VIA ELECTRONIC MAIL –

December 27, 2021

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

Subject: **Facility Decommissioning 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, confirmation, and background soil sampling associated with the decommissioning of production well USA PICANCE CREEK #T73-11G. These investigation activities were completed at the USA PICEANCE CREEK T73-11G (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*. The Site is located in Caerus' Piceance Creek area of operation in Rio Blanco, Colorado (Figure 1).

SOIL SAMPLING ACTIVITIES

On November 19, 2021, WSP personnel completed soil screening, confirmation, and background soil sampling activities associated with the decommissioning of the USA PICANCE CREEK #T73-11G production well. The wellhead abandonment confirmation soil sampling and the background soil sampling were conducted by a WSP geologist who inspected the soil for the presence or absence of petroleum hydrocarbon odor/staining. Using a spade shovel, the geologist screened the sidewalls and the base of the wellhead abandonment excavation for potential hydrocarbon impacts. The areas which exhibited the highest degree of impact based on visual and olfactory observations along the wellhead abandonment excavation base and sidewalls were field screened using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors in the soil headspace. The screening depths within the wellhead abandonment excavation ranged from 4 feet below ground surface (bgs) to 5.5 feet bgs. Based on field screening values, and onsite observations, one base soil sample was collected immediately adjacent to the USA PICANCE CREEK #T73-11G production wellhead at 5.5 feet bgs (20211119-PCU T73-11G(BASE)@5.5') and four wall confirmation samples (20211119-PCU T73-11G(NWALL)@4', 20211119- PCU T73-11G(WWALL)@4', 20211119-PCU T73-11G(EWALL)@4', and 20211119-PCU T73-11G(SWALL)@4'). At least six inches of soil was removed from the base and sidewalls of the excavation prior to collecting each confirmation samples to ensure a fresh representative sample were collected. In addition, eight background soil samples were collected from comparable, nearby, non-impacted, native soil per COGCC Rule 915.e.(2). D. Background soil samples were collected from the ground surface and 6 inches to 1-foot bgs. The base soil sample 20211119-PCU T73-11G(BASE)@5.5', the four wall samples, and the eight background 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 Protection of Groundwater Soil Screening Level Concentrations (PGSSLC) milligrams per kilogram (mg/kg) Risk Based (R) and Maximum Concentration Level (MCL) Based (M). The soil screening results are summarized in the enclosed Table 1. A photolog of the wellhead abandonment excavation and field screened areas is included in Enclosure A. Figure 2 illustrates the wellhead excavation extent, confirmation, and background soil sample locations.

ANALYTICAL RESULTS

Laboratory analytical results of all confirmation soil samples collected from the wellhead abandonment excavation base and sidewalls indicate exceedances of COGCC Table 915-1 PGSSLC (M) for arsenic and barium. Arsenic exceedances range from 2.80 mg/kg in soil sample 20211119-PCU T73-11G(BASE)@5.5' to 3.72 mg/kg in soil sample 20211119-PCU T73-11G(NWALL)@4'. Barium exceedances range from 197 mg/kg in soil sample 20211119-PCU T73-11G(WWALL)@4' to 267 mg/kg in soil sample 20211119-PCU T73-11G(BASE)@5.5'. Confirmation soil samples 20211119-PCU T73-11G(BASE)@5.5', 20211119-PCU T73-11G(NWALL)@4', 20211119-PCU T73-11G(EWALL)@4', and 20211119-PCU T73-11G(SWALL)@4'exceed PGSSLC (M) for lead with concentrations ranging from 14.6 mg/kg in soil sample 20211119-PCU T73-11G(SWALL)@4' to 51.6 mg/kg in soil sample 20211119-PCU T73-11G(BASE)@5.5'. Wellhead abandonment confirmation soil samples 20211119-PCU T73-11G(BASE)@5.5' and 20211119-PCU T73-11G(NWALL)@4' also exceed the COGCC Table 915-1 Cleanup Concentrations (CC) for total petroleum hydrocarbon (TPH) (1,480.98 mg/kg and 2,068 mg/kg), the COGCC Table 915-1 PGSSLC (M) for cadmium (2.74 mg/kg and 0.654 mg/kg), COGCC Table 915-1 PGSSLC (R) for 1,2,4-trimethylbenzene (0.00915 mg/kg and 13.4 mg/kg), 1,3,5-trimethylbenzene (0.454 mg/kg and 12.8 mg/kg), 2-methylnapthalene (0.0678 mg/kg and 2.62 mg/kg), and naphthalene (0.0708 mg/kg and 0.868 mg/kg). Confirmation soil sample 20211119-PCU T73-11G(EWALL)@4' is in exceedance of the COGCC PGSSLC (M) for copper at 181 mg/kg and (R) benzo(A)anthracene at 0.0168 mg/kg. The base sample 20211119-PCU T73-11G(BASE)@5.5' is in exceedance of the PGSSLC (R) for benzo(A)anthracene and benzo(B)anthracene with concentrations of 0.436 mg/kg and 0.453 mg/kg, respectively. Confirmation soil sample 20211119-PCU T73-11G(NWALL)@4' is in exceedance of the PGSSLC (M) for total xylenes with a concentration of 24.7 mg/kg. Soil samples 20211119-PCU T73-11G(BASE)@5.5', 20211119-PCU T73-11G(NWALL)@4', 20211119-PCU T73-11G(WWALL)@4'are in exceedance of the COGCC PGSSLC (R) for 1-methylnapthalene with concentrations ranging from 0.0551 mg/kg in soil sample 20211119-PCU T73-11G(WWALL)@4' to 0.971 mg/kg in confirmation soil sample 20211119-PCU T73-11G(NWALL)@4'. Lastly, all wellhead abandonment confirmation soil samples collected are in exceedance of the COGCC Table 915-1 CC value for pH with values ranging from 8.36 in soil sample 20211119-PCU T73-11G(SWALL)@4' to 8.69 soil samples 20211119-PCU T73-11G(WWALL)@4' and 20211119-PCU T73-11G(NWALL)@4'.

Laboratory analytical results of the background soil samples collected from native undisturbed soils indicate exceedances of COGCC Table 915-PGSSLC (M) for arsenic and barium. Arsenic exceedances range from 2.14 mg/kg (20211119-PCU T73-11G(BGE)) to 3.99 mg/kg ((20211119-PCU T73-11G(BGE)@6''-1') and barium exceedances range from 157 mg/kg (20211119-PCU T73-11G(BGS)@6"-1') and 269 mg/kg (20211119-PCU T73-11G(BGW)@6"-1'). All other analytes were either below the laboratory detection limit or within the COGCC Table 915-1 PGSSLCs. The soil analytical results are summarized in the enclosed Table 2. The laboratory analytical report is provided in Enclosure B.

CONCLUSIONS

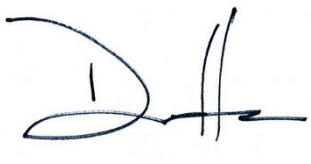
Based on the analytical data provided in the initial assessment sampling, there are remaining COGCC Table 915-1 exceedances of TPH, total xylenes, benzo(A)anthracene, benzo(B)anthracene 1,2,4- trimethylbenzene, 1,3,5 trimethylbenzene, 1-methylnapthalene, 2-methylnapthalene, naphthalene, cadmium, copper, lead, and pH associated with the wellhead abandonment excavation. Exceedances of arsenic and barium are also documented within the wellhead abandonment excavation but are within background concentrations documented at the Site. WSP recommends that Caerus continue with excavation and source removal of soils from the wellhead abandonment excavation. Additional excavation and source removal should extend beyond the current excavation base (5.5 feet bgs) to remove vertical impacts from the former wellhead area. Lateral excavation should focus on the north, west, and east walls as the majority of COGCC Table 915-1 exceedances are documented within these three areas. The south wall is generally compliant with the COGCC Table 915-1 PGSSLC with minor exceedances of lead of 0.6 mg/kg over the (M) concentration level and pH 0.06 over the CC. Clean up excavation work will be performed along the south wall to remove these exceedances as well.

Following the excavation and source removal activities, additional confirmation soils samples will be collected along the excavation base and sidewalls to confirm contaminants have been removed. WSP recommends that Caerus

request the COGGC Director to sample under a reduced analytical suite for all future samples of pH, TPH, total xylenes, benzo(A)anthracene, benzo(B)anthracene 1,2,4- trimethylbenzene, 1,3,5 trimethylbenzene, 1-methylnapthalene, 2-methylnapthalene, naphthalene, cadmium, copper, and lead.

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

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

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

Encl.

FIGURES

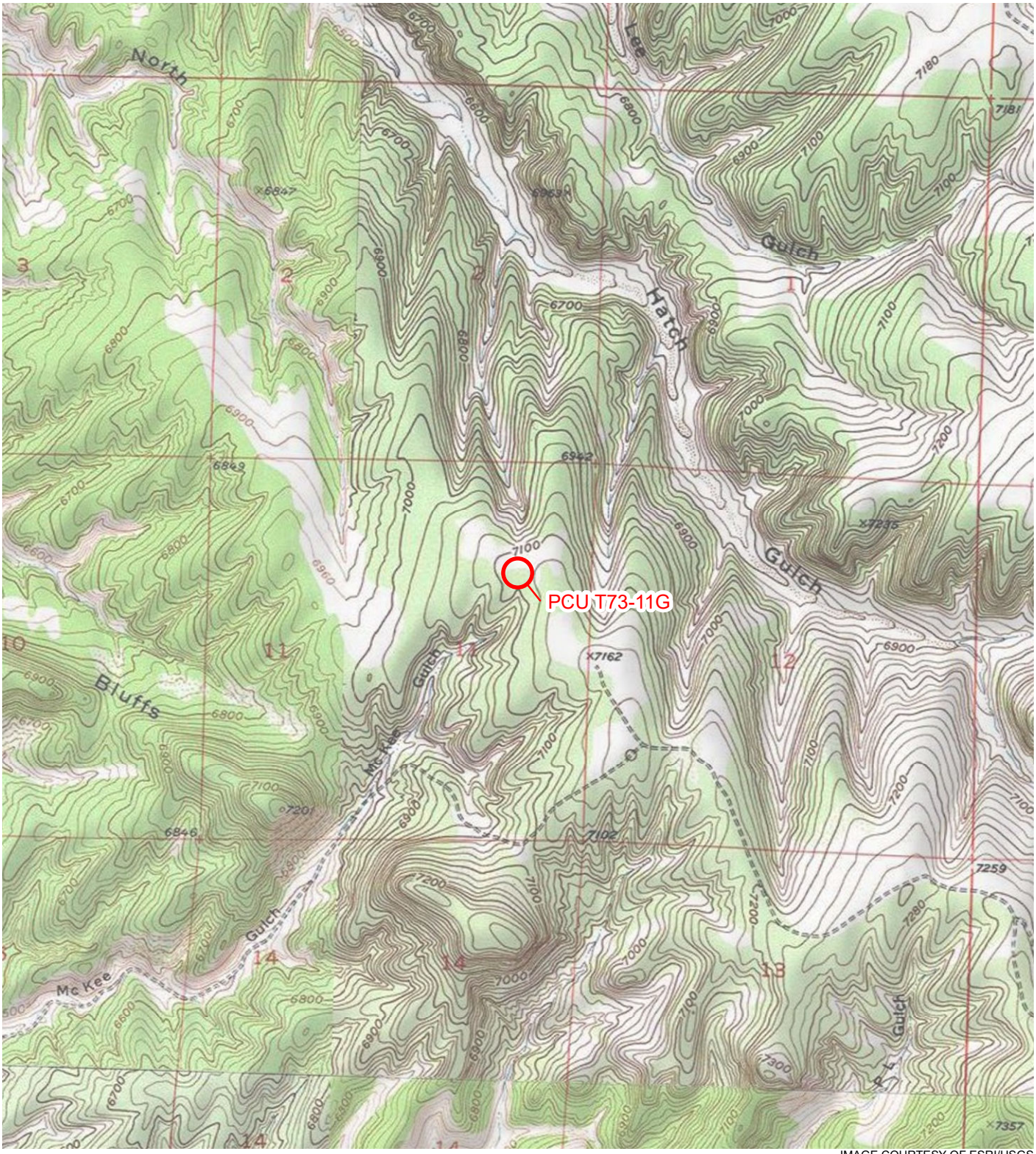


IMAGE COURTESY OF ESRI/USGS

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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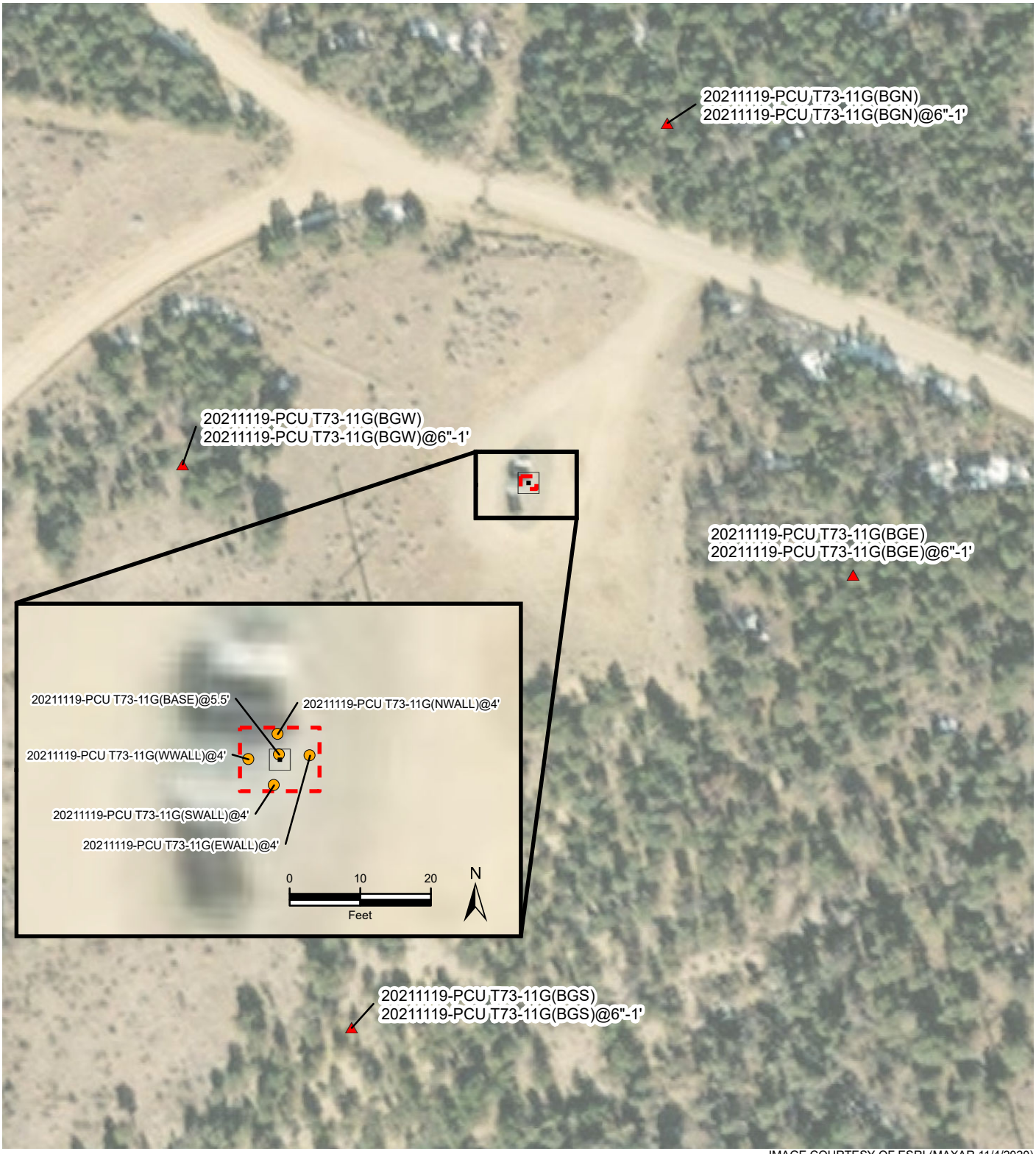

IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- SOIL SAMPLE
- BACKGROUND SOIL SAMPLE
- WELLHEAD
- EXCAVATION EXTENT

0 100 200
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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TABLES

TABLE 1

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

Sample ID	PID (ppm)	Notes	Submitted COGCC Table 915-1
20211119 – PCU T73-11G (BASE) @ 5.5’	83.5	Staining, hydrocarbon odor	Yes
20211119 – PCU T73-11G (NWALL) @ 4’	904.5	Staining, hydrocarbon odor	Yes
20211119 – PCU T73-11G (EWALL) @ 4’	12.3	Hydrocarbon odor	Yes
20211119 – PCU T73-11G (SWALL) @ 4’	149.5	No hydrocarbon odor	Yes
20211119 – PCU T73-11G (WWALL) @ 4’	146.6	Hydrocarbon odor	Yes

Notes:
PID: photoiziation detector
ppm: parts per million
COGCC - Colorado Oil and Gas Conservation Commission

TABLE 2

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

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 s
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

TABLE 2

SOIL ANALYTICAL RESULTS
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 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'	20211119-PCU T73-11G(BGN)	20211119-PCU T73-11G(BGN)@6"-1'
Sample Date			11/19/2021	11/19/2021	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	0.5	0.5-1
Sample Type			Background	Background	Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**3.44**	**3.06**	**2.94**	**3.12**	**2.14**	**3.99**	**3.00**	**2.60**
Barium	15,000	82 (M)	**250**	**269**	**158**	**157**	**173**	**198**	**187**	**182**
Boron	2	2	0.237	0.307	0.365	0.355	0.200	0.298	ND	ND
Cadmium	71	0.38 (M)	ND	ND	ND	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Copper	3,100	46 (M)	11.0	12.3	12.0	12.0	8.29	9.37	8.86	8.71
Lead	400	14 (M)	12.8	11.7	9.57	9.88	11.9	10.7	12.0	10.7
Nickel	1,500	26 (R)	13.3	13.9	11.6	11.4	9.19	11.6	10.1	10.0
Selenium	390	0.26 (M)	ND	ND	ND	ND	ND	ND	ND	ND
Silver	390	0.8 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	37.5	38.6	29.5	30.7	28.2	32.4	31.3	29.3
EC	<4	<4	0.157	0.269	0.245	0.220	0.0541	0.0516	0.141	0.149
pH	6 - 8.3	6 - 8.3	7.40	7.99	8.00	7.98	7.09	7.21	7.86	7.82
SAR	<6	<6	0.171	0.165	0.152	0.173	0.100	0.166	0.190	0.255
TPH-GRO			0.171	ND	ND	ND	0.109	ND	0.102	ND
TPH-DRO			22.9	19.3	16.7	21.7	10.8	34.5	14.5	10.7
TPH-ORO			25.9	27.4	27.8	30.4	30.8	35.5	34.7	22.2
TPH	500	500	48.971	46.7	44.5	52.1	41.7	70.0	49.300	32.9
Benzene	1.2	0.0026 (M)	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	ND	ND	ND	ND	0.00515	ND	ND	ND
Total Xylenes	58	9.9 (M)	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	1,800	5.8 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	110	9 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	ND	ND	0.00657	ND	ND	ND	ND	ND
Fluorene	240	0.54 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	ND	ND	ND	ND	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	ND	ND	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	ND	ND	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
mg/l - milligrams per liter
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TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

ENCLOSURE A – SOIL SCREENING PHOTOLOG

PHOTOGRAPHIC LOG		
Caerus Oil and Gas LLC	**PCU T73-11G Closure Screening**	**31403501.017**

Photo No.	**Date**
1	November 19, 2021

PCU T73-11G wellhead decommissioning excavation overview;
View northeast.

Photo No.	**Date**
2	November 19, 2021

View of north excavation wall;
View north

PHOTOGRAPHIC LOG		
Caerus Oil and Gas LLC	**PCU T73-11G Closure Screening**	**31403501.017**

Photo No.	**Date**
3	November 19, 2021

View of east excavation wall;
View east

Photo No.	**Date**
4	November 19, 2021

View of floor excavation;
View east

PHOTOGRAPHIC LOG		
Caerus Oil and Gas LLC	**PCU T73-11G Closure Screening**	**31403501.017**

Photo No.	**Date**
5	November 19, 2021

View of south excavation wall; View south

Photo No.	**Date**
6	November 19, 2021

View of west excavation wall; View west

ENCLOSURE B – LABORATORY ANALYTICAL RESULTS

ANALYTICAL REPORT

December 21, 2021

Revised Report

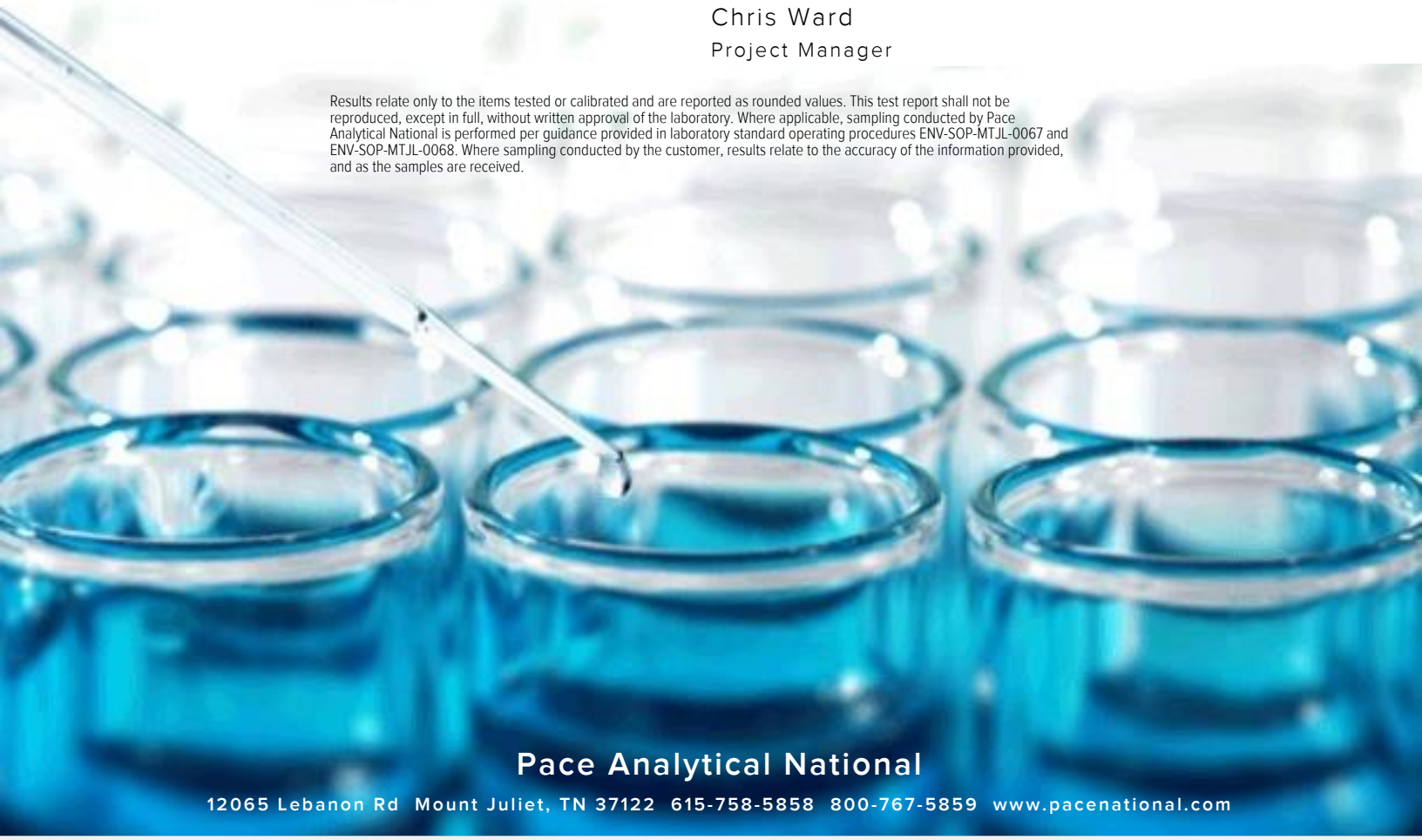
Caerus Oil and Gas

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



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

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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

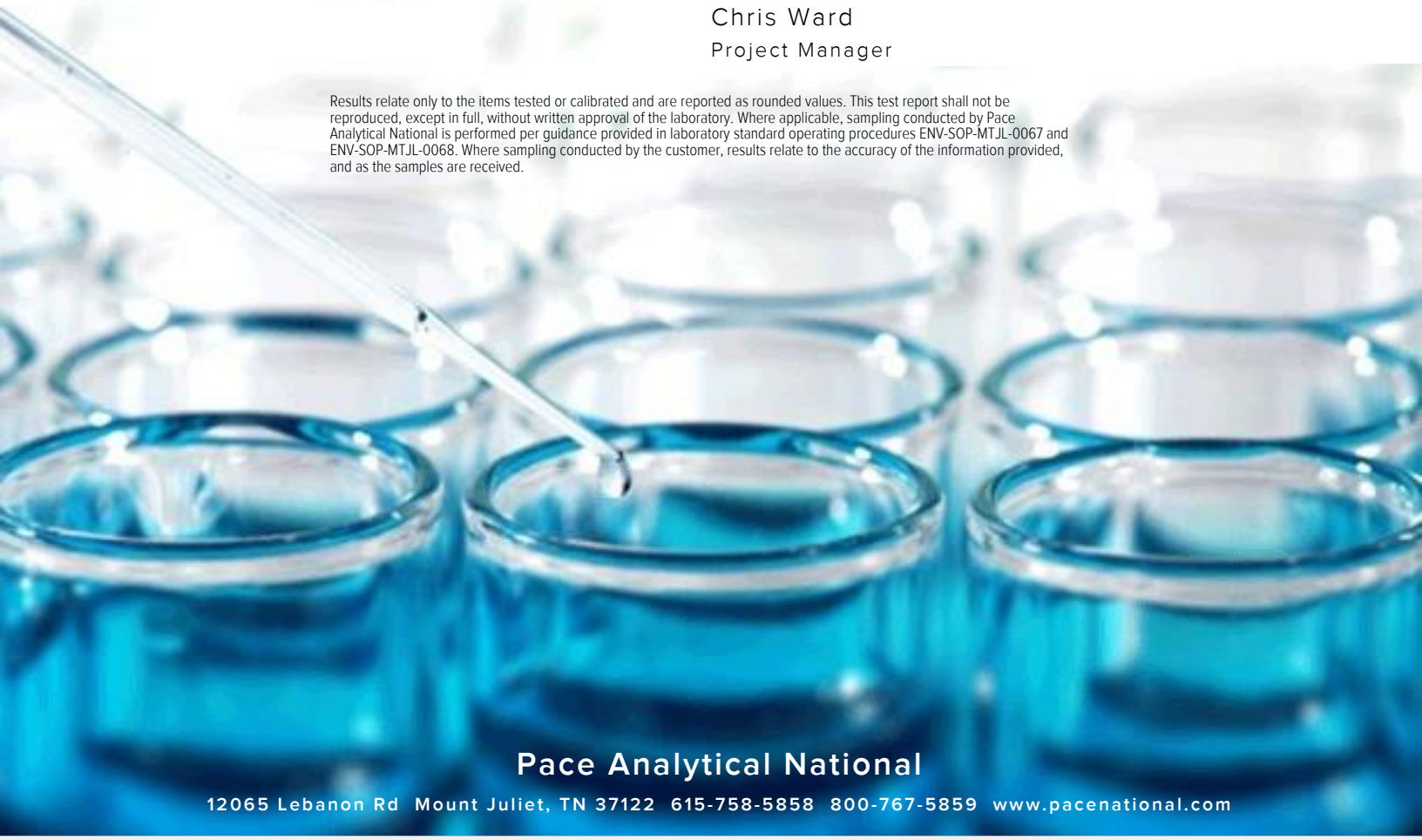
December 20, 2021

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

TABLE OF CONTENTS

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)