VIA ELECTRONIC MAIL –

July 7, 2022

Jake Janicek
EH&S Specialist
Environmental Health and Safety
Caerus Oil and Gas LLC
143 Diamond Avenue
Parachute, Colorado 81635

Subject: **Report of Work Completed**
Well Abandonment Sampling
PCU T73-11G
Piceance Creek
Rio Blanco, Colorado

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), completed soil screening and confirmation and background soil sampling associated with the decommissioning of disposal well UIC DISPOSAL (Facility ID: 159164) [American Petroleum Institute (API) Number 103-08181] at the USA PICEANCE CREEK-62S97W/11SENE (Location ID: 315260) pad location (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* and COGCC Remediation Number (RN) 22200. The Site is located in Caerus' Piceance Creek area of operation in Rio Blanco, Colorado (Figure 1).

SOIL SAMPLING ACTIVITIES – T73-11G WELL ABANDONMENT

On May 9, 2022, WSP personnel, on behalf of Caerus, completed stockpile confirmation soil sampling associated with excavated soil originally removed immediately around the UIC DISPOSAL well footprint for abandonment activities. Two 5-point composite soil samples from the two excavated stockpiles. To ensure representative composite soil samples were collected, each aliquot was collected at depth of approximately half of the thickness of the stockpile at each aliquot sample location. The soil sampling activities were conducted by a WSP geologist who inspected the soil for the presence or absence of petroleum hydrocarbon odor/staining. The composite soil samples were characterized by visual and olfactory inspection and the soil headspace was field screened using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors. PID values from screening locations of the excavated stockpiles ranged from 0.3 parts per million (ppm) in soil sample 20220509-T73-11G(STOCK-N) to 0.9 ppm in soil sample 20220509-T73-11G(STOCK-S). The stockpile confirmation soil samples were collected in clean, laboratory-prepared containers and submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis of constituents listed in COGCC Table 915-1 suite.

In addition, on May 9 and 10, 2022, WSP personnel collected three background soil samples from comparable, nearby, non-impacted, native soil per COGCC Rule 915.e.(2). D. The background soil samples were collected at depths ranging from 6 inches to 2 feet below ground surface (bgs). The background soil samples were characterized by a WSP geologist as described above. The background soil samples were collected in clean, laboratory-prepared containers and submitted to Pace of Mount Juliet, Tennessee for analysis of arsenic, boron, pH, sodium adsorption ratio (SAR), and electrical conductivity (EC).

On May 17, 2022, WSP personnel completed soil screening and confirmation soil sampling activities associated with the decommissioning of the UIC DISPOSAL well at the USA PICEANCE CREEK-62S97W/11SENE pad location. Western Slope Oilfield Services Inc (WCO) of Rifle, Colorado was contracted to assist with the excavation activities and collection of soil samples from the base and north wall of the abandoned wellhead footprint at the Site. Under the direction of WSP, WCO utilized the hydro-vacuum truck (hydro-vac) to remove impacted soils from the base and north wall immediately surrounding the abandoned disposal well. Soil was removed from the northern wall based on field observations and continuous soil screening. Once field screening techniques confirmed impacts were removed, a total of two confirmation soil samples were collected; one sample was collected from the base of the excavation footprint immediately adjacent to the abandoned disposal well at a depth of 7 feet bgs [20220517-PCU T73-11G(BASE)@7'] and the other sample was collected from the northern wall of the open excavation at a depth of 6 feet bgs [20220517-PCU T73-11G(NWALL)@6']. Prior to sample collection, at least 6 inches of soil was removed from the base and wall of the excavation to ensure representative samples were collected. The confirmation soil samples were characterized by a WSP geologist as described above. The confirmation soil samples were collected in clean, laboratory-prepared containers and submitted to Pace of Mount Juliet, Tennessee for analysis of a previously approved reduced analyte suite of constituents including total petroleum hydrocarbons (TPH), total xylenes, benzo(A)anthracene, benzo(B)anthracene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnapthalene, 2-methylnapthalene, naphthalene, cadmium, copper, lead, and pH.

The excavation confirmation soil samples, the confirmation stockpile aliquot locations, and extents are depicted on the enclosed Figure 2. The site-specific background locations are depicted on the enclosed Figure 3.

ANALYTICAL RESULTS – T73-11G WELL ABANDONMENT

Laboratory analytical results of the confirmation soil samples collected from the excavated soil stockpiles on May 9, 2022, indicate exceedances of COGCC Table 915-1 Cleanup Concentrations (CC) for pH with concentrations ranging from 8.55 in 20220509-T73-11G(STOCK-S) to 8.66 in 20220509-T73-11G(STOCK-N). All other analytes were either below the laboratory detection limit or within COGCC Table 915-1 Residential Soil Screening Level Concentrations (RSSLC).

Laboratory analytical results of the confirmation soil samples collected from the wellhead abandonment excavation base and north wall on May 17, 2022, were either below the laboratory detection limit or within COGCC Table 915-1 RSSLC.

Laboratory analytical results of the three background soil samples 20220509-T73-11G(BG-NW), 20220509-T73-11G(BG-N2), and 20220509-T73-11G(BG-S2)@2' collected on May 9 and 10, 2022 indicate exceedances of RSSLC for arsenic with concentrations of 2.14 mg/kg, 2.16 mg/kg, and 2.08 mg/kg, respectively. All other analytes were either below the laboratory detection limit or within COGCC Table 915-1 RSSLC.

The wellhead excavation confirmation and background soil analytical results are summarized in the enclosed Table 1. The stockpile soil analytical results are summarized in the enclosed Table 2. The laboratory analytical report is provided in Enclosure A.

CONCLUSIONS – T73-11G WELL ABANDONMENT

Based on the data provided herein, WSP recommends that Caerus request a "No Further Action" designation under this remediation project associated with the decommissioning of the UIC DISPOSAL well which is located under Facility ID: 159164 (RN 22200). This recommendation is based on the reasonings stated below.

- At no time during soil screening, sampling, or excavation activities was groundwater or field observations indicative of groundwater observed, therefore this project should be evaluated through closure under COGCC Table 915-1 RSSLCs.

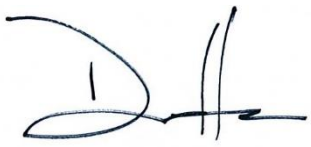
- The negligible impact of the inorganic exceedances, specifically pH should be considered by the Director. Caerus should request that the elevated pH values in the initial UIC DISPOSAL wellhead excavation soil samples 20211119-PCU T73-11G(EWALL)@4', 20211119-PCU T73-11G(SWALL)@4', and 20211119-PCU T73-11G(WWALL)@4' along with the wellhead stockpile soil samples 20220509-T73-11G(STOCK-

N) and 20220509-T73-11G(STOCK-S) be evaluated as naturally occurring. Although these five pH values range from 8.36 to 8.69 and are elevated with respect to the COGCC Table 915-1 CC criteria of 8.3, these elevated values should not be considered elevated as a result of the byproduct of oil and gas production activities associated with the UIC DISPOSAL well. Based on produced water quality data collected from the Black Sulfur Facility (BSF) which receives produced water from the USA PICEANCE CREEK T73-11G location, the soil pH value is greater than the produced water pH value generated at the Site. The pH value of produced water sample collected from the outlet at the BSF on September 14, 2021 was 6.81. Additionally, based on the Operator's (Caerus's) knowledge (see Enclosure B), in general, the source of impact at the base of the former UIC DISPOSAL well is not directly correlated to the produced water. Although TPH impacts were observed when completing initial decommission sampling immediately adjacent to the UIC DISPOSAL well, the pH value collected from produced water at the Site would indicate that a spill of produced water at the wellhead would not effectively increase the pH above the COGCC Table 915-1 CC of 8.3. No organic impacts were observed when completing good faith confirmation soil sampling and the pH value collected from produced water at the BSF would indicate that a prolonged produced water drip into these pits from former production equipment would not effectively increase the pH above the COGCC Table 915-1 CL of 8.3. Based on the pH value of the produced water sample, WSP and Caerus believe the pH elevated values in the confirmation soils samples are not associated with the former UIC DISPOSAL well and are not a result of oil and gas production activities but are rather naturally occurring background concentrations within the area.

Based on the detailed information provided above and in the Supplemental Form 27 (Document ID 403086585) WSP recommends that Caerus request the Director for "No Further Action" designation associated with the decommissioning of disposal well UIC DISPOSAL (Facility ID: 159164) API Number 103-08181 at the USA PICEANCE CREEK-62S97W/11SENE (Location ID: 315260) pad location under COGCC RN 22200. The other designations (Facility ID:117250) under RN will be closed under a separate assessment report submittal.

Please contact us at (970) 618-4514 or (303) 548-5097 if you have any questions regarding this report or require additional information.

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

Parker Coit, P.G.
Sr. Consultant, Geologist

Encl.

FIGURES

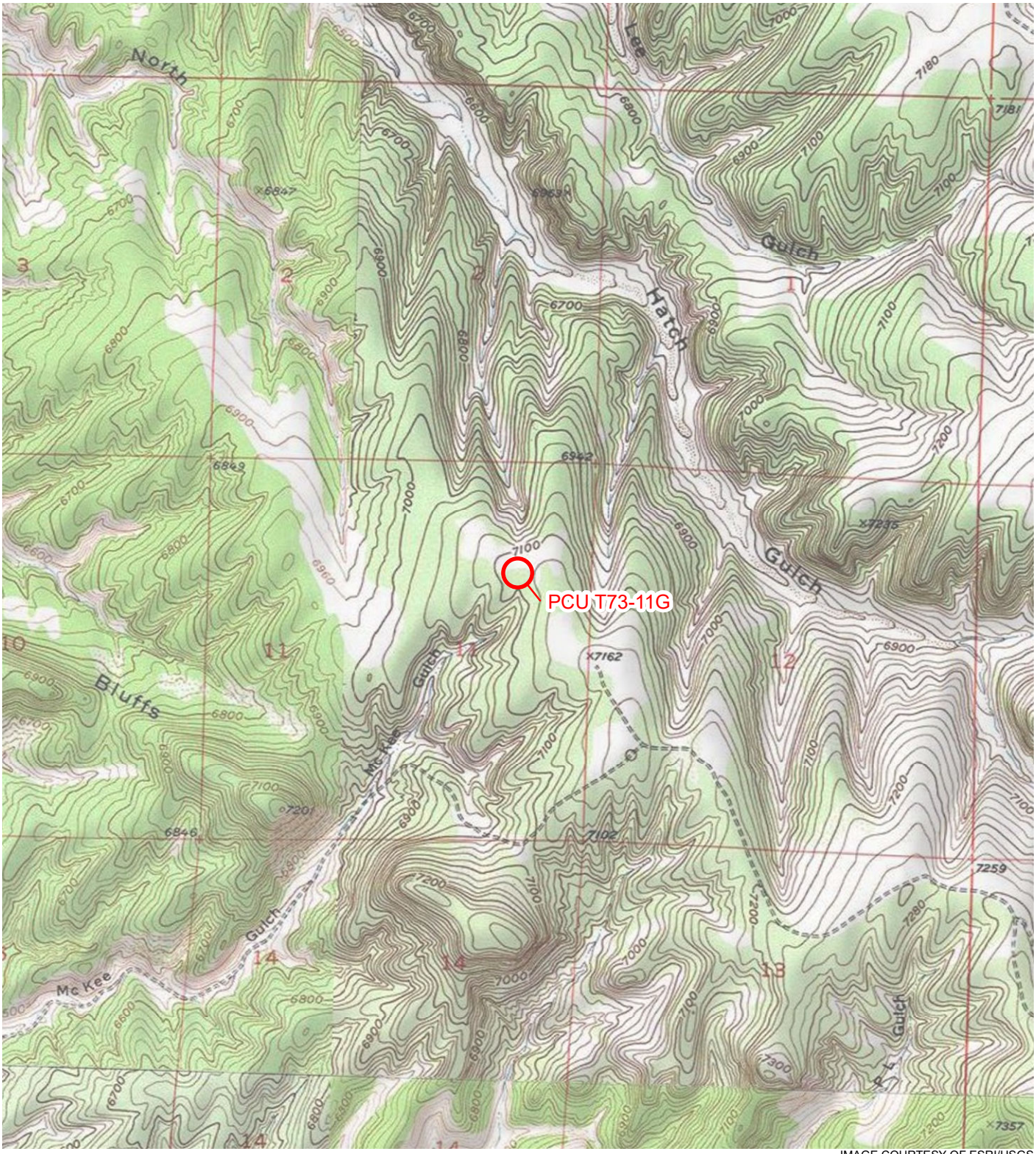


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
PCU T73-11G
SENE SEC 11-T2S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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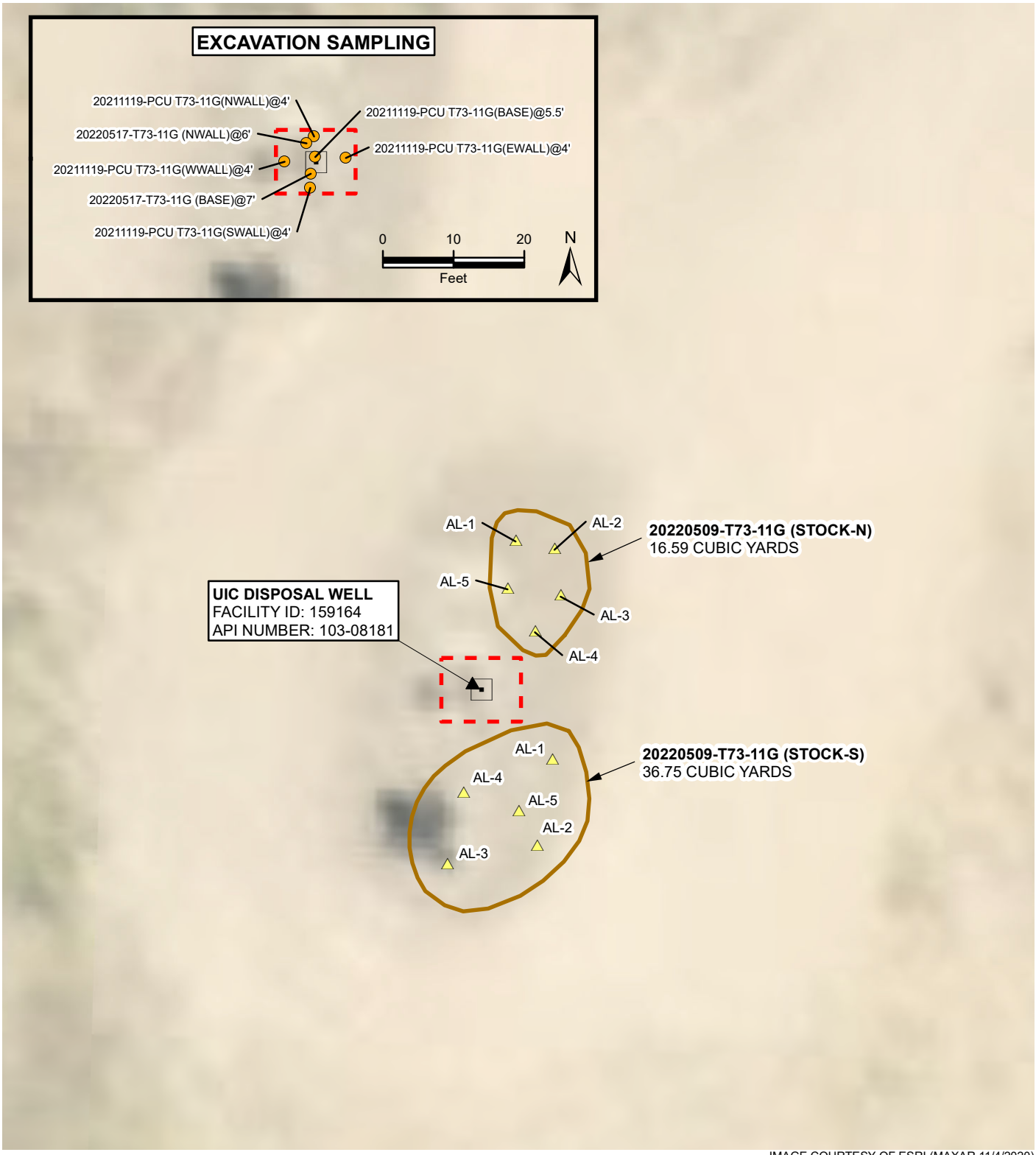

IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- SOIL SAMPLE
- ALIQUOT SOIL SAMPLE
- WELLHEAD
- EXCAVATION EXTENT
- STOCKPILE EXTENTS

0 20 40
Feet

N

FIGURE 2
SITE MAP
PCU T73-11G
SENE SEC 11-T2S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS, LLC

wsp

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IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- BACKGROUND SOIL SAMPLE
- WELLHEAD

0 100 200
Feet

N

FIGURE 3
BACKGROUND SOIL SAMPLE LOCATIONS
PCU T73-11G
SENE SEC 11-T2S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS, LLC

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TABLES

TABLE 1

WELLHEAD SOIL ANALYTICAL RESULTS
PCU T73-11G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES							
				20211119-PCU T73-11G(BASE)@5.5'	**20211119-PCU T73-11G(NWALL)@4'**	**20211119-PCU T73-11G(EWALL)@4'**	**20211119-PCU T73-11G(SWALL)@4'**	**20211119-PCU T73-11G(WWALL)@4'**	**20220517-T73-11G(NWALL)@6'**	**20220517-T73-11G(NWALL)@6'**	**20220517-T73-11G(BASE)@7'**
Sample Date				11/19/2021	11/19/2021	11/19/2021	11/19/2021	11/19/2021	5/17/2022	5/17/2022	5/17/2022
Sample Depth/ Depth Range (feet)				5.5	4	4	4	4	6	6	7
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	**2.80**	**3.72**	**2.92**	**3.61**	**3.18**	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	267	231	206	207	197	NA	NA	NA
Boron	2	2	mg/l	0.0638	0.525	0.739	0.319	0.300	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	2.74	0.654	ND	ND	ND	ND	NA	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	15.5	14.2	181	9.94	10.5	**47.3**	NA	10.7
Lead	400	14 (M)	mg/kg	51.3	25.2	70.0	14.6	13.4	471	13	14.3
Nickel	1,500	26 (R)	mg/kg	13.6	12.8	14.8	14.1	13.2	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	ND	ND	ND	ND	ND	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	113	123	74.2	41.5	47.3	NA	NA	NA
EC	<4	<4	mmhos/cm	0.738	0.462	0.617	0.270	0.237	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	**8.62**	**8.69**	**8.63**	**8.36**	**8.69**	7.90	NA	7.82
SAR	<6	<6	unitless	5.71	2.96	4.52	1.20	0.940	NA	NA	NA
TPH-GRO			mg/kg	4.98	932	0.493	0.437	7.29	0.800	NA	182
TPH-DRO			mg/kg	1,070	931	59.4	37.9	112	165	NA	132
TPH-ORO			mg/kg	406	205	111	45.7	53.9	54.8	NA	10.9
TPH	500	500	mg/kg	**1,480.98**	**2,068**	170.893	84.037	173.19	220.600	NA	324.9
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	ND	0.0544	ND	ND	ND	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	0.0348	ND	ND	ND	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	0.0168	24.7	ND	ND	ND	ND	NA	0.0579
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	0.00915	13.4	ND	ND	ND	0.00915	NA	0.118
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	0.454	12.8	0.00500	0.00525	0.0820	0.0256	NA	0.622
Acenaphthene	360	0.55 (R)	mg/kg	0.0536	ND	ND	ND	ND	NA	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	0.0761	0.0191	ND	ND	ND	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	0.436	ND	0.0168	ND	ND	0.0825	NA	0.0208
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	0.453	ND	0.0169	ND	ND	0.0882	NA	0.0254
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	0.171	ND	0.00672	ND	ND	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	0.218	ND	0.00950	ND	ND	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	0.389	ND	0.0171	ND	ND	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	0.0550	ND	ND	ND	ND	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	0.969	ND	0.0363	0.00793	ND	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	0.215	0.0999	ND	ND	0.0115	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	0.244	ND	0.00841	ND	ND	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	0.442	0.971	ND	ND	0.0551	ND	NA	0.0208
2-methylnaphthalene	24	0.019 (R)	mg/kg	0.0678	2.62	ND	ND	ND	0.0242	NA	0.4610
Naphthalene	2	0.0038 (R)	mg/kg	0.0708	0.868	ND	ND	ND	ND	NA	0.0396
Pyrene	180	1.3 (R)	mg/kg	0.667	ND	0.0261	0.00647	ND	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentrations
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 hydrcarbons- oil range orgainc
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

WELLHEAD SOIL ANALYTICAL RESULTS
PCU T73-11G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SOIL SAMPLES					
			20211119-PCU T73-11G(BGW)	20211119-PCU T73-11G(BGW)@6"-1'	20211119-PCU T73-11G(BGS)	20211119-PCU T73-11G(BGS)@6"-1'	20211119-PCU T73-11G(BGE)	20211119-PCU T73-11G(BGE)@6"-1'
Sample Date			11/19/2021	11/19/2021	11/19/2021	11/19/2021	11/19/2021	11/19/2021
Sample Depth/ Depth Range (feet)			0.5	0.5-1	0.5	0.5-1	0.5	0.5-1
Sample Type			Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**3.44**	**3.06**	**2.94**	**3.12**	**2.14**	**3.99**
Barium	15,000	82 (M)	250	269	158	157	173	198
Boron	2	2	0.237	0.307	0.365	0.355	0.200	0.298
Cadmium	71	0.38 (M)	ND	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	ND	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	11.0	12.3	12.0	12.0	8.29	9.37
Lead	400	14 (M)	12.8	11.7	9.57	9.88	11.9	10.7
Nickel	1,500	26 (R)	13.3	13.9	11.6	11.4	9.19	11.6
Selenium	390	0.26 (M)	ND	ND	ND	ND	ND	ND
Silver	390	0.8 (R)	ND	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	37.5	38.6	29.5	30.7	28.2	32.4
EC	<4	<4	0.157	0.269	0.245	0.220	0.0541	0.0516
pH	6 - 8.3	6 - 8.3	7.40	7.99	8.00	7.98	7.09	7.21
SAR	<6	<6	0.171	0.165	0.152	0.173	0.100	0.166
TPH-GRO			0.171	ND	ND	ND	0.109	ND
TPH-DRO			22.9	19.3	16.7	21.7	10.8	34.5
TPH-ORO			25.9	27.4	27.8	30.4	30.8	35.5
TPH	500	500	48.971	46.7	44.5	52.1	41.7	70.0
Benzene	1.2	0.0026 (M)	ND	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	ND	ND	ND	ND	0.00515	ND
Total Xylenes	58	9.9 (M)	ND	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	ND	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	ND	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	ND	ND	ND	ND	ND	ND
Anthracene	1,800	5.8 (R)	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	ND	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	ND	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	ND	ND	ND	ND	ND	ND
Chrysene	110	9 (R)	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	ND	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	ND	ND	0.00657	ND	ND	ND
Fluorene	240	0.54 (R)	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	ND	ND	ND	ND	ND	ND

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentrations
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
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SAR - sodium adsorption ratio
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TABLE 1

WELLHEAD SOIL ANALYTICAL RESULTS
PCU T73-11G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SOIL SAMPLES				
			20211119-PCU T73-11G(BGN)	20211119-PCU T73-11G(BGN)@6"-1'	20220509-T73-11G (BG-NW)	20220509-T73-11G (BG-N2)	20220509-T73-11G (BG-S2) @ 2'
Sample Date			11/19/2021	11/19/2021	5/9/2022	5/9/2022	5/10/2022
Sample Depth/ Depth Range (feet)			0.5	0.5-1	0.5-1	0.5-1	2
Sample Type			Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**3.00**	**2.60**	**2.14**	**2.16**	**2.08**
Barium	15,000	82 (M)	187	182	NA	NA	NA
Boron	2	2	ND	ND	0.227	0.310	0.109
Cadmium	71	0.38 (M)	ND	ND	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	ND	ND	NA	NA	NA
Copper	3,100	46 (M)	8.86	8.71	NA	NA	NA
Lead	400	14 (M)	12.0	10.7	NA	NA	NA
Nickel	1,500	26 (R)	10.1	10.0	NA	NA	NA
Selenium	390	0.26 (M)	ND	ND	NA	NA	NA
Silver	390	0.8 (R)	ND	ND	NA	NA	NA
Zinc	23,000	370 (R)	31.3	29.3	NA	NA	NA
EC	<4	<4	0.141	0.149	0.176	0.194	0.252
pH	6 - 8.3	6 - 8.3	7.86	7.82	8.22	8.00	7.94
SAR	<6	<6	0.190	0.255	0.280	0.196	0.238
TPH-GRO			0.102	ND	NA	NA	NA
TPH-DRO			14.5	10.7	NA	NA	NA
TPH-ORO			34.7	22.2	NA	NA	NA
TPH	500	500	49.300	32.9	NA	NA	NA
Benzene	1.2	0.0026 (M)	ND	ND	NA	NA	NA
Toluene	490	0.69 (M)	ND	ND	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	ND	ND	NA	NA	NA
Total Xylenes	58	9.9 (M)	ND	ND	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	ND	ND	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	ND	ND	NA	NA	NA
Acenaphthene	360	0.55 (R)	ND	ND	NA	NA	NA
Anthracene	1,800	5.8 (R)	ND	ND	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	ND	ND	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	ND	ND	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	ND	ND	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	ND	ND	NA	NA	NA
Chrysene	110	9 (R)	ND	ND	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	ND	ND	NA	NA	NA
Fluoranthene	240	8.9 (R)	ND	ND	NA	NA	NA
Fluorene	240	0.54 (R)	ND	ND	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	ND	ND	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	ND	ND	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	ND	ND	NA	NA	NA
Naphthalene	2	0.0038 (R)	ND	ND	NA	NA	NA
Pyrene	180	1.3 (R)	ND	ND	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentrations
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 hydrcarbons- oil range orgainc
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

STOCKPILE SOIL ANALYTICAL RESULTS
PCU T73-11G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES	
				20220509-T73-11G(STOCK-N)	20220509-T73-11G(STOCK-S)
Sample Date				5/9/2022	5/9/2022
Sample Type				Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA
Barium	15,000	82 (M)	mg/kg	NA	NA
Boron	2	2	mg/l	NA	NA
Cadmium	71	0.38 (M)	mg/kg	0.607	0.787
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA
Copper	3,100	46 (M)	mg/kg	16.3	13.3
Lead	400	14 (M)	mg/kg	46.9	19.7
Nickel	1,500	26 (R)	mg/kg	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA
EC	<4	<4	mmhos/cm	NA	NA
pH	6 - 8.3	6 - 8.3	SU	**8.66**	**8.55**
SAR	<6	<6	unitless	NA	NA
TPH-GRO			mg/kg	ND	0.215
TPH-DRO			mg/kg	58.9	183
TPH-ORO			mg/kg	86.0	98.2
TPH	500	500	mg/kg	144.90	281.42
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	0.0278	0.0130
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	0.00667	ND
Acenaphthene	360	0.55 (R)	mg/kg	NA	NA
Anthracene	1,800	5.8 (R)	mg/kg	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentrations
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
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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)

ENCLOSURE A – LABORATORY ANALYTICAL RESULTS

ANALYTICAL REPORT

December 21, 2021

Revised Report

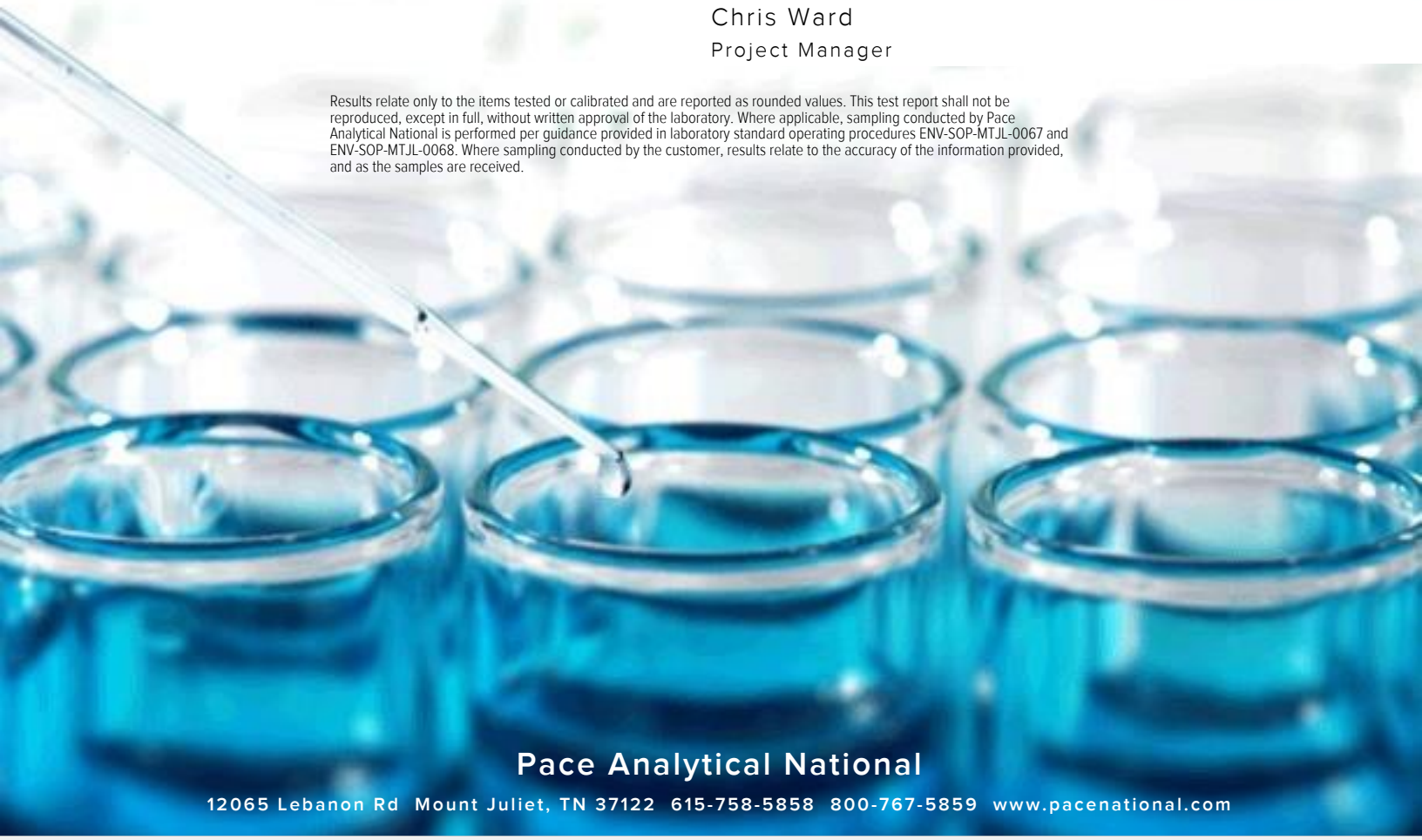
Caerus Oil and Gas

Sample Delivery Group:	L1435465
Samples Received:	11/24/2021
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

2021119-PCU T73-11G (BASE) @ 5.5' L1435465-01 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 11:35 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:08	12/15/21 12:08	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 13:35	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 17:50	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:13	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:24	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 00:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781454	1	11/26/21 18:53	11/29/21 23:54	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781775	10	12/01/21 08:03	12/01/21 20:18	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782014	1	12/01/21 22:48	12/02/21 13:38	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (NWALL) @ 4' L1435465-02 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 11:45 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:10	12/15/21 12:10	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:24	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 17:53	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:15	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:28	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780647	100	11/26/21 18:53	11/28/21 00:47	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781454	8	11/26/21 18:53	11/30/21 02:07	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781775	10	12/01/21 08:03	12/01/21 20:30	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 15:04	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (EWALL) @ 4' L1435465-03 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 11:55 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:18	12/15/21 12:18	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:40	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 17:56	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:18	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:31	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 01:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781454	1	11/26/21 18:53	11/30/21 00:13	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 14:08	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	2	12/01/21 03:49	12/01/21 23:07	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 14:46	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (SWALL) @ 4' L1435465-04 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 12:05 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:21	12/15/21 12:21	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 14:01	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN

2021119-PCU T73-11G (SWALL) @ 4' L1435465-04 Solid

Collected by: K. Moreland
Collected date/time: 11/19/21 12:05
Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:04	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:21	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:43	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 01:58	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781454	1	11/26/21 18:53	11/30/21 00:32	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 13:28	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 11:53	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (WWALL) @ 4' L1435465-05 Solid

Collected by: K. Moreland
Collected date/time: 11/19/21 12:10
Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:24	12/15/21 12:24	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 14:24	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781740	1	11/30/21 14:00	11/30/21 15:53	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:07	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:23	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:47	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 02:22	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781454	1	11/26/21 18:53	11/30/21 00:51	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 23:20	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 12:10	LEA	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

Level II Report - Version 1: 12/20/21 13:48

Project Narrative

Rerun to correct sample IDs

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	5.71		1	12/15/2021 12:08	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND	J3 J6	1.00	1	12/06/2021 13:35	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.62	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435465-01 WG1781228: 8.62 at 18.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	738		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:

L1435465-01 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	267		0.500	1	12/07/2021 17:50	WG1784894
Cadmium	2.74		0.500	1	12/07/2021 17:50	WG1784894
Copper	15.5		2.00	1	12/07/2021 17:50	WG1784894
Lead	51.3		0.500	1	12/07/2021 17:50	WG1784894
Nickel	13.6		2.00	1	12/07/2021 17:50	WG1784894
Selenium	ND		2.00	1	12/07/2021 17:50	WG1784894
Silver	ND		1.00	1	12/07/2021 17:50	WG1784894
Zinc	113		5.00	1	12/07/2021 17:50	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.638		0.200	1	12/18/2021 16:13	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	2.80		1.00	5	12/06/2021 22:24	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	4.98		0.100	1	11/28/2021 00:47	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*89.3*		*77.0-120*		*11/28/2021 00:47*	WG1780646

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	11/29/2021 23:54	WG1781454
Toluene	ND		0.00500	1	11/29/2021 23:54	WG1781454
Ethylbenzene	ND		0.00250	1	11/29/2021 23:54	WG1781454
Xylenes, Total	0.0168		0.00650	1	11/29/2021 23:54	WG1781454
1,2,4-Trimethylbenzene	0.00915		0.00500	1	11/29/2021 23:54	WG1781454
1,3,5-Trimethylbenzene	0.454		0.00500	1	11/29/2021 23:54	WG1781454
(S) Toluene-d8	*105*		*75.0-131*		*11/29/2021 23:54*	WG1781454
(S) 4-Bromofluorobenzene	*116*		*67.0-138*		*11/29/2021 23:54*	WG1781454
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*11/29/2021 23:54*	WG1781454

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	1070		40.0	10	12/01/2021 20:18	WG1781775
C28-C36 Motor Oil Range	406		40.0	10	12/01/2021 20:18	WG1781775
(S) o-Terphenyl	*38.6*		*18.0-148*		*12/01/2021 20:18*	WG1781775

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0761		0.00600	1	12/02/2021 13:38	WG1782014
Acenaphthene	0.0536		0.00600	1	12/02/2021 13:38	WG1782014
Acenaphthylene	0.0654		0.00600	1	12/02/2021 13:38	WG1782014
Benzo(a)anthracene	0.436		0.00600	1	12/02/2021 13:38	WG1782014
Benzo(a)pyrene	0.218		0.00600	1	12/02/2021 13:38	WG1782014
Benzo(b)fluoranthene	0.453		0.00600	1	12/02/2021 13:38	WG1782014
Benzo(g,h,i)perylene	0.183		0.00600	1	12/02/2021 13:38	WG1782014
Benzo(k)fluoranthene	0.171		0.00600	1	12/02/2021 13:38	WG1782014
Chrysene	0.389		0.00600	1	12/02/2021 13:38	WG1782014
Dibenz(a,h)anthracene	0.0550		0.00600	1	12/02/2021 13:38	WG1782014
Fluoranthene	0.969		0.00600	1	12/02/2021 13:38	WG1782014
Fluorene	0.215		0.00600	1	12/02/2021 13:38	WG1782014
Indeno(1,2,3-cd)pyrene	0.244		0.00600	1	12/02/2021 13:38	WG1782014
Naphthalene	0.0708		0.0200	1	12/02/2021 13:38	WG1782014
Phenanthrene	0.963		0.00600	1	12/02/2021 13:38	WG1782014
Pyrene	0.667		0.00600	1	12/02/2021 13:38	WG1782014
1-Methylnaphthalene	0.442		0.0200	1	12/02/2021 13:38	WG1782014
2-Methylnaphthalene	0.0678		0.0200	1	12/02/2021 13:38	WG1782014
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 13:38	WG1782014
(S) p-Terphenyl-d14	*94.7*		*23.0-120*		*12/02/2021 13:38*	WG1782014
(S) Nitrobenzene-d5	*0.000*	J2	*14.0-149*		*12/02/2021 13:38*	WG1782014
(S) 2-Fluorobiphenyl	*73.9*		*34.0-125*		*12/02/2021 13:38*	WG1782014

Sample Narrative:

L1435465-01 WG1782014: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.96		1	12/15/2021 12:10	WG1781514

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:24	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.69	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:
L1435465-02 WG1781228: 8.69 at 18.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	462		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:
L1435465-02 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	231		0.500	1	12/07/2021 17:53	WG1784894
Cadmium	0.654		0.500	1	12/07/2021 17:53	WG1784894
Copper	14.2		2.00	1	12/07/2021 17:53	WG1784894
Lead	25.2		0.500	1	12/07/2021 17:53	WG1784894
Nickel	12.8		2.00	1	12/07/2021 17:53	WG1784894
Selenium	ND		2.00	1	12/07/2021 17:53	WG1784894
Silver	ND		1.00	1	12/07/2021 17:53	WG1784894
Zinc	123		5.00	1	12/07/2021 17:53	WG1784894

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.525		0.200	1	12/18/2021 16:15	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.72		1.00	5	12/06/2021 22:28	WG1784892

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	932		10.0	100	11/28/2021 00:47	WG1780647
(S) a,a,a-Trifluorotoluene(FID)	*89.7*		*77.0-120*		*11/28/2021 00:47*	WG1780647

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00800	8	11/30/2021 02:07	WG1781454
Toluene	0.0544		0.0400	8	11/30/2021 02:07	WG1781454
Ethylbenzene	0.0348		0.0200	8	11/30/2021 02:07	WG1781454
Xylenes, Total	24.7		0.0520	8	11/30/2021 02:07	WG1781454
1,2,4-Trimethylbenzene	13.4		0.0400	8	11/30/2021 02:07	WG1781454
1,3,5-Trimethylbenzene	12.8		0.0400	8	11/30/2021 02:07	WG1781454
(S) Toluene-d8	*104*		*75.0-131*		*11/30/2021 02:07*	WG1781454
(S) 4-Bromofluorobenzene	*123*		*67.0-138*		*11/30/2021 02:07*	WG1781454
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*11/30/2021 02:07*	WG1781454

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	931		40.0	10	12/01/2021 20:30	WG1781775
C28-C36 Motor Oil Range	205		40.0	10	12/01/2021 20:30	WG1781775
(S) o-Terphenyl	*54.1*		*18.0-148*		*12/01/2021 20:30*	WG1781775

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0191		0.00600	1	12/02/2021 15:04	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Fluorene	0.0999		0.00600	1	12/02/2021 15:04	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 15:04	WG1782015
Naphthalene	0.868		0.0200	1	12/02/2021 15:04	WG1782015
Phenanthrene	0.104		0.00600	1	12/02/2021 15:04	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 15:04	WG1782015
1-Methylnaphthalene	0.971		0.0200	1	12/02/2021 15:04	WG1782015
2-Methylnaphthalene	2.62		0.0200	1	12/02/2021 15:04	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 15:04	WG1782015
(S) p-Terphenyl-d14	*86.9*		*23.0-120*		*12/02/2021 15:04*	WG1782015
(S) Nitrobenzene-d5	*0.000*	J2	*14.0-149*		*12/02/2021 15:04*	WG1782015
(S) 2-Fluorobiphenyl	*58.2*		*34.0-125*		*12/02/2021 15:04*	WG1782015

Sample Narrative:

L1435465-02 WG1782015: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.52		1	12/15/2021 12:18	WG1781514

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:40	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.63	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:
L1435465-03 WG1781228: 8.63 at 18.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	617		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:
L1435465-03 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	206		0.500	1	12/07/2021 17:56	WG1784894
Cadmium	ND		0.500	1	12/07/2021 17:56	WG1784894
Copper	181		2.00	1	12/07/2021 17:56	WG1784894
Lead	70.0		0.500	1	12/07/2021 17:56	WG1784894
Nickel	14.8		2.00	1	12/07/2021 17:56	WG1784894
Selenium	ND		2.00	1	12/07/2021 17:56	WG1784894
Silver	ND		1.00	1	12/07/2021 17:56	WG1784894
Zinc	74.2		5.00	1	12/07/2021 17:56	WG1784894

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.739		0.200	1	12/18/2021 16:18	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.92		1.00	5	12/06/2021 22:31	WG1784892

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.493		0.100	1	11/28/2021 01:35	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*100*		*77.0-120*		*11/28/2021 01:35*	WG1780646

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	11/30/2021 00:13	WG1781454
Toluene	ND		0.00500	1	11/30/2021 00:13	WG1781454
Ethylbenzene	ND		0.00250	1	11/30/2021 00:13	WG1781454
Xylenes, Total	ND		0.00650	1	11/30/2021 00:13	WG1781454
1,2,4-Trimethylbenzene	ND		0.00500	1	11/30/2021 00:13	WG1781454
1,3,5-Trimethylbenzene	0.00500		0.00500	1	11/30/2021 00:13	WG1781454
(S) Toluene-d8	*102*		*75.0-131*		*11/30/2021 00:13*	WG1781454
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*11/30/2021 00:13*	WG1781454
(S) 1,2-Dichloroethane-d4	*102*		*70.0-130*		*11/30/2021 00:13*	WG1781454

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	59.4		4.00	1	12/01/2021 14:08	WG1782007
C28-C36 Motor Oil Range	111		8.00	2	12/01/2021 23:07	WG1782007
(S) o-Terphenyl	*65.1*		*18.0-148*		*12/01/2021 23:07*	WG1782007
(S) o-Terphenyl	*57.2*		*18.0-148*		*12/01/2021 14:08*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 14:46	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 14:46	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 14:46	WG1782015
Benzo(a)anthracene	0.0168		0.00600	1	12/02/2021 14:46	WG1782015
Benzo(a)pyrene	0.00950		0.00600	1	12/02/2021 14:46	WG1782015
Benzo(b)fluoranthene	0.0169		0.00600	1	12/02/2021 14:46	WG1782015
Benzo(g,h,i)perylene	0.00776		0.00600	1	12/02/2021 14:46	WG1782015
Benzo(k)fluoranthene	0.00672		0.00600	1	12/02/2021 14:46	WG1782015
Chrysene	0.0171		0.00600	1	12/02/2021 14:46	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 14:46	WG1782015
Fluoranthene	0.0363		0.00600	1	12/02/2021 14:46	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 14:46	WG1782015
Indeno(1,2,3-cd)pyrene	0.00841		0.00600	1	12/02/2021 14:46	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 14:46	WG1782015
Phenanthrene	0.0167		0.00600	1	12/02/2021 14:46	WG1782015
Pyrene	0.0261		0.00600	1	12/02/2021 14:46	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:46	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:46	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 14:46	WG1782015
(S) p-Terphenyl-d14	*89.2*		*23.0-120*		*12/02/2021 14:46*	WG1782015
(S) Nitrobenzene-d5	*56.9*		*14.0-149*		*12/02/2021 14:46*	WG1782015
(S) 2-Fluorobiphenyl	*74.9*		*34.0-125*		*12/02/2021 14:46*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	1.20		1	12/15/2021 12:21	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/06/2021 14:01	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.36	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435465-04 WG1781228: 8.36 at 18.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	270		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:

L1435465-04 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	207		0.500	1	12/07/2021 18:04	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:04	WG1784894
Copper	9.94		2.00	1	12/07/2021 18:04	WG1784894
Lead	14.6		0.500	1	12/07/2021 18:04	WG1784894
Nickel	14.1		2.00	1	12/07/2021 18:04	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:04	WG1784894
Silver	ND		1.00	1	12/07/2021 18:04	WG1784894
Zinc	41.5		5.00	1	12/07/2021 18:04	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.319		0.200	1	12/18/2021 16:21	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.61		1.00	5	12/06/2021 22:43	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.437		0.100	1	11/28/2021 01:58	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/28/2021 01:58*	WG1780646

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	11/30/2021 00:32	WG1781454
Toluene	ND		0.00500	1	11/30/2021 00:32	WG1781454
Ethylbenzene	ND		0.00250	1	11/30/2021 00:32	WG1781454
Xylenes, Total	ND		0.00650	1	11/30/2021 00:32	WG1781454
1,2,4-Trimethylbenzene	ND		0.00500	1	11/30/2021 00:32	WG1781454
1,3,5-Trimethylbenzene	0.00525		0.00500	1	11/30/2021 00:32	WG1781454
(S) Toluene-d8	*106*		*75.0-131*		*11/30/2021 00:32*	WG1781454
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*11/30/2021 00:32*	WG1781454
(S) 1,2-Dichloroethane-d4	*99.2*		*70.0-130*		*11/30/2021 00:32*	WG1781454

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	37.9		4.00	1	12/01/2021 13:28	WG1782007
C28-C36 Motor Oil Range	26.4		4.00	1	12/01/2021 13:28	WG1782007
(S) o-Terphenyl	*45.7*		*18.0-148*		*12/01/2021 13:28*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Fluoranthene	0.00793		0.00600	1	12/02/2021 11:53	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 11:53	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 11:53	WG1782015
Pyrene	0.00647		0.00600	1	12/02/2021 11:53	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 11:53	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 11:53	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 11:53	WG1782015
(S) p-Terphenyl-d14	*112*		*23.0-120*		*12/02/2021 11:53*	WG1782015
(S) Nitrobenzene-d5	*65.5*		*14.0-149*		*12/02/2021 11:53*	WG1782015
(S) 2-Fluorobiphenyl	*87.6*		*34.0-125*		*12/02/2021 11:53*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.940		1	12/15/2021 12:24	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/06/2021 14:24	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.69	T8	1	11/30/2021 15:53	WG1781740

Sample Narrative:

L1435465-05 WG1781740: 8.69 at 17.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	237		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:

L1435465-05 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	197		0.500	1	12/07/2021 18:07	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:07	WG1784894
Copper	10.5		2.00	1	12/07/2021 18:07	WG1784894
Lead	13.4		0.500	1	12/07/2021 18:07	WG1784894
Nickel	13.2		2.00	1	12/07/2021 18:07	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:07	WG1784894
Silver	ND		1.00	1	12/07/2021 18:07	WG1784894
Zinc	47.3		5.00	1	12/07/2021 18:07	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.300		0.200	1	12/18/2021 16:23	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.18		1.00	5	12/06/2021 22:47	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	7.29		0.100	1	11/28/2021 02:22	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*97.5*		*77.0-120*		*11/28/2021 02:22*	WG1780646

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	11/30/2021 00:51	WG1781454
Toluene	ND		0.00500	1	11/30/2021 00:51	WG1781454
Ethylbenzene	ND		0.00250	1	11/30/2021 00:51	WG1781454
Xylenes, Total	ND		0.00650	1	11/30/2021 00:51	WG1781454
1,2,4-Trimethylbenzene	ND		0.00500	1	11/30/2021 00:51	WG1781454
1,3,5-Trimethylbenzene	0.0820		0.00500	1	11/30/2021 00:51	WG1781454
(S) Toluene-d8	*106*		*75.0-131*		*11/30/2021 00:51*	WG1781454
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*11/30/2021 00:51*	WG1781454
(S) 1,2-Dichloroethane-d4	*98.8*		*70.0-130*		*11/30/2021 00:51*	WG1781454

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	112		4.00	1	12/01/2021 23:20	WG1782007
C28-C36 Motor Oil Range	53.9		4.00	1	12/01/2021 23:20	WG1782007
(S) o-Terphenyl	*60.0*		*18.0-148*		*12/01/2021 23:20*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Fluorene	0.0115		0.00600	1	12/02/2021 12:10	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 12:10	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 12:10	WG1782015
Phenanthrene	0.0126		0.00600	1	12/02/2021 12:10	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 12:10	WG1782015
1-Methylnaphthalene	0.0551		0.0200	1	12/02/2021 12:10	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 12:10	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 12:10	WG1782015
(S) p-Terphenyl-d14	*108*		*23.0-120*		*12/02/2021 12:10*	WG1782015
(S) Nitrobenzene-d5	*92.1*		*14.0-149*		*12/02/2021 12:10*	WG1782015
(S) 2-Fluorobiphenyl	*86.8*		*34.0-125*		*12/02/2021 12:10*	WG1782015

Method Blank (MB)

(MB) R3737878-1 12/06/21 11:28

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

L1432686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1432686-01 12/06/21 11:40 • (DUP) R3737878-3 12/06/21 11:46

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	200	P1	20

L1435363-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-03 12/06/21 13:14 • (DUP) R3737878-4 12/06/21 13:19

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

Laboratory Control Sample (LCS)

(LCS) R3737878-2 12/06/21 11:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1435465-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-5 12/06/21 13:40 • (MSD) R3737878-6 12/06/21 13:45

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 %
Hexavalent Chromium	20.0	ND	12.1	19.5	57.2	94.2	1	75.0-125	J6	J3	46.8	20

L1435465-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-7 12/06/21 13:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	643	ND	663	103	50	75.0-125	

Method Blank (MB)

(MB) R3736563-1 12/02/21 14:35

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

L1434666-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-18 12/02/21 14:53 • (DUP) R3736563-3 12/02/21 14:58

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	39.8	P1	20

L1435469-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-08 12/02/21 18:11 • (DUP) R3736563-8 12/02/21 18:47

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

Laboratory Control Sample (LCS)

(LCS) R3736563-2 12/02/21 14:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1435361-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-4 12/02/21 16:16 • (MSD) R3736563-5 12/02/21 16:22

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 %
Hexavalent Chromium	20.0	ND	18.8	19.3	93.9	96.6	1	75.0-125			2.88	20

L1435361-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-6 12/02/21 16:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	633	ND	679	107	50	75.0-125	

L1435361-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1435361-01 11/29/21 14:00 • (DUP) R3734867-2 11/29/21 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.07	8.06	1	0.124		1

Sample Narrative:

OS: 8.07 at 17.8C

DUP: 8.06 at 18C

L1435465-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1435465-02 11/29/21 14:00 • (DUP) R3734867-3 11/29/21 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.69	8.69	1	0.000		1

Sample Narrative:

OS: 8.69 at 18.2C

DUP: 8.69 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3734867-1 11/29/21 14:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 18.9C

L1434094-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1434094-07 11/30/21 15:53 • (DUP) R3735371-2 11/30/21 15:53

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	8.25	8.21	1	0.486		1

Sample Narrative:
OS: 8.25 at 19C
DUP: 8.21 at 18.9C

L1435214-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435214-03 11/30/21 15:53 • (DUP) R3735371-3 11/30/21 15:53

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	5.82	5.82	1	0.000		1

Sample Narrative:
OS: 5.82 at 18C
DUP: 5.82 at 18.3C

Laboratory Control Sample (LCS)

(LCS) R3735371-1 11/30/21 15:53

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

Sample Narrative:
LCS: 10.01 at 19C

Method Blank (MB)

(MB) R3734583-1 11/29/21 09:24

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

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3734583-3 11/29/21 09:24

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance		139	1	5.46		20

Sample Narrative:
DUP: at 25C

L1435469-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-02 11/29/21 09:24 • (DUP) R3734583-4 11/29/21 09:24

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	269	250	1	7.41		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3734583-2 11/29/21 09:24

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	270	101	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3738225-1 12/07/21 17:30

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	1.17	J	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

Laboratory Control Sample (LCS)

(LCS) R3738225-2 12/07/21 17:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	99.3	99.3	80.0-120	
Copper	100	99.0	99.0	80.0-120	
Lead	100	100	100	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	102	102	80.0-120	
Silver	20.0	17.5	87.4	80.0-120	
Zinc	100	98.7	98.7	80.0-120	

L1437186-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437186-01 12/07/21 17:36 • (MS) R3738225-5 12/07/21 17:44 • (MSD) R3738225-6 12/07/21 17:47

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	175	260	270	85.2	95.2	1	75.0-125			3.78	20
Cadmium	100	0.592	98.5	100	97.9	99.8	1	75.0-125			1.95	20
Copper	100	10.0	107	109	96.9	98.5	1	75.0-125			1.52	20
Lead	100	9.88	108	112	98.6	102	1	75.0-125			3.01	20
Nickel	100	8.93	109	111	99.9	102	1	75.0-125			1.83	20
Selenium	100	ND	86.6	90.2	86.6	90.2	1	75.0-125			4.02	20
Silver	20.0	ND	17.7	18.1	88.6	90.6	1	75.0-125			2.22	20
Zinc	100	34.1	121	124	86.5	90.1	1	75.0-125			2.94	20

Method Blank (MB)

(MB) R3742290-1 12/18/21 15:34

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) R3742290-2 12/18/21 15:36 • (LCSD) R3742290-3 12/18/21 15:39

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	0.959	0.973	95.9	97.3	80.0-120			1.35	20

Method Blank (MB)

(MB) R3737645-1 12/06/21 22:01

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) R3737645-2 12/06/21 22:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.3	90.3	80.0-120	

L1437186-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437186-01 12/06/21 22:08 • (MS) R3737645-5 12/06/21 22:18 • (MSD) R3737645-6 12/06/21 22:21

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	2.72	84.0	91.1	81.3	88.4	5	75.0-125			8.11	20

Method Blank (MB)

(MB) R3736142-2 11/27/21 22:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0266	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736142-1 11/27/21 21:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.36	97.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*77.0-120*	

Method Blank (MB)

(MB) R3736580-2 11/27/21 20:24

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)	*89.6*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736580-1 11/27/21 19:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.90	107	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*112*	*77.0-120*	

L1435179-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435179-06 11/27/21 20:45 • (MS) R3736580-3 11/28/21 01:08 • (MSD) R3736580-4 11/28/21 01:30

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 %
TPH (GC/FID) Low Fraction	99.5	12.2	84.8	81.7	80.0	76.5	25	10.0-151			3.72	28
(S) a,a,a-Trifluorotoluene(FID)					*105*	*105*		*77.0-120*				

Method Blank (MB)

(MB) R3736738-3 11/29/21 18:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*105*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*99.7*			*70.0-130*

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

(LCS) R3736738-1 11/29/21 17:14 • (LCSD) R3736738-2 11/29/21 17:33

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	0.109	0.107	87.2	85.6	70.0-123			1.85	20
Ethylbenzene	0.125	0.112	0.113	89.6	90.4	74.0-126			0.889	20
Toluene	0.125	0.107	0.109	85.6	87.2	75.0-121			1.85	20
1,2,4-Trimethylbenzene	0.125	0.111	0.111	88.8	88.8	70.0-126			0.000	20
1,3,5-Trimethylbenzene	0.125	0.109	0.110	87.2	88.0	73.0-127			0.913	20
Xylenes, Total	0.375	0.337	0.348	89.9	92.8	72.0-127			3.21	20
(S) Toluene-d8				*101*	*102*	*75.0-131*				
(S) 4-Bromofluorobenzene				*101*	*103*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*110*	*109*	*70.0-130*				

L1435447-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435447-01 11/29/21 22:56 • (MS) R3736738-4 11/30/21 02:26 • (MSD) R3736738-5 11/30/21 02:46

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	ND	0.109	0.112	87.2	89.6	1	10.0-149			2.71	37
Ethylbenzene	0.125	ND	0.119	0.123	95.2	98.4	1	10.0-160			3.31	38
Toluene	0.125	ND	0.125	0.129	98.9	102	1	10.0-156			3.15	38
1,2,4-Trimethylbenzene	0.125	0.528	1.47	1.39	754	690	1	10.0-160	V	V	5.59	36
1,3,5-Trimethylbenzene	0.125	0.860	2.23	2.12	1100	1010	1	10.0-160	V	V	5.06	38
Xylenes, Total	0.375	0.343	1.25	1.25	242	242	1	10.0-160	J5	J5	0.000	38
(S) Toluene-d8					*106*	*105*		*75.0-131*				
(S) 4-Bromofluorobenzene					*152*	*121*		*67.0-138*	J1			
(S) 1,2-Dichloroethane-d4					*101*	*104*		*70.0-130*				

Method Blank (MB)

(MB) R3736080-1 12/01/21 16:09

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	*79.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3736080-2 12/01/21 16:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.5	67.0	50.0-150	
(S) o-Terphenyl			*84.7*	*18.0-148*	

L1434644-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434644-09 12/02/21 10:32 • (MS) R3736450-1 12/02/21 10:46 • (MSD) R3736450-2 12/02/21 11:00

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	47.3	165	238	454	154	598	1	50.0-150	J5	E J3 J5	62.4	20
(S) o-Terphenyl					*79.4*	*101*		*18.0-148*				

Method Blank (MB)

(MB) R3735898-1 12/01/21 09:34

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	0.427	J	0.274	4.00
(S) o-Terphenyl	*64.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3735898-2 12/01/21 09:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.6	65.2	50.0-150	
(S) o-Terphenyl			*78.8*	*18.0-148*	

L1435469-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435469-04 12/01/21 11:31 • (MS) R3735898-3 12/01/21 11:44 • (MSD) R3735898-4 12/01/21 11:57

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	50.0	21.7	46.2	50.7	49.0	58.4	1	50.0-150	J6		9.29	20
(S) o-Terphenyl					*57.5*	*57.9*		*18.0-148*				

Method Blank (MB)

(MB) R3736596-2 12/02/21 09:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	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
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*65.7*			*14.0-149*
(S) 2-Fluorobiphenyl	*63.7*			*34.0-125*
(S) p-Terphenyl-d14	*77.6*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736596-1 12/02/21 08:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0598	74.8	50.0-126	
Acenaphthene	0.0800	0.0609	76.1	50.0-120	
Acenaphthylene	0.0800	0.0634	79.3	50.0-120	
Benzo(a)anthracene	0.0800	0.0613	76.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0522	65.3	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0580	72.5	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0564	70.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0570	71.3	49.0-125	
Chrysene	0.0800	0.0583	72.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0590	73.8	47.0-125	
Fluoranthene	0.0800	0.0610	76.3	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3736596-1 12/02/21 08:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0607	75.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0603	75.4	46.0-125	
Naphthalene	0.0800	0.0597	74.6	50.0-120	
Phenanthrene	0.0800	0.0590	73.8	47.0-120	
Pyrene	0.0800	0.0589	73.6	43.0-123	
1-Methylnaphthalene	0.0800	0.0610	76.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0586	73.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0575	71.9	50.0-120	
(S) Nitrobenzene-d5			*83.2*	*14.0-149*	
(S) 2-Fluorobiphenyl			*79.3*	*34.0-125*	
(S) p-Terphenyl-d14			*96.3*	*23.0-120*	

L1435178-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435178-01 12/02/21 12:18 • (MS) R3736596-3 12/02/21 12:38 • (MSD) R3736596-4 12/02/21 12:58

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 %
Anthracene	0.0800	ND	0.0566	0.0516	70.8	64.5	1	10.0-145			9.24	30
Acenaphthene	0.0800	ND	0.0589	0.0546	73.6	68.3	1	14.0-127			7.58	27
Acenaphthylene	0.0800	ND	0.0596	0.0549	74.5	68.6	1	21.0-124			8.21	25
Benzo(a)anthracene	0.0800	ND	0.0569	0.0526	71.1	65.8	1	10.0-139			7.85	30
Benzo(a)pyrene	0.0800	ND	0.0524	0.0484	65.5	60.5	1	10.0-141			7.94	31
Benzo(b)fluoranthene	0.0800	ND	0.0587	0.0551	68.4	64.0	1	10.0-140			6.33	36
Benzo(g,h,i)perylene	0.0800	0.00691	0.0590	0.0557	65.1	61.0	1	10.0-140			5.75	33
Benzo(k)fluoranthene	0.0800	ND	0.0535	0.0499	66.9	62.4	1	10.0-137			6.96	31
Chrysene	0.0800	ND	0.0589	0.0549	73.6	68.6	1	10.0-145			7.03	30
Dibenz(a,h)anthracene	0.0800	ND	0.0537	0.0501	67.1	62.6	1	10.0-132			6.94	31
Fluoranthene	0.0800	ND	0.0617	0.0584	73.3	69.1	1	10.0-153			5.50	33
Fluorene	0.0800	ND	0.0588	0.0552	73.5	69.0	1	11.0-130			6.32	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0554	0.0523	65.6	61.8	1	10.0-137			5.76	32
Naphthalene	0.0800	ND	0.0587	0.0547	73.4	68.4	1	10.0-135			7.05	27
Phenanthrene	0.0800	ND	0.0584	0.0555	73.0	69.4	1	10.0-144			5.09	31
Pyrene	0.0800	ND	0.0619	0.0578	71.9	66.8	1	10.0-148			6.85	35
1-Methylnaphthalene	0.0800	ND	0.0608	0.0569	76.0	71.1	1	10.0-142			6.63	28
2-Methylnaphthalene	0.0800	ND	0.0575	0.0540	71.9	67.5	1	10.0-137			6.28	28
2-Chloronaphthalene	0.0800	ND	0.0560	0.0518	70.0	64.8	1	29.0-120			7.79	24
(S) Nitrobenzene-d5					*68.6*	*67.5*		*14.0-149*				
(S) 2-Fluorobiphenyl					*71.6*	*69.4*		*34.0-125*				
(S) p-Terphenyl-d14					*86.2*	*82.9*		*23.0-120*				

Method Blank (MB)

(MB) R3736966-2 12/02/21 09:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	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
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*54.6*			*14.0-149*
(S) 2-Fluorobiphenyl	*77.6*			*34.0-125*
(S) p-Terphenyl-d14	*96.2*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736966-1 12/02/21 09:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0656	82.0	50.0-126	
Acenaphthene	0.0800	0.0656	82.0	50.0-120	
Acenaphthylene	0.0800	0.0693	86.6	50.0-120	
Benzo(a)anthracene	0.0800	0.0633	79.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0529	66.1	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0595	74.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0578	72.3	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0604	75.5	49.0-125	
Chrysene	0.0800	0.0641	80.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0534	66.8	47.0-125	
Fluoranthene	0.0800	0.0638	79.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3736966-1 12/02/21 09:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0624	78.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0557	69.6	46.0-125	
Naphthalene	0.0800	0.0617	77.1	50.0-120	
Phenanthrene	0.0800	0.0655	81.9	47.0-120	
Pyrene	0.0800	0.0655	81.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0592	74.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0560	70.0	50.0-120	
2-Chloronaphthalene	0.0800	0.0640	80.0	50.0-120	
(S) Nitrobenzene-d5			*59.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*83.0*	*34.0-125*	
(S) p-Terphenyl-d14			*102*	*23.0-120*	

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
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.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
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.
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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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 [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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**

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **PCU T73-11G**

City/State Collected: **Pieance Crk, CO**

Phone: (949) 374-2506 Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

Collected by (print): K MORELAND

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature): K. Moreland

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	Remarks	Sample # (lab only)
20211119-PCU T73-11G (BASE)	@5.5' Grab	SS		11/19/21	1135	3	+	+	+	+	+		-01
20211119-PCU T73-11G (NWALL)	@4'				1145								-02
20211119-PCU T73-11G (EWALL)	@4'				1155								-03
20211119-PCU T73-11G (SWALL)	@4'				1205								-04
20211119-PCU T73-11G (WWALL)	@4				1210								-05

* 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 # 5016 1232 0206

Relinquished by : (Signature) K. Moreland — Date: 11/23/21 — Time: 1200 — Received by: (Signature)

Relinquished by : (Signature) — Date: 11/23/21 — Time: 1500 — Received by: (Signature)

Relinquished by : (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: ~~DICA~~ 2°C — Bottles Received: 15

2.7 to 2.7

Date: 11/24/21 — Time: 915

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L1435465
B190

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

ANALYTICAL REPORT

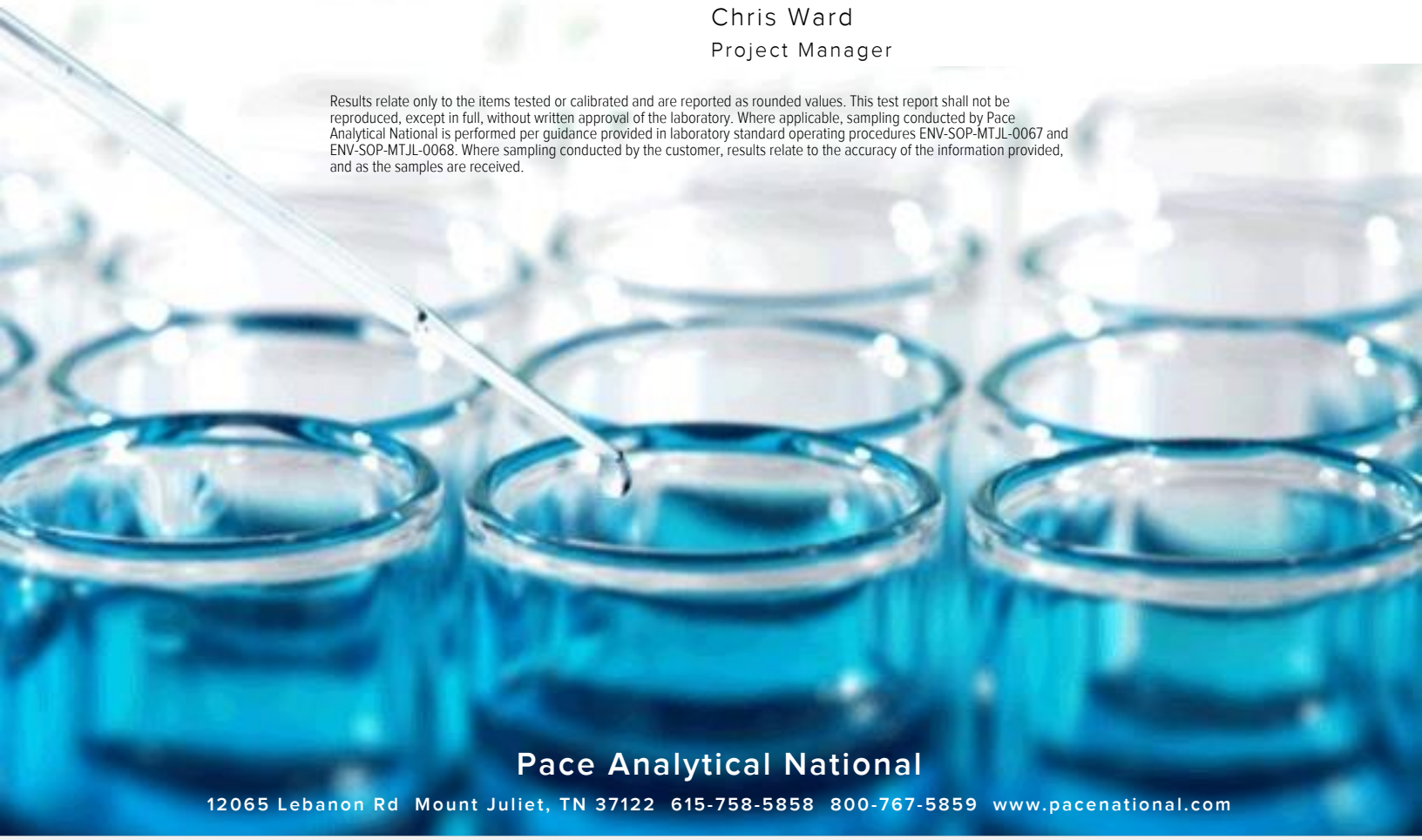
May 31, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1496512
Samples Received:	05/20/2022
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

20220517-T73-11G(NWALL)@6' L1496512-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/17/22 09:45
Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1872040	1	05/31/22 13:00	05/31/22 15:00	GI	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869463	1	05/25/22 17:40	05/26/22 12:08	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1870051	1	05/27/22 09:20	05/27/22 11:50	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1870247	1	05/23/22 15:41	05/27/22 13:01	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871306	1	05/30/22 17:00	05/31/22 11:37	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871320	1	05/30/22 03:43	05/30/22 16:40	AMG	Mt. Juliet, TN

20220517-T73-11G(BASE)@7' L1496512-02 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/17/22 10:05
Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1869997	1	05/26/22 10:00	05/27/22 10:20	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869463	1	05/25/22 17:40	05/26/22 12:11	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868796	200	05/23/22 15:41	05/24/22 20:25	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1870247	2	05/23/22 15:41	05/27/22 13:21	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871306	1	05/30/22 17:00	05/31/22 11:24	NH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871320	1	05/30/22 03:43	05/30/22 16:20	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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	T8	1	05/31/2022 15:00	WG1872040

Sample Narrative:
L1496512-01 WG1872040: 7.9 at 23.7C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cadmium	ND		0.500	1	05/26/2022 12:08	WG1869463
Copper	47.3		2.00	1	05/26/2022 12:08	WG1869463
Lead	471		0.500	1	05/26/2022 12:08	WG1869463

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.800		0.100	1	05/27/2022 11:50	WG1870051
(S) a,a,a-Trifluorotoluene(FID)	*95.0*		*77.0-120*		*05/27/2022 11:50*	WG1870051

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		0.00650	1	05/27/2022 13:01	WG1870247
1,2,4-Trimethylbenzene	0.00915		0.00500	1	05/27/2022 13:01	WG1870247
1,3,5-Trimethylbenzene	0.0256		0.00500	1	05/27/2022 13:01	WG1870247
(S) Toluene-d8	*101*		*75.0-131*		*05/27/2022 13:01*	WG1870247
(S) 4-Bromofluorobenzene	*112*		*67.0-138*		*05/27/2022 13:01*	WG1870247
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*05/27/2022 13:01*	WG1870247

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	165		4.00	1	05/31/2022 11:37	WG1871306
C28-C36 Motor Oil Range	54.8		4.00	1	05/31/2022 11:37	WG1871306
(S) o-Terphenyl	*77.4*		*18.0-148*		*05/31/2022 11:37*	WG1871306

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzo(a)anthracene	0.0825		0.00600	1	05/30/2022 16:40	WG1871320
Benzo(b)fluoranthene	0.0882		0.00600	1	05/30/2022 16:40	WG1871320
1-Methylnaphthalene	ND		0.0200	1	05/30/2022 16:40	WG1871320
2-Methylnaphthalene	0.0242		0.0200	1	05/30/2022 16:40	WG1871320
Naphthalene	ND		0.0200	1	05/30/2022 16:40	WG1871320
(S) p-Terphenyl-d14	*107*		*23.0-120*		*05/30/2022 16:40*	WG1871320
(S) Nitrobenzene-d5	*161*	J1	*14.0-149*		*05/30/2022 16:40*	WG1871320
(S) 2-Fluorobiphenyl	*84.6*		*34.0-125*		*05/30/2022 16:40*	WG1871320

Sample Narrative:
L1496512-01 WG1871320: Surrogate failure due to matrix interference

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.82	T8	1	05/27/2022 10:20	WG1869997

Sample Narrative:
L1496512-02 WG1869997: 7.82 at 20.9C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cadmium	ND		0.500	1	05/26/2022 12:11	WG1869463
Copper	10.7		2.00	1	05/26/2022 12:11	WG1869463
Lead	14.3		0.500	1	05/26/2022 12:11	WG1869463

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	182		20.0	200	05/24/2022 20:25	WG1868796
(S) a,a,a-Trifluorotoluene(FID)	*99.2*		*77.0-120*		*05/24/2022 20:25*	WG1868796

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Xylenes, Total	0.0579		0.0130	2	05/27/2022 13:21	WG1870247
1,2,4-Trimethylbenzene	0.118		0.0100	2	05/27/2022 13:21	WG1870247
1,3,5-Trimethylbenzene	0.622		0.0100	2	05/27/2022 13:21	WG1870247
(S) Toluene-d8	*97.0*		*75.0-131*		*05/27/2022 13:21*	WG1870247
(S) 4-Bromofluorobenzene	*123*		*67.0-138*		*05/27/2022 13:21*	WG1870247
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*05/27/2022 13:21*	WG1870247

Sample Narrative:
L1496512-02 WG1870247: Non-target compounds too high to run at a lower dilution.

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	133		4.00	1	05/31/2022 11:24	WG1871306
C28-C36 Motor Oil Range	10.9		4.00	1	05/31/2022 11:24	WG1871306
(S) o-Terphenyl	*78.6*		*18.0-148*		*05/31/2022 11:24*	WG1871306

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzo(a)anthracene	0.0208		0.00600	1	05/30/2022 16:20	WG1871320
Benzo(b)fluoranthene	0.0254		0.00600	1	05/30/2022 16:20	WG1871320
1-Methylnaphthalene	0.280		0.0200	1	05/30/2022 16:20	WG1871320
2-Methylnaphthalene	0.461		0.0200	1	05/30/2022 16:20	WG1871320
Naphthalene	0.0396		0.0200	1	05/30/2022 16:20	WG1871320
(S) p-Terphenyl-d14	*92.5*		*23.0-120*		*05/30/2022 16:20*	WG1871320
(S) Nitrobenzene-d5	*431*	J1	*14.0-149*		*05/30/2022 16:20*	WG1871320
(S) 2-Fluorobiphenyl	*68.2*		*34.0-125*		*05/30/2022 16:20*	WG1871320

Sample Narrative:
L1496512-02 WG1871320: Surrogate failure due to matrix interference

L1496512-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1496512-02 05/27/22 10:20 • (DUP) R3796873-2 05/27/22 10:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.82	7.85	1	0.383		1

Sample Narrative:

OS: 7.82 at 20.9C

DUP: 7.85 at 20.5C

L1496535-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1496535-07 05/27/22 10:20 • (DUP) R3796873-3 05/27/22 10:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.03	8.01	1	0.249		1

Sample Narrative:

OS: 8.03 at 21.2C

DUP: 8.01 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3796873-1 05/27/22 10:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 21.1C

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

Laboratory Control Sample (LCS)

(LCS) R3797835-1 05/31/22 15:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.90	99.0	99.0-101	

Sample Narrative:

LCS: 9.9 at 22.1C

Method Blank (MB)

(MB) R3796434-1 05/26/22 11:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500

Laboratory Control Sample (LCS)

(LCS) R3796434-2 05/26/22 11:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cadmium	100	100	100	80.0-120	
Copper	100	103	103	80.0-120	
Lead	100	101	101	80.0-120	

L1495454-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495454-06 05/26/22 11:05 • (MS) R3796434-5 05/26/22 11:13 • (MSD) R3796434-6 05/26/22 11:15

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 %
Cadmium	100	ND	103	99.7	103	99.5	1	75.0-125			3.48	20
Copper	100	21.2	137	119	116	98.0	1	75.0-125			14.0	20
Lead	100	14.9	128	112	113	96.9	1	75.0-125			13.2	20

Method Blank (MB)

(MB) R3796249-1 05/24/22 13:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	*104*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3796249-2 05/24/22 14:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.43	98.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*77.0-120*	

L1496512-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496512-02 05/24/22 20:25 • (MS) R3796249-3 05/24/22 20:54 • (MSD) R3796249-4 05/24/22 21:21

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	1100	182	1050	1010	78.9	75.3	200	10.0-151			3.88	28
(S) a,a,a-Trifluorotoluene(FID)					*105*	*103*		*77.0-120*				

Method Blank (MB)

(MB) R3796980-2 05/27/22 10:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0324	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.3*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3796980-1 05/27/22 09:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.64	84.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*101*	*77.0-120*	

Method Blank (MB)

(MB) R3796959-3 05/27/22 11:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
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	*100*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*

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

(LCS) R3796959-1 05/27/22 09:48 • (LCSD) R3796959-2 05/27/22 10:08

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 %
Xylenes, Total	0.375	0.344	0.336	91.7	89.6	72.0-127			2.35	20
1,2,4-Trimethylbenzene	0.125	0.102	0.104	81.6	83.2	70.0-126			1.94	20
1,3,5-Trimethylbenzene	0.125	0.109	0.111	87.2	88.8	73.0-127			1.82	20
(S) Toluene-d8				*101*	*98.6*	*75.0-131*				
(S) 4-Bromofluorobenzene				*103*	*102*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*112*	*113*	*70.0-130*				

Method Blank (MB)

(MB) R3797711-1 05/31/22 09:41

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	*82.0*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3797711-2 05/31/22 09:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	41.4	82.8	50.0-150	
(S) o-Terphenyl			*87.2*	*18.0-148*	

Method Blank (MB)

(MB) R3797552-2 05/30/22 10:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	*129*	J1		*23.0-120*
(S) Nitrobenzene-d5	*108*			*14.0-149*
(S) 2-Fluorobiphenyl	*97.2*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3797552-1 05/30/22 10:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzo(a)anthracene	0.0800	0.0651	81.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0614	76.8	42.0-121	
1-Methylnaphthalene	0.0800	0.0665	83.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0620	77.5	50.0-120	
Naphthalene	0.0800	0.0680	85.0	50.0-120	
(S) p-Terphenyl-d14			*111*	*23.0-120*	
(S) Nitrobenzene-d5			*103*	*14.0-149*	
(S) 2-Fluorobiphenyl			*89.6*	*34.0-125*	

L1496494-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496494-02 05/30/22 12:21 • (MS) R3797552-3 05/30/22 12:41 • (MSD) R3797552-4 05/30/22 13:01

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 %
Benzo(a)anthracene	0.0800	ND	0.0700	0.0651	87.5	81.4	1	10.0-139			7.25	30
Benzo(b)fluoranthene	0.0800	ND	0.0648	0.0640	81.0	80.0	1	10.0-140			1.24	36
1-Methylnaphthalene	0.0800	ND	0.0740	0.0733	92.5	91.6	1	10.0-142			0.950	28
2-Methylnaphthalene	0.0800	ND	0.0688	0.0685	86.0	85.6	1	10.0-137			0.437	28
Naphthalene	0.0800	ND	0.0742	0.0746	92.8	93.3	1	10.0-135			0.538	27
(S) p-Terphenyl-d14					*116*	*109*		*23.0-120*				
(S) Nitrobenzene-d5					*108*	*103*		*14.0-149*				
(S) 2-Fluorobiphenyl					*92.6*	*90.3*		*34.0-125*				

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.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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 [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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**

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **PCU T73-11G**

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

Phone:
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

Collected by (print): Kevin Fletcher

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	pH	total xylenes, benzo(A)antracene,	benzo(B)antracene	1,2,4-trimthylbenzene,	1,3,5-trimthylbenzene,	1-methylnapthlene,	2-methylnapthalene, naphthalene	cadmium, copper, lead	Remarks	Sample # (lab only)
20220517-T73-11G(NW&E)@6'	Grab	SS		5/17/22	945	2	X	X	X	X	X	X	X	X	X		-01
20220517-T73-11G (Base)@7'	Grab	SS		5/17/22	1005	2	X	X	X	X	X	X	X	X	X		-02

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

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

L # 149612
G130

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* 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 #

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:	Time:	Received by: (Signature)
	5/19/22	1315	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5/19/22	1530	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp WNA °C Bottles Received: 4
0.6+0=0.6

If preservation required by Login: Date/Time

Date: 5/20/22 Time: 900

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

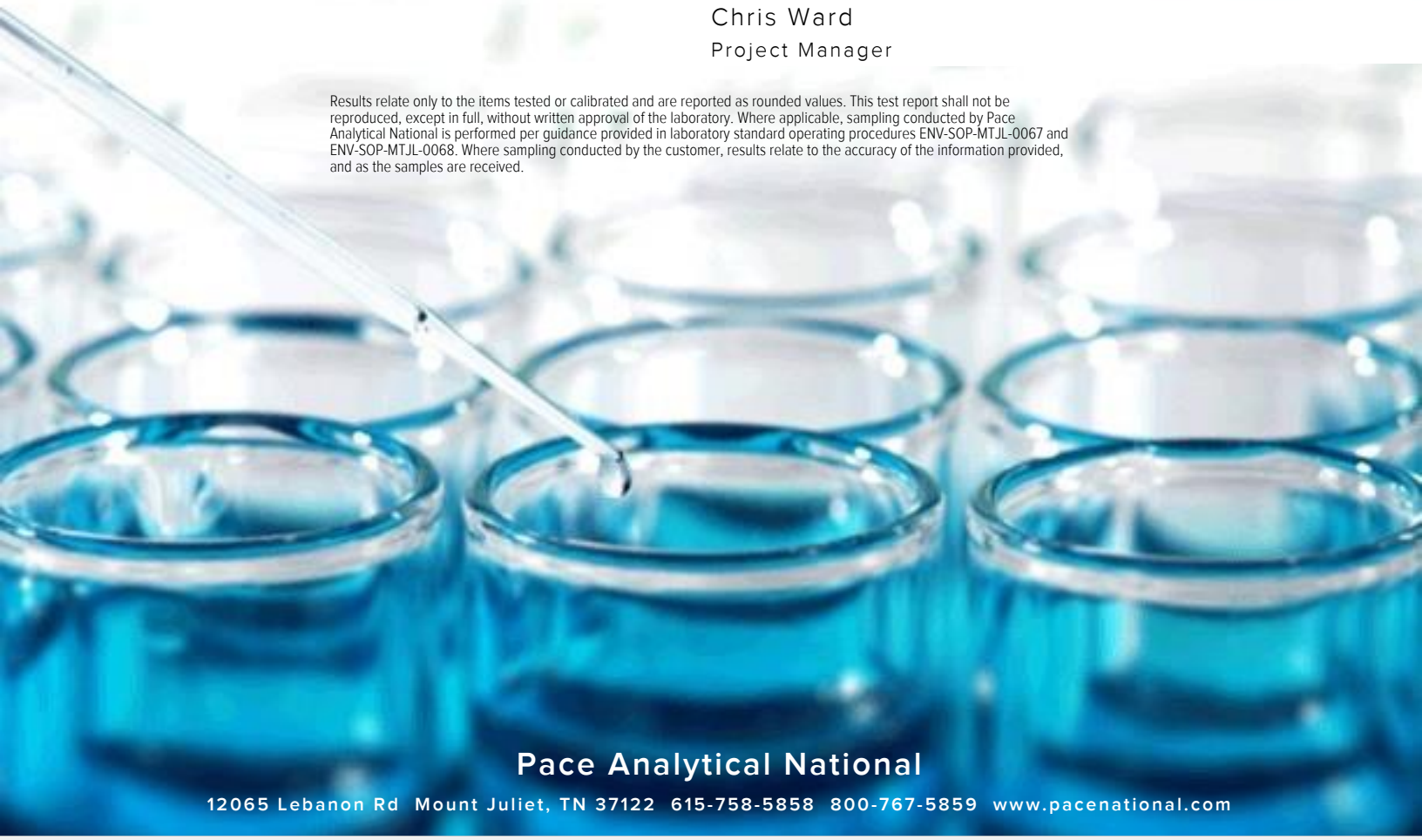
June 20, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1499891
Samples Received:	05/20/2022
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

20220517-T73-11G(NWALL)@6' L1499891-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/17/22 09:45
Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1881633	1	06/18/22 14:21	06/19/22 21:20	CCE	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

Project Narrative

Lead analysis and initial lead analysis on L1496512 do not confirm. All data on both SDGs check out with no opportunity for carryover so "hot spot" in original sample is likely - Chris Ward

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	13.0		0.500	1	06/19/2022 21:20	WG1881633

Method Blank (MB)

(MB) R3805099-1 06/20/22 10:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Lead	U		0.208	0.500

Laboratory Control Sample (LCS)

(LCS) R3805099-2 06/20/22 10:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	100	97.2	97.2	80.0-120	

L1503254-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503254-11 06/19/22 21:04 • (MS) R3805105-3 06/19/22 21:14 • (MSD) R3805105-4 06/19/22 21:17

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 %
Lead	100	13.5	106	108	92.7	94.9	1	75.0-125			1.98	20

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

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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **PCU T73-11G**

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

Phone:
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

Collected by (print): **Kevin Fletcher**

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

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

L # L996512 G130 L1499891

NV 6/1/22

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	pH	total xylenes, benzo(A)antracene,	benzo(B)antracene	1,2,4-trimthylbenzene,	1,3,5-trimthylbenzene,	1-methylnapthlene,	2-methylnapthalene, naphthalene	cadmium, copper, lead	Remarks	Sample # (lab only)
20220517-T73-11G(NW2)@6'	Grab	SS		5/17/22	945	2	X	X	X	X	X	X	X	X	X		-01
20220517-T73-11G(Base)@7'	Grab	SS		5/17/22	1005	2	X	X	X	X	X	X	X	X	X		-02

* 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 #

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

	Date:	Time:		
Relinquished by: (Signature)	5/19/22	1315	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR
Relinquished by: (Signature)	5/19/22	1530	Received by: (Signature)	Temp MMAT °C 0.6+0=0.6 Bottles Received: 4 — If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/20/22 Time: 900 — Hold: — Condition: NCF / (OK)

L1496512 *CAERUSPCO* EX

R3/R4/RX/EX

Please relog -01 for PBICP. 5 day TAT

_ _

Please note that email addresses for staff at the Pace Analytical National Center for Testing & Innovation have changed.
_My new email address is <u>Chris.Ward@pacelabs.com</u>. Please update your records accordingly.

_

* *

Thanks,*

*Chris
Ward

*Project Manager2_*

_***Pace Analytical National**
*

12065 Lebanon Road | Mt. Juliet, TN 37122**

Chris.ward@pacelabs.com
| www.pacenational.com

<u>615.773.9712</u>

MAKE YOUR PAYMENTS ONLINE**

Time estimate: oh **Time spent:** oh

Members

Chris Ward (responsible)

ANALYTICAL REPORT

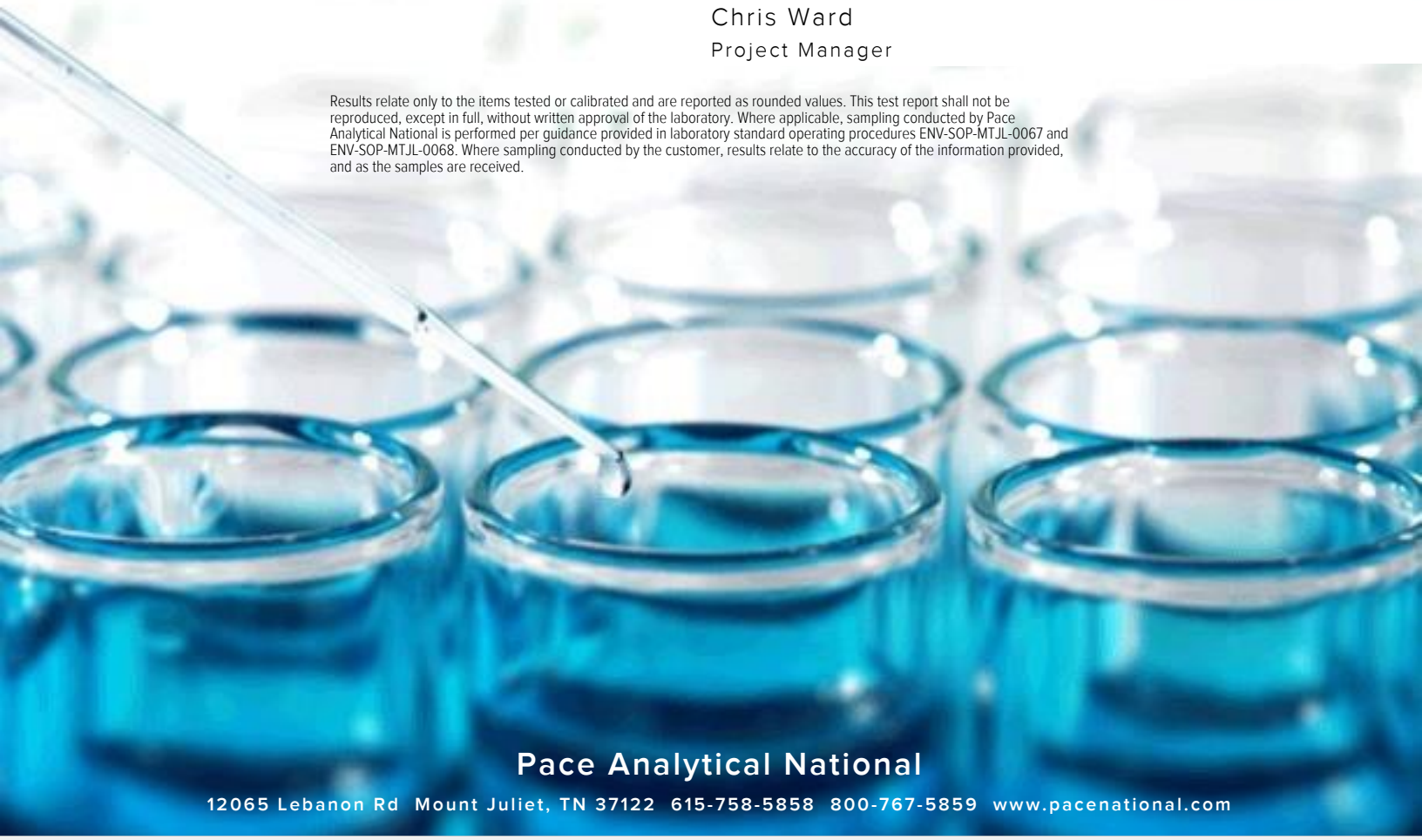
May 23, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1493426
Samples Received:	05/13/2022
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Jake Janicek 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

20220509-773-11G (STOCK-N) L1493426-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/09/22 12:15
Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1866232	1	05/19/22 11:10	05/19/22 11:15	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1865222	1	05/17/22 16:13	05/18/22 11:23	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1864792	1	05/14/22 16:47	05/19/22 16:25	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1864371	1	05/14/22 16:47	05/16/22 16:50	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1867115	5	05/20/22 17:30	05/21/22 23:08	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1865823	1	05/18/22 21:12	05/19/22 09:47	AMG	Mt. Juliet, TN

20220509-773-11G (STOCK-S) L1493426-02 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/09/22 12:45
Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1866232	1	05/19/22 11:10	05/19/22 11:15	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1865222	1	05/17/22 16:13	05/18/22 11:26	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1864792	1	05/14/22 16:47	05/19/22 16:46	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1864371	1	05/14/22 16:47	05/16/22 17:08	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1867115	1	05/20/22 17:30	05/21/22 17:40	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1866161	1	05/19/22 08:37	05/19/22 18:51	AMM	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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.66	T8	1	05/19/2022 11:15	WG1866232

Sample Narrative:

L1493426-01 WG1866232: 8.66 at 23.2C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cadmium	0.607		0.500	1	05/18/2022 11:23	WG1865222
Copper	16.3		2.00	1	05/18/2022 11:23	WG1865222
Lead	46.9		0.500	1	05/18/2022 11:23	WG1865222

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/19/2022 16:25	WG1864792
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*05/19/2022 16:25*	WG1864792

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		0.00650	1	05/16/2022 16:50	WG1864371
1,2,4-Trimethylbenzene	0.0278		0.00500	1	05/16/2022 16:50	WG1864371
1,3,5-Trimethylbenzene	0.00667		0.00500	1	05/16/2022 16:50	WG1864371
(S) Toluene-d8	*106*		*75.0-131*		*05/16/2022 16:50*	WG1864371
(S) 4-Bromofluorobenzene	*105*		*67.0-138*		*05/16/2022 16:50*	WG1864371
(S) 1,2-Dichloroethane-d4	*93.6*		*70.0-130*		*05/16/2022 16:50*	WG1864371

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	58.9		20.0	5	05/21/2022 23:08	WG1867115
C28-C36 Motor Oil Range	86.0		20.0	5	05/21/2022 23:08	WG1867115
(S) o-Terphenyl	*52.6*		*18.0-148*		*05/21/2022 23:08*	WG1867115

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzo(a)anthracene	ND		0.00600	1	05/19/2022 09:47	WG1865823
Benzo(b)fluoranthene	ND		0.00600	1	05/19/2022 09:47	WG1865823
1-Methylnaphthalene	ND		0.0200	1	05/19/2022 09:47	WG1865823
2-Methylnaphthalene	ND		0.0200	1	05/19/2022 09:47	WG1865823
Naphthalene	ND		0.0200	1	05/19/2022 09:47	WG1865823
(S) p-Terphenyl-d14	*82.4*		*23.0-120*		*05/19/2022 09:47*	WG1865823
(S) Nitrobenzene-d5	*68.2*		*14.0-149*		*05/19/2022 09:47*	WG1865823
(S) 2-Fluorobiphenyl	*66.1*		*34.0-125*		*05/19/2022 09:47*	WG1865823

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	8.55	T8	1	05/19/2022 11:15	WG1866232

Sample Narrative:
L1493426-02 WG1866232: 8.55 at 23.2C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cadmium	0.787		0.500	1	05/18/2022 11:26	WG1865222
Copper	13.3		2.00	1	05/18/2022 11:26	WG1865222
Lead	19.7		0.500	1	05/18/2022 11:26	WG1865222

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.215		0.100	1	05/19/2022 16:46	WG1864792
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*05/19/2022 16:46*	WG1864792

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Xylenes, Total	ND		0.00650	1	05/16/2022 17:08	WG1864371
1,2,4-Trimethylbenzene	0.0130		0.00500	1	05/16/2022 17:08	WG1864371
1,3,5-Trimethylbenzene	ND		0.00500	1	05/16/2022 17:08	WG1864371
(S) Toluene-d8	*105*		*75.0-131*		*05/16/2022 17:08*	WG1864371
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*05/16/2022 17:08*	WG1864371
(S) 1,2-Dichloroethane-d4	*89.3*		*70.0-130*		*05/16/2022 17:08*	WG1864371

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	183		4.00	1	05/21/2022 17:40	WG1867115
C28-C36 Motor Oil Range	98.2		4.00	1	05/21/2022 17:40	WG1867115
(S) o-Terphenyl	*50.5*		*18.0-148*		*05/21/2022 17:40*	WG1867115

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzo(a)anthracene	ND		0.00600	1	05/19/2022 18:51	WG1866161
Benzo(b)fluoranthene	ND		0.00600	1	05/19/2022 18:51	WG1866161
1-Methylnaphthalene	ND		0.0200	1	05/19/2022 18:51	WG1866161
2-Methylnaphthalene	ND		0.0200	1	05/19/2022 18:51	WG1866161
Naphthalene	ND		0.0200	1	05/19/2022 18:51	WG1866161
(S) p-Terphenyl-d14	*78.2*		*23.0-120*		*05/19/2022 18:51*	WG1866161
(S) Nitrobenzene-d5	*117*		*14.0-149*		*05/19/2022 18:51*	WG1866161
(S) 2-Fluorobiphenyl	*62.6*		*34.0-125*		*05/19/2022 18:51*	WG1866161

L1493651-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493651-01 05/19/22 11:15 • (DUP) R3793911-2 05/19/22 11:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.04	8.08	1	0.496		1

Sample Narrative:

OS: 8.04 at 22.9C

DUP: 8.08 at 22.7C

Laboratory Control Sample (LCS)

(LCS) R3793911-1 05/19/22 11:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22.7C

Method Blank (MB)

(MB) R3793358-1 05/18/22 10:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500

Laboratory Control Sample (LCS)

(LCS) R3793358-2 05/18/22 10:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cadmium	100	98.1	98.1	80.0-120	
Copper	100	101	101	80.0-120	
Lead	100	98.2	98.2	80.0-120	

L1493729-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493729-02 05/18/22 10:55 • (MS) R3793358-5 05/18/22 11:03 • (MSD) R3793358-6 05/18/22 11:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	99.5	ND	106	104	106	104	1	75.0-125			1.87	20
Copper	99.5	16.5	113	114	96.1	97.5	1	75.0-125			1.19	20
Lead	99.5	2.50	108	105	105	103	1	75.0-125			2.06	20

Method Blank (MB)

(MB) R3794154-2 05/19/22 13:51

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)

(LCS) R3794154-1 05/19/22 12:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.70	104	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.6*	*77.0-120*	

L1493426-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493426-01 05/19/22 16:25 • (MS) R3794154-3 05/19/22 23:36 • (MSD) R3794154-4 05/19/22 23:57

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	5.02	4.86	91.3	88.4	1	10.0-151			3.24	28
(S) a,a,a-Trifluorotoluene(FID)					*101*	*102*		*77.0-120*				

Method Blank (MB)

(MB) R3792207-3 05/16/22 10:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
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	*105*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*95.2*			*70.0-130*

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

(LCS) R3792207-1 05/16/22 08:57 • (LCSD) R3792207-2 05/16/22 09:16

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 %
Xylenes, Total	0.375	0.367	0.374	97.9	99.7	72.0-127			1.89	20
1,2,4-Trimethylbenzene	0.125	0.108	0.114	86.4	91.2	70.0-126			5.41	20
1,3,5-Trimethylbenzene	0.125	0.114	0.118	91.2	94.4	73.0-127			3.45	20
(S) Toluene-d8				*102*	*103*	*75.0-131*				
(S) 4-Bromofluorobenzene				*103*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*103*	*104*	*70.0-130*				

Method Blank (MB)

(MB) R3794924-1 05/21/22 10:17

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	0.316	J	0.274	4.00
(S) o-Terphenyl	*66.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3794924-2 05/21/22 10:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.4	66.8	50.0-150	
(S) o-Terphenyl			*55.6*	*18.0-148*	

L1492939-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1492939-07 05/21/22 16:46 • (MS) R3794924-3 05/21/22 16:59 • (MSD) R3794924-4 05/21/22 17:13

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	50.0	227	304	461	154	468	1	50.0-150	V	E J3 V	41.0	20
(S) o-Terphenyl					*43.4*	*84.5*		*18.0-148*				

Method Blank (MB)

(MB) R3793741-2 05/19/22 05:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	*101*			*23.0-120*
(S) Nitrobenzene-d5	*67.3*			*14.0-149*
(S) 2-Fluorobiphenyl	*77.2*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3793741-1 05/19/22 04:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzo(a)anthracene	0.0800	0.0579	72.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0767	95.9	42.0-121	
1-Methylnaphthalene	0.0800	0.0622	77.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0596	74.5	50.0-120	
Naphthalene	0.0800	0.0609	76.1	50.0-120	
(S) p-Terphenyl-d14			*98.2*	*23.0-120*	
(S) Nitrobenzene-d5			*74.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*78.7*	*34.0-125*	

L1492236-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1492236-16 05/19/22 10:59 • (MS) R3793741-3 05/19/22 11:17 • (MSD) R3793741-4 05/19/22 11:35

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 %
Benzo(a)anthracene	0.0800	0.0377	0.0736	0.0835	44.9	57.3	1	10.0-139			12.6	30
Benzo(b)fluoranthene	0.0800	0.0510	0.0692	0.0915	22.8	50.6	1	10.0-140			27.8	36
1-Methylnaphthalene	0.0800	0.249	0.106	0.177	0.000	0.000	1	10.0-142	J6	J3 J6	50.2	28
2-Methylnaphthalene	0.0800	0.138	0.0807	0.237	0.000	124	1	10.0-137	J6	J3	98.4	28
Naphthalene	0.0800	0.0814	0.0669	0.0776	0.000	0.000	1	10.0-135	J6	J6	14.8	27
(S) p-Terphenyl-d14					*78.7*	*88.1*		*23.0-120*				
(S) Nitrobenzene-d5					*58.0*	*68.3*		*14.0-149*				
(S) 2-Fluorobiphenyl					*68.3*	*73.5*		*34.0-125*				

Method Blank (MB)

(MB) R3793800-2 05/19/22 12:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	*112*			*23.0-120*
(S) Nitrobenzene-d5	*83.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*81.9*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3793800-1 05/19/22 11:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzo(a)anthracene	0.0800	0.0728	91.0	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0659	82.4	42.0-121	
1-Methylnaphthalene	0.0800	0.0685	85.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0644	80.5	50.0-120	
Naphthalene	0.0800	0.0698	87.3	50.0-120	
(S) p-Terphenyl-d14			*109*	*23.0-120*	
(S) Nitrobenzene-d5			*99.2*	*14.0-149*	
(S) 2-Fluorobiphenyl			*87.1*	*34.0-125*	

L1492983-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1492983-05 05/19/22 12:52 • (MS) R3793800-3 05/19/22 13:11 • (MSD) R3793800-4 05/19/22 13:31

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 %
Benzo(a)anthracene	0.0788	ND	0.0635	0.0674	80.6	85.5	1	10.0-139			5.96	30
Benzo(b)fluoranthene	0.0788	ND	0.0578	0.0612	73.4	77.7	1	10.0-140			5.71	36
1-Methylnaphthalene	0.0788	ND	0.0659	0.0667	83.3	84.3	1	10.0-142			1.21	28
2-Methylnaphthalene	0.0788	ND	0.0622	0.0618	78.5	78.0	1	10.0-137			0.645	28
Naphthalene	0.0788	ND	0.0686	0.0678	87.1	86.0	1	10.0-135			1.17	27
(S) p-Terphenyl-d14					*105*	*107*		*23.0-120*				
(S) Nitrobenzene-d5					*93.3*	*90.4*		*14.0-149*				
(S) 2-Fluorobiphenyl					*84.8*	*83.4*		*34.0-125*				

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
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.
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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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**

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **PCU T73-11G**

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

Phone:
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

Collected by (print): **Kevin Fletcher**

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature):

Quote #

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
____ Same Day ____ Five Day
____ Next Day ____ 5 Day (Rad Only)
____ Two Day ____ 10 Day (Rad Only)
____ Three Day

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	pH	total xylenes, benzo(A)antracene,	benzo(B)antracene	1,2,4-trimthylbenzene,	1,3,5-trimthylbenzene,	1-methylnapthlene,	2-methylnapthalene, naphthalene	cadmium, copper, lead	Remarks	Sample # (lab only)
20220509-T73-11G(Stock-N)	Comp Grab-KF	SS		5/9/22	1215	2	X	X	X	X	X	X	X	X	X		-01
20220509-T73-11G(Stock-S)	Comp Grab-KF	SS		5/9/22	1245	2	X	X	X	X	X	X	X	X	X		-02

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation

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

L # L493426

A105

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* 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 # 5755 8084 8766

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: X __N
Bottles arrive intact: X __N
Correct bottles used: X __N
Sufficient volume sent: X __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	5/11/22	1300			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: DNG °C 0.9+0=0.9	Bottles Received: 4
	5/11/22	1500			If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/13/22	Time: 900
				Hold:	Condition: NCF / OK

ANALYTICAL REPORT

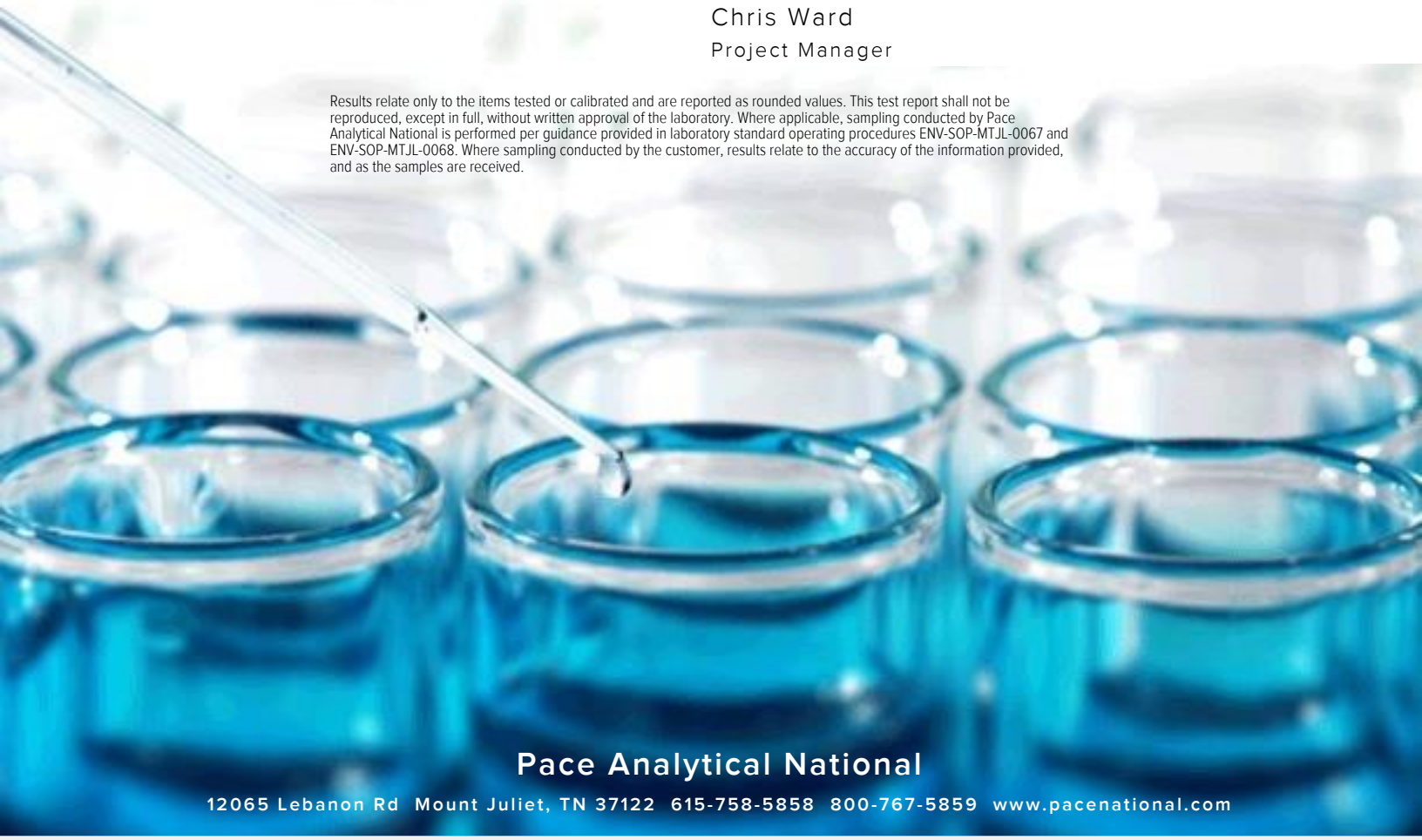
December 20, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1435469
Samples Received:	11/24/2021
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
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2021119-PCU T73-11G (BGW) L1435469-01 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:20 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:26	12/15/21 12:26	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:45	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:09	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:26	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:50	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 02:46	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 02:43	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 10:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 12:28	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGW) @ 6"-1' L1435469-02 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:25 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:29	12/15/21 12:29	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 14:32	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780272	1	11/29/21 02:42	11/29/21 09:24	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:12	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:29	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:53	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 03:09	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 03:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 10:53	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 12:45	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGS) L1435469-03 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:35 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:32	12/15/21 12:32	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1781876	1	11/30/21 14:51	12/07/21 15:09	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:15	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:31	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 22:57	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 03:33	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 03:20	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 11:05	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 13:02	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGS) @ 6"-1' L1435469-04 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:40 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:34	12/15/21 12:34	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:50	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:18	CCE	Mt. Juliet, TN

2021119-PCU T73-11G (BGS) @ 6"-1' L1435469-04 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:40 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:39	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 23:00	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 03:57	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 03:39	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 11:31	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 13:20	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGE) L1435469-05 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:50 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:37	12/15/21 12:37	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:55	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1784894	1	12/06/21 14:02	12/07/21 18:21	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:42	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784892	5	12/06/21 14:00	12/06/21 23:03	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 04:21	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 03:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 12:10	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 13:37	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGE) @ 6"-1' L1435469-06 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 13:55 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:40	12/15/21 12:40	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 18:00	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1785869	1	12/08/21 08:12	12/08/21 12:31	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1781510	1	12/12/21 16:20	12/18/21 16:45	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1785874	5	12/08/21 08:09	12/08/21 12:53	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 04:44	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 04:17	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 12:23	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 13:54	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGN) @ 6"-1' L1435469-07 Solid

Collected by: K. Moreland | Collected date/time: 11/19/21 14:05 | Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:42	12/15/21 12:42	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 18:06	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1785869	1	12/08/21 08:12	12/08/21 12:33	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1783244	1	12/03/21 10:41	12/06/21 14:07	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1785874	5	12/08/21 08:09	12/08/21 12:57	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 05:08	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782103	1	11/26/21 18:53	12/01/21 04:35	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 12:36	JAS	Mt. Juliet, TN

2021119-PCU T73-11G (BGN) @ 6"-1' L1435469-07 Solid

Collected by: K. Moreland
Collected date/time: 11/19/21 14:05
Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 14:12	LEA	Mt. Juliet, TN

2021119-PCU T73-11G (BGN) L1435469-08 Solid

Collected by: K. Moreland
Collected date/time: 11/19/21 14:00
Received date/time: 11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1781514	1	12/15/21 12:50	12/15/21 12:50	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 18:11	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780273	1	11/26/21 12:01	11/26/21 14:15	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1785869	1	12/08/21 08:12	12/08/21 12:36	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1783244	1	12/03/21 10:41	12/06/21 14:10	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1785874	5	12/08/21 08:09	12/08/21 13:00	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780646	1	11/26/21 18:53	11/28/21 05:45	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1782295	1	11/26/21 18:53	12/01/21 17:30	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1782007	1	12/01/21 03:49	12/01/21 12:50	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1782015	1	12/01/21 22:51	12/02/21 14:29	LEA	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
	SAR				
Sodium Adsorption Ratio	0.171		1	12/15/2021 12:26	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:45	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.40	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435469-01 WG1782317: 7.4 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	157		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:

L1435469-01 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	250		0.500	1	12/07/2021 18:09	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:09	WG1784894
Copper	11.0		2.00	1	12/07/2021 18:09	WG1784894
Lead	12.8		0.500	1	12/07/2021 18:09	WG1784894
Nickel	13.3		2.00	1	12/07/2021 18:09	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:09	WG1784894
Silver	ND		1.00	1	12/07/2021 18:09	WG1784894
Zinc	37.5		5.00	1	12/07/2021 18:09	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.237		0.200	1	12/18/2021 16:26	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.44		1.00	5	12/06/2021 22:50	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.171	B	0.100	1	11/28/2021 02:46	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*97.6*		*77.0-120*		*11/28/2021 02:46*	WG1780646

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	12/01/2021 02:43	WG1782103
Toluene	ND		0.00500	1	12/01/2021 02:43	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 02:43	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 02:43	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 02:43	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 02:43	WG1782103
(S) Toluene-d8	*105*		*75.0-131*		*12/01/2021 02:43*	WG1782103
(S) 4-Bromofluorobenzene	*101*		*67.0-138*		*12/01/2021 02:43*	WG1782103
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*12/01/2021 02:43*	WG1782103

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	22.9		4.00	1	12/01/2021 10:39	WG1782007
C28-C36 Motor Oil Range	25.9		4.00	1	12/01/2021 10:39	WG1782007
(S) o-Terphenyl	*54.0*		*18.0-148*		*12/01/2021 10:39*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 12:28	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 12:28	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 12:28	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 12:28	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 12:28	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 12:28	WG1782015
(S) p-Terphenyl-d14	*83.8*		*23.0-120*		*12/02/2021 12:28*	WG1782015
(S) Nitrobenzene-d5	*49.9*		*14.0-149*		*12/02/2021 12:28*	WG1782015
(S) 2-Fluorobiphenyl	*67.6*		*34.0-125*		*12/02/2021 12:28*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.165		1	12/15/2021 12:29	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/06/2021 14:32	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.99	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435469-02 WG1782317: 7.99 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	269		10.0	1	11/29/2021 09:24	WG1780272

Sample Narrative:

L1435469-02 WG1780272: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	269		0.500	1	12/07/2021 18:12	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:12	WG1784894
Copper	12.3		2.00	1	12/07/2021 18:12	WG1784894
Lead	11.7		0.500	1	12/07/2021 18:12	WG1784894
Nickel	13.9		2.00	1	12/07/2021 18:12	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:12	WG1784894
Silver	ND		1.00	1	12/07/2021 18:12	WG1784894
Zinc	38.6		5.00	1	12/07/2021 18:12	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.307		0.200	1	12/18/2021 16:29	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.06		1.00	5	12/06/2021 22:53	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2021 03:09	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*96.5*		*77.0-120*		*11/28/2021 03:09*	WG1780646

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	12/01/2021 03:02	WG1782103
Toluene	ND		0.00500	1	12/01/2021 03:02	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 03:02	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 03:02	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:02	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:02	WG1782103
(S) Toluene-d8	*104*		*75.0-131*		*12/01/2021 03:02*	WG1782103
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*12/01/2021 03:02*	WG1782103
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*12/01/2021 03:02*	WG1782103

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	19.3	B	4.00	1	12/01/2021 10:53	WG1782007
C28-C36 Motor Oil Range	27.4		4.00	1	12/01/2021 10:53	WG1782007
(S) o-Terphenyl	*66.9*		*18.0-148*		*12/01/2021 10:53*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 12:45	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 12:45	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 12:45	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 12:45	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 12:45	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 12:45	WG1782015
(S) p-Terphenyl-d14	*59.2*		*23.0-120*		*12/02/2021 12:45*	WG1782015
(S) Nitrobenzene-d5	*33.5*		*14.0-149*		*12/02/2021 12:45*	WG1782015
(S) 2-Fluorobiphenyl	*46.5*		*34.0-125*		*12/02/2021 12:45*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.152		1	12/15/2021 12:32	WG1781514

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/07/2021 15:09	WG1781876

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:
L1435469-03 WG1782317: 8 at 19.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	245		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:
L1435469-03 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	158		0.500	1	12/07/2021 18:15	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:15	WG1784894
Copper	12.0		2.00	1	12/07/2021 18:15	WG1784894
Lead	9.57		0.500	1	12/07/2021 18:15	WG1784894
Nickel	11.6		2.00	1	12/07/2021 18:15	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:15	WG1784894
Silver	ND		1.00	1	12/07/2021 18:15	WG1784894
Zinc	29.5		5.00	1	12/07/2021 18:15	WG1784894

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.356		0.200	1	12/18/2021 16:31	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.94		1.00	5	12/06/2021 22:57	WG1784892

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2021 03:33	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*95.0*		*77.0-120*		*11/28/2021 03:33*	WG1780646

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	12/01/2021 03:20	WG1782103
Toluene	ND		0.00500	1	12/01/2021 03:20	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 03:20	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 03:20	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:20	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:20	WG1782103
(S) Toluene-d8	*104*		*75.0-131*		*12/01/2021 03:20*	WG1782103
(S) 4-Bromofluorobenzene	*99.9*		*67.0-138*		*12/01/2021 03:20*	WG1782103
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*12/01/2021 03:20*	WG1782103

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	16.7	B	4.00	1	12/01/2021 11:05	WG1782007
C28-C36 Motor Oil Range	27.8		4.00	1	12/01/2021 11:05	WG1782007
(S) o-Terphenyl	*59.6*		*18.0-148*		*12/01/2021 11:05*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Fluoranthene	0.00657		0.00600	1	12/02/2021 13:02	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 13:02	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 13:02	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 13:02	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:02	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:02	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 13:02	WG1782015
(S) p-Terphenyl-d14	*72.1*		*23.0-120*		*12/02/2021 13:02*	WG1782015
(S) Nitrobenzene-d5	*43.0*		*14.0-149*		*12/02/2021 13:02*	WG1782015
(S) 2-Fluorobiphenyl	*57.5*		*34.0-125*		*12/02/2021 13:02*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.173		1	12/15/2021 12:34	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:50	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.98	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435469-04 WG1782317: 7.98 at 19C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	220		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:

L1435469-04 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	157		0.500	1	12/07/2021 18:18	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:18	WG1784894
Copper	12.0		2.00	1	12/07/2021 18:18	WG1784894
Lead	9.88		0.500	1	12/07/2021 18:18	WG1784894
Nickel	11.4		2.00	1	12/07/2021 18:18	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:18	WG1784894
Silver	ND		1.00	1	12/07/2021 18:18	WG1784894
Zinc	30.7		5.00	1	12/07/2021 18:18	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.355		0.200	1	12/18/2021 16:39	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.12		1.00	5	12/06/2021 23:00	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2021 03:57	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*95.5*		*77.0-120*		*11/28/2021 03:57*	WG1780646

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	12/01/2021 03:39	WG1782103
Toluene	ND		0.00500	1	12/01/2021 03:39	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 03:39	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 03:39	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:39	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:39	WG1782103
(S) Toluene-d8	*105*		*75.0-131*		*12/01/2021 03:39*	WG1782103
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*12/01/2021 03:39*	WG1782103
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*12/01/2021 03:39*	WG1782103

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	21.7	J6	4.00	1	12/01/2021 11:31	WG1782007
C28-C36 Motor Oil Range	30.4		4.00	1	12/01/2021 11:31	WG1782007
(S) o-Terphenyl	*55.5*		*18.0-148*		*12/01/2021 11:31*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 13:20	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 13:20	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 13:20	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:20	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:20	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 13:20	WG1782015
(S) p-Terphenyl-d14	*65.3*		*23.0-120*		*12/02/2021 13:20*	WG1782015
(S) Nitrobenzene-d5	*38.9*		*14.0-149*		*12/02/2021 13:20*	WG1782015
(S) 2-Fluorobiphenyl	*52.8*		*34.0-125*		*12/02/2021 13:20*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.100		1	12/15/2021 12:37	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:55	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.09	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435469-05 WG1782317: 7.09 at 18.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	54.1		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:

L1435469-05 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	173		0.500	1	12/07/2021 18:21	WG1784894
Cadmium	ND		0.500	1	12/07/2021 18:21	WG1784894
Copper	8.29		2.00	1	12/07/2021 18:21	WG1784894
Lead	11.9		0.500	1	12/07/2021 18:21	WG1784894
Nickel	9.19		2.00	1	12/07/2021 18:21	WG1784894
Selenium	ND		2.00	1	12/07/2021 18:21	WG1784894
Silver	ND		1.00	1	12/07/2021 18:21	WG1784894
Zinc	28.2		5.00	1	12/07/2021 18:21	WG1784894

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.200		0.200	1	12/18/2021 16:42	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	2.14		1.00	5	12/06/2021 23:03	WG1784892

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.109	B	0.100	1	11/28/2021 04:21	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*97.1*		*77.0-120*		*11/28/2021 04:21*	WG1780646

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	12/01/2021 03:58	WG1782103
Toluene	ND		0.00500	1	12/01/2021 03:58	WG1782103
Ethylbenzene	0.00515		0.00250	1	12/01/2021 03:58	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 03:58	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:58	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 03:58	WG1782103
(S) Toluene-d8	*104*		*75.0-131*		*12/01/2021 03:58*	WG1782103
(S) 4-Bromofluorobenzene	*99.9*		*67.0-138*		*12/01/2021 03:58*	WG1782103
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*12/01/2021 03:58*	WG1782103

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	10.8	B	4.00	1	12/01/2021 12:10	WG1782007
C28-C36 Motor Oil Range	30.8		4.00	1	12/01/2021 12:10	WG1782007
(S) o-Terphenyl	*58.6*		*18.0-148*		*12/01/2021 12:10*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 13:37	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 13:37	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 13:37	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:37	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:37	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 13:37	WG1782015
(S) p-Terphenyl-d14	*86.9*		*23.0-120*		*12/02/2021 13:37*	WG1782015
(S) Nitrobenzene-d5	*50.4*		*14.0-149*		*12/02/2021 13:37*	WG1782015
(S) 2-Fluorobiphenyl	*68.9*		*34.0-125*		*12/02/2021 13:37*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.166		1	12/15/2021 12:40	WG1781514

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	12/02/2021 18:00	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.21	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435469-06 WG1782317: 7.21 at 18.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	51.6		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:

L1435469-06 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	198		0.500	1	12/08/2021 12:31	WG1785869
Cadmium	ND		0.500	1	12/08/2021 12:31	WG1785869
Copper	9.37		2.00	1	12/08/2021 12:31	WG1785869
Lead	10.7		0.500	1	12/08/2021 12:31	WG1785869
Nickel	11.6		2.00	1	12/08/2021 12:31	WG1785869
Selenium	ND		2.00	1	12/08/2021 12:31	WG1785869
Silver	ND		1.00	1	12/08/2021 12:31	WG1785869
Zinc	32.4		5.00	1	12/08/2021 12:31	WG1785869

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.298		0.200	1	12/18/2021 16:45	WG1781510

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.99		1.00	5	12/08/2021 12:53	WG1785874

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2021 04:44	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*98.1*		*77.0-120*		*11/28/2021 04:44*	WG1780646

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	12/01/2021 04:17	WG1782103
Toluene	ND		0.00500	1	12/01/2021 04:17	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 04:17	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 04:17	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 04:17	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 04:17	WG1782103
(S) Toluene-d8	*106*		*75.0-131*		*12/01/2021 04:17*	WG1782103
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*12/01/2021 04:17*	WG1782103
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*12/01/2021 04:17*	WG1782103

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	34.5		4.00	1	12/01/2021 12:23	WG1782007
C28-C36 Motor Oil Range	35.5		4.00	1	12/01/2021 12:23	WG1782007
(S) o-Terphenyl	*62.9*		*18.0-148*		*12/01/2021 12:23*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 13:54	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 13:54	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 13:54	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:54	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 13:54	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 13:54	WG1782015
(S) p-Terphenyl-d14	*103*		*23.0-120*		*12/02/2021 13:54*	WG1782015
(S) Nitrobenzene-d5	*59.6*		*14.0-149*		*12/02/2021 13:54*	WG1782015
(S) 2-Fluorobiphenyl	*81.2*		*34.0-125*		*12/02/2021 13:54*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.255		1	12/15/2021 12:42	WG1781514

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 18:06	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.82	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:
L1435469-07 WG1782317: 7.82 at 18.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	149		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:
L1435469-07 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	182		0.500	1	12/08/2021 12:33	WG1785869
Cadmium	ND		0.500	1	12/08/2021 12:33	WG1785869
Copper	8.71		2.00	1	12/08/2021 12:33	WG1785869
Lead	10.7		0.500	1	12/08/2021 12:33	WG1785869
Nickel	10.0		2.00	1	12/08/2021 12:33	WG1785869
Selenium	ND		2.00	1	12/08/2021 12:33	WG1785869
Silver	ND		1.00	1	12/08/2021 12:33	WG1785869
Zinc	29.3		5.00	1	12/08/2021 12:33	WG1785869

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	12/06/2021 14:07	WG1783244

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.60		1.00	5	12/08/2021 12:57	WG1785874

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2021 05:08	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*77.0-120*		*11/28/2021 05:08*	WG1780646

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	12/01/2021 04:35	WG1782103
Toluene	ND		0.00500	1	12/01/2021 04:35	WG1782103
Ethylbenzene	ND		0.00250	1	12/01/2021 04:35	WG1782103
Xylenes, Total	ND		0.00650	1	12/01/2021 04:35	WG1782103
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 04:35	WG1782103
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 04:35	WG1782103
(S) Toluene-d8	*103*		*75.0-131*		*12/01/2021 04:35*	WG1782103
(S) 4-Bromofluorobenzene	*98.0*		*67.0-138*		*12/01/2021 04:35*	WG1782103
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*12/01/2021 04:35*	WG1782103

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	10.7	B	4.00	1	12/01/2021 12:36	WG1782007
C28-C36 Motor Oil Range	22.2		4.00	1	12/01/2021 12:36	WG1782007
(S) o-Terphenyl	*59.4*		*18.0-148*		*12/01/2021 12:36*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 14:12	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 14:12	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 14:12	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:12	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:12	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 14:12	WG1782015
(S) p-Terphenyl-d14	*78.1*		*23.0-120*		*12/02/2021 14:12*	WG1782015
(S) Nitrobenzene-d5	*46.2*		*14.0-149*		*12/02/2021 14:12*	WG1782015
(S) 2-Fluorobiphenyl	*61.7*		*34.0-125*		*12/02/2021 14:12*	WG1782015

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.190		1	12/15/2021 12:50	WG1781514

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 18:11	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.86	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:
L1435469-08 WG1782317: 7.86 at 18.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	141		10.0	1	11/26/2021 14:15	WG1780273

Sample Narrative:
L1435469-08 WG1780273: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	187		0.500	1	12/08/2021 12:36	WG1785869
Cadmium	ND		0.500	1	12/08/2021 12:36	WG1785869
Copper	8.86		2.00	1	12/08/2021 12:36	WG1785869
Lead	12.0		0.500	1	12/08/2021 12:36	WG1785869
Nickel	10.1		2.00	1	12/08/2021 12:36	WG1785869
Selenium	ND		2.00	1	12/08/2021 12:36	WG1785869
Silver	ND		1.00	1	12/08/2021 12:36	WG1785869
Zinc	31.3		5.00	1	12/08/2021 12:36	WG1785869

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	12/06/2021 14:10	WG1783244

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.00		1.00	5	12/08/2021 13:00	WG1785874

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.102	B	0.100	1	11/28/2021 05:45	WG1780646
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*11/28/2021 05:45*	WG1780646

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	12/01/2021 17:30	WG1782295
Toluene	ND		0.00500	1	12/01/2021 17:30	WG1782295
Ethylbenzene	ND		0.00250	1	12/01/2021 17:30	WG1782295
Xylenes, Total	ND		0.00650	1	12/01/2021 17:30	WG1782295
1,2,4-Trimethylbenzene	ND		0.00500	1	12/01/2021 17:30	WG1782295
1,3,5-Trimethylbenzene	ND		0.00500	1	12/01/2021 17:30	WG1782295
(S) Toluene-d8	*102*		*75.0-131*		*12/01/2021 17:30*	WG1782295
(S) 4-Bromofluorobenzene	*126*		*67.0-138*		*12/01/2021 17:30*	WG1782295
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*12/01/2021 17:30*	WG1782295

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	14.5	B	4.00	1	12/01/2021 12:50	WG1782007
C28-C36 Motor Oil Range	34.7		4.00	1	12/01/2021 12:50	WG1782007
(S) o-Terphenyl	*64.4*		*18.0-148*		*12/01/2021 12:50*	WG1782007

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Acenaphthene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Acenaphthylene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Benzo(a)anthracene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Benzo(a)pyrene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Benzo(b)fluoranthene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Benzo(g,h,i)perylene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Benzo(k)fluoranthene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Chrysene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Dibenz(a,h)anthracene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Fluoranthene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Fluorene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Naphthalene	ND		0.0200	1	12/02/2021 14:29	WG1782015
Phenanthrene	ND		0.00600	1	12/02/2021 14:29	WG1782015
Pyrene	ND		0.00600	1	12/02/2021 14:29	WG1782015
1-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:29	WG1782015
2-Methylnaphthalene	ND		0.0200	1	12/02/2021 14:29	WG1782015
2-Chloronaphthalene	ND		0.0200	1	12/02/2021 14:29	WG1782015
(S) p-Terphenyl-d14	*77.5*		*23.0-120*		*12/02/2021 14:29*	WG1782015
(S) Nitrobenzene-d5	*44.2*		*14.0-149*		*12/02/2021 14:29*	WG1782015
(S) 2-Fluorobiphenyl	*61.6*		*34.0-125*		*12/02/2021 14:29*	WG1782015

Method Blank (MB)

(MB) R3737878-1 12/06/21 11:28

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

L1432686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1432686-01 12/06/21 11:40 • (DUP) R3737878-3 12/06/21 11:46

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	200	P1	20

L1435363-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-03 12/06/21 13:14 • (DUP) R3737878-4 12/06/21 13:19

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

Laboratory Control Sample (LCS)

(LCS) R3737878-2 12/06/21 11:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1435465-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-5 12/06/21 13:40 • (MSD) R3737878-6 12/06/21 13:45

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 %
Hexavalent Chromium	20.0	ND	12.1	19.5	57.2	94.2	1	75.0-125	J6	J3	46.8	20

L1435465-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-7 12/06/21 13:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	643	ND	663	103	50	75.0-125	

Method Blank (MB)

(MB) R3736563-1 12/02/21 14:35

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

L1434666-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-18 12/02/21 14:53 • (DUP) R3736563-3 12/02/21 14:58

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	39.8	P1	20

L1435469-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-08 12/02/21 18:11 • (DUP) R3736563-8 12/02/21 18:47

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

Laboratory Control Sample (LCS)

(LCS) R3736563-2 12/02/21 14:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1435361-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-4 12/02/21 16:16 • (MSD) R3736563-5 12/02/21 16:22

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 %
Hexavalent Chromium	20.0	ND	18.8	19.3	93.9	96.6	1	75.0-125			2.88	20

L1435361-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-6 12/02/21 16:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	633	ND	679	107	50	75.0-125	

Method Blank (MB)

(MB) R3738361-1 12/07/21 12:37

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

L1434666-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-06 12/07/21 12:49 • (DUP) R3738361-3 12/07/21 12:54

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	14.1		20

L1434666-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-24 12/07/21 13:57 • (DUP) R3738361-4 12/07/21 14:02

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	1.46	1	52.4	P1	20

Laboratory Control Sample (LCS)

(LCS) R3738361-2 12/07/21 12:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	11.5	115	80.0-120	

L1435365-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435365-03 12/07/21 14:43 • (MS) R3738361-5 12/07/21 14:49 • (MSD) R3738361-6 12/07/21 14:54

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 %
Hexavalent Chromium	20.0	1.06	23.0	21.8	110	104	1	75.0-125			5.31	20

L1435365-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435365-03 12/07/21 14:43 • (MS) R3738361-7 12/07/21 14:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	642	1.06	735	114	50	75.0-125	

L1435333-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1435333-05 12/01/21 11:00 • (DUP) R3735758-2 12/01/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.96	6.96	1	0.000		1

Sample Narrative:

OS: 6.96 at 20.4C

DUP: 6.96 at 19.9C

L1435354-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1435354-04 12/01/21 11:00 • (DUP) R3735758-3 12/01/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.54	8.53	1	0.117		1

Sample Narrative:

OS: 8.54 at 19.9C

DUP: 8.53 at 19.6C

Laboratory Control Sample (LCS)

(LCS) R3735758-1 12/01/21 11:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 19.1C

Method Blank (MB)

(MB) R3734583-1 11/29/21 09:24

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

L1435347-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1435347-07 11/29/21 09:24 • (DUP) R3734583-3 11/29/21 09:24

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	147	139	1	5.46		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1435469-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-02 11/29/21 09:24 • (DUP) R3734583-4 11/29/21 09:24

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	269	250	1	7.41		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3734583-2 11/29/21 09:24

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	270	101	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3734143-1 11/26/21 14:15

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

L1435206-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435206-03 11/26/21 14:15 • (DUP) R3734143-3 11/26/21 14:15

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	114	113	1	0.264		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1435469-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-07 11/26/21 14:15 • (DUP) R3734143-4 11/26/21 14:15

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	149	141	1	5.71		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3734143-2 11/26/21 14:15

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	277	103	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3738225-1 12/07/21 17:30

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	1.17	J	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

Laboratory Control Sample (LCS)

(LCS) R3738225-2 12/07/21 17:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	99.3	99.3	80.0-120	
Copper	100	99.0	99.0	80.0-120	
Lead	100	100	100	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	102	102	80.0-120	
Silver	20.0	17.5	87.4	80.0-120	
Zinc	100	98.7	98.7	80.0-120	

L1437186-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437186-01 12/07/21 17:36 • (MS) R3738225-5 12/07/21 17:44 • (MSD) R3738225-6 12/07/21 17:47

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	175	260	270	85.2	95.2	1	75.0-125			3.78	20
Cadmium	100	0.592	98.5	100	97.9	99.8	1	75.0-125			1.95	20
Copper	100	10.0	107	109	96.9	98.5	1	75.0-125			1.52	20
Lead	100	9.88	108	112	98.6	102	1	75.0-125			3.01	20
Nickel	100	8.93	109	111	99.9	102	1	75.0-125			1.83	20
Selenium	100	ND	86.6	90.2	86.6	90.2	1	75.0-125			4.02	20
Silver	20.0	ND	17.7	18.1	88.6	90.6	1	75.0-125			2.22	20
Zinc	100	34.1	121	124	86.5	90.1	1	75.0-125			2.94	20

Method Blank (MB)

(MB) R3738497-1 12/08/21 12:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	0.124	J	0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	0.211	J	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

Laboratory Control Sample (LCS)

(LCS) R3738497-2 12/08/21 12:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	100	100	80.0-120	
Cadmium	100	94.4	94.4	80.0-120	
Copper	100	95.7	95.7	80.0-120	
Lead	100	95.5	95.5	80.0-120	
Nickel	100	95.3	95.3	80.0-120	
Selenium	100	93.9	93.9	80.0-120	
Silver	20.0	16.9	84.6	80.0-120	
Zinc	100	93.9	93.9	80.0-120	

L1437907-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437907-05 12/08/21 12:18 • (MS) R3738497-5 12/08/21 12:26 • (MSD) R3738497-6 12/08/21 12:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	160	249	248	89.8	88.1	1	75.0-125			0.696	20
Cadmium	100	ND	96.0	95.6	95.9	95.4	1	75.0-125			0.446	20
Copper	100	7.85	104	104	96.5	95.9	1	75.0-125			0.624	20
Lead	100	6.94	107	106	99.7	99.5	1	75.0-125			0.168	20
Nickel	100	13.9	114	113	100	99.4	1	75.0-125			0.688	20
Selenium	100	ND	93.9	93.3	92.2	91.6	1	75.0-125			0.652	20
Silver	20.0	ND	17.2	16.9	86.1	84.5	1	75.0-125			1.84	20
Zinc	100	32.3	123	122	90.5	90.1	1	75.0-125			0.334	20

Method Blank (MB)

(MB) R3742290-1 12/18/21 15:34

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) R3742290-2 12/18/21 15:36 • (LCSD) R3742290-3 12/18/21 15:39

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	0.959	0.973	95.9	97.3	80.0-120			1.35	20

Method Blank (MB)

(MB) R3737532-1 12/06/21 13:59

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) R3737532-2 12/06/21 14:02 • (LCSD) R3737532-3 12/06/21 14:05

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	1.07	112	107	80.0-120			5.17	20

Method Blank (MB)

(MB) R3737645-1 12/06/21 22:01

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) R3737645-2 12/06/21 22:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.3	90.3	80.0-120	

L1437186-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437186-01 12/06/21 22:08 • (MS) R3737645-5 12/06/21 22:18 • (MSD) R3737645-6 12/06/21 22:21

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	2.72	84.0	91.1	81.3	88.4	5	75.0-125			8.11	20

Method Blank (MB)

(MB) R3738466-1 12/08/21 12:30

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) R3738466-2 12/08/21 12:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	108	108	80.0-120	

L1437907-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437907-05 12/08/21 12:37 • (MS) R3738466-5 12/08/21 12:47 • (MSD) R3738466-6 12/08/21 12:50

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 %
Arsenic	100	4.00	102	102	97.9	98.4	5	75.0-125			0.543	20

Method Blank (MB)

(MB) R3736142-2 11/27/21 22:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0266	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736142-1 11/27/21 21:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.36	97.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*77.0-120*	

Method Blank (MB)

(MB) R3736423-3 11/30/21 21:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*104*			*75.0-131*
(S) 4-Bromofluorobenzene	*104*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*

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

(LCS) R3736423-1 11/30/21 20:31 • (LCSD) R3736423-2 11/30/21 20:50

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	0.140	0.137	112	110	70.0-123			2.17	20
Ethylbenzene	0.125	0.140	0.138	112	110	74.0-126			1.44	20
Toluene	0.125	0.131	0.125	105	100	75.0-121			4.69	20
1,2,4-Trimethylbenzene	0.125	0.124	0.118	99.2	94.4	70.0-126			4.96	20
1,3,5-Trimethylbenzene	0.125	0.129	0.125	103	100	73.0-127			3.15	20
Xylenes, Total	0.375	0.403	0.401	107	107	72.0-127			0.498	20
(S) Toluene-d8				*106*	*102*	*75.0-131*				
(S) 4-Bromofluorobenzene				*100*	*103*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*113*	*114*	*70.0-130*				

L1435469-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435469-01 12/01/21 02:43 • (MS) R3736423-4 12/01/21 05:13 • (MSD) R3736423-5 12/01/21 05:32

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	0.134	0.142	108	115	1	10.0-149			5.80	37
Ethylbenzene	0.124	ND	0.141	0.151	114	122	1	10.0-160			6.85	38
Toluene	0.124	ND	0.128	0.128	103	103	1	10.0-156			0.000	38
1,2,4-Trimethylbenzene	0.124	ND	0.121	0.123	97.6	99.2	1	10.0-160			1.64	36
1,3,5-Trimethylbenzene	0.124	ND	0.122	0.124	98.4	100	1	10.0-160			1.63	38
Xylenes, Total	0.372	ND	0.398	0.407	107	109	1	10.0-160			2.24	38
(S) Toluene-d8					*106*	*102*		*75.0-131*				
(S) 4-Bromofluorobenzene					*103*	*102*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*112*	*110*		*70.0-130*				

Method Blank (MB)

(MB) R3735863-2 12/01/21 13:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*112*			*75.0-131*
(S) 4-Bromofluorobenzene	*113*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3735863-1 12/01/21 11:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.121	96.8	70.0-123	
Ethylbenzene	0.125	0.110	88.0	74.0-126	
Toluene	0.125	0.106	84.8	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.144	115	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.152	122	73.0-127	
Xylenes, Total	0.375	0.395	105	72.0-127	
(S) Toluene-d8			*96.9*	*75.0-131*	
(S) 4-Bromofluorobenzene			*117*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*114*	*70.0-130*	

Method Blank (MB)

(MB) R3735898-1 12/01/21 09:34

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	0.427	J	0.274	4.00
(S) o-Terphenyl	*64.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3735898-2 12/01/21 09:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.6	65.2	50.0-150	
(S) o-Terphenyl			*78.8*	*18.0-148*	

L1435469-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435469-04 12/01/21 11:31 • (MS) R3735898-3 12/01/21 11:44 • (MSD) R3735898-4 12/01/21 11:57

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	50.0	21.7	46.2	50.7	49.0	58.4	1	50.0-150	J6		9.29	20
(S) o-Terphenyl					*57.5*	*57.9*		*18.0-148*				

Method Blank (MB)

(MB) R3736966-2 12/02/21 09:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	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
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*54.6*			*14.0-149*
(S) 2-Fluorobiphenyl	*77.6*			*34.0-125*
(S) p-Terphenyl-d14	*96.2*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3736966-1 12/02/21 09:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0656	82.0	50.0-126	
Acenaphthene	0.0800	0.0656	82.0	50.0-120	
Acenaphthylene	0.0800	0.0693	86.6	50.0-120	
Benzo(a)anthracene	0.0800	0.0633	79.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0529	66.1	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0595	74.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0578	72.3	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0604	75.5	49.0-125	
Chrysene	0.0800	0.0641	80.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0534	66.8	47.0-125	
Fluoranthene	0.0800	0.0638	79.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3736966-1 12/02/21 09:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0624	78.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0557	69.6	46.0-125	
Naphthalene	0.0800	0.0617	77.1	50.0-120	
Phenanthrene	0.0800	0.0655	81.9	47.0-120	
Pyrene	0.0800	0.0655	81.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0592	74.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0560	70.0	50.0-120	
2-Chloronaphthalene	0.0800	0.0640	80.0	50.0-120	
(S) Nitrobenzene-d5			*59.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*83.0*	*34.0-125*	
(S) p-Terphenyl-d14			*102*	*23.0-120*	

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
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.
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.

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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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 [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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**

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **PCU T73-11G**

City/State Collected: **Pieance Crk, CO**

Phone: (949)374-2506
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

Collected by (print): K. MOKELAIVI

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature): K. Mokelaivi

Immediately Packed on Ice N ___ Y ___ X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	Remarks	Sample # (lab only)
20211119-PCU T73-11G (BGW)	Grab	SS		11/19/21	1320	3			X	X	X	X		-01
20211119-PCU T73-11G (BGW) @ 6"-1'					1325									-02
20211119-PCU T73-11G (BGS)					1335									-03
20211119-PCU T73-11G (BGS) @ 6"-1'					1340									-04
20211119-PCU T73-11G (BGE)					1350									-05
20211119-PCU T73-11G (BGE) @ 6"-1'					1355									-06
20211119-PCU T73-11G (BGN) @ 6"-1'					1405									-07
20211119-PCU T73-11G (BGN)					1400									-08

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

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

L # L1435169
B191

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* 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 # 5016 1232 0206

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:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
	11/23/21	1200		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: DRAFT 2.7 +0 = 2.7 Bottles Received: 24
	11/23/21	1500		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/24/21 Time: 915

If preservation required by Login: Date/Time

Hold: Condition: NCF / (OK)

ANALYTICAL REPORT

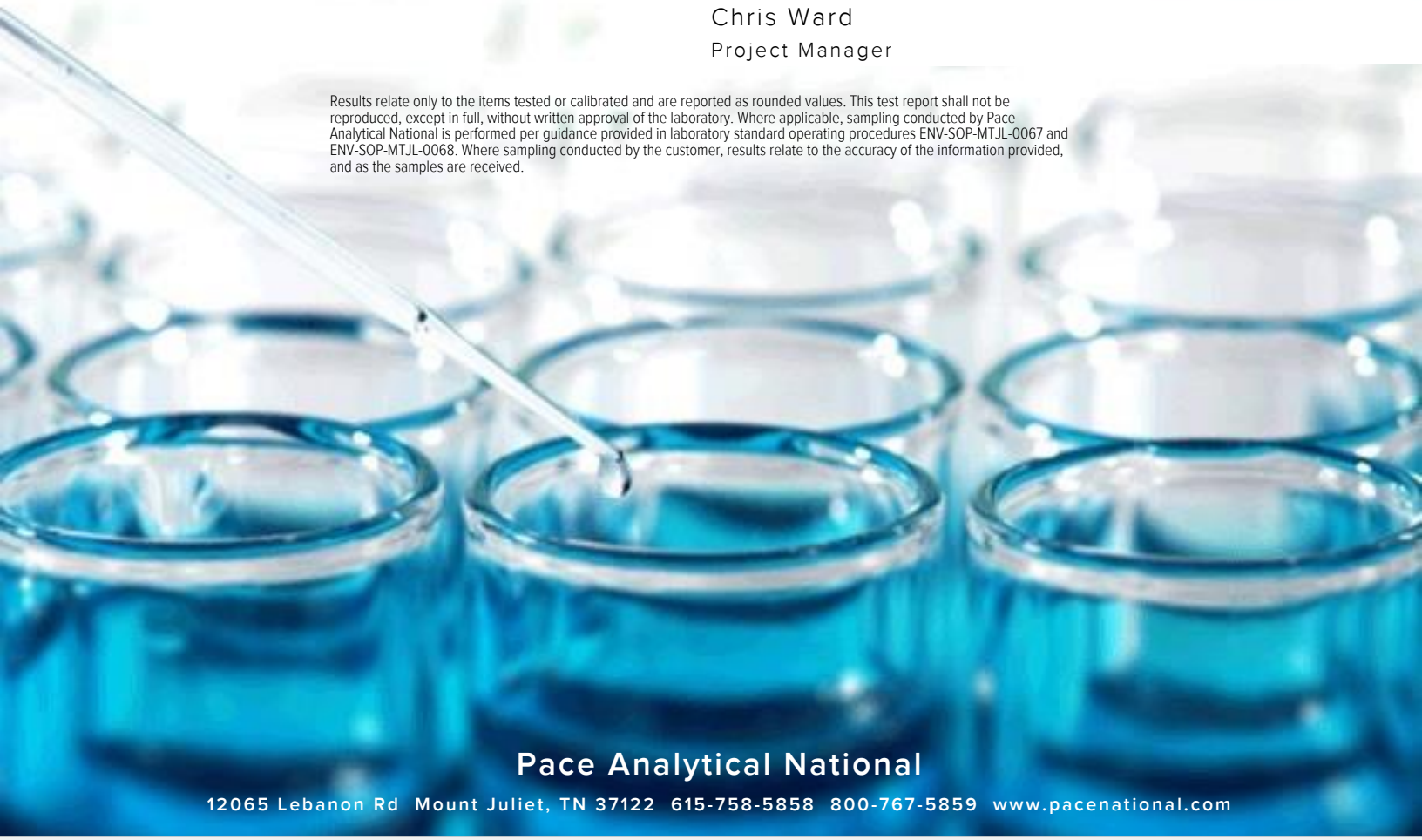
May 23, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1493511
Samples Received:	05/13/2022
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

20220509-T73-11G (BG-NW) L1493511-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/09/22 13:00
Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1863789	1	05/22/22 17:59	05/22/22 17:59	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1865950	1	05/19/22 10:45	05/19/22 10:50	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1866299	1	05/20/22 08:08	05/20/22 16:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1865222	1	05/17/22 16:13	05/18/22 11:29	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1863790	1	05/19/22 14:57	05/22/22 16:40	CCE	Mt. Juliet, TN

20220509-T73-11G (BG-N2) L1493511-02 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/09/22 13:45
Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1863789	1	05/22/22 18:02	05/22/22 18:02	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1865950	1	05/19/22 10:45	05/19/22 10:50	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1866299	1	05/20/22 08:08	05/20/22 16:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1865222	1	05/17/22 16:13	05/18/22 11:32	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1863790	1	05/19/22 14:57	05/22/22 16:43	CCE	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	0.280		1	05/22/2022 17:59	WG1863789

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	T8	1	05/19/2022 10:50	WG1865950

Sample Narrative:

L1493511-01 WG1865950: 8.22 at 22.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	176		10.0	1	05/20/2022 16:22	WG1866299

Sample Narrative:

L1493511-01 WG1866299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.14		0.518	2.00	1	05/18/2022 11:29	WG1865222

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.227		0.0167	0.200	1	05/22/2022 16:40	WG1863790

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.196		1	05/22/2022 18:02	WG1863789

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	05/19/2022 10:50	WG1865950

Sample Narrative:
L1493511-02 WG1865950: 8 at 22.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	194		10.0	1	05/20/2022 16:22	WG1866299

Sample Narrative:
L1493511-02 WG1866299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.16		0.518	2.00	1	05/18/2022 11:32	WG1865222

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.310		0.0167	0.200	1	05/22/2022 16:43	WG1863790

L1493504-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493504-01 05/19/22 10:50 • (DUP) R3793916-2 05/19/22 10:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.41	8.48	1	0.829		1

Sample Narrative:

OS: 8.41 at 22.3C

DUP: 8.48 at 22.3C

L1493648-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493648-01 05/19/22 10:50 • (DUP) R3793916-3 05/19/22 10:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.97	7.98	1	0.125		1

Sample Narrative:

OS: 7.97 at 22.9C

DUP: 7.98 at 22.9C

Laboratory Control Sample (LCS)

(LCS) R3793916-1 05/19/22 10:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22.6C

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

Method Blank (MB)

(MB) R3794359-1 05/20/22 16:22

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

L1493441-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493441-01 05/20/22 16:22 • (DUP) R3794359-3 05/20/22 16:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	934	929	1	0.537		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1493667-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493667-01 05/20/22 16:22 • (DUP) R3794359-4 05/20/22 16:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	310	359	1	14.6		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3794359-2 05/20/22 16:22

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	286	107	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3793358-1 05/18/22 10:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00

Laboratory Control Sample (LCS)

(LCS) R3793358-2 05/18/22 10:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.2	97.2	80.0-120	

L1493729-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493729-02 05/18/22 10:55 • (MS) R3793358-5 05/18/22 11:03 • (MSD) R3793358-6 05/18/22 11:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.5	3.03	108	107	105	104	1	75.0-125			1.40	20

Method Blank (MB)

(MB) R3794739-1 05/22/22 16:27

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) R3794739-2 05/22/22 16:29 • (LCSD) R3794739-3 05/22/22 16:32

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	1.01	0.999	101	99.9	80.0-120			1.26	20

GLOSSARY OF TERMS

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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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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

Pace Analytical® National Center for Testing & Innovation

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: **PCU T73-11G**

City/State Collected: **Pieance Crk, CO**

Phone:
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

L # L1493511
A104

Collected by (print): Kevin Fletcher

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature):

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
____ Same Day ____ Five Day
____ Next Day ____ 5 Day (Rad Only)
____ Two Day ____ 10 Day (Rad Only)
____ Three Day

Quote #

~~Date Results Needed~~
Standard TAT

Acctnum:
Template:
Prelogin:
TSR:
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	BTEX	TABLE 915-1- PAH's	SAR, EC, pH, Boron	TABLE 915-1- Metals	Arsenic	Remarks	Sample # (lab only)
20220509-T73-11G(BG-NW)	Grab	SS		5/9/22	1300	2				X		X		-01
20220509-T73-11G(BG-N2)	Grab	SS		5/9/22	1345	2				X		X		-02

* 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 # 5755 8084 8766

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:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	5/11/22	1300		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	5/11/22	1500		0.9+0=0.9 4
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				5/13/22 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

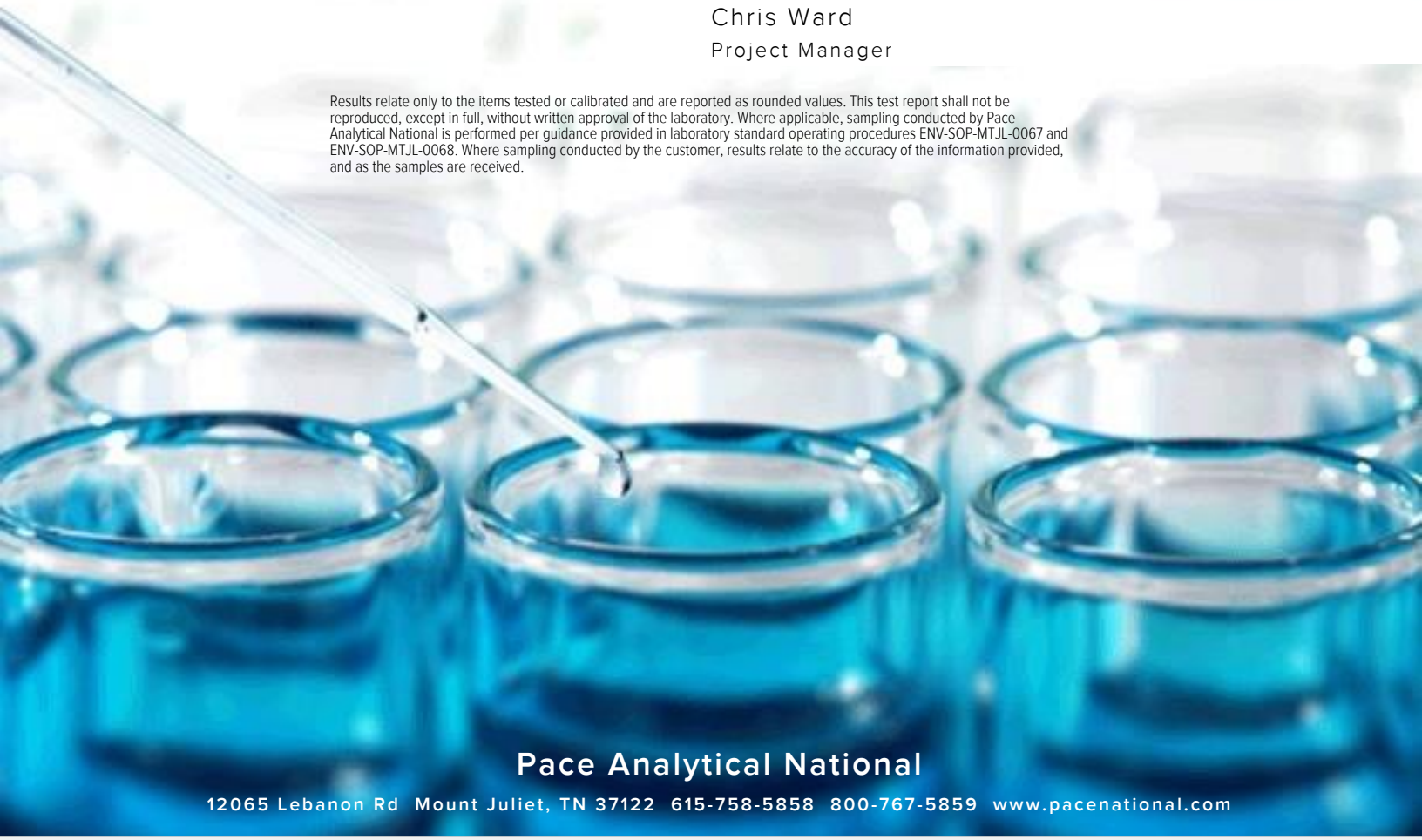
May 23, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1493539
Samples Received:	05/13/2022
Project Number:	T73-11G
Description:	PCU T73-11G
Site:	T73-11G
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

20220510-T73-11G (BG-S2) @ 2' L1493539-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 05/10/22 12:35
Received date/time: 05/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1863789	1	05/22/22 18:04	05/22/22 18:04	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1865950	1	05/19/22 10:45	05/19/22 10:50	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1866299	1	05/20/22 08:08	05/20/22 16:22	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1865222	1	05/17/22 16:13	05/18/22 11:35	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1863790	1	05/19/22 14:57	05/22/22 16:46	CCE	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	0.238		1	05/22/2022 18:04	WG1863789

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.94	T8	1	05/19/2022 10:50	WG1865950

Sample Narrative:

L1493539-01 WG1865950: 7.94 at 22.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	252		10.0	1	05/20/2022 16:22	WG1866299

Sample Narrative:

L1493539-01 WG1866299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.08		0.518	2.00	1	05/18/2022 11:35	WG1865222

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.109	J	0.0167	0.200	1	05/22/2022 16:46	WG1863790

L1493504-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493504-01 05/19/22 10:50 • (DUP) R3793916-2 05/19/22 10:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.41	8.48	1	0.829		1

Sample Narrative:

OS: 8.41 at 22.3C

DUP: 8.48 at 22.3C

L1493648-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493648-01 05/19/22 10:50 • (DUP) R3793916-3 05/19/22 10:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.97	7.98	1	0.125		1

Sample Narrative:

OS: 7.97 at 22.9C

DUP: 7.98 at 22.9C

Laboratory Control Sample (LCS)

(LCS) R3793916-1 05/19/22 10:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 22.6C

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

Method Blank (MB)

(MB) R3794359-1 05/20/22 16:22

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

L1493441-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493441-01 05/20/22 16:22 • (DUP) R3794359-3 05/20/22 16:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	934	929	1	0.537		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1493667-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1493667-01 05/20/22 16:22 • (DUP) R3794359-4 05/20/22 16:22

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	310	359	1	14.6		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3794359-2 05/20/22 16:22

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	286	107	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3793358-1 05/18/22 10:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00

Laboratory Control Sample (LCS)

(LCS) R3793358-2 05/18/22 10:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.2	97.2	80.0-120	

L1493729-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1493729-02 05/18/22 10:55 • (MS) R3793358-5 05/18/22 11:03 • (MSD) R3793358-6 05/18/22 11:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.5	3.03	108	107	105	104	1	75.0-125			1.40	20

Method Blank (MB)

(MB) R3794739-1 05/22/22 16:27

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) R3794739-2 05/22/22 16:29 • (LCSD) R3794739-3 05/22/22 16:32

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	1.01	0.999	101	99.9	80.0-120			1.26	20

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.
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Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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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.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
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California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
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Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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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

Pace Analytical® National Center for Testing & Innovation

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: **PCU T73-11G**

City/State Collected: **Pieance Crk, CO**

Phone:
Fax:

Client Project # **T73-11G**

Lab Project # **T73-11G**

L # L1493539

A101

Collected by (print): Kevin Fletcher

Site/Facility ID # **T73-11G**

P.O. # **T73-11G**

Collected by (signature):

Quote #

Acctnum:
Template:
Prelogin:
TSR:
PB:

Shipped Via:

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
____ Same Day ____ Five Day
____ Next Day ____ 5 Day (Rad Only)
____ Two Day ____ 10 Day (Rad Only)
____ Three Day

Date Results Needed: **Standard TAT**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	Arsenic	Remarks	Sample # (lab only)
20220510-T73-11G (BG-S2) @2'	Grab	SS		5/10/22	1235	2				X		X		-01

* 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 #

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:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Sign for Kevin Fletcher	5/11/22	1300		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.1 °C Bottles Received: 2
	5/11/22	1500		0.9+0=0.9
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				5/13/22 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ENCLOSURE B – OPERATORS KNOWLEDGE

Complete Water Analysis

Customer:	**CAERUS OPERATING LLC**	Equipment Description:	**Black Sulfur Facility**	Collection Date:	**09/14/2021**
Geographic Region:	**Piceance Field**	Sample Point:	**Outlet**	Receive Date:	**09/16/2021**
Geographic Location:	**N/A**	Sample ID:	**AS03814**	Report Date:	**09/17/2021**
System Description:	**Production System**	Account Rep:	**stsevere@championx.com**	Location Code:	**474107**

Field Analysis

Analysis	Result		Analysis Method
Bicarbonate	**1586.00**	mg/L	Titration
Carbonate	**Not Detected**	mg/L	
Dissolved CO2	**22.00**	mg/L	
Dissolved H2S	**1.00**	mg/L	
Pressure Surface	**1**	psi	
Temperature	**70**	° F	
pH of Water	**6.81**		

Sample Analysis

Analysis	Result		Analysis Method
Specific Gravity	**1.0084**		
Ionic Strength	**0.17**	mol/L	
Total Dissolved Solids	**10480**	mg/L	

Cations - Analyzed By ICP

Iron	**16.800**	mg/L	Potassium	**38.300**	mg/L	Cobalt	**<0.050**	mg/L
Manganese	**0.191**	mg/L	Boron	**26.300**	mg/L	Chromium	**<0.050**	mg/L
Barium	**18.600**	mg/L	Lithium	**3.980**	mg/L	Silicon	**54.900**	mg/L
Strontium	**12.500**	mg/L	Copper	**<0.050**	mg/L	Aluminum	**0.354**	mg/L
Calcium	**53.600**	mg/L	Nickel	**<0.100**	mg/L	Molybdenum	**<0.050**	mg/L
Magnesium	**5.440**	mg/L	Zinc	**0.318**	mg/L	Phosphorus	**2.560**	mg/L
Sodium	**3630.00**	mg/L	Lead	**<0.200**	mg/L	Measured Sodium	**3630.000**	mg/L

Anions - Analyzed By IC

Fluoride	**<2.550**	mg/L	Bromide	**37.585**	mg/L
Chloride	**4984.292**	mg/L	Sulfate	**8.012**	mg/L

Scale Type

Anhydrite CaSO4 PTB	N/A	**Anhydrite CaSO4 SI**	-4.21
Barite BaSO4 PTB	4.8	**Barite BaSO4 SI**	0.80
Calcite CaCO3 PTB	N/A	**Calcite CaCO3 SI**	-0.55
Celestite SrSO4 PTB	N/A	**Celestite SrSO4 SI**	-2.38
Gypsum CaSO4 PTB	N/A	**Gypsum CaSO4 SI**	-3.82
Hemihydrate CaSO4 PTB	N/A	**Hemihydrate CaSO4 SI**	-3.62

Comments

Outlet

Scaling predictions calculated using Oddo-Tomson model