205	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/10/2023 15:54	<a href="#">WG2110352</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Naphthalene	U		0.00408	0.0200	1	08/10/2023 15:54	<a href="#">WG2110352</a>
Pyrene	U		0.00200	0.00600	1	08/10/2023 15:54	<a href="#">WG2110352</a>
(S) p-Terphenyl-d14	87.5			23.0-120		08/10/2023 15:54	<a href="#">WG2110352</a>
(S) Nitrobenzene-d5	54.8			14.0-149		08/10/2023 15:54	<a href="#">WG2110352</a>
(S) 2-Fluorobiphenyl	70.1			34.0-125		08/10/2023 15:54	<a href="#">WG2110352</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3957860-1 08/08/23 05:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1642583-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1642583-02 08/08/23 05:59 • (DUP) R3957860-7 08/08/23 06:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	1.01	0.856	1	16.5	<span>⌵</span>	20

L1642650-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1642650-02 08/08/23 06:51 • (DUP) R3957860-8 08/08/23 06:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3957860-2 08/08/23 05:17

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	11.1	111	80.0-120	

L1642368-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642368-02 08/08/23 05:28 • (MS) R3957860-4 08/08/23 05:38 • (MSD) R3957860-5 08/08/23 05:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	3.38	U	16.9	0.000	1	75.0-125	<span>J6</span>	<span>J3 J6</span>	200	20

L1642368-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1642368-02 08/08/23 05:28 • (MS) R3957860-6 08/08/23 05:49

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	638	U	U	0.000	1	75.0-125	<span>J6</span>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1642574-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1642574-01 08/09/23 09:52 • (DUP) R3958402-2 08/09/23 09:52

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.17	7.19	1	0.279		1

Sample Narrative:

OS: 7.17 at 21.7C

DUP: 7.19 at 21.7C



L1642590-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1642590-04 08/09/23 09:52 • (DUP) R3958402-3 08/09/23 09:52

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.76	7.78	1	0.257		1

Sample Narrative:

OS: 7.76 at 21.6C

DUP: 7.78 at 21.4C

Laboratory Control Sample (LCS)

(LCS) R3958402-1 08/09/23 09:52

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 21.8C

L1642334-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1642334-16 08/06/23 13:00 • (DUP) R3957375-2 08/06/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.02	8.01	1	0.125		1

Sample Narrative:

OS: 8.02 at 24.8C

DUP: 8.01 at 24.8C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1642657-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1642657-01 08/06/23 13:00 • (DUP) R3957375-3 08/06/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	6.02	6.03	1	0.166		1

Sample Narrative:

OS: 6.02 at 24.5C

DUP: 6.03 at 24.7C

Laboratory Control Sample (LCS)

(LCS) R3957375-1 08/06/23 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.02 at 23.9C



Method Blank (MB)

(MB) R3958170-1 08/08/23 15:30

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1642558-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1642558-04 08/08/23 15:30 • (DUP) R3958170-3 08/08/23 15:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	212	217	1	2.01		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1642558-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1642558-05 08/08/23 15:30 • (DUP) R3958170-4 08/08/23 15:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	384	380	1	1.05		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3958170-2 08/08/23 15:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	729	99.6	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3959387-1 08/10/23 23:33

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3959387-2 08/10/23 23:36 • (LCSD) R3959387-3 08/10/23 23:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.07	106	107	80.0-120			0.893	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3959386-1 08/10/23 22:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3959386-2 08/10/23 22:24 • (LCSD) R3959386-3 08/10/23 22:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.984	1.00	98.4	100	80.0-120			1.58	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3958239-1 08/08/23 17:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

Laboratory Control Sample (LCS)

(LCS) R3958239-2 08/08/23 17:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	101	101	80.0-120	
Barium	100	94.7	94.7	80.0-120	
Cadmium	100	103	103	80.0-120	
Copper	100	88.0	88.0	80.0-120	
Lead	100	96.2	96.2	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	104	104	80.0-120	
Silver	20.0	20.2	101	80.0-120	
Zinc	100	95.8	95.8	80.0-120	

7  
Gl

8  
Al

9  
Sc

L1640085-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1640085-01 08/08/23 17:42 • (MS) R3958239-5 08/08/23 17:52 • (MSD) R3958239-6 08/08/23 17:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	12.7	110	112	96.9	99.2	5	75.0-125			2.07	20
Barium	100	43.2	146	166	103	123	5	75.0-125	E	E	12.8	20
Cadmium	100	0.731	104	105	103	104	5	75.0-125			0.890	20
Copper	100	20.9	106	106	84.8	85.4	5	75.0-125			0.613	20
Lead	100	9.46	102	106	92.9	96.6	5	75.0-125			3.61	20
Nickel	100	50.5	146	145	95.6	94.1	5	75.0-125			1.03	20
Selenium	100	0.731	108	108	107	107	5	75.0-125			0.140	20
Silver	20.0	U	20.6	20.5	103	103	5	75.0-125			0.389	20
Zinc	100	57.1	143	146	85.6	88.6	5	75.0-125			2.09	20

Method Blank (MB)

(MB) R3958206-2 08/08/23 10:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	103			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3958206-1 08/08/23 09:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.86	107	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			106	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3958937-2 08/09/23 14:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	110			75.0-131
(S) 4-Bromofluorobenzene	98.9			67.0-138
(S) 1,2-Dichloroethane-d4	116			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3958937-1 08/09/23 13:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.111	88.8	70.0-123	
Toluene	0.125	0.117	93.6	75.0-121	
Ethylbenzene	0.125	0.130	104	74.0-126	
Xylenes, Total	0.375	0.385	103	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.130	104	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.133	106	73.0-127	
(S) Toluene-d8			107	75.0-131	
(S) 4-Bromofluorobenzene			98.3	67.0-138	
(S) 1,2-Dichloroethane-d4			119	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3959072-1 08/09/23 22:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	55.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3959072-2 08/09/23 23:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.4	70.8	50.0-150	
(S) o-Terphenyl			61.6	18.0-148	

L1642207-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642207-01 08/10/23 18:53 • (MS) R3959323-1 08/10/23 19:05 • (MSD) R3959323-2 08/10/23 19:17

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.8	12.5	35.7	26.9	48.5	29.8	5	50.0-150	J6	J3 J6	28.1	20
(S) o-Terphenyl					25.4	29.2		18.0-148				

Sample Narrative:

OS: Sample resembles laboratory standard for Hydraulic Oil.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3958818-1 08/10/23 02:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	74.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3958818-2 08/10/23 02:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.9	69.8	50.0-150	
(S) o-Terphenyl			87.1	18.0-148	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3959591-2 08/10/23 14:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	101			23.0-120
(S) Nitrobenzene-d5	45.1			14.0-149
(S) 2-Fluorobiphenyl	68.6			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3959591-1 08/10/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0856	107	50.0-120	
Anthracene	0.0800	0.0910	114	50.0-126	
Benzo(a)anthracene	0.0800	0.0920	115	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0840	105	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0804	101	49.0-125	
Benzo(a)pyrene	0.0800	0.0716	89.5	42.0-120	
Chrysene	0.0800	0.0906	113	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0812	102	47.0-125	
Fluoranthene	0.0800	0.0969	121	49.0-129	
Fluorene	0.0800	0.0923	115	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0863	108	46.0-125	
1-Methylnaphthalene	0.0800	0.0887	111	51.0-121	
2-Methylnaphthalene	0.0800	0.0939	117	50.0-120	
Naphthalene	0.0800	0.0852	106	50.0-120	
Pyrene	0.0800	0.0870	109	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3959591-1 08/10/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			113	23.0-120	
(S) Nitrobenzene-d5			69.7	14.0-149	
(S) 2-Fluorobiphenyl			87.5	34.0-125	

L1642669-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642669-08 08/10/23 18:31 • (MS) R3959591-3 08/10/23 18:48 • (MSD) R3959591-4 08/10/23 19:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0772	U	0.0588	0.0727	76.2	94.2	1	14.0-127			21.1	27
Anthracene	0.0772	U	0.0594	0.0840	76.9	109	1	10.0-145	J3		34.3	30
Benzo(a)anthracene	0.0772	U	0.0624	0.0771	80.8	99.9	1	10.0-139			21.1	30
Benzo(b)fluoranthene	0.0772	U	0.0547	0.0626	70.9	81.1	1	10.0-140			13.5	36
Benzo(k)fluoranthene	0.0772	U	0.0510	0.0554	66.1	71.8	1	10.0-137			8.27	31
Benzo(a)pyrene	0.0772	U	0.0594	0.0649	76.9	84.1	1	10.0-141			8.85	31
Chrysene	0.0772	U	0.0619	0.0745	80.2	96.5	1	10.0-145			18.5	30
Dibenz(a,h)anthracene	0.0772	U	0.0549	0.0556	71.1	72.0	1	10.0-132			1.27	31
Fluoranthene	0.0772	U	0.0643	0.111	83.3	144	1	10.0-153	J3		53.3	33
Fluorene	0.0772	U	0.0619	0.0803	80.2	104	1	11.0-130			25.9	29
Indeno(1,2,3-cd)pyrene	0.0772	U	0.0580	0.0615	75.1	79.7	1	10.0-137			5.86	32
1-Methylnaphthalene	0.0772	U	0.0626	0.0716	81.1	92.7	1	10.0-142			13.4	28
2-Methylnaphthalene	0.0772	U	0.0657	0.0748	85.1	96.9	1	10.0-137			13.0	28
Naphthalene	0.0772	U	0.0609	0.0670	78.9	86.8	1	10.0-135			9.54	27
Pyrene	0.0772	U	0.0615	0.0928	79.7	120	1	10.0-148	J3		40.6	35
(S) p-Terphenyl-d14					77.0	79.5		23.0-120				
(S) Nitrobenzene-d5					53.0	66.8		14.0-149				
(S) 2-Fluorobiphenyl					72.0	86.8		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

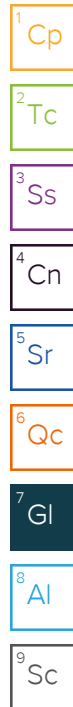
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

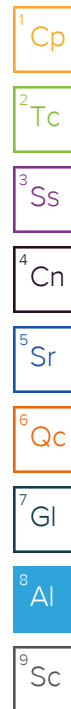
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Hold:	Condition: NCF / OK
-------	------------------------

## Caerus Oil and Gas

Sample Delivery Group: L1642653  
Samples Received: 08/04/2023  
Project Number: YCF 27-13-1 SWD  
Description: YCF 27-13-1 SWD Facility Decommissioning  
Site: YCF 27-13-1 SWD  
Report To: Jake J. / Brett M. / Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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## Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

20230801-YCF 27-13-1 SWD-(BASE05)@14 L1642653-01 Solid				Collected by K. Moreland	Collected date/time 08/01/23 15:10	Received date/time 08/04/23 09:30	<sup>1</sup> Cp
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	<sup>2</sup> Tc
Calculated Results	WG2111542	1	08/11/23 14:05	08/11/23 14:05	CCE	Mt. Juliet, TN	<sup>3</sup> Ss
Wet Chemistry by Method 7199	WG2108819	1	08/07/23 05:33	08/08/23 07:17	VSS	Mt. Juliet, TN	<sup>4</sup> Cn
Wet Chemistry by Method 9045D	WG2108647	1	08/06/23 09:18	08/06/23 13:00	BJM	Mt. Juliet, TN	<sup>5</sup> Sr
Wet Chemistry by Method 9050AMod	WG2109245	1	08/08/23 12:00	08/08/23 15:30	EPW	Mt. Juliet, TN	<sup>6</sup> Qc
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2111546	1	08/10/23 22:50	08/11/23 10:54	CCE	Mt. Juliet, TN	<sup>7</sup> Gl
Metals (ICPMS) by Method 6020	WG2108538	5	08/06/23 09:40	08/08/23 03:14	SJM	Mt. Juliet, TN	<sup>8</sup> Al
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2109707	1	08/08/23 09:00	08/08/23 12:41	NCC	Mt. Juliet, TN	<sup>9</sup> Sc
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2110879	1	08/08/23 09:00	08/09/23 23:04	ACG	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2110392	1	08/09/23 16:52	08/10/23 04:18	KAP	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2110352	1	08/09/23 16:21	08/10/23 16:11	AED	Mt. Juliet, TN	

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	4.18		1	08/11/2023 14:05	WG2111542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	08/08/2023 07:17	<a href="#">WG2108819</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.74	<a href="#">T8</a>	1	08/06/2023 13:00	<a href="#">WG2108647</a>

Sample Narrative:

L1642653-01 WG2108647: 8.74 at 24.4C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	431		10.0	1	08/08/2023 15:30	<a href="#">WG2109245</a>

Sample Narrative:

L1642653-01 WG2109245: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.156	<a href="#">J</a>	0.0167	0.200	1	08/11/2023 10:54	<a href="#">WG2111546</a>

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	4.06		0.100	1.00	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Barium	188		0.152	2.50	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Cadmium	U		0.0855	1.00	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Copper	10.5		0.132	5.00	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Lead	10.0		0.0990	2.00	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Nickel	25.2		0.197	2.50	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Selenium	0.257	<a href="#">J</a>	0.180	2.50	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Silver	U		0.0865	0.500	5	08/08/2023 03:14	<a href="#">WG2108538</a>
Zinc	46.3		0.740	25.0	5	08/08/2023 03:14	<a href="#">WG2108538</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/08/2023 12:41	<a href="#">WG2109707</a>
(S) a,a,a-Trifluorotoluene(FID)	101			77.0-120		08/08/2023 12:41	<a href="#">WG2109707</a>

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/09/2023 23:04	<a href="#">WG2110879</a>
Toluene	U		0.00130	0.00500	1	08/09/2023 23:04	<a href="#">WG2110879</a>
Ethylbenzene	U		0.000737	0.00250	1	08/09/2023 23:04	<a href="#">WG2110879</a>
Xylenes, Total	U		0.000880	0.00650	1	08/09/2023 23:04	<a href="#">WG2110879</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/09/2023 23:04	<a href="#">WG2110879</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/09/2023 23:04	<a href="#">WG2110879</a>
(S) Toluene-d8	111			75.0-131		08/09/2023 23:04	<a href="#">WG2110879</a>
(S) 4-Bromofluorobenzene	95.6			67.0-138		08/09/2023 23:04	<a href="#">WG2110879</a>
(S) 1,2-Dichloroethane-d4	114			70.0-130		08/09/2023 23:04	<a href="#">WG2110879</a>

Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	26.0		1.61	4.00	1	08/10/2023 04:18	<a href="#">WG2110392</a>
C28-C36 Motor Oil Range	52.5		0.274	4.00	1	08/10/2023 04:18	<a href="#">WG2110392</a>
(S) o-Terphenyl	59.2			18.0-148		08/10/2023 04:18	<a href="#">WG2110392</a>

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Anthracene	U		0.00230	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Chrysene	U		0.00232	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Fluoranthene	U		0.00227	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Fluorene	U		0.00205	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/10/2023 16:11	<a href="#">WG2110352</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Naphthalene	U		0.00408	0.0200	1	08/10/2023 16:11	<a href="#">WG2110352</a>
Pyrene	U		0.00200	0.00600	1	08/10/2023 16:11	<a href="#">WG2110352</a>
(S) p-Terphenyl-d14	83.5			23.0-120		08/10/2023 16:11	<a href="#">WG2110352</a>
(S) Nitrobenzene-d5	66.7			14.0-149		08/10/2023 16:11	<a href="#">WG2110352</a>
(S) 2-Fluorobiphenyl	74.0			34.0-125		08/10/2023 16:11	<a href="#">WG2110352</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3957860-1 08/08/23 05:10

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1642583-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1642583-02 08/08/23 05:59 • (DUP) R3957860-7 08/08/23 06:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	1.01	0.856	1	16.5	<span>⌵</span>	20

L1642650-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1642650-02 08/08/23 06:51 • (DUP) R3957860-8 08/08/23 06:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3957860-2 08/08/23 05:17

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	11.1	111	80.0-120	

L1642368-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642368-02 08/08/23 05:28 • (MS) R3957860-4 08/08/23 05:38 • (MSD) R3957860-5 08/08/23 05:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	3.38	U	16.9	0.000	1	75.0-125	<span>⌵</span> <span>6</span>	<span>⌵</span> <span>3</span> <span>⌵</span> <span>6</span>	200	20

L1642368-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1642368-02 08/08/23 05:28 • (MS) R3957860-6 08/08/23 05:49

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	638	U	U	0.000	1	75.0-125	<span>⌵</span> <span>6</span>

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



L1642334-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1642334-16 08/06/23 13:00 • (DUP) R3957375-2 08/06/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.02	8.01	1	0.125		1

Sample Narrative:

OS: 8.02 at 24.8C

DUP: 8.01 at 24.8C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1642657-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1642657-01 08/06/23 13:00 • (DUP) R3957375-3 08/06/23 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	6.02	6.03	1	0.166		1

Sample Narrative:

OS: 6.02 at 24.5C

DUP: 6.03 at 24.7C

Laboratory Control Sample (LCS)

(LCS) R3957375-1 08/06/23 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.02 at 23.9C

Method Blank (MB)

(MB) R3958170-1 08/08/23 15:30

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1642558-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1642558-04 08/08/23 15:30 • (DUP) R3958170-3 08/08/23 15:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	212	217	1	2.01		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1642558-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1642558-05 08/08/23 15:30 • (DUP) R3958170-4 08/08/23 15:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	384	380	1	1.05		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3958170-2 08/08/23 15:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	732	729	99.6	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3959508-1 08/11/23 10:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3959508-2 08/11/23 10:49 • (LCSD) R3959508-3 08/11/23 10:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.07	1.07	107	107	80.0-120			0.240	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3957948-1 08/08/23 01:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	0.934	⌵	0.740	25.0

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

Laboratory Control Sample (LCS)

(LCS) R3957948-2 08/08/23 01:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	98.4	98.4	80.0-120	
Barium	100	93.8	93.8	80.0-120	
Cadmium	100	97.2	97.2	80.0-120	
Copper	100	95.0	95.0	80.0-120	
Lead	100	96.2	96.2	80.0-120	
Nickel	100	97.3	97.3	80.0-120	
Selenium	100	98.5	98.5	80.0-120	
Silver	20.0	19.3	96.7	80.0-120	
Zinc	100	93.5	93.5	80.0-120	

7  
Gl

8  
Al

9  
Sc

L1642451-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642451-11 08/08/23 01:43 • (MS) R3957948-5 08/08/23 01:53 • (MSD) R3957948-6 08/08/23 01:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.7	2.16	107	99.9	105	97.7	5	75.0-125			6.76	20
Barium	99.7	36.4	149	147	113	110	5	75.0-125			1.75	20
Cadmium	99.7	0.137	105	99.2	105	99.0	5	75.0-125			5.90	20
Copper	99.7	12.0	117	109	105	97.4	5	75.0-125			6.44	20
Lead	99.7	5.72	118	105	112	98.8	5	75.0-125			12.0	20
Nickel	99.7	17.0	120	116	103	98.9	5	75.0-125			3.53	20
Selenium	99.7	0.445	107	101	107	101	5	75.0-125	E	E	5.45	20
Silver	20.0	U	20.5	19.3	103	96.3	5	75.0-125			6.28	20

Method Blank (MB)

(MB) R3958206-2 08/08/23 10:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	103			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3958206-1 08/08/23 09:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.86	107	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			106	77.0-120	

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3958937-2 08/09/23 14:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	110			75.0-131
(S) 4-Bromofluorobenzene	98.9			67.0-138
(S) 1,2-Dichloroethane-d4	116			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3958937-1 08/09/23 13:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.111	88.8	70.0-123	
Toluene	0.125	0.117	93.6	75.0-121	
Ethylbenzene	0.125	0.130	104	74.0-126	
Xylenes, Total	0.375	0.385	103	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.130	104	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.133	106	73.0-127	
(S) Toluene-d8			107	75.0-131	
(S) 4-Bromofluorobenzene			98.3	67.0-138	
(S) 1,2-Dichloroethane-d4			119	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3958818-1 08/10/23 02:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	74.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3958818-2 08/10/23 02:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.9	69.8	50.0-150	
(S) o-Terphenyl			87.1	18.0-148	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3959591-2 08/10/23 14:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	101			23.0-120
(S) Nitrobenzene-d5	45.1			14.0-149
(S) 2-Fluorobiphenyl	68.6			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3959591-1 08/10/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0856	107	50.0-120	
Anthracene	0.0800	0.0910	114	50.0-126	
Benzo(a)anthracene	0.0800	0.0920	115	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0840	105	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0804	101	49.0-125	
Benzo(a)pyrene	0.0800	0.0716	89.5	42.0-120	
Chrysene	0.0800	0.0906	113	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0812	102	47.0-125	
Fluoranthene	0.0800	0.0969	121	49.0-129	
Fluorene	0.0800	0.0923	115	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0863	108	46.0-125	
1-Methylnaphthalene	0.0800	0.0887	111	51.0-121	
2-Methylnaphthalene	0.0800	0.0939	117	50.0-120	
Naphthalene	0.0800	0.0852	106	50.0-120	
Pyrene	0.0800	0.0870	109	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3959591-1 08/10/23 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			113	23.0-120	
(S) Nitrobenzene-d5			69.7	14.0-149	
(S) 2-Fluorobiphenyl			87.5	34.0-125	

L1642669-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1642669-08 08/10/23 18:31 • (MS) R3959591-3 08/10/23 18:48 • (MSD) R3959591-4 08/10/23 19:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0772	U	0.0588	0.0727	76.2	94.2	1	14.0-127			21.1	27
Anthracene	0.0772	U	0.0594	0.0840	76.9	109	1	10.0-145	J3		34.3	30
Benzo(a)anthracene	0.0772	U	0.0624	0.0771	80.8	99.9	1	10.0-139			21.1	30
Benzo(b)fluoranthene	0.0772	U	0.0547	0.0626	70.9	81.1	1	10.0-140			13.5	36
Benzo(k)fluoranthene	0.0772	U	0.0510	0.0554	66.1	71.8	1	10.0-137			8.27	31
Benzo(a)pyrene	0.0772	U	0.0594	0.0649	76.9	84.1	1	10.0-141			8.85	31
Chrysene	0.0772	U	0.0619	0.0745	80.2	96.5	1	10.0-145			18.5	30
Dibenz(a,h)anthracene	0.0772	U	0.0549	0.0556	71.1	72.0	1	10.0-132			1.27	31
Fluoranthene	0.0772	U	0.0643	0.111	83.3	144	1	10.0-153	J3		53.3	33
Fluorene	0.0772	U	0.0619	0.0803	80.2	104	1	11.0-130			25.9	29
Indeno(1,2,3-cd)pyrene	0.0772	U	0.0580	0.0615	75.1	79.7	1	10.0-137			5.86	32
1-Methylnaphthalene	0.0772	U	0.0626	0.0716	81.1	92.7	1	10.0-142			13.4	28
2-Methylnaphthalene	0.0772	U	0.0657	0.0748	85.1	96.9	1	10.0-137			13.0	28
Naphthalene	0.0772	U	0.0609	0.0670	78.9	86.8	1	10.0-135			9.54	27
Pyrene	0.0772	U	0.0615	0.0928	79.7	120	1	10.0-148	J3		40.6	35
(S) p-Terphenyl-d14					77.0	79.5		23.0-120				
(S) Nitrobenzene-d5					53.0	66.8		14.0-149				
(S) 2-Fluorobiphenyl					72.0	86.8		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

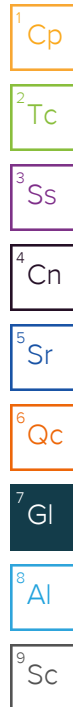
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.





# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Condition

**Caerus Oil and Gas**

Sample Delivery Group: L1605150  
Samples Received: 04/13/2023  
Project Number: YCF 35-33-1  
Description: YCF 35-33-1  
Site: 2954  
Report To: Brett M. , Jake J. , Blair R.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

20230411-YCFSOURCE-(YCF35-33-1-T) L1605150-01 WW

Collected by  
K. Moreland

Collected date/time  
04/11/23 10:20

Received date/time  
04/13/23 11:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500H+ B-2011	WG2041799	1	04/15/23 09:32	04/15/23 09:32	DB	Mt. Juliet, TN

20230411-YCFSOURCE-(YCF35-33-1-T) L1605150-03 Solid

Collected by  
K. Moreland

Collected date/time  
04/11/23 10:20

Received date/time  
04/13/23 11:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2045449	5	04/20/23 08:44	04/20/23 14:42	JPD	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

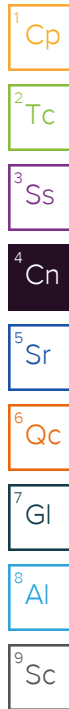
<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager





Wet Chemistry by Method 4500H+ B-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.41	<a href="#">T8</a>	1	04/15/2023 09:32	<a href="#">WG2041799</a>

Sample Narrative:  
L1605150-01 WG2041799: 7.41 at 21.2C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	U		0.100	1.00	5	04/20/2023 14:42	<a href="#">WG2045449</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1604840-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1604840-04 04/15/23 09:32 • (DUP) R3913571-2 04/15/23 09:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.91	6.92	1	0.145		1

Sample Narrative:

OS: 6.91 at 20C

DUP: 6.92 at 19.7C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1604840-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1604840-05 04/15/23 09:32 • (DUP) R3913571-3 04/15/23 09:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.82	7.84	1	0.255		1

Sample Narrative:

OS: 7.82 at 19.6C

DUP: 7.84 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R3913571-1 04/15/23 09:32

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 20.3C

Method Blank (MB)

(MB) R3915511-1 04/20/23 14:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3915511-2 04/20/23 14:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.0	94.0	80.0-120	

L1605150-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1605150-03 04/20/23 14:42 • (MS) R3915511-5 04/20/23 14:52 • (MSD) R3915511-6 04/20/23 14:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	U	92.2	89.3	92.2	89.3	5	75.0-125			3.12	20

1

Cp

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Tc

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Ss

4

Cn

5

Sr

6

Qc

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Gl

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Al

9

Sc

# GLOSSARY OF TERMS

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RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.
----	---

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.







**Same as above**

Email To:  
**bmiddleton@caerusoilandgas.com**

City/State  
Collected:

Client Project #  
**YCF 35-33-1**

Lab Project #  
**YCF 35-33-1**

Site/Facility ID #  
**2954**

P.O. #  
**YCF 35-33-1**

collected by (signature):

**Rush?** (Lab MUST Be Notified)

Quote #

Immediately  
acked on Ice N Y X

☐ Same Day      ☐ Five Day  
☐ Next Day      ☐ 5 Day (Rad Only)  
☐ Two Day      ☐ 10 Day (Rad Only)  
☐ Three Day

Date Results Needed

### Standard TAT

No.  
of  
Cntrs

L #	
Table #	
Acctnum:	
Template:	
Prelogin:	
TSR:	
PB:	
Shipped Via:	
Remarks	Sample # (lab only)

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

UPS	FedEx	Courier
-----	-------	---------

Tracking #

elinquished by : (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received:	Yes / No
	HCL / MeoH
	TBR

elinquished by : (Signature)

Date:

Time:

Received by: (Signature)

Temp:	°C	Bottles Received:
-------	----	-------------------

If preservation required by Login: Date/Time

elinquished by : (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:	Time:
-------	-------

Hold:	
-------	--

Condition:  
NCF / OK

## Sample Receipt Checklist

COC Seal Present/Intact: NP Y N

COC Signed/Accurate:               Y      N

Bottles arrive intact:	<u>    </u> Y <u>    </u> N
------------------------	-----------------------------

Correct bottles used: Y N

Sufficient volume sent: Y N

If Applicable

VOA Zero Headspace:	Y	N
---------------------	---	---

Preservation Correct/Checked:	Y	N
-------------------------------	---	---

October 10, 2022

Revised Report

## Caerus Oil and Gas

Sample Delivery Group: L1527412  
Samples Received: 08/19/2022  
Project Number: YCF 27-13-1  
Description: YCF 27-13-1 Facility Decommissioning  
Site: YCF 27-13-1  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

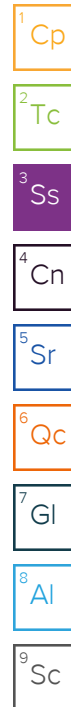
## 20220817-YCF 27-13-1 (ACCESS RD. VAULT) L1527412-01 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 08:35

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:07	08/30/22 16:07	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 13:37	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913981	1	08/23/22 09:44	08/25/22 11:52	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914113	1	08/22/22 10:52	08/26/22 15:45	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913980	5	08/23/22 09:21	08/24/22 12:18	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1	08/20/22 18:39	08/21/22 13:22	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914699	1	08/20/22 18:39	08/22/22 21:06	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	5	08/20/22 11:00	08/21/22 04:50	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 17:11	AMG	Mt. Juliet, TN



## 20220817-YCF 27-13-1 (PH01) @ 6' L1527412-02 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 08:50

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:10	08/30/22 16:10	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 13:42	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913981	1	08/23/22 09:44	08/25/22 10:39	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:05	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913980	5	08/23/22 09:21	08/24/22 10:56	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1	08/20/22 18:39	08/21/22 13:43	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1	08/20/22 18:39	08/23/22 02:41	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/21/22 01:07	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 13:15	AMG	Mt. Juliet, TN

## 20220817-YCF 27-13-1 (TANK A) L1527412-03 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 09:50

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:13	08/30/22 16:13	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 13:53	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913981	1	08/23/22 09:44	08/25/22 11:55	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:08	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913980	5	08/23/22 09:21	08/24/22 12:22	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1.01	08/20/22 18:39	08/21/22 14:03	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1	08/20/22 18:39	08/23/22 03:00	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 22:16	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 13:34	AMG	Mt. Juliet, TN

## 20220817-YCF 27-13-1 (TANK B) L1527412-04 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 09:55

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:21	08/30/22 16:21	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 13:58	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 11:48	KMG	Mt. Juliet, TN



# SAMPLE SUMMARY

## 20220817-YCF 27-13-1 (TANK B) L1527412-04 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 09:55

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:11	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:18	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1.01	08/20/22 18:39	08/21/22 14:23	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1	08/20/22 18:39	08/23/22 03:19	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 22:55	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 13:54	AMG	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## 20220817-YCF 27-13-1 (TANK C) L1527412-05 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 10:00

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:38	08/26/22 10:38	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 14:03	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913981	1	08/23/22 09:44	08/25/22 11:58	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:13	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913980	5	08/23/22 09:21	08/24/22 12:25	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1.01	08/20/22 18:39	08/21/22 14:44	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1	08/20/22 18:39	08/23/22 03:38	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 19:12	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 14:14	AMG	Mt. Juliet, TN

## 20220817-YCF 27-13-1 (SEP) @ 4.5' L1527412-06 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 10:30

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:41	08/26/22 10:41	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 14:08	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 11:51	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:16	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:21	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 05:49	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1.01	08/20/22 18:39	08/23/22 03:57	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 18:46	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 14:34	AMG	Mt. Juliet, TN

## 20220817-YCF 27-13-1 (SEP 90) @ 3' L1527412-07 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 10:50

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:44	08/26/22 10:44	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 14:21	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 11:54	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:19	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:24	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 05:27	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1	08/20/22 18:39	08/23/22 04:16	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 20:57	NH	Mt. Juliet, TN



# SAMPLE SUMMARY

## 20220817-YCF 27-13-1 (SEP 90) @ 3' L1527412-07 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 10:50

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 14:53	AMG	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## 20220817-YCF 27-13-1 (PAD VAULT) L1527412-08 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 11:20

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:47	08/26/22 10:47	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:06	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 12:02	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:22	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:34	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 05:06	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914804	1.01	08/20/22 18:39	08/23/22 04:35	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 22:42	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 15:13	AMG	Mt. Juliet, TN

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## 20220817-YCF 27-13-1 (METER SKID) L1527412-09 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 14:00

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:49	08/26/22 10:49	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:11	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 12:05	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:30	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:37	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 04:44	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915243	1	08/20/22 18:39	08/23/22 16:10	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 20:31	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 15:32	AMG	Mt. Juliet, TN

## 20220817-YCF 27-13-1 (OFF LOC. FL) @ 5' L1527412-10 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 14:15

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:52	08/26/22 10:52	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:16	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 12:08	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:33	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:41	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 04:23	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915243	1	08/20/22 18:39	08/23/22 16:29	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 21:23	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 15:52	AMG	Mt. Juliet, TN

# SAMPLE SUMMARY

20220817-YCF 27-13-1 (PH02) @ 6' L1527412-11 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 14:40

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:55	08/26/22 10:55	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 11:34	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:36	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 04:01	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915243	1	08/20/22 18:39	08/23/22 16:48	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 21:50	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913757	1	08/20/22 15:06	08/21/22 12:57	AMG	Mt. Juliet, TN

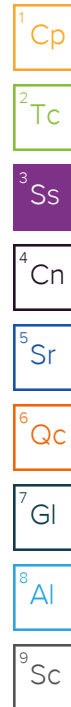
20220817-YCF 27-13-1 (PH03) @ 6' L1527412-12 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 15:00

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 10:58	08/26/22 10:58	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:27	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1915800	1	08/24/22 15:30	08/24/22 17:30	RLS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 12:11	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:39	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:44	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914356	1	08/20/22 18:39	08/24/22 03:39	EBD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915243	1	08/20/22 18:39	08/23/22 17:06	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 23:09	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913757	1	08/20/22 15:06	08/21/22 13:14	AMG	Mt. Juliet, TN



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

## Report Revision History

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Level II Report - Version 1: 09/14/22 12:35

## Project Narrative

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Rerun for updated project info



Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	8.25		1	08/30/2022 16:07	WG1915249

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 13:37	<a href="#">WG1917376</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	8.33	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

Sample Narrative:  
L1527412-01 WG1915800: 8.33 at 22.6C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	3170		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

Sample Narrative:  
L1527412-01 WG1922234: at 25C

Metals (ICP) by Method 6010B

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Barium	299		0.0852	0.500	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Cadmium	0.123	<a href="#">J</a>	0.0471	0.500	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Copper	16.8		0.400	2.00	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Lead	10.9		0.208	0.500	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Nickel	27.4		0.132	2.00	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Selenium	U		0.764	2.00	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Silver	U		0.127	1.00	1	08/25/2022 11:52	<a href="#">WG1913981</a>
Zinc	166		0.832	5.00	1	08/25/2022 11:52	<a href="#">WG1913981</a>

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	5.23		0.0167	0.200	1	08/26/2022 15:45	<a href="#">WG1914113</a>

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	5.48		0.100	1.00	5	08/24/2022 12:18	<a href="#">WG1913980</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.170		0.0217	0.100	1	08/21/2022 13:22	<a href="#">WG1914069</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	92.0			77.0-120		08/21/2022 13:22	<a href="#">WG1914069</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00940		0.000467	0.00100	1	08/22/2022 21:06	<a href="#">WG1914699</a>
Toluene	0.0357		0.00130	0.00500	1	08/22/2022 21:06	<a href="#">WG1914699</a>
Ethylbenzene	0.000800	U	0.000737	0.00250	1	08/22/2022 21:06	<a href="#">WG1914699</a>
Xylenes, Total	0.00565	U	0.000880	0.00650	1	08/22/2022 21:06	<a href="#">WG1914699</a>
1,2,4-Trimethylbenzene	0.00210	U	0.00158	0.00500	1	08/22/2022 21:06	<a href="#">WG1914699</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/22/2022 21:06	<a href="#">WG1914699</a>
(S) Toluene-d8	103			75.0-131		08/22/2022 21:06	<a href="#">WG1914699</a>
(S) 4-Bromofluorobenzene	98.8			67.0-138		08/22/2022 21:06	<a href="#">WG1914699</a>
(S) 1,2-Dichloroethane-d4	95.3			70.0-130		08/22/2022 21:06	<a href="#">WG1914699</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	61.1		8.05	20.0	5	08/21/2022 04:50	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	108		1.37	20.0	5	08/21/2022 04:50	<a href="#">WG1913741</a>
(S) o-Terphenyl	45.3			18.0-148		08/21/2022 04:50	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 17:11	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 17:11	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 17:11	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	52.6			23.0-120		08/21/2022 17:11	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	60.5			14.0-149		08/21/2022 17:11	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	54.1			34.0-125		08/21/2022 17:11	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.20		1	08/30/2022 16:10	WG1915249

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 13:42	<a href="#">WG1917376</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.91	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

Sample Narrative:  
L1527412-02 WG1915800: 8.91 at 22.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	432		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

Sample Narrative:  
L1527412-02 WG1922234: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	217	<a href="#">J3 J6 O1</a>	0.0852	0.500	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Cadmium	0.0778	<a href="#">J</a>	0.0471	0.500	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Copper	12.2		0.400	2.00	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Lead	8.20		0.208	0.500	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Nickel	21.0	<a href="#">O1</a>	0.132	2.00	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Selenium	1.13	<a href="#">J</a>	0.764	2.00	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Silver	U		0.127	1.00	1	08/25/2022 10:39	<a href="#">WG1913981</a>
Zinc	39.5	<a href="#">O1</a>	0.832	5.00	1	08/25/2022 10:39	<a href="#">WG1913981</a>

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.471		0.0167	0.200	1	08/26/2022 19:05	<a href="#">WG1914114</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.54		0.100	1.00	5	08/24/2022 10:56	<a href="#">WG1913980</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0355	<a href="#">J</a>	0.0217	0.100	1	08/21/2022 13:43	<a href="#">WG1914069</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.2			77.0-120		08/21/2022 13:43	<a href="#">WG1914069</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 02:41	<a href="#">WG1914804</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 02:41	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 02:41	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 02:41	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 02:41	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 02:41	<a href="#">WG1914804</a>
(S) Toluene-d8	104			75.0-131		08/23/2022 02:41	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	98.0			67.0-138		08/23/2022 02:41	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	103			70.0-130		08/23/2022 02:41	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.64		1.61	4.00	1	08/21/2022 01:07	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	8.02		0.274	4.00	1	08/21/2022 01:07	<a href="#">WG1913741</a>
(S) o-Terphenyl	45.3			18.0-148		08/21/2022 01:07	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 13:15	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 13:15	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 13:15	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	50.1			23.0-120		08/21/2022 13:15	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	49.4			14.0-149		08/21/2022 13:15	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	53.1			34.0-125		08/21/2022 13:15	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.02		1	08/30/2022 16:13	WG1915249

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 13:53	<a href="#">WG1917376</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.43	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-03 WG1915800: 9.43 at 22.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	245		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

## Sample Narrative:

L1527412-03 WG1922234: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	189		0.0852	0.500	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Cadmium	0.0952	<a href="#">J</a>	0.0471	0.500	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Copper	17.9		0.400	2.00	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Lead	4.89		0.208	0.500	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Nickel	41.1		0.132	2.00	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Selenium	U		0.764	2.00	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Silver	U		0.127	1.00	1	08/25/2022 11:55	<a href="#">WG1913981</a>
Zinc	39.4		0.832	5.00	1	08/25/2022 11:55	<a href="#">WG1913981</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.180	<a href="#">J</a>	0.0167	0.200	1	08/26/2022 19:08	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.45		0.100	1.00	5	08/24/2022 12:22	<a href="#">WG1913980</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0465	<a href="#">J</a>	0.0219	0.101	1.01	08/21/2022 14:03	<a href="#">WG1914069</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.1			77.0-120		08/21/2022 14:03	<a href="#">WG1914069</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 03:00	<a href="#">WG1914804</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 03:00	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 03:00	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 03:00	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 03:00	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 03:00	<a href="#">WG1914804</a>
(S) Toluene-d8	106			75.0-131		08/23/2022 03:00	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	97.4			67.0-138		08/23/2022 03:00	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	98.3			70.0-130		08/23/2022 03:00	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.98		1.61	4.00	1	08/20/2022 22:16	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	1.69	<a href="#">B J</a>	0.274	4.00	1	08/20/2022 22:16	<a href="#">WG1913741</a>
(S) o-Terphenyl	56.8			18.0-148		08/20/2022 22:16	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	0.00297	<a href="#">I J</a>	0.00153	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Benzo(a)pyrene	0.00223	<a href="#">I J</a>	0.00179	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Fluoranthene	0.00276	<a href="#">I J</a>	0.00227	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	0.00200	<a href="#">I J</a>	0.00181	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 13:34	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 13:34	<a href="#">WG1913756</a>
Pyrene	0.00228	<a href="#">I J</a>	0.00200	0.00600	1	08/21/2022 13:34	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	74.8			23.0-120		08/21/2022 13:34	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	75.2			14.0-149		08/21/2022 13:34	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	80.7			34.0-125		08/21/2022 13:34	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.13		1	08/30/2022 16:21	WG1915249

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 13:58	<a href="#">WG1917376</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.49	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

Sample Narrative:

L1527412-04 WG1915800: 9.49 at 22.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	146		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

Sample Narrative:

L1527412-04 WG1922234: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	169		0.0852	0.500	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Cadmium	0.0681	<a href="#">J</a>	0.0471	0.500	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Copper	18.3		0.400	2.00	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Lead	5.45		0.208	0.500	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Nickel	41.6		0.132	2.00	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 11:48	<a href="#">WG1913985</a>
Zinc	38.9		0.832	5.00	1	08/26/2022 11:48	<a href="#">WG1913985</a>

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.169	<a href="#">J</a>	0.0167	0.200	1	08/26/2022 19:11	<a href="#">WG1914114</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.79		0.100	1.00	5	08/25/2022 18:18	<a href="#">WG1913984</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0461	<a href="#">J</a>	0.0219	0.101	1.01	08/21/2022 14:23	<a href="#">WG1914069</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.5			77.0-120		08/21/2022 14:23	<a href="#">WG1914069</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 03:19	<a href="#">WG1914804</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 03:19	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 03:19	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 03:19	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 03:19	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 03:19	<a href="#">WG1914804</a>
(S) Toluene-d8	102			75.0-131		08/23/2022 03:19	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	95.5			67.0-138		08/23/2022 03:19	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	104			70.0-130		08/23/2022 03:19	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.12	J	1.61	4.00	1	08/20/2022 22:55	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	1.83	B J	0.274	4.00	1	08/20/2022 22:55	<a href="#">WG1913741</a>
(S) o-Terphenyl	55.0			18.0-148		08/20/2022 22:55	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	0.00232	J	0.00153	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 13:54	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 13:54	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 13:54	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	73.3			23.0-120		08/21/2022 13:54	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	73.0			14.0-149		08/21/2022 13:54	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	78.6			34.0-125		08/21/2022 13:54	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.84		1	08/26/2022 10:38	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 14:03	<a href="#">WG1917376</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.61	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-05 WG1915800: 9.61 at 22.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	217		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-05 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	205		0.0852	0.500	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Cadmium	0.0909	<a href="#">J</a>	0.0471	0.500	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Copper	15.7		0.400	2.00	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Lead	6.16		0.208	0.500	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Nickel	34.7		0.132	2.00	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Selenium	U		0.764	2.00	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Silver	U		0.127	1.00	1	08/25/2022 11:58	<a href="#">WG1913981</a>
Zinc	39.7		0.832	5.00	1	08/25/2022 11:58	<a href="#">WG1913981</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.163	<a href="#">J</a>	0.0167	0.200	1	08/26/2022 19:13	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.50		0.100	1.00	5	08/24/2022 12:25	<a href="#">WG1913980</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0385	<a href="#">J</a>	0.0219	0.101	1.01	08/21/2022 14:44	<a href="#">WG1914069</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.1			77.0-120		08/21/2022 14:44	<a href="#">WG1914069</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 03:38	<a href="#">WG1914804</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 03:38	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 03:38	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 03:38	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 03:38	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 03:38	<a href="#">WG1914804</a>
(S) Toluene-d8	105			75.0-131		08/23/2022 03:38	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	98.9			67.0-138		08/23/2022 03:38	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	104			70.0-130		08/23/2022 03:38	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	08/20/2022 19:12	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	0.989	<a href="#">B J</a>	0.274	4.00	1	08/20/2022 19:12	<a href="#">WG1913741</a>
(S) o-Terphenyl	53.8			18.0-148		08/20/2022 19:12	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Benzo(a)anthracene	0.0161		0.00173	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	0.0299		0.00153	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	0.0109		0.00215	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Benzo(a)pyrene	0.0223		0.00179	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Chrysene	0.0182		0.00232	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	0.00300	<a href="#">J</a>	0.00172	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Fluoranthene	0.0171		0.00227	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	0.0158		0.00181	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 14:14	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 14:14	<a href="#">WG1913756</a>
Pyrene	0.0151		0.00200	0.00600	1	08/21/2022 14:14	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	77.2			23.0-120		08/21/2022 14:14	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	75.5			14.0-149		08/21/2022 14:14	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	79.3			34.0-125		08/21/2022 14:14	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.86		1	08/26/2022 10:41	WG1915560

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.338	J	0.255	1.00	1	09/09/2022 14:08	WG1917376

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.51	T8	1	08/24/2022 17:30	WG1915800

Sample Narrative:

L1527412-06 WG1915800: 9.51 at 22.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	335		10.0	1	09/09/2022 11:20	WG1922243

Sample Narrative:

L1527412-06 WG1922243: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	339		0.0852	0.500	1	08/26/2022 11:51	WG1913985
Cadmium	0.173	J	0.0471	0.500	1	08/26/2022 11:51	WG1913985
Copper	19.3		0.400	2.00	1	08/26/2022 11:51	WG1913985
Lead	19.6		0.208	0.500	1	08/26/2022 11:51	WG1913985
Nickel	29.9		0.132	2.00	1	08/26/2022 11:51	WG1913985
Selenium	1.15	J	0.764	2.00	1	08/26/2022 11:51	WG1913985
Silver	U		0.127	1.00	1	08/26/2022 11:51	WG1913985
Zinc	47.5		0.832	5.00	1	08/26/2022 11:51	WG1913985

Metals (ICP) by Method 6010B-NE493 Ch 2

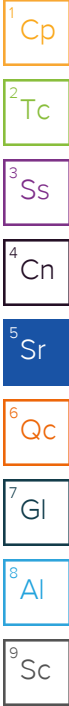
Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.267		0.0167	0.200	1	08/26/2022 19:16	WG1914114

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.40		0.100	1.00	5	08/25/2022 18:21	WG1913984

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/24/2022 05:49	WG1914356
(S) a,a,a-Trifluorotoluene(FID)	111			77.0-120		08/24/2022 05:49	WG1914356



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00240		0.000472	0.00101	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
Toluene	0.00460	J	0.00131	0.00505	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000744	0.00253	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000889	0.00656	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00160	0.00505	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00202	0.00505	1.01	08/23/2022 03:57	<a href="#">WG1914804</a>
(S) Toluene-d8	105			75.0-131		08/23/2022 03:57	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	96.4			67.0-138		08/23/2022 03:57	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	98.6			70.0-130		08/23/2022 03:57	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	08/20/2022 18:46	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	0.587	B J	0.274	4.00	1	08/20/2022 18:46	<a href="#">WG1913741</a>
(S) o-Terphenyl	44.5			18.0-148		08/20/2022 18:46	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 14:34	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 14:34	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 14:34	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	42.8			23.0-120		08/21/2022 14:34	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	64.8			14.0-149		08/21/2022 14:34	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	54.8			34.0-125		08/21/2022 14:34	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR				
Sodium Adsorption Ratio	2.34		1	08/26/2022 10:44	WG1915560

Wet Chemistry by Method 7199

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	U		0.255	1.00	1	09/09/2022 14:21	<a href="#">WG1917376</a>

Wet Chemistry by Method 9045D

	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH				
pH	9.29	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

Sample Narrative:  
L1527412-07 WG1915800: 9.29 at 22.8C

Wet Chemistry by Method 9050AMod

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm			
Specific Conductance	173		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

Sample Narrative:  
L1527412-07 WG1922243: at 25C

Metals (ICP) by Method 6010B

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Barium	262		0.0852	0.500	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Cadmium	0.0517	<a href="#">J</a>	0.0471	0.500	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Copper	16.7		0.400	2.00	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Lead	5.18		0.208	0.500	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Nickel	39.2		0.132	2.00	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 11:54	<a href="#">WG1913985</a>
Zinc	38.0		0.832	5.00	1	08/26/2022 11:54	<a href="#">WG1913985</a>

Metals (ICP) by Method 6010B-NE493 Ch 2

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.325		0.0167	0.200	1	08/26/2022 19:19	<a href="#">WG1914114</a>

Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	3.73		0.100	1.00	5	08/25/2022 18:24	<a href="#">WG1913984</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg	mg/kg			
TPH (GC/FID) Low Fraction	0.0292	<a href="#">J</a>	0.0217	0.100	1	08/24/2022 05:27	<a href="#">WG1914356</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	110			77.0-120		08/24/2022 05:27	<a href="#">WG1914356</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 04:16	<a href="#">WG1914804</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 04:16	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 04:16	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 04:16	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 04:16	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 04:16	<a href="#">WG1914804</a>
(S) Toluene-d8	105			75.0-131		08/23/2022 04:16	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	94.7			67.0-138		08/23/2022 04:16	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	99.4			70.0-130		08/23/2022 04:16	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	08/20/2022 20:57	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	1.89	<a href="#">B J</a>	0.274	4.00	1	08/20/2022 20:57	<a href="#">WG1913741</a>
(S) o-Terphenyl	56.5			18.0-148		08/20/2022 20:57	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 14:53	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 14:53	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 14:53	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	72.8			23.0-120		08/21/2022 14:53	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	74.2			14.0-149		08/21/2022 14:53	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	81.5			34.0-125		08/21/2022 14:53	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.66		1	08/26/2022 10:47	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/02/2022 13:06	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.02	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-08 WG1915800: 9.02 at 22.5C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	904		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-08 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	182		0.0852	0.500	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Cadmium	0.239	<a href="#">J</a>	0.0471	0.500	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Copper	12.8		0.400	2.00	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Lead	7.07		0.208	0.500	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Nickel	18.2		0.132	2.00	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 12:02	<a href="#">WG1913985</a>
Zinc	33.4		0.832	5.00	1	08/26/2022 12:02	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	3.91		0.0167	0.200	1	08/26/2022 19:22	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.53		0.100	1.00	5	08/25/2022 18:34	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/24/2022 05:06	<a href="#">WG1914356</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	111			77.0-120		08/24/2022 05:06	<a href="#">WG1914356</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000472	0.00101	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
Toluene	U		0.00131	0.00505	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
Ethylbenzene	U		0.000744	0.00253	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
Xylenes, Total	U		0.000889	0.00656	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
1,2,4-Trimethylbenzene	U		0.00160	0.00505	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
1,3,5-Trimethylbenzene	U		0.00202	0.00505	1.01	08/23/2022 04:35	<a href="#">WG1914804</a>
(S) Toluene-d8	104			75.0-131		08/23/2022 04:35	<a href="#">WG1914804</a>
(S) 4-Bromofluorobenzene	97.2			67.0-138		08/23/2022 04:35	<a href="#">WG1914804</a>
(S) 1,2-Dichloroethane-d4	102			70.0-130		08/23/2022 04:35	<a href="#">WG1914804</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.37		1.61	4.00	1	08/20/2022 22:42	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	6.47		0.274	4.00	1	08/20/2022 22:42	<a href="#">WG1913741</a>
(S) o-Terphenyl	45.2			18.0-148		08/20/2022 22:42	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 15:13	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 15:13	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 15:13	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	52.3			23.0-120		08/21/2022 15:13	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	63.8			14.0-149		08/21/2022 15:13	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	63.8			34.0-125		08/21/2022 15:13	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.31		1	08/26/2022 10:49	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.430	J	0.255	1.00	1	09/02/2022 13:11	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.43	T8	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-09 WG1915800: 9.43 at 22.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	282		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-09 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	175		0.0852	0.500	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Cadmium	0.111	J	0.0471	0.500	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Copper	12.3		0.400	2.00	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Lead	7.78		0.208	0.500	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Nickel	20.0		0.132	2.00	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 12:05	<a href="#">WG1913985</a>
Zinc	36.9		0.832	5.00	1	08/26/2022 12:05	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	3.33		0.0167	0.200	1	08/26/2022 19:30	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.00		0.100	1.00	5	08/25/2022 18:37	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0268	J	0.0217	0.100	1	08/24/2022 04:44	<a href="#">WG1914356</a>
(S) a,a,a-Trifluorotoluene(FID)	111			77.0-120		08/24/2022 04:44	<a href="#">WG1914356</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 16:10	<a href="#">WG1915243</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 16:10	<a href="#">WG1915243</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 16:10	<a href="#">WG1915243</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 16:10	<a href="#">WG1915243</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 16:10	<a href="#">WG1915243</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 16:10	<a href="#">WG1915243</a>
(S) Toluene-d8	109			75.0-131		08/23/2022 16:10	<a href="#">WG1915243</a>
(S) 4-Bromofluorobenzene	100			67.0-138		08/23/2022 16:10	<a href="#">WG1915243</a>
(S) 1,2-Dichloroethane-d4	83.0			70.0-130		08/23/2022 16:10	<a href="#">WG1915243</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	08/20/2022 20:31	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	2.41	<a href="#">B J</a>	0.274	4.00	1	08/20/2022 20:31	<a href="#">WG1913741</a>
(S) o-Terphenyl	51.1			18.0-148		08/20/2022 20:31	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 15:32	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 15:32	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 15:32	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	77.5			23.0-120		08/21/2022 15:32	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	77.8			14.0-149		08/21/2022 15:32	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	80.9			34.0-125		08/21/2022 15:32	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.95		1	08/26/2022 10:52	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.436	J	0.255	1.00	1	09/02/2022 13:16	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.09	T8	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-10 WG1915800: 9.09 at 22.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	289		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-10 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	259		0.0852	0.500	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Cadmium	0.0568	J	0.0471	0.500	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Copper	16.5		0.400	2.00	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Lead	8.52		0.208	0.500	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Nickel	21.4		0.132	2.00	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 12:08	<a href="#">WG1913985</a>
Zinc	38.7		0.832	5.00	1	08/26/2022 12:08	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

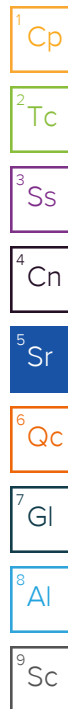
Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.227		0.0167	0.200	1	08/26/2022 19:33	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.59		0.100	1.00	5	08/25/2022 18:41	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/24/2022 04:23	<a href="#">WG1914356</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	111			77.0-120		08/24/2022 04:23	<a href="#">WG1914356</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 16:29	<a href="#">WG1915243</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 16:29	<a href="#">WG1915243</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 16:29	<a href="#">WG1915243</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 16:29	<a href="#">WG1915243</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 16:29	<a href="#">WG1915243</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 16:29	<a href="#">WG1915243</a>
(S) Toluene-d8	109			75.0-131		08/23/2022 16:29	<a href="#">WG1915243</a>
(S) 4-Bromofluorobenzene	101			67.0-138		08/23/2022 16:29	<a href="#">WG1915243</a>
(S) 1,2-Dichloroethane-d4	81.6			70.0-130		08/23/2022 16:29	<a href="#">WG1915243</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1.69	J	1.61	4.00	1	08/20/2022 21:23	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	1.63	B J	0.274	4.00	1	08/20/2022 21:23	<a href="#">WG1913741</a>
(S) o-Terphenyl	52.3			18.0-148		08/20/2022 21:23	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 15:52	<a href="#">WG1913756</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 15:52	<a href="#">WG1913756</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 15:52	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	50.9			23.0-120		08/21/2022 15:52	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	55.4			14.0-149		08/21/2022 15:52	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	54.9			34.0-125		08/21/2022 15:52	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.22		1	08/26/2022 10:55	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.345	J	0.255	1.00	1	09/02/2022 13:22	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.84	T8	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-11 WG1915800: 8.84 at 22.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	708		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-11 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	214	J5	0.0852	0.500	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Cadmium	0.0702	J	0.0471	0.500	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Copper	11.8		0.400	2.00	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Lead	9.16		0.208	0.500	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Nickel	20.4	O1	0.132	2.00	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 11:34	<a href="#">WG1913985</a>
Zinc	35.3		0.832	5.00	1	08/26/2022 11:34	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

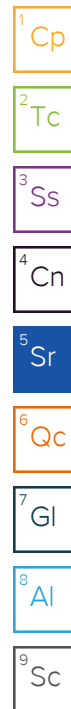
Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.566		0.0167	0.200	1	08/26/2022 19:36	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.59		0.100	1.00	5	08/25/2022 18:02	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/24/2022 04:01	<a href="#">WG1914356</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	113			77.0-120		08/24/2022 04:01	<a href="#">WG1914356</a>





## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 16:48	<a href="#">WG1915243</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 16:48	<a href="#">WG1915243</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 16:48	<a href="#">WG1915243</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 16:48	<a href="#">WG1915243</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 16:48	<a href="#">WG1915243</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 16:48	<a href="#">WG1915243</a>
(S) Toluene-d8	109			75.0-131		08/23/2022 16:48	<a href="#">WG1915243</a>
(S) 4-Bromofluorobenzene	100			67.0-138		08/23/2022 16:48	<a href="#">WG1915243</a>
(S) 1,2-Dichloroethane-d4	83.6			70.0-130		08/23/2022 16:48	<a href="#">WG1915243</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.22		1.61	4.00	1	08/20/2022 21:50	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	4.64		0.274	4.00	1	08/20/2022 21:50	<a href="#">WG1913741</a>
(S) o-Terphenyl	52.7			18.0-148		08/20/2022 21:50	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 12:57	<a href="#">WG1913757</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 12:57	<a href="#">WG1913757</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 12:57	<a href="#">WG1913757</a>
(S) p-Terphenyl-d14	64.5			23.0-120		08/21/2022 12:57	<a href="#">WG1913757</a>
(S) Nitrobenzene-d5	67.9			14.0-149		08/21/2022 12:57	<a href="#">WG1913757</a>
(S) 2-Fluorobiphenyl	57.8			34.0-125		08/21/2022 12:57	<a href="#">WG1913757</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	14.9		1	08/26/2022 10:58	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	09/02/2022 13:27	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.34	<a href="#">T8</a>	1	08/24/2022 17:30	<a href="#">WG1915800</a>

## Sample Narrative:

L1527412-12 WG1915800: 8.34 at 22.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1860		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527412-12 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	278		0.0852	0.500	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Cadmium	0.0575	<a href="#">J</a>	0.0471	0.500	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Copper	12.1		0.400	2.00	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Lead	8.99		0.208	0.500	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Nickel	22.5		0.132	2.00	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Selenium	U		0.764	2.00	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Silver	U		0.127	1.00	1	08/26/2022 12:11	<a href="#">WG1913985</a>
Zinc	38.7		0.832	5.00	1	08/26/2022 12:11	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.94		0.0167	0.200	1	08/26/2022 19:39	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.52		0.100	1.00	5	08/25/2022 18:44	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/24/2022 03:39	<a href="#">WG1914356</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	112			77.0-120		08/24/2022 03:39	<a href="#">WG1914356</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/23/2022 17:06	<a href="#">WG1915243</a>
Toluene	U		0.00130	0.00500	1	08/23/2022 17:06	<a href="#">WG1915243</a>
Ethylbenzene	U		0.000737	0.00250	1	08/23/2022 17:06	<a href="#">WG1915243</a>
Xylenes, Total	U		0.000880	0.00650	1	08/23/2022 17:06	<a href="#">WG1915243</a>
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/23/2022 17:06	<a href="#">WG1915243</a>
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/23/2022 17:06	<a href="#">WG1915243</a>
(S) Toluene-d8	109			75.0-131		08/23/2022 17:06	<a href="#">WG1915243</a>
(S) 4-Bromofluorobenzene	100			67.0-138		08/23/2022 17:06	<a href="#">WG1915243</a>
(S) 1,2-Dichloroethane-d4	79.9			70.0-130		08/23/2022 17:06	<a href="#">WG1915243</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	18.6		1.61	4.00	1	08/20/2022 23:09	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	19.8		0.274	4.00	1	08/20/2022 23:09	<a href="#">WG1913741</a>
(S) o-Terphenyl	65.2			18.0-148		08/20/2022 23:09	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Anthracene	U		0.00230	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Chrysene	U		0.00232	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Fluoranthene	U		0.00227	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Fluorene	U		0.00205	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/21/2022 13:14	<a href="#">WG1913757</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Naphthalene	U		0.00408	0.0200	1	08/21/2022 13:14	<a href="#">WG1913757</a>
Pyrene	U		0.00200	0.00600	1	08/21/2022 13:14	<a href="#">WG1913757</a>
(S) p-Terphenyl-d14	62.8			23.0-120		08/21/2022 13:14	<a href="#">WG1913757</a>
(S) Nitrobenzene-d5	71.1			14.0-149		08/21/2022 13:14	<a href="#">WG1913757</a>
(S) 2-Fluorobiphenyl	68.5			34.0-125		08/21/2022 13:14	<a href="#">WG1913757</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3836809-1 09/09/22 10:56

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1526729-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1526729-06 09/09/22 11:17 • (DUP) R3836809-3 09/09/22 11:22

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	5.83	5.80	1	0.538		20

L1527412-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-02 09/09/22 13:42 • (DUP) R3836809-8 09/09/22 13:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3836809-2 09/09/22 11:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.2	102	80.0-120	

L1526729-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526729-09 09/09/22 12:14 • (MS) R3836809-4 09/09/22 12:19 • (MSD) R3836809-5 09/09/22 12:35

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	19.3	19.8	96.6	98.9	1	75.0-125			2.27	20

L1526729-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1526729-09 09/09/22 12:14 • (MS) R3836809-7 09/09/22 12:45

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	646	U	1080	168	50	75.0-125	J5

Method Blank (MB)

(MB) R3835642-1 09/02/22 12:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1527412-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-12 09/02/22 13:27 • (DUP) R3835642-3 09/02/22 13:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

L1527720-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1527720-04 09/02/22 14:45 • (DUP) R3835642-8 09/02/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3835642-2 09/02/22 13:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.58	95.8	80.0-120	

L1527710-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527710-03 09/02/22 14:08 • (MS) R3835642-4 09/02/22 14:13 • (MSD) R3835642-5 09/02/22 14:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	11.2	14.3	55.9	71.3	1	75.0-125	J6	J3 J6	24.2	20

Sample Narrative:

OS: Sample is a reducer.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1527710-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1527710-03 09/02/22 14:08 • (MS) R3835642-7 09/02/22 14:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	643	U	577	89.7	50	75.0-125	

Sample Narrative:

OS: Sample is a reducer.

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



L1527412-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-03 08/24/22 17:30 • (DUP) R3830059-2 08/24/22 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	9.43	9.45	1	0.212		1

Sample Narrative:

OS: 9.43 at 22.6C

DUP: 9.45 at 22.7C



L1527412-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-08 08/24/22 17:30 • (DUP) R3830059-3 08/24/22 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	9.02	8.97	1	0.556		1

Sample Narrative:

OS: 9.02 at 22.5C

DUP: 8.97 at 22.8C

Laboratory Control Sample (LCS)

(LCS) R3830059-1 08/24/22 17:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 at 21.7C

Method Blank (MB)

(MB) R3835497-1 09/09/22 12:50

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1527410-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527410-02 09/09/22 12:50 • (DUP) R3835497-3 09/09/22 12:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	102	102	1	0.000		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1527410-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527410-03 09/09/22 12:50 • (DUP) R3835497-4 09/09/22 12:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	129	130	1	0.693		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3835497-2 09/09/22 12:50

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1140	102	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3835430-1 09/09/22 11:20

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1527412-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-06 09/09/22 11:20 • (DUP) R3835430-3 09/09/22 11:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	335	340	1	1.48		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1527710-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527710-01 09/09/22 11:20 • (DUP) R3835430-4 09/09/22 11:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	367	360	1	1.93		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3835430-2 09/09/22 11:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1130	101	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3830404-1 08/25/22 10:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3830404-2 08/25/22 10:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	101	101	80.0-120	
Cadmium	100	97.4	97.4	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	95.9	95.9	80.0-120	
Nickel	100	96.5	96.5	80.0-120	
Selenium	100	97.1	97.1	80.0-120	
Silver	20.0	19.3	96.5	80.0-120	
Zinc	100	94.3	94.3	80.0-120	

L1527412-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-02 08/25/22 10:39 • (MS) R3830404-5 08/25/22 10:47 • (MSD) R3830404-6 08/25/22 10:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	217	303	234	86.5	17.1	1	75.0-125		J3 J6	25.8	20
Cadmium	100	0.0778	97.3	96.4	97.2	96.3	1	75.0-125			0.963	20
Copper	100	12.2	112	108	99.6	96.3	1	75.0-125			3.06	20
Lead	100	8.20	101	98.5	92.6	90.3	1	75.0-125			2.29	20
Nickel	100	21.0	117	115	95.9	94.3	1	75.0-125			1.42	20
Selenium	100	1.13	95.6	94.8	94.4	93.6	1	75.0-125			0.865	20
Silver	20.0	U	19.1	18.9	95.6	94.3	1	75.0-125			1.31	20
Zinc	100	39.5	127	131	87.2	91.7	1	75.0-125			3.52	20

Method Blank (MB)

(MB) R3830941-1 08/26/22 11:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

Laboratory Control Sample (LCS)

(LCS) R3830941-2 08/26/22 11:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.4	97.4	80.0-120	
Cadmium	100	93.3	93.3	80.0-120	
Copper	100	95.4	95.4	80.0-120	
Lead	100	93.6	93.6	80.0-120	
Nickel	100	93.7	93.7	80.0-120	
Selenium	100	95.4	95.4	80.0-120	
Silver	20.0	18.3	91.7	80.0-120	
Zinc	100	91.2	91.2	80.0-120	

7  
Gl

8  
Al

9  
Sc

L1527412-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-11 08/26/22 11:34 • (MS) R3830941-5 08/26/22 11:42 • (MSD) R3830941-6 08/26/22 11:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	214	395	325	180	111	1	75.0-125	J5		19.3	20
Cadmium	100	0.0702	106	106	105	106	1	75.0-125			0.275	20
Copper	100	11.8	119	119	107	107	1	75.0-125			0.165	20
Lead	100	9.16	109	109	100	99.6	1	75.0-125			0.611	20
Nickel	100	20.4	122	124	102	103	1	75.0-125			1.44	20
Selenium	100	U	105	106	105	106	1	75.0-125			0.824	20
Silver	20.0	U	20.5	20.5	103	103	1	75.0-125			0.0349	20
Zinc	100	35.3	131	134	96.2	98.9	1	75.0-125			2.05	20

Method Blank (MB)

(MB) R3830973-1 08/26/22 14:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3830973-2 08/26/22 14:32 • (LCSD) R3830973-3 08/26/22 14:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.01	1.01	101	101	80.0-120			0.300	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3831219-1 08/26/22 18:57

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3831219-2 08/26/22 18:59 • (LCSD) R3831219-3 08/26/22 19:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.08	1.03	108	103	80.0-120			4.38	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3829852-1 08/24/22 10:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3829852-2 08/24/22 10:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.1	93.1	80.0-120	

L1527412-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-02 08/24/22 10:56 • (MS) R3829852-5 08/24/22 11:06 • (MSD) R3829852-6 08/24/22 11:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	3.54	89.7	88.9	86.1	85.4	5	75.0-125			0.858	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3830609-1 08/25/22 17:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3830609-2 08/25/22 17:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.3	92.3	80.0-120	

L1527412-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-11 08/25/22 18:02 • (MS) R3830609-5 08/25/22 18:12 • (MSD) R3830609-6 08/25/22 18:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.59	97.3	99.6	94.7	97.0	5	75.0-125			2.30	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3828688-2 08/21/22 07:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	92.4			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3828688-1 08/21/22 07:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.88	88.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.9	77.0-120	

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3829964-3 08/24/22 03:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	112			77.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3829964-1 08/23/22 23:46 • (LCSD) R3829964-2 08/24/22 00:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.16	4.49	93.8	81.6	72.0-127			13.9	20
(S) a,a,a-Trifluorotoluene(FID)				103	102	77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3829906-2 08/22/22 11:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	97.6			67.0-138
(S) 1,2-Dichloroethane-d4	97.9			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3829906-1 08/22/22 10:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.105	84.0	70.0-123	
Toluene	0.125	0.106	84.8	75.0-121	
Ethylbenzene	0.125	0.110	88.0	74.0-126	
Xylenes, Total	0.375	0.317	84.5	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.114	91.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.116	92.8	73.0-127	
(S) Toluene-d8			103	75.0-131	
(S) 4-Bromofluorobenzene			96.6	67.0-138	
(S) 1,2-Dichloroethane-d4			99.1	70.0-130	

L1527198-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527198-01 08/22/22 15:24 • (MS) R3829906-3 08/22/22 21:44 • (MSD) R3829906-4 08/22/22 22:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.124	U	0.126	0.118	102	95.2	1	10.0-149			6.56	37
Toluene	0.124	0.00510	0.149	0.135	116	105	1	10.0-156			9.86	38
Ethylbenzene	0.124	U	0.130	0.113	105	91.1	1	10.0-160			14.0	38
Xylenes, Total	0.372	0.00245	0.364	0.356	97.2	95.0	1	10.0-160			2.22	38
1,2,4-Trimethylbenzene	0.124	U	0.132	0.111	106	89.5	1	10.0-160			17.3	36
1,3,5-Trimethylbenzene	0.124	0.00398	0.149	0.129	117	101	1	10.0-160			14.4	38
(S) Toluene-d8					100	102		75.0-131				
(S) 4-Bromofluorobenzene					101	101		67.0-138				
(S) 1,2-Dichloroethane-d4					99.6	99.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3829407-3 08/22/22 21:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	106			75.0-131
(S) 4-Bromofluorobenzene	96.7			67.0-138
(S) 1,2-Dichloroethane-d4	94.8			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3829407-1 08/22/22 20:38 • (LCSD) R3829407-2 08/22/22 20:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.123	0.119	98.4	95.2	70.0-123			3.31	20
Toluene	0.125	0.116	0.118	92.8	94.4	75.0-121			1.71	20
Ethylbenzene	0.125	0.112	0.111	89.6	88.8	74.0-126			0.897	20
Xylenes, Total	0.375	0.334	0.339	89.1	90.4	72.0-127			1.49	20
1,2,4-Trimethylbenzene	0.125	0.113	0.115	90.4	92.0	70.0-126			1.75	20
1,3,5-Trimethylbenzene	0.125	0.114	0.115	91.2	92.0	73.0-127			0.873	20
(S) Toluene-d8				103	103	75.0-131				
(S) 4-Bromofluorobenzene				102	100	67.0-138				
(S) 1,2-Dichloroethane-d4				111	112	70.0-130				

L1527412-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-03 08/23/22 03:00 • (MS) R3829407-4 08/23/22 05:51 • (MSD) R3829407-5 08/23/22 06:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	U	0.122	0.139	97.6	111	1	10.0-149			13.0	37
Toluene	0.125	U	0.118	0.141	94.4	113	1	10.0-156			17.8	38
Ethylbenzene	0.125	U	0.109	0.132	87.2	106	1	10.0-160			19.1	38
Xylenes, Total	0.375	U	0.340	0.393	90.7	105	1	10.0-160			14.5	38
1,2,4-Trimethylbenzene	0.125	U	0.119	0.138	95.2	110	1	10.0-160			14.8	36
1,3,5-Trimethylbenzene	0.125	U	0.122	0.141	97.6	113	1	10.0-160			14.4	38
(S) Toluene-d8					101	105		75.0-131				
(S) 4-Bromofluorobenzene					96.8	99.0		67.0-138				
(S) 1,2-Dichloroethane-d4					98.4	99.9		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3830814-3 08/23/22 15:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	108			75.0-131
(S) 4-Bromofluorobenzene	101			67.0-138
(S) 1,2-Dichloroethane-d4	86.3			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3830814-1 08/23/22 11:00 • (LCSD) R3830814-2 08/23/22 11:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.119	0.122	95.2	97.6	70.0-123			2.49	20
Toluene	0.125	0.130	0.131	104	105	75.0-121			0.766	20
Ethylbenzene	0.125	0.132	0.135	106	108	74.0-126			2.25	20
Xylenes, Total	0.375	0.391	0.393	104	105	72.0-127			0.510	20
1,2,4-Trimethylbenzene	0.125	0.123	0.121	98.4	96.8	70.0-126			1.64	20
1,3,5-Trimethylbenzene	0.125	0.121	0.126	96.8	101	73.0-127			4.05	20
(S) Toluene-d8				110	107	75.0-131				
(S) 4-Bromofluorobenzene				102	98.9	67.0-138				
(S) 1,2-Dichloroethane-d4				89.2	86.1	70.0-130				

L1527720-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527720-03 08/23/22 20:33 • (MS) R3830814-4 08/23/22 22:06 • (MSD) R3830814-5 08/23/22 22:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	U	0.129	0.136	103	109	1	10.0-149			5.28	37
Toluene	0.125	U	0.142	0.146	114	117	1	10.0-156			2.78	38
Ethylbenzene	0.125	U	0.145	0.153	116	122	1	10.0-160			5.37	38
Xylenes, Total	0.375	U	0.411	0.416	110	111	1	10.0-160			1.21	38
1,2,4-Trimethylbenzene	0.125	U	0.128	0.131	102	105	1	10.0-160			2.32	36
1,3,5-Trimethylbenzene	0.125	U	0.135	0.139	108	111	1	10.0-160			2.92	38
(S) Toluene-d8					108	110		75.0-131				
(S) 4-Bromofluorobenzene					101	100		67.0-138				
(S) 1,2-Dichloroethane-d4					76.0	80.7		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3828779-1 08/20/22 14:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.388	⬇	0.274	4.00
(S) o-Terphenyl	58.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3828779-2 08/20/22 15:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.9	67.8	50.0-150	
(S) o-Terphenyl			81.5	18.0-148	

L1527410-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527410-03 08/20/22 19:38 • (MS) R3828779-3 08/20/22 19:51 • (MSD) R3828779-4 08/20/22 20:04

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.7	U	30.1	34.4	63.1	69.5	1	50.0-150			13.3	20
(S) o-Terphenyl					74.1	78.9		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3829314-2 08/21/22 09:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	72.9			23.0-120
(S) Nitrobenzene-d5	74.0			14.0-149
(S) 2-Fluorobiphenyl	76.6			34.0-125

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Laboratory Control Sample (LCS)

(LCS) R3829314-1 08/21/22 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0554	69.3	50.0-120	
Anthracene	0.0800	0.0599	74.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0587	73.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0532	66.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0535	66.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0585	73.1	42.0-120	
Chrysene	0.0800	0.0571	71.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0520	65.0	47.0-125	
Fluoranthene	0.0800	0.0587	73.4	49.0-129	
Fluorene	0.0800	0.0581	72.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0555	69.4	46.0-125	
1-Methylnaphthalene	0.0800	0.0537	67.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0548	68.5	50.0-120	
Naphthalene	0.0800	0.0525	65.6	50.0-120	
Pyrene	0.0800	0.0565	70.6	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3829314-1 08/21/22 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			65.7	23.0-120	
(S) Nitrobenzene-d5			74.6	14.0-149	
(S) 2-Fluorobiphenyl			71.5	34.0-125	

L1527380-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527380-01 08/21/22 16:12 • (MS) R3829314-3 08/21/22 16:31 • (MSD) R3829314-4 08/21/22 16:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	U	0.0616	0.0538	77.0	67.3	1	14.0-127			13.5	27
Anthracene	0.0800	U	0.0628	0.0554	78.5	69.3	1	10.0-145			12.5	30
Benzo(a)anthracene	0.0800	U	0.0690	0.0600	86.3	75.0	1	10.0-139			14.0	30
Benzo(b)fluoranthene	0.0800	U	0.0575	0.0491	71.9	61.4	1	10.0-140			15.8	36
Benzo(k)fluoranthene	0.0800	0.0167	0.0630	0.0558	57.9	48.9	1	10.0-137			12.1	31
Benzo(a)pyrene	0.0800	U	0.0671	0.0570	83.9	71.3	1	10.0-141			16.3	31
Chrysene	0.0800	U	0.0642	0.0543	80.3	67.9	1	10.0-145			16.7	30
Dibenz(a,h)anthracene	0.0800	U	0.0526	0.0435	65.8	54.4	1	10.0-132			18.9	31
Fluoranthene	0.0800	0.00489	0.0653	0.0580	75.5	66.4	1	10.0-153			11.8	33
Fluorene	0.0800	0.0221	0.0778	0.0731	69.6	63.8	1	11.0-130			6.23	29
Indeno(1,2,3-cd)pyrene	0.0800	U	0.0614	0.0499	76.8	62.4	1	10.0-137			20.7	32
1-Methylnaphthalene	0.0800	0.0367	0.0845	0.0826	59.8	57.4	1	10.0-142			2.27	28
2-Methylnaphthalene	0.0800	0.0576	0.0999	0.104	52.9	58.0	1	10.0-137			4.02	28
Naphthalene	0.0800	0.0314	0.0789	0.0753	59.4	54.9	1	10.0-135			4.67	27
Pyrene	0.0800	0.0426	0.0858	0.0867	54.0	55.1	1	10.0-148			1.04	35
(S) p-Terphenyl-d14					71.7	59.5		23.0-120				
(S) Nitrobenzene-d5					93.5	80.3		14.0-149				
(S) 2-Fluorobiphenyl					72.1	58.5		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R3829388-2 08/21/22 11:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	78.3			23.0-120
(S) Nitrobenzene-d5	75.1			14.0-149
(S) 2-Fluorobiphenyl	75.9			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3829388-1 08/21/22 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0651	81.4	50.0-120	
Anthracene	0.0800	0.0630	78.8	50.0-126	
Benzo(a)anthracene	0.0800	0.0642	80.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0655	81.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0668	83.5	49.0-125	
Benzo(a)pyrene	0.0800	0.0671	83.9	42.0-120	
Chrysene	0.0800	0.0676	84.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0620	77.5	47.0-125	
Fluoranthene	0.0800	0.0672	84.0	49.0-129	
Fluorene	0.0800	0.0675	84.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0654	81.8	46.0-125	
1-Methylnaphthalene	0.0800	0.0629	78.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0652	81.5	50.0-120	
Naphthalene	0.0800	0.0621	77.6	50.0-120	
Pyrene	0.0800	0.0694	86.8	43.0-123	



Laboratory Control Sample (LCS)

(LCS) R3829388-1 08/21/22 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			83.9	23.0-120	
(S) Nitrobenzene-d5			81.3	14.0-149	
(S) 2-Fluorobiphenyl			82.4	34.0-125	

L1527348-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527348-10 08/21/22 15:16 • (MS) R3829388-3 08/21/22 15:33 • (MSD) R3829388-4 08/21/22 15:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	0.00280	0.0673	0.0634	80.6	75.8	1	14.0-127			5.97	27
Anthracene	0.0800	0.0161	0.0786	0.0856	78.1	86.9	1	10.0-145			8.53	30
Benzo(a)anthracene	0.0800	0.0527	0.104	0.198	64.1	182	1	10.0-139		J3 J5	62.3	30
Benzo(b)fluoranthene	0.0800	0.0891	0.118	0.298	36.1	261	1	10.0-140		J3 J5	86.5	36
Benzo(k)fluoranthene	0.0800	0.0352	0.0859	0.156	63.4	151	1	10.0-137		J3 J5	58.0	31
Benzo(a)pyrene	0.0800	0.0990	0.129	0.316	37.5	271	1	10.0-141		J3 J5	84.0	31
Chrysene	0.0800	0.0488	0.111	0.221	77.8	215	1	10.0-145		J3 J5	66.3	30
Dibenz(a,h)anthracene	0.0800	0.0207	0.0753	0.0944	68.3	92.1	1	10.0-132			22.5	31
Fluoranthene	0.0800	0.0647	0.118	0.215	66.6	188	1	10.0-153		J3 J5	58.3	33
Fluorene	0.0800	0.00680	0.0728	0.0713	82.5	80.6	1	11.0-130			2.08	29
Indeno(1,2,3-cd)pyrene	0.0800	0.127	0.147	0.336	25.0	261	1	10.0-137		J3 J5	78.3	32
1-Methylnaphthalene	0.0800	0.107	0.0760	0.0712	0.000	0.000	1	10.0-142	J6	J6	6.52	28
2-Methylnaphthalene	0.0800	0.242	0.0920	0.0878	0.000	0.000	1	10.0-137	J6	J6	4.67	28
Naphthalene	0.0800	0.515	0.106	0.128	0.000	0.000	1	10.0-135	V	V	18.8	27
Pyrene	0.0800	0.0643	0.117	0.214	65.9	187	1	10.0-148		J3 J5	58.6	35
(S) p-Terphenyl-d14					82.3	73.4		23.0-120				
(S) Nitrobenzene-d5					86.9	77.6		14.0-149				
(S) 2-Fluorobiphenyl					85.0	76.1		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

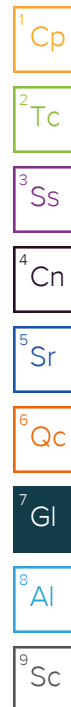
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


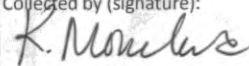
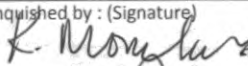

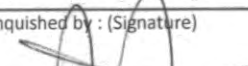
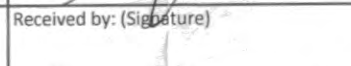

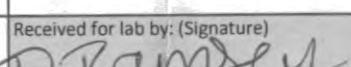
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Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



<b>Caerus Oil &amp; Gas LLC</b> <b>143 Diamond Avenue</b> <b>Parachute, CO 81635</b> <b>970-285-9606</b>				Billing Information:		Analysis / Container / Preservative		Chain of Custody Page 1 of 2								
				Same as above				 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859								
Report to: <b>bmiddleton@caerusoilandgas.com</b>				Email To: <b>bmiddleton@caerusoilandgas.com</b>												
Project Description: <b>YCF 27-13-1 Facility Decommissioning</b>				City/State Collected: <b>Yellow Creek, CO</b>												
Phone:		Client Project #		Lab Project #												
Fax:		<b>YCF 27-13-1</b>		<b>YCF 27-13-1</b>												
Collected by (print): <b>K. MORELAND</b>		Site/Facility ID #		P.O. #												
		<b>YCF 27-13-1</b>		<b>YCF 27-13-1</b>												
Collected by (signature): 		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #												
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>				Date Results Needed <b>Standard TAT</b>												
				No. of Cntrs												
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	TPH - GRO, DRO, ORO	BTEX	TABLE 915-1 - PAH's	SAR, EC, pH, Boron	TABLE 915-1 - Metals	1,2,4- Trimethylbenzene	1,3,5- Trimethylbenzene				
20220817-YCF 27-13-1 (ACCESS Rd. VAULT)	GRAB	SS	0"-1"	8/17/22	835	X	X	X	X	X	X	X				-01
20220817-YCF 27-13-1 (PH01) @ 0'			0'		850											-02
20220817-YCF 27-13-1 (TANK A)			0"-1'		950											-03
20220817-YCF 27-13-1 (TANK B)			0"-1'		955											-04
20220817-YCF 27-13-1 (TANK C)			0"-1'		1000											-05
20220817-YCF 27-13-1 (SEP) @ 4.5'			4.5		1030											-06
20220817-YCF 27-13-1 (SEP 90) @ 3'			3'		1050											-07
20220817-YCF 27-13-1 (PAD VAULT)			0"-1'		1120											-08
20220817-YCF 27-13-1 (METER SKED)			0"-1'		1400											-09
20220817-YCF 27-13-1 (OFF LOC. FLOW LINE) @ 5'	↓	↓	5'	↓	1415	↓	✓	✓	✓	✓	✓	✓				-10
* Matrix: SS - Soil   AIR - Air   F - Filter GW - Groundwater   B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:  Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier				Tracking #		pH _____ Temp _____  Flow _____ Other _____		Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N						
Relinquished by: (Signature) 		Date: 8/18/22		Time: 1300		Received by: (Signature) 		Trip Blank Received: Yes / No HCL / MeOH TBR								
Relinquished by: (Signature) 		Date: 8/18/22		Time: 1500		Received by: (Signature) 		Temp: _____ °C   Bottles Received: 36		If preservation required by Login: Date/Time						
Relinquished by: (Signature) 		Date:		Time:		Received for lab by: (Signature) 		Date: 08-19-22   Time: 0900		Hold:		Condition: NCF / OK				



U522412

<u>Tracking Numbers</u>		<u>Temperature</u>
57558084 9451		NSA6 2.7+0 ± 2-7
5755 8084 9234		NSA6 4.0+0 = 4.0



September 16, 2022

Revised Report

## Caerus Oil and Gas

Sample Delivery Group: L1527410  
Samples Received: 08/19/2022  
Project Number: YCF 27-13-1  
Description: YCF 27-13-1 Facility Decommissioning  
Site: YCF 27-13-1  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

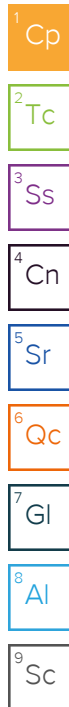


Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



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# SAMPLE SUMMARY

## 20220817-YCF 27-13-1 (BGW). L1527410-01 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 13:10

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 15:58	08/30/22 15:58	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1916042	1	08/25/22 10:00	08/25/22 12:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914113	1	08/22/22 10:52	08/26/22 15:31	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1915940	5	08/24/22 16:47	08/25/22 19:56	LD	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

## 20220817-YCF 27-13-1 (BGW) @ 1.5-2' L1527410-02 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 13:20

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:01	08/30/22 16:01	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1916042	1	08/25/22 10:00	08/25/22 12:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914113	1	08/22/22 10:52	08/26/22 15:39	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1915940	5	08/24/22 16:47	08/25/22 19:59	LD	Mt. Juliet, TN

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

## 20220817-YCF 27-13-1 (BGW) @ 2.5-3' L1527410-03 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 13:35

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915249	1	08/30/22 16:04	08/30/22 16:04	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917376	1	09/02/22 00:22	09/09/22 13:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1916042	1	08/25/22 10:00	08/25/22 12:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922234	1	09/07/22 11:28	09/09/22 12:50	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913981	1	08/23/22 09:44	08/25/22 11:49	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914113	1	08/22/22 10:52	08/26/22 15:42	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913980	5	08/23/22 09:21	08/24/22 12:15	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914069	1	08/20/22 16:44	08/21/22 13:02	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1914699	1	08/20/22 16:44	08/22/22 19:50	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915898	1	08/20/22 16:44	08/25/22 03:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/20/22 19:38	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913756	1	08/20/22 15:03	08/21/22 12:55	AMG	Mt. Juliet, TN

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

## Report Revision History

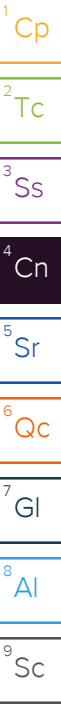
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Level II Report - Version 1: 09/14/22 12:17

## Project Narrative

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Rerun for correct project info



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.108		1	08/30/2022 15:58	WG1915249

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	T8	1	08/25/2022 12:00	<a href="#">WG1916042</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:

L1527410-01 WG1916042: 8.31 at 22.5C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	148		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:

L1527410-01 WG1922234: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	08/26/2022 15:31	<a href="#">WG1914113</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.68		1.00	5	08/25/2022 19:56	<a href="#">WG1915940</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.161		1	08/30/2022 16:01	WG1915249

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	T8	1	08/25/2022 12:00	WG1916042

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:

L1527410-02 WG1916042: 8.4 at 22.8C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	102		umhos/cm	1	09/09/2022 12:50	WG1922234

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:

L1527410-02 WG1922234: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		mg/l	1	08/26/2022 15:39	WG1914113

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.73		mg/kg	5	08/25/2022 19:59	WG1915940



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.413		1	08/30/2022 16:04	WG1915249

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	09/09/2022 13:22	<a href="#">WG1917376</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.48	<a href="#">T8</a>	1	08/25/2022 12:00	<a href="#">WG1916042</a>

Sample Narrative:

L1527410-03 WG1916042: 8.48 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	129		10.0	1	09/09/2022 12:50	<a href="#">WG1922234</a>

Sample Narrative:

L1527410-03 WG1922234: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	258		0.500	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Cadmium	ND		0.500	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Copper	10.7		2.00	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Lead	8.12		0.500	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Nickel	17.7		2.00	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Selenium	ND		2.00	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Silver	ND		1.00	1	08/25/2022 11:49	<a href="#">WG1913981</a>
Zinc	36.0		5.00	1	08/25/2022 11:49	<a href="#">WG1913981</a>

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	08/26/2022 15:42	<a href="#">WG1914113</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.22		1.00	5	08/24/2022 12:15	<a href="#">WG1913980</a>

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	08/21/2022 13:02	<a href="#">WG1914069</a>
(S) a,a,a-Trifluorotoluene(FID)	91.4		77.0-120		08/21/2022 13:02	<a href="#">WG1914069</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	08/22/2022 19:50	<a href="#">WG1914699</a>
Toluene	ND		0.00500	1	08/25/2022 03:58	<a href="#">WG1915898</a>
Ethylbenzene	ND		0.00250	1	08/25/2022 03:58	<a href="#">WG1915898</a>
Xylenes, Total	0.0220		0.00650	1	08/25/2022 03:58	<a href="#">WG1915898</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	08/25/2022 03:58	<a href="#">WG1915898</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	08/25/2022 03:58	<a href="#">WG1915898</a>
(S) Toluene-d8	103		75.0-131		08/22/2022 19:50	<a href="#">WG1914699</a>
(S) Toluene-d8	110		75.0-131		08/25/2022 03:58	<a href="#">WG1915898</a>
(S) 4-Bromofluorobenzene	97.2		67.0-138		08/22/2022 19:50	<a href="#">WG1914699</a>
(S) 4-Bromofluorobenzene	103		67.0-138		08/25/2022 03:58	<a href="#">WG1915898</a>
(S) 1,2-Dichloroethane-d4	90.9		70.0-130		08/22/2022 19:50	<a href="#">WG1914699</a>
(S) 1,2-Dichloroethane-d4	77.6		70.0-130		08/25/2022 03:58	<a href="#">WG1915898</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	08/20/2022 19:38	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	ND		4.00	1	08/20/2022 19:38	<a href="#">WG1913741</a>
(S) o-Terphenyl	50.8		18.0-148		08/20/2022 19:38	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Anthracene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Benzo(a)anthracene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Benzo(b)fluoranthene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Benzo(k)fluoranthene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Benzo(a)pyrene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Chrysene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Dibenz(a,h)anthracene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Fluoranthene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Fluorene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
1-Methylnaphthalene	ND		0.0200	1	08/21/2022 12:55	<a href="#">WG1913756</a>
2-Methylnaphthalene	ND		0.0200	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Naphthalene	ND		0.0200	1	08/21/2022 12:55	<a href="#">WG1913756</a>
Pyrene	ND		0.00600	1	08/21/2022 12:55	<a href="#">WG1913756</a>
(S) p-Terphenyl-d14	75.4		23.0-120		08/21/2022 12:55	<a href="#">WG1913756</a>
(S) Nitrobenzene-d5	73.7		14.0-149		08/21/2022 12:55	<a href="#">WG1913756</a>
(S) 2-Fluorobiphenyl	79.7		34.0-125		08/21/2022 12:55	<a href="#">WG1913756</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3836809-1 09/09/22 10:56

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1526729-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1526729-06 09/09/22 11:17 • (DUP) R3836809-3 09/09/22 11:22

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	5.83	5.80	1	0.538		20

L1527412-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-02 09/09/22 13:42 • (DUP) R3836809-8 09/09/22 13:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3836809-2 09/09/22 11:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.2	102	80.0-120	

L1526729-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526729-09 09/09/22 12:14 • (MS) R3836809-4 09/09/22 12:19 • (MSD) R3836809-5 09/09/22 12:35

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.3	19.8	96.6	98.9	1	75.0-125			2.27	20

L1526729-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1526729-09 09/09/22 12:14 • (MS) R3836809-7 09/09/22 12:45

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	646	ND	1080	168	50	75.0-125	J5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1527198-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527198-03 08/25/22 12:00 • (DUP) R3830338-2 08/25/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.68	7.73	1	0.649		1

Sample Narrative:

OS: 7.68 at 22.5C

DUP: 7.73 at 22.2C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1527896-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527896-02 08/25/22 12:00 • (DUP) R3830338-3 08/25/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.52	7.53	1	0.133		1

Sample Narrative:

OS: 7.52 at 22.4C

DUP: 7.53 at 22.5C

Laboratory Control Sample (LCS)

(LCS) R3830338-1 08/25/22 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22C

Method Blank (MB)

(MB) R3835497-1 09/09/22 12:50

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1527410-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527410-02 09/09/22 12:50 • (DUP) R3835497-3 09/09/22 12:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	102	102	1	0.000		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1527410-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527410-03 09/09/22 12:50 • (DUP) R3835497-4 09/09/22 12:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	129	130	1	0.693		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3835497-2 09/09/22 12:50

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1140	102	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3830404-1 08/25/22 10:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3830404-2 08/25/22 10:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	101	101	80.0-120	
Cadmium	100	97.4	97.4	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	95.9	95.9	80.0-120	
Nickel	100	96.5	96.5	80.0-120	
Selenium	100	97.1	97.1	80.0-120	
Silver	20.0	19.3	96.5	80.0-120	
Zinc	100	94.3	94.3	80.0-120	

L1527412-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-02 08/25/22 10:39 • (MS) R3830404-5 08/25/22 10:47 • (MSD) R3830404-6 08/25/22 10:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	217	303	234	86.5	17.1	1	75.0-125		J3 J6	25.8	20
Cadmium	100	ND	97.3	96.4	97.2	96.3	1	75.0-125			0.963	20
Copper	100	12.2	112	108	99.6	96.3	1	75.0-125			3.06	20
Lead	100	8.20	101	98.5	92.6	90.3	1	75.0-125			2.29	20
Nickel	100	21.0	117	115	95.9	94.3	1	75.0-125			1.42	20
Selenium	100	ND	95.6	94.8	94.4	93.6	1	75.0-125			0.865	20
Silver	20.0	ND	19.1	18.9	95.6	94.3	1	75.0-125			1.31	20
Zinc	100	39.5	127	131	87.2	91.7	1	75.0-125			3.52	20



Method Blank (MB)

(MB) R3830973-1 08/26/22 14:29

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3830973-2 08/26/22 14:32 • (LCSD) R3830973-3 08/26/22 14:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.01	1.01	101	101	80.0-120			0.300	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3829852-1 08/24/22 10:50

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3829852-2 08/24/22 10:53

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	93.1	93.1	80.0-120	

L1527412-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-02 08/24/22 10:56 • (MS) R3829852-5 08/24/22 11:06 • (MSD) R3829852-6 08/24/22 11:09

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	3.54	89.7	88.9	86.1	85.4	5	75.0-125			0.858	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3830616-1 08/25/22 19:33

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3830616-2 08/25/22 19:36

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	86.6	86.6	80.0-120	

L1527809-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527809-03 08/25/22 19:40 • (MS) R3830616-5 08/25/22 19:49 • (MSD) R3830616-6 08/25/22 19:53

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	4.37	98.7	97.1	94.4	92.7	5	75.0-125			1.68	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3828688-2 08/21/22 07:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	92.4			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3828688-1 08/21/22 07:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.88	88.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.9	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3829906-2 08/22/22 11:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	97.6			67.0-138
(S) 1,2-Dichloroethane-d4	97.9			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3829906-1 08/22/22 10:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.105	84.0	70.0-123	
(S) Toluene-d8			103	75.0-131	
(S) 4-Bromofluorobenzene			96.6	67.0-138	
(S) 1,2-Dichloroethane-d4			99.1	70.0-130	

L1527198-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527198-01 08/22/22 15:24 • (MS) R3829906-3 08/22/22 21:44 • (MSD) R3829906-4 08/22/22 22:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.124	ND	0.126	0.118	102	95.2	1	10.0-149			6.56	37
(S) Toluene-d8					100	102		75.0-131				
(S) 4-Bromofluorobenzene					101	101		67.0-138				
(S) 1,2-Dichloroethane-d4					99.6	99.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3830251-3 08/24/22 22:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	104			75.0-131
(S) 4-Bromofluorobenzene	98.1			67.0-138
(S) 1,2-Dichloroethane-d4	89.3			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3830251-1 08/24/22 20:07 • (LCSD) R3830251-2 08/24/22 20:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Toluene	0.125	0.113	0.120	90.4	96.0	75.0-121			6.01	20
Ethylbenzene	0.125	0.117	0.127	93.6	102	74.0-126			8.20	20
Xylenes, Total	0.375	0.336	0.364	89.6	97.1	72.0-127			8.00	20
1,2,4-Trimethylbenzene	0.125	0.102	0.116	81.6	92.8	70.0-126			12.8	20
1,3,5-Trimethylbenzene	0.125	0.109	0.124	87.2	99.2	73.0-127			12.9	20
(S) Toluene-d8				107	107	75.0-131				
(S) 4-Bromofluorobenzene				100	98.3	67.0-138				
(S) 1,2-Dichloroethane-d4				89.3	90.5	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3828779-1 08/20/22 14:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.388	⬇	0.274	4.00
(S) o-Terphenyl	58.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3828779-2 08/20/22 15:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.9	67.8	50.0-150	
(S) o-Terphenyl			81.5	18.0-148	

L1527410-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527410-03 08/20/22 19:38 • (MS) R3828779-3 08/20/22 19:51 • (MSD) R3828779-4 08/20/22 20:04

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.7	ND	30.1	34.4	63.1	69.5	1	50.0-150			13.3	20
(S) o-Terphenyl					74.1	78.9		18.0-148				

1  
Cp

2  
Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

Method Blank (MB)

(MB) R3829314-2 08/21/22 09:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	72.9			23.0-120
(S) Nitrobenzene-d5	74.0			14.0-149
(S) 2-Fluorobiphenyl	76.6			34.0-125

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3829314-1 08/21/22 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0554	69.3	50.0-120	
Anthracene	0.0800	0.0599	74.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0587	73.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0532	66.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0535	66.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0585	73.1	42.0-120	
Chrysene	0.0800	0.0571	71.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0520	65.0	47.0-125	
Fluoranthene	0.0800	0.0587	73.4	49.0-129	
Fluorene	0.0800	0.0581	72.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0555	69.4	46.0-125	
1-Methylnaphthalene	0.0800	0.0537	67.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0548	68.5	50.0-120	
Naphthalene	0.0800	0.0525	65.6	50.0-120	
Pyrene	0.0800	0.0565	70.6	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3829314-1 08/21/22 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			65.7	23.0-120	
(S) Nitrobenzene-d5			74.6	14.0-149	
(S) 2-Fluorobiphenyl			71.5	34.0-125	

L1527380-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527380-01 08/21/22 16:12 • (MS) R3829314-3 08/21/22 16:31 • (MSD) R3829314-4 08/21/22 16:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0616	0.0538	77.0	67.3	1	14.0-127			13.5	27
Anthracene	0.0800	ND	0.0628	0.0554	78.5	69.3	1	10.0-145			12.5	30
Benzo(a)anthracene	0.0800	ND	0.0690	0.0600	86.3	75.0	1	10.0-139			14.0	30
Benzo(b)fluoranthene	0.0800	ND	0.0575	0.0491	71.9	61.4	1	10.0-140			15.8	36
Benzo(k)fluoranthene	0.0800	0.0167	0.0630	0.0558	57.9	48.9	1	10.0-137			12.1	31
Benzo(a)pyrene	0.0800	ND	0.0671	0.0570	83.9	71.3	1	10.0-141			16.3	31
Chrysene	0.0800	ND	0.0642	0.0543	80.3	67.9	1	10.0-145			16.7	30
Dibenz(a,h)anthracene	0.0800	ND	0.0526	0.0435	65.8	54.4	1	10.0-132			18.9	31
Fluoranthene	0.0800	ND	0.0653	0.0580	75.5	66.4	1	10.0-153			11.8	33
Fluorene	0.0800	0.0221	0.0778	0.0731	69.6	63.8	1	11.0-130			6.23	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0614	0.0499	76.8	62.4	1	10.0-137			20.7	32
1-Methylnaphthalene	0.0800	0.0367	0.0845	0.0826	59.8	57.4	1	10.0-142			2.27	28
2-Methylnaphthalene	0.0800	0.0576	0.0999	0.104	52.9	58.0	1	10.0-137			4.02	28
Naphthalene	0.0800	0.0314	0.0789	0.0753	59.4	54.9	1	10.0-135			4.67	27
Pyrene	0.0800	0.0426	0.0858	0.0867	54.0	55.1	1	10.0-148			1.04	35
(S) p-Terphenyl-d14					71.7	59.5		23.0-120				
(S) Nitrobenzene-d5					93.5	80.3		14.0-149				
(S) 2-Fluorobiphenyl					72.1	58.5		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

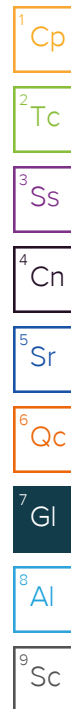
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.


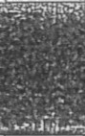

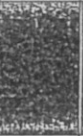



\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.







4527410

<u>Tracking Numbers</u>		<u>Temperature</u>
57558084 9451		NSA6 2.7+0 = 2.7
5755 8084 9234		NSA6 4.0+0 = 4.0
		
		
		
		

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## Caerus Oil and Gas

Sample Delivery Group: L1527414  
Samples Received: 08/19/2022  
Project Number: YCF 27-13-1  
Description: YCF 27-13-1 Facility Decommissioning  
Site: YCF 27-13-1  
Report To: Jake Janicek  
143 Diamond Avenue  
Parachute, CO 81635

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

Entire Report Reviewed By:



Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

### Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

## 2022817-YCF 27-13-1 (BGE) L1527414-01 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 11:30

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 11:00	08/26/22 11:00	ABL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1916042	1	08/25/22 10:00	08/25/22 12:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:42	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1918761	5	08/30/22 17:42	08/31/22 11:14	SJM	Mt. Juliet, TN



## 2022817-YCF 27-13-1 (BGE) @ 2.5' L1527414-02 Solid

Collected by  
K. Moreland

Collected date/time  
08/17/22 11:45

Received date/time  
08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1915560	1	08/26/22 11:08	08/26/22 11:08	ABL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1917378	1	08/30/22 19:11	09/02/22 13:37	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1916042	1	08/25/22 10:00	08/25/22 12:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1922243	1	09/07/22 11:44	09/09/22 11:20	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1913985	1	08/24/22 16:24	08/26/22 12:14	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1914114	1	08/22/22 10:03	08/26/22 19:45	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1913984	5	08/24/22 16:17	08/25/22 18:47	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1914357	1	08/20/22 16:44	08/23/22 15:57	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1915197	1	08/20/22 16:44	08/23/22 15:13	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1913741	1	08/20/22 11:00	08/21/22 00:40	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1913757	1	08/20/22 15:06	08/21/22 13:31	AMG	Mt. Juliet, TN



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward  
Project Manager

## Report Revision History

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Level II Report - Version 1: 09/09/22 16:42

## Project Narrative

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Rerun to update project info



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.313		1	08/26/2022 11:00	WG1915560

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.16	T8	1	08/25/2022 12:00	WG1916042

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:

L1527414-01 WG1916042: 8.16 at 22C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	235		umhos/cm	1	09/09/2022 11:20	WG1922243

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:

L1527414-01 WG1922243: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.885		mg/l	1	08/26/2022 19:42	WG1914114

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.31		mg/kg	5	08/31/2022 11:14	WG1918761



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.59		1	08/26/2022 11:08	WG1915560

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	09/02/2022 13:37	<a href="#">WG1917378</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.73	<a href="#">T8</a>	1	08/25/2022 12:00	<a href="#">WG1916042</a>

## Sample Narrative:

L1527414-02 WG1916042: 8.73 at 22.4C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	711		10.0	1	09/09/2022 11:20	<a href="#">WG1922243</a>

## Sample Narrative:

L1527414-02 WG1922243: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	275		0.500	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Cadmium	ND		0.500	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Copper	20.9		2.00	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Lead	9.19		0.500	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Nickel	19.3		2.00	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Selenium	ND		2.00	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Silver	ND		1.00	1	08/26/2022 12:14	<a href="#">WG1913985</a>
Zinc	38.5		5.00	1	08/26/2022 12:14	<a href="#">WG1913985</a>

## Metals (ICP) by Method 6010B-NE493 Ch 2

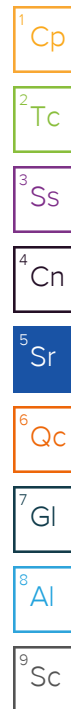
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.843		0.200	1	08/26/2022 19:45	<a href="#">WG1914114</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.35		1.00	5	08/25/2022 18:47	<a href="#">WG1913984</a>

## Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	08/23/2022 15:57	<a href="#">WG1914357</a>
(S) a,a,a-Trifluorotoluene(FID)	102		77.0-120		08/23/2022 15:57	<a href="#">WG1914357</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	08/23/2022 15:13	<a href="#">WG1915197</a>
Toluene	ND		0.00500	1	08/23/2022 15:13	<a href="#">WG1915197</a>
Ethylbenzene	ND		0.00250	1	08/23/2022 15:13	<a href="#">WG1915197</a>
Xylenes, Total	ND		0.00650	1	08/23/2022 15:13	<a href="#">WG1915197</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	08/23/2022 15:13	<a href="#">WG1915197</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	08/23/2022 15:13	<a href="#">WG1915197</a>
(S) Toluene-d8	96.1		75.0-131		08/23/2022 15:13	<a href="#">WG1915197</a>
(S) 4-Bromofluorobenzene	95.3		67.0-138		08/23/2022 15:13	<a href="#">WG1915197</a>
(S) 1,2-Dichloroethane-d4	106		70.0-130		08/23/2022 15:13	<a href="#">WG1915197</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015M

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	13.1		4.00	1	08/21/2022 00:40	<a href="#">WG1913741</a>
C28-C36 Motor Oil Range	11.8		4.00	1	08/21/2022 00:40	<a href="#">WG1913741</a>
(S) o-Terphenyl	51.7		18.0-148		08/21/2022 00:40	<a href="#">WG1913741</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Anthracene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Benzo(a)anthracene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Benzo(b)fluoranthene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Benzo(k)fluoranthene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Benzo(a)pyrene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Chrysene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Dibenz(a,h)anthracene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Fluoranthene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Fluorene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
1-Methylnaphthalene	ND		0.0200	1	08/21/2022 13:31	<a href="#">WG1913757</a>
2-Methylnaphthalene	ND		0.0200	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Naphthalene	ND		0.0200	1	08/21/2022 13:31	<a href="#">WG1913757</a>
Pyrene	ND		0.00600	1	08/21/2022 13:31	<a href="#">WG1913757</a>
(S) p-Terphenyl-d14	48.3		23.0-120		08/21/2022 13:31	<a href="#">WG1913757</a>
(S) Nitrobenzene-d5	51.3		14.0-149		08/21/2022 13:31	<a href="#">WG1913757</a>
(S) 2-Fluorobiphenyl	45.9		34.0-125		08/21/2022 13:31	<a href="#">WG1913757</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3835642-1 09/02/22 12:53

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1527412-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-12 09/02/22 13:27 • (DUP) R3835642-3 09/02/22 13:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

L1527720-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1527720-04 09/02/22 14:45 • (DUP) R3835642-8 09/02/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3835642-2 09/02/22 13:01

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.58	95.8	80.0-120	

L1527710-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527710-03 09/02/22 14:08 • (MS) R3835642-4 09/02/22 14:13 • (MSD) R3835642-5 09/02/22 14:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	11.2	14.3	55.9	71.3	1	75.0-125	J6	J3 J6	24.2	20

Sample Narrative:

OS: Sample is a reducer.

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1527710-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1527710-03 09/02/22 14:08 • (MS) R3835642-7 09/02/22 14:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	643	ND	577	89.7	50	75.0-125	

Sample Narrative:

OS: Sample is a reducer.

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1527198-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1527198-03 08/25/22 12:00 • (DUP) R3830338-2 08/25/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.68	7.73	1	0.649		1

Sample Narrative:

OS: 7.68 at 22.5C

DUP: 7.73 at 22.2C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1527896-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1527896-02 08/25/22 12:00 • (DUP) R3830338-3 08/25/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.52	7.53	1	0.133		1

Sample Narrative:

OS: 7.52 at 22.4C

DUP: 7.53 at 22.5C

Laboratory Control Sample (LCS)

(LCS) R3830338-1 08/25/22 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22C

Method Blank (MB)

(MB) R3835430-1 09/09/22 11:20

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1527412-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1527412-06 09/09/22 11:20 • (DUP) R3835430-3 09/09/22 11:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	335	340	1	1.48		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1527710-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527710-01 09/09/22 11:20 • (DUP) R3835430-4 09/09/22 11:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	367	360	1	1.93		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3835430-2 09/09/22 11:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1130	101	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3830941-1 08/26/22 11:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3830941-2 08/26/22 11:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.4	97.4	80.0-120	
Cadmium	100	93.3	93.3	80.0-120	
Copper	100	95.4	95.4	80.0-120	
Lead	100	93.6	93.6	80.0-120	
Nickel	100	93.7	93.7	80.0-120	
Selenium	100	95.4	95.4	80.0-120	
Silver	20.0	18.3	91.7	80.0-120	
Zinc	100	91.2	91.2	80.0-120	

L1527412-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-11 08/26/22 11:34 • (MS) R3830941-5 08/26/22 11:42 • (MSD) R3830941-6 08/26/22 11:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	214	395	325	180	111	1	75.0-125	J5		19.3	20
Cadmium	100	ND	106	106	105	106	1	75.0-125			0.275	20
Copper	100	11.8	119	119	107	107	1	75.0-125			0.165	20
Lead	100	9.16	109	109	100	99.6	1	75.0-125			0.611	20
Nickel	100	20.4	122	124	102	103	1	75.0-125			1.44	20
Selenium	100	ND	105	106	105	106	1	75.0-125			0.824	20
Silver	20.0	ND	20.5	20.5	103	103	1	75.0-125			0.0349	20
Zinc	100	35.3	131	134	96.2	98.9	1	75.0-125			2.05	20

Method Blank (MB)

(MB) R3831219-1 08/26/22 18:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3831219-2 08/26/22 18:59 • (LCSD) R3831219-3 08/26/22 19:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.08	1.03	108	103	80.0-120			4.38	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3830609-1 08/25/22 17:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3830609-2 08/25/22 17:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.3	92.3	80.0-120	

L1527412-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527412-11 08/25/22 18:02 • (MS) R3830609-5 08/25/22 18:12 • (MSD) R3830609-6 08/25/22 18:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.59	97.3	99.6	94.7	97.0	5	75.0-125			2.30	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3832398-1 08/31/22 11:07

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3832398-2 08/31/22 11:11

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	91.9	91.9	80.0-120	

L1527414-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527414-01 08/31/22 11:14 • (MS) R3832398-5 08/31/22 11:24 • (MSD) R3832398-6 08/31/22 11:27

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	2.31	73.9	64.3	71.6	62.0	5	75.0-125	J6	J6	13.9	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3830551-2 08/23/22 15:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	103			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3830551-1 08/23/22 14:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.54	119	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			108	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3830509-3 08/23/22 12:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	96.6			75.0-131
(S) 4-Bromofluorobenzene	93.6			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3830509-1 08/23/22 11:01 • (LCSD) R3830509-2 08/23/22 11:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.119	0.120	95.2	96.0	70.0-123			0.837	20
Toluene	0.125	0.111	0.107	88.8	85.6	75.0-121			3.67	20
Ethylbenzene	0.125	0.106	0.102	84.8	81.6	74.0-126			3.85	20
Xylenes, Total	0.375	0.309	0.307	82.4	81.9	72.0-127			0.649	20
1,2,4-Trimethylbenzene	0.125	0.121	0.116	96.8	92.8	70.0-126			4.22	20
1,3,5-Trimethylbenzene	0.125	0.126	0.123	101	98.4	73.0-127			2.41	20
(S) Toluene-d8				93.6	95.2	75.0-131				
(S) 4-Bromofluorobenzene				92.9	95.0	67.0-138				
(S) 1,2-Dichloroethane-d4				114	119	70.0-130				

L1527582-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527582-05 08/23/22 21:23 • (MS) R3830509-4 08/23/22 21:42 • (MSD) R3830509-5 08/23/22 22:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	4.05	0.0599	3.39	3.06	82.2	74.1	40	10.0-149			10.2	37
Toluene	4.05	ND	2.94	2.62	72.6	64.7	40	10.0-156			11.5	38
Ethylbenzene	4.05	1.22	3.61	3.26	59.0	50.4	40	10.0-160			10.2	38
Xylenes, Total	12.2	5.42	11.3	11.6	48.2	50.7	40	10.0-160			2.62	38
1,2,4-Trimethylbenzene	4.05	3.35	5.84	5.52	61.5	53.6	40	10.0-160			5.63	36
1,3,5-Trimethylbenzene	4.05	1.11	4.32	3.88	79.3	68.4	40	10.0-160			10.7	38
(S) Toluene-d8					94.6	92.8		75.0-131				
(S) 4-Bromofluorobenzene					93.7	95.0		67.0-138				
(S) 1,2-Dichloroethane-d4					118	119		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3828779-1 08/20/22 14:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.388	⬇	0.274	4.00
(S) o-Terphenyl	58.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3828779-2 08/20/22 15:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.9	67.8	50.0-150	
(S) o-Terphenyl			81.5	18.0-148	

L1527410-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527410-03 08/20/22 19:38 • (MS) R3828779-3 08/20/22 19:51 • (MSD) R3828779-4 08/20/22 20:04

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.7	ND	30.1	34.4	63.1	69.5	1	50.0-150			13.3	20
(S) o-Terphenyl					74.1	78.9		18.0-148				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3829388-2 08/21/22 11:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	78.3			23.0-120
(S) Nitrobenzene-d5	75.1			14.0-149
(S) 2-Fluorobiphenyl	75.9			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3829388-1 08/21/22 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0651	81.4	50.0-120	
Anthracene	0.0800	0.0630	78.8	50.0-126	
Benzo(a)anthracene	0.0800	0.0642	80.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0655	81.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0668	83.5	49.0-125	
Benzo(a)pyrene	0.0800	0.0671	83.9	42.0-120	
Chrysene	0.0800	0.0676	84.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0620	77.5	47.0-125	
Fluoranthene	0.0800	0.0672	84.0	49.0-129	
Fluorene	0.0800	0.0675	84.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0654	81.8	46.0-125	
1-Methylnaphthalene	0.0800	0.0629	78.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0652	81.5	50.0-120	
Naphthalene	0.0800	0.0621	77.6	50.0-120	
Pyrene	0.0800	0.0694	86.8	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3829388-1 08/21/22 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			83.9	23.0-120	
(S) Nitrobenzene-d5			81.3	14.0-149	
(S) 2-Fluorobiphenyl			82.4	34.0-125	

L1527348-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527348-10 08/21/22 15:16 • (MS) R3829388-3 08/21/22 15:33 • (MSD) R3829388-4 08/21/22 15:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0673	0.0634	80.6	75.8	1	14.0-127			5.97	27
Anthracene	0.0800	0.0161	0.0786	0.0856	78.1	86.9	1	10.0-145			8.53	30
Benzo(a)anthracene	0.0800	0.0527	0.104	0.198	64.1	182	1	10.0-139		J3 J5	62.3	30
Benzo(b)fluoranthene	0.0800	0.0891	0.118	0.298	36.1	261	1	10.0-140		J3 J5	86.5	36
Benzo(k)fluoranthene	0.0800	0.0352	0.0859	0.156	63.4	151	1	10.0-137		J3 J5	58.0	31
Benzo(a)pyrene	0.0800	0.0990	0.129	0.316	37.5	271	1	10.0-141		J3 J5	84.0	31
Chrysene	0.0800	0.0488	0.111	0.221	77.8	215	1	10.0-145		J3 J5	66.3	30
Dibenz(a,h)anthracene	0.0800	0.0207	0.0753	0.0944	68.3	92.1	1	10.0-132			22.5	31
Fluoranthene	0.0800	0.0647	0.118	0.215	66.6	188	1	10.0-153		J3 J5	58.3	33
Fluorene	0.0800	0.00680	0.0728	0.0713	82.5	80.6	1	11.0-130			2.08	29
Indeno(1,2,3-cd)pyrene	0.0800	0.127	0.147	0.336	25.0	261	1	10.0-137		J3 J5	78.3	32
1-Methylnaphthalene	0.0800	0.107	0.0760	0.0712	0.000	0.000	1	10.0-142	J6	J6	6.52	28
2-Methylnaphthalene	0.0800	0.242	0.0920	0.0878	0.000	0.000	1	10.0-137	J6	J6	4.67	28
Naphthalene	0.0800	0.515	0.106	0.128	0.000	0.000	1	10.0-135	V	V	18.8	27
Pyrene	0.0800	0.0643	0.117	0.214	65.9	187	1	10.0-148		J3 J5	58.6	35
(S) p-Terphenyl-d14					82.3	73.4		23.0-120				
(S) Nitrobenzene-d5					86.9	77.6		14.0-149				
(S) 2-Fluorobiphenyl					85.0	76.1		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

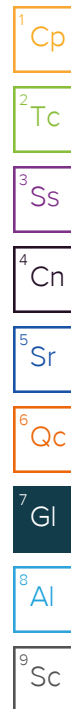
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.







<u>Tracking Numbers</u>	<u>Temperature</u>
57558084 9451	NSA6 2.7+0 = 2.7
5755 80849234	NSA6 4.0+0 = 4.0

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145274M