July 15, 2022

Mr. Blair Rollins
EHS Specialist
Caerus Operating LLC
143 Diamond Ave.
Parachute, CO 81635

REPORT OF WORK COMPLETED

Project Name: P27-595 1C-34 Flowline Release
COGCC Spill/Release Point ID: 482066
Well Name (API#): 05-045-20289
Legal Description: SESE Sec. 27, T5S-R95W, Garfield County
Location (Lat/Long): 39.579295, -108.033164

On behalf of Caerus Operating LLC (Caerus), Campos EPC (CEPC) has prepared this Report of Work Completed (ROWC) to document recent assessment activities at the P27-595 well pad (Site). This ROWC provides background and purpose of the assessment, methodology, summarized results, and recommendations for additional action. Attachments to this ROWC include field notes, Site exhibit, soil analytical data table and laboratory report.

BACKGROUND

The Site is approximately 9 miles north of Parachute, CO. Land use is primarily high mountain desert rangeland and oil and gas operations. Lithology consists mostly of Rock outcrop - Torriorthents complex on severe slopes. The Site is situated in a narrow canyon with surrounding topography sloping toward the Site from the east and the west. The nearest watercourse is the East Fork Parachute Creek, situated approximately 150 feet (ft) west of the Site. Depth to groundwater is estimated to be approximately 50-100 ft in the vicinity of the Site.

On April 21, 2022, the lease operator identified a potential issue through trending data, then mobilized to the Site and confirmed a flowline release associated with the 1C-34 well. The well was immediately shut-in and an Initial Form 19 (Doc# 403023550) was submitted to the Colorado Oil and Gas Conservation Commission (COGCC).

METHODOLOGY

On April 26, 2022 CEPC personnel conducted initial soil and surface water sampling at the Site. Two soil samples were collected at six ft below ground surface (bgs) from excavations at the wellhead and associated production unit where damaged piping was identified along the flowline. Visual inspection and field screening via Photo Ionization Detector (PID) were completed. Two background soil samples were collected from undisturbed, native areas north and south of the Site. Hand tools with strict decontamination methods were used to collect all soil samples. Additionally, one surface water sample was collected from East Fork Parachute Creek at a location hydrologically downgradient from the Site. All samples were collected in laboratory provided jars, immediately packed on ice, and shipped via courier to Pace Analytical for laboratory analysis of COGCC Table 915-1 constituents. A Trimble RTX data collector was used to survey GPS locations for all samples and pertinent features and an Autel Evo II drone was used to collect updated imagery of the Site.

On May 18, 2022, CEPC personnel returned to the Site with a hydro-vac truck operated by a subcontractor (WCO) to delineate and remove impacted soils adjacent to the wellhead. Visual inspection and field screening via PID were completed to direct hydro-vac excavation. Four sidewall samples were collected from eight ft bgs and one base sample was collected from the excavation at nine ft bgs. Hand tools with strict decontamination

methods were used to collect all soil samples. All samples were collected in laboratory provided jars, immediately packed on ice, and shipped via courier to Pace Analytical for laboratory analysis of COGCC Table 915-1 constituents. A Trimble RTX data collector was used to survey GPS locations for all samples.

On May 24, 2022, CEPC personnel returned to the Site with a hydro-vac truck operated by a subcontractor (WCO) to delineate and remove impacted soils adjacent to the production unit. Visual inspection and field screening via PID were completed to direct hydro-vac excavation. Five sidewall samples were collected from eight to nine ft bgs and one base sample was collected from the excavation at 12 ft bgs. Hand tools with strict decontamination methods were used to collect all soil samples. All samples were collected in laboratory provided jars, immediately packed on ice, and shipped via courier to Pace Analytical for laboratory analysis of COGCC Table 915-1 constituents. A Trimble RTX data collector was used to survey GPS locations for all samples.

RESULTS

Field screening results from the initial assessment on April 26, 2022, indicated PID readings of 260 parts per million (ppm) at the wellhead excavation and 403.5 ppm at the production unit excavation. Laboratory results from the wellhead excavation (sample ID: 20220426-P27-595(POR01)@6') indicated exceedances of COGCC Table 915-1 Protection of Groundwater Soil Screening Level (SSL) Concentrations (applicable standard) for Total Petroleum Hydrocarbons (TPH), Benzene and Toluene, Semi-volatile Organic Compounds (SVOCs), Sodium Adsorption Ratio (SAR), pH, Arsenic, Barium, and Lead. Laboratory results from the production unit excavation (Sample ID: 20220426-P27-595(POR02)@6') indicated exceedances of applicable standards for TPH, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), SVOCs, Electrical Conductivity (EC), SAR, pH, Boron, Arsenic, Barium, Cadmium, and Lead.

Field screening results from hydro-vac excavation on May 18, 2022, indicated PID readings at the wellhead excavation ranging from 1.0 parts per million (ppm) at the north wall to 83.2 ppm at the base of the excavation. Laboratory results from the wellhead excavation indicated compliance with applicable standards in all base and sidewall samples for TPH and BTEX. Additional laboratory results from the wellhead excavation indicated multiple samples exceed applicable standards for EC, SAR, pH, Arsenic, Barium, Lead, and multiple SVOCs from the base and sidewall samples.

Field screening results from hydro-vac excavation on May 24, 2022, indicated PID readings at the production unit excavation ranging from 18.0 ppm at the east sidewall to 108 ppm at the west sidewall. Laboratory results from the production unit excavation indicated compliance with applicable standards for TPH, BTEX, and Soil Suitability Parameters at the northwest sidewall. Additional laboratory results from the production unit excavation indicated exceedances of applicable standards at the base and four sidewall samples for multiple analytes, including TPH, Benzene, SAR, pH Arsenic, Barium, Lead, and multiple SVOCs.

Laboratory results for background samples indicated naturally occurring elevated concentrations of Arsenic and Barium. Comprehensive analytical data tables and laboratory reports are included as attachments.

CONCLUSION

Based on laboratory results, CEPC concludes that hydrocarbon impacted soils have been removed from the wellhead excavation. To remediate remaining inorganic impacts at the wellhead excavation, CEPC recommends removing additional soils from the excavation and resampling. Additionally, a request to the COGCC for a reduced analytical suite to exclude TPH and BTEX is proposed.

Based on laboratory results for the production unit excavation, CEPC concludes that additional excavation is needed to remove organic and inorganic impacts remaining at the Site.

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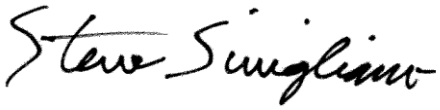
Thank you for the opportunity to support you on this project. Please reach out anytime with questions regarding this report and associated field work.



Steve Sivigliano, CES
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Attachments

- Site Exhibit with sample locations
- Analytical Tables
- Laboratory Reports
- Field Notes and Photos

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CAERUS OPERATING LLC

P27

N. PARACHUTE / EF P27 595

COGCC LOCATION ID: 335806

GARFIELD COUNTY, CO

SESE SEC. 27 T5S-R95W

DRAFTER: AB | DATE: 7/8/2022

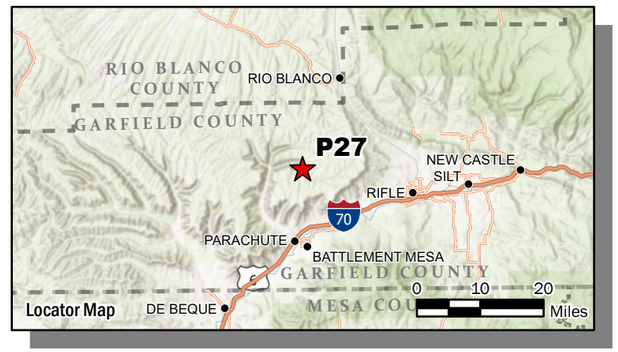
Legend

- Soil Sample Location
- Water Sample

Identifier	Latitude NAD83	Longitude NAD83	Elevation
BASE@12'	39.578739	-108.032548	6645.62 ft
BG-N@2'	39.580349	-108.034120	6529.79 ft
BG-S@3'	39.577906	-108.032654	6563.86 ft
E.WALL@8'	39.579311	-108.033114	6596.29 ft
EWALL@9'	39.578749	-108.032525	6648.86 ft
N.WALL@8'	39.579315	-108.033132	6598.95 ft
NWALL@8'	39.578752	-108.032540	6649.99 ft
NWWALL@8'	39.578762	-108.032561	6647.93 ft

Identifier	Latitude NAD83	Longitude NAD83	Elevation
POR01@6'	39.579305	-108.033136	6595.50 ft
POR01@9'	39.579306	-108.033125	6595.40 ft
POR02@6'	39.578739	-108.032547	6596.14 ft
S.WALL@8'	39.579299	-108.033122	6595.73 ft
SW01	39.580699	-108.035166	6489.89 ft
SWALL@8'	39.578733	-108.032535	6651.86 ft
W.WALL@8'	39.579300	-108.033145	6600.56 ft
WWALL@8'	39.578735	-108.032561	6651.04 ft

COORDINATE SYSTEM
GCS NORTH AMERICAN 1983



SOIL ANALYTICAL RESULTS TABLE
CAERUS OIL AND GAS - P27-595

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Sample Name	ORGANIC COMPOUNDS in mg/kg								SOIL SUITABILITY				METALS in mg/kg								
	GRO	DRO	ORO	TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	Electrical Conductivity (mmhos/cm)	Sodium Adsorption Ratio	pH (su)	Boron-hot water soluble (mg/L)	Arsenic	Barium	Cadmium	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
WELLHEAD EXCAVATION																						
20220426-P27-595(POR01)@6'	291	2460	323	**3,074**	**0.617**	**2.70**	0.213	8.61	1.19	**9.88**	**8.42**	0.664	**14.2**	**1,390**	<0.5	<1.0	28.4	**14.5**	15.1	<2.0	<1.0	50
20220518-P27 (POR01)@9'	1.08	20.7	52	73.78	<0.001	<0.005	<0.0025	<0.0065	1.57	4.96	**8.49**	1.07	**23.2**	**343**	<0.5	<1.0	27	**15.7**	18.2	<2.0	<1.0	51.5
20220518-P27 (E.WALL)@8'	0.196	11.1	44.8	56.10	<0.001	<0.005	<0.0025	<0.0065	0.374	3.38	8.25	0.818	**24.7**	**270**	<0.5	<1.0	19.8	9.18	13.6	<2.0	<1.0	38.1
20220518-P27 (N.WALL)@8'	0.204	33.7	38.1	72.00	<0.001	<0.005	<0.0025	<0.0065	1.67	5.2	7.92	0.906	**14.7**	**233**	<0.5	<1.0	22.3	13.7	16.9	<2.0	<1.0	48.6
20220518-P27(S.WALL)@8'	0.248	15.2	43.9	59.35	<0.001	<0.005	<0.0025	<0.0065	0.591	**6.07**	8.23	1.57	**20.3**	**266**	<0.5	<1.0	25.9	**16.5**	19.2	<2.0	<1.0	51.5
20220518-P27(W.WALL)@8'	0.69	26.5	37.2	64.39	<0.001	<0.005	<0.0025	0.0267	**4.33**	**28.6**	8.01	1.08	**14.1**	**477**	<0.5	<1.0	25.8	13.1	17	<2.0	<1.0	51.6
PRODUCTION UNIT EXCAVATION																						
20220426-P27-595(POR02)@6'	1,220	5,190	276	**6,686**	**0.480**	**6.47**	**1.29**	**15.2**	**4.18**	**34.5**	8.03	**7.39**	**10.3**	**1,350**	**0.504**	<1.0	16.6	11.0	12.3	<2.0	<1.0	38.5
20220524-P27-595(SEP-NWALL)@8'	0.716	221	312	**534**	**0.0171**	0.113	0.0175	0.249	0.632	2.81	**8.39**	<0.2	**20.3**	**2,010**	<0.5	<1.0	22.7	**14.5**	18.2	<2.0	<1.0	50.5
20220524-P27-595(SEP-SWALL)@8'	0.284	85	127	212	**0.0201**	0.122	0.0227	0.316	0.78	**11**	**8.74**	0.376	**16.8**	**388**	<0.5	<1.0	26.1	**16.3**	18.3	<2.0	<1.0	59.8
20220524-P27-595(SEP-EWALL)@8'	0.393	56.8	101	158	**0.00498**	0.0322	0.00965	0.157	0.68	**12.3**	**9.38**	<0.2	**22.5**	**486**	<0.5	<1.0	24.7	11.8	17.6	<2.0	<1.0	56.3
20220524-P27-595(SEP-WWALL)@8'	14.3	219	384	**617**	**0.00537**	0.0203	<0.0025	0.0305	0.814	**14**	**9.23**	<0.2	**26.1**	**289**	<0.5	<1.0	25.3	13.5	18.4	<2.0	<1.0	47.3
20220524-P27-595(SEP-BASE)@12'	45.7	575	43.1	**664**	0.00235	0.00943	<0.0025	0.0537	1.1	**29.2**	**9.1**	0.267	**12.0**	**221**	<0.5	<1.0	21.2	**14.2**	15.2	<2.0	<1.0	46.1
20220524-P27-595(SEP-NWWALL)@9'	5.57	45.6	86.5	138	<0.001	0.00567	<0.0025	0.00918	0.782	1.92	8.27	0.712	**18.9**	**663**	<0.5	<1.0	26.3	**14.2**	15.8	<2.0	<1.0	47.8
BACKGROUND																						
20220426-P27-595(BG-N)@2'	na	na	na	na	na	na	na	na	0.452	0.145	7.54	1.03	**16.0**	**300**	na	na	na	na	na	na	na	na
20220426-P27-595(BG-S)@3'	na	na	na	na	na	na	na	na	0.217	0.11	7.97	0.557	**14.5**	**232**	na	na	na	na	na	na	na	na
COGCC TABLE 915-1 RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	500 mg/kg				1.2 mg/kg	490 mg/kg	5.8 mg/kg	58 mg/kg	<4.0 mmhos/cm	<6 unitless	6 - 8.3 su	2 mg/L	0.68 mg/kg	15,000 mg/kg	71 mg/kg	0.3 mg/kg	3,100 mg/kg	400 mg/kg	1,500 mg/kg	390 mg/kg	390 mg/kg	23,000 mg/kg
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	500 mg/kg				0.0026 mg/kg	0.69 mg/kg	0.78 mg/kg	9.9 mg/kg	<4.0 mmhos/cm	<6 unitless	6 - 8.3 su	2 mg/L	0.29 mg/kg	82 mg/kg	0.38 mg/kg	0.00067 mg/kg	46 mg/kg	14 mg/kg	26 mg/kg	0.26 mg/kg	0.8 mg/kg	370 mg/kg

Notes:

Bold with yellow highlight - exceeds applicable COGCC Table 915-1 soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

TPH - Total Petroleum Hydrocarbons (volatile and extractable)

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

ORO - Oil Range Organics

mg/kg - milligrams per kilogram

mg/L - milligrams per Liter

mmhos/cm - millimhos per centimeter

su - standard unit

na - not analyzed

SOIL ANALYTICAL RESULTS TABLE (continued)
CAERUS OIL AND GAS - P27-595

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Sample Name	ORGANIC COMPOUNDS in mg/kg (continued)																
	1, 2, 4-trimethylbenzene	1, 3, 5-trimethylbenzene	Acenaphthene	Anthracene	Benz(a) anthracene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Benzo(a) pyrene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1, 2, 3-cd) pyrene	1-methylnaphthalene	2-mehtylnaphthalene	Naphthalene	Pyrene
WELLHEAD EXCAVATION																	
20220426-P27-595(POR01)@6'	**3.20**	**5.61**	0.185	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0084	**0.61**	<0.006	**2.19**	**6.30**	**1.90**	0.011
20220518-P27 (POR01)@9'	<0.005	**0.00983**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220518-P27 (E.WALL)@8'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220518-P27 (N.WALL)@8'	<0.005	0.0062	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220518-P27(S.WALL)@8'	<0.005	0.00635	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220518-P27(W.WALL)@8'	0.00507	**0.0728**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	**0.0307**	<0.02	<0.006
PRODUCTION UNIT EXCAVATION																	
20220426-P27-595(POR02)@6'	**7.08**	**9.58**	0.256	<0.006	<0.006	<0.006	<0.006	<0.006	0.00955	<0.006	0.0179	**1.03**	<0.006	**2.87**	**7.4**	**2.77**	0.0181
20220524-P27-595(SEP-NWALL)@8'	**0.0776**	**0.266**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	**0.0515**	**0.12**	**0.0827**	<0.006
20220524-P27-595(SEP-SWALL)@8'	**0.0816**	**0.327**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220524-P27-595(SEP-EWALL)@8'	**0.0684**	**0.343**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220524-P27-595(SEP-WWALL)@8'	0.00735	**0.0888**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0137	<0.006	**0.0521**	**0.0977**	**0.0276**	<0.006
20220524-P27-595(SEP-BASE)@12'	**0.0183**	**0.742**	0.0183	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0453	<0.006	**0.119**	**0.136**	<0.02	<0.006
20220524-P27-595(SEP-NWWALL)@9'	<0.005	**0.0103**	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
BACKGROUND																	
20220426-P27-595(BG-N)@2'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
20220426-P27-595(BG-S)@3'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
COGCC TABLE 915-1 RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	30 mg/kg	27 mg/kg	360 mg/kg	1800 mg/kg	1.1 mg/kg	1.1 mg/kg	11 mg/kg	0.11 mg/kg	110 mg/kg	0.11 mg/kg	240 mg/kg	240 mg/kg	1.1 mg/kg	18 mg/kg	24 mg/kg	2 mg/kg	180 mg/kg
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	0.0081 mg/kg	0.0087 mg/kg	0.55 mg/kg	5.8 mg/kg	0.011 mg/kg	0.3 mg/kg	2.9 mg/kg	0.24 mg/kg	9 mg/kg	0.096 mg/kg	8.9 mg/kg	0.54 mg/kg	0.98 mg/kg	0.006 mg/kg	0.019 mg/kg	0.0038 mg/kg	1.3 mg/kg

Notes:

Bold with yellow highlight - exceeds applicable COGCC Table 915-1 soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

su - standard unit

na - not analyzed

SURFACE WATER ANALYTICAL RESULTS TABLE
P27-595 - East Fork Parachute Creek

Caerus Oil and Gas **Site/Project: P27-595**	**ORGANIC PARAMETERS in mg/L**							**INORGANIC PARAMETERS in mg/L**		
Sample Name	Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	1, 2, 4-trimethylbenzene	1, 3, 5-trimethylbenzene	Total Dissolved Solids	Chloride	Sulfate
20220426-P27-595(SW-01)	<0.001	<0.001	<0.001	<0.003	<0.005	<0.001	<0.001	225	1.80	16.3
COGCC TABLE 915-1 CLEANUP CONCENTRATIONS	0.005 mg/L	1.0 mg/L	0.7 mg/L	10 mg/L	0.14 mg/L	0.067 mg/L	0.067 mg/L	<1.25x BG mg/L	250 mg/L or <1.25xBG	250 mg/L or <1.25xBG

Notes:

Bold with yellow highlight - exceeds COGCC Table 915-1 cleanup concentration level

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

mg/L - milligrams per Liter

na - not analyzed

ANALYTICAL REPORT

May 09, 2022

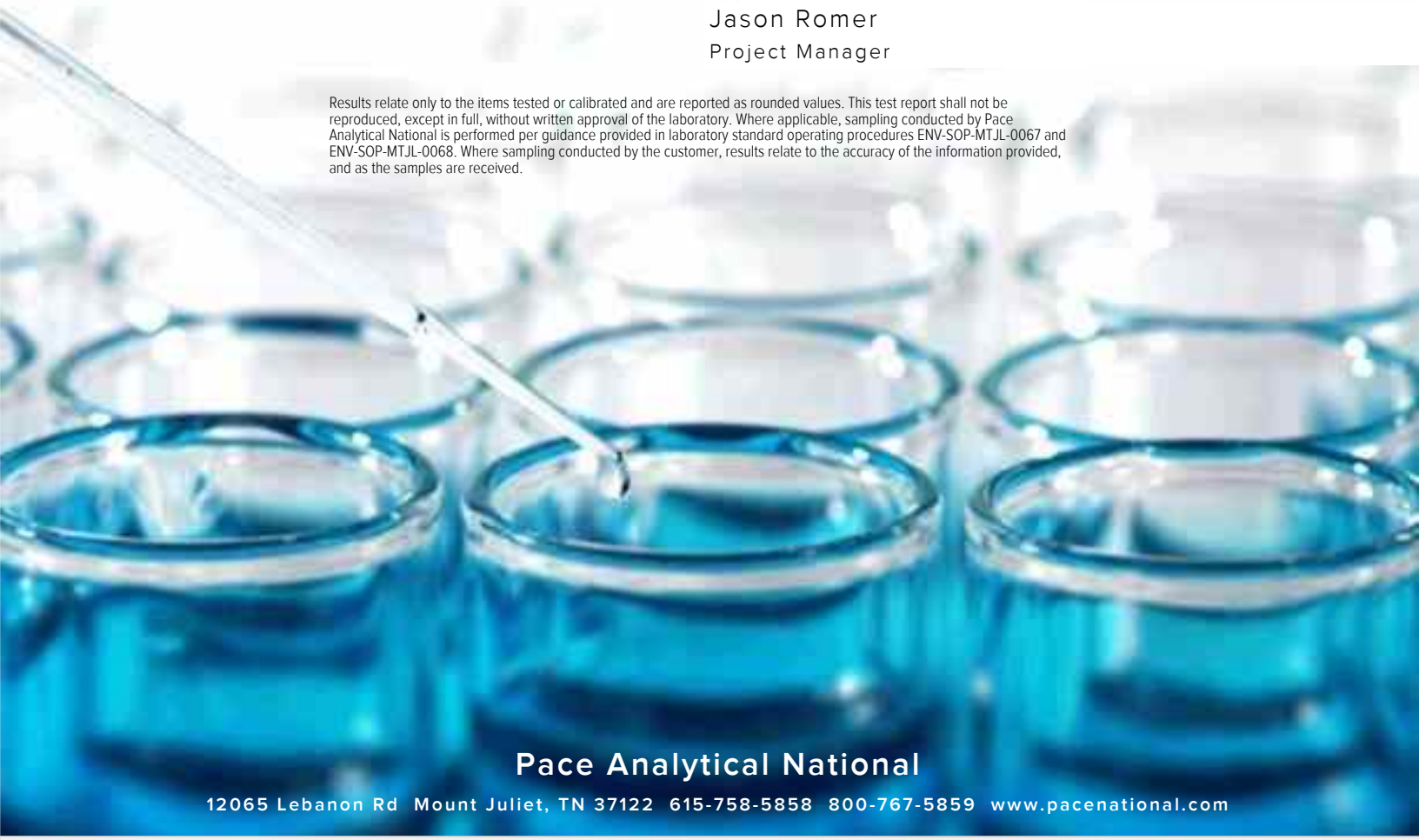
Revised Report

Caerus Oil and Gas

Sample Delivery Group:	L1487528
Samples Received:	04/28/2022
Project Number:	
Description:	P27-595
Site:	P27-595
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Jason Romer
Project Manager



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

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20220426-P27-595 (POR01) @ 6 L1487528-01 Solid

Collected by: Evan Mason | Collected date/time: 04/26/22 12:15 | Received date/time: 04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:44	05/04/22 18:44	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1858774	1	05/04/22 18:36	05/05/22 21:12	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1857403	1	05/02/22 10:00	05/02/22 14:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1856805	1	05/02/22 16:08	05/03/22 21:52	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:47	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856807	5	05/02/22 16:39	05/02/22 20:59	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1857004	1000	04/30/22 13:26	05/02/22 20:59	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858719	10	04/30/22 13:26	05/05/22 01:02	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859325	25	05/05/22 17:00	05/06/22 10:53	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859325	5	05/05/22 17:00	05/06/22 05:38	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	1	05/04/22 14:56	05/05/22 06:15	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	10	05/04/22 14:56	05/05/22 16:36	AMM	Mt. Juliet, TN

20220426-P27-595 (POR02) @ 6 L1487528-02 Solid

Collected by: Evan Mason | Collected date/time: 04/26/22 12:30 | Received date/time: 04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:53	05/04/22 18:53	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1858774	1	05/04/22 18:36	05/05/22 21:19	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1856805	1	05/02/22 16:08	05/03/22 21:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:49	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856807	5	05/02/22 16:39	05/02/22 21:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1857004	1000	04/30/22 13:26	05/02/22 21:21	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1857210	80	04/30/22 13:26	05/02/22 21:36	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860016	25	05/08/22 11:55	05/09/22 06:31	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860016	5	05/08/22 11:55	05/09/22 05:10	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	1	05/04/22 14:56	05/05/22 06:35	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1858627	10	05/04/22 14:56	05/05/22 16:56	AMM	Mt. Juliet, TN

20220426-P27-595 (BG-N) @ 2 L1487528-03 Solid

Collected by: Evan Mason | Collected date/time: 04/26/22 13:00 | Received date/time: 04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:55	05/04/22 18:55	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:52	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856809	5	05/02/22 08:05	05/02/22 19:27	LD	Mt. Juliet, TN

20220426-P27-595 (BG-S) @ 3 L1487528-04 Solid

Collected by: Evan Mason | Collected date/time: 04/26/22 13:45 | Received date/time: 04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857118	1	05/04/22 18:58	05/04/22 18:58	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1856872	1	04/30/22 13:00	04/30/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1857068	1	05/03/22 09:22	05/04/22 10:10	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857120	1	05/03/22 23:24	05/05/22 10:55	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1856809	5	05/02/22 08:05	05/02/22 19:30	LD	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.

Jason Romer
Project Manager

Report Revision History

Level II Report - Version 1: 05/09/22 12:14

Project Narrative

Sample ID correction

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.88		1	05/04/2022 18:44	WG1857118

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/05/2022 21:12	WG1858774

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	05/02/2022 14:00	WG1857403

Sample Narrative:
L1487528-01 WG1857403: 8.42 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1190		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:
L1487528-01 WG1857068: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	1390		0.500	1	05/03/2022 21:52	WG1856805
Cadmium	ND		0.500	1	05/03/2022 21:52	WG1856805
Copper	28.4		2.00	1	05/03/2022 21:52	WG1856805
Lead	14.5		0.500	1	05/03/2022 21:52	WG1856805
Nickel	15.1		2.00	1	05/03/2022 21:52	WG1856805
Selenium	ND		2.00	1	05/03/2022 21:52	WG1856805
Silver	ND		1.00	1	05/03/2022 21:52	WG1856805
Zinc	50.0		5.00	1	05/03/2022 21:52	WG1856805

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	0.664		0.200	1	05/05/2022 10:47	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.2		1.00	5	05/02/2022 20:59	WG1856807

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	291		100	1000	05/02/2022 20:59	WG1857004
(S) a,a,a-Trifluorotoluene(FID)	*110*		*77.0-120*		*05/02/2022 20:59*	WG1857004

SAMPLE RESULTS - 01

L1487528

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.617		0.0100	10	05/05/2022 01:02	WG1858719
Toluene	2.70		0.0500	10	05/05/2022 01:02	WG1858719
Ethylbenzene	0.213		0.0250	10	05/05/2022 01:02	WG1858719
Xylenes, Total	8.61		0.0650	10	05/05/2022 01:02	WG1858719
1,2,4-Trimethylbenzene	3.20		0.0500	10	05/05/2022 01:02	WG1858719
1,3,5-Trimethylbenzene	5.61		0.0500	10	05/05/2022 01:02	WG1858719
(S) Toluene-d8	*98.4*		*75.0-131*		*05/05/2022 01:02*	WG1858719
(S) 4-Bromofluorobenzene	*116*		*67.0-138*		*05/05/2022 01:02*	WG1858719
(S) 1,2-Dichloroethane-d4	*91.1*		*70.0-130*		*05/05/2022 01:02*	WG1858719

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	2460		100	25	05/06/2022 10:53	WG1859325
C28-C36 Motor Oil Range	323		20.0	5	05/06/2022 05:38	WG1859325
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*05/06/2022 10:53*	WG1859325
(S) o-Terphenyl	*96.5*		*18.0-148*		*05/06/2022 05:38*	WG1859325

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.185		0.00600	1	05/05/2022 06:15	WG1858627
Anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(a)anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(b)fluoranthene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(k)fluoranthene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Benzo(a)pyrene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Chrysene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Dibenz(a,h)anthracene	ND		0.00600	1	05/05/2022 06:15	WG1858627
Fluoranthene	0.00840		0.00600	1	05/05/2022 06:15	WG1858627
Fluorene	0.610		0.00600	1	05/05/2022 06:15	WG1858627
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/05/2022 06:15	WG1858627
1-Methylnaphthalene	2.19		0.0200	1	05/05/2022 06:15	WG1858627
2-Methylnaphthalene	6.30		0.200	10	05/05/2022 16:36	WG1858627
Naphthalene	1.90		0.0200	1	05/05/2022 06:15	WG1858627
Pyrene	0.0110		0.00600	1	05/05/2022 06:15	WG1858627
(S) p-Terphenyl-d14	*86.5*		*23.0-120*		*05/05/2022 16:36*	WG1858627
(S) p-Terphenyl-d14	*105*		*23.0-120*		*05/05/2022 06:15*	WG1858627
(S) Nitrobenzene-d5	*0.000*	J2	*14.0-149*		*05/05/2022 16:36*	WG1858627
(S) Nitrobenzene-d5	*1130*	J1	*14.0-149*		*05/05/2022 06:15*	WG1858627
(S) 2-Fluorobiphenyl	*101*		*34.0-125*		*05/05/2022 16:36*	WG1858627
(S) 2-Fluorobiphenyl	*128*	J1	*34.0-125*		*05/05/2022 06:15*	WG1858627

Sample Narrative:

L1487528-01 WG1858627: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	SAR			date / time	
Sodium Adsorption Ratio	34.5		1	05/04/2022 18:53	WG1857118

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg		date / time	
Hexavalent Chromium	ND		1.00	1	05/05/2022 21:19	WG1858774

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Analyte	pH			date / time	
pH	8.03	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:

L1487528-02 WG1856872: 8.03 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	umhos/cm		umhos/cm		date / time	
Specific Conductance	4180		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:

L1487528-02 WG1857068: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg		date / time	
Barium	1350		0.500	1	05/03/2022 21:55	WG1856805
Cadmium	0.504		0.500	1	05/03/2022 21:55	WG1856805
Copper	16.6		2.00	1	05/03/2022 21:55	WG1856805
Lead	11.0		0.500	1	05/03/2022 21:55	WG1856805
Nickel	12.3		2.00	1	05/03/2022 21:55	WG1856805
Selenium	ND		2.00	1	05/03/2022 21:55	WG1856805
Silver	ND		1.00	1	05/03/2022 21:55	WG1856805
Zinc	38.5		5.00	1	05/03/2022 21:55	WG1856805

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l		date / time	
Hot Water Sol. Boron	7.39		0.200	1	05/05/2022 10:49	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg		date / time	
Arsenic	10.3		1.00	5	05/02/2022 21:02	WG1856807

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	1220		100	1000	05/02/2022 21:21	WG1857004
(S) a,a,a-Trifluorotoluene(FID)	*106*		*77.0-120*		*05/02/2022 21:21*	WG1857004

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.480		0.0800	80	05/02/2022 21:36	WG1857210
Toluene	6.47		0.400	80	05/02/2022 21:36	WG1857210
Ethylbenzene	1.29		0.200	80	05/02/2022 21:36	WG1857210
Xylenes, Total	15.2		0.520	80	05/02/2022 21:36	WG1857210
1,2,4-Trimethylbenzene	7.08		0.400	80	05/02/2022 21:36	WG1857210
1,3,5-Trimethylbenzene	9.58		0.400	80	05/02/2022 21:36	WG1857210
(S) Toluene-d8	*94.7*		*75.0-131*		*05/02/2022 21:36*	WG1857210
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*05/02/2022 21:36*	WG1857210
(S) 1,2-Dichloroethane-d4	*118*		*70.0-130*		*05/02/2022 21:36*	WG1857210

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	5190		100	25	05/09/2022 06:31	WG1860016
C28-C36 Motor Oil Range	276		20.0	5	05/09/2022 05:10	WG1860016
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*05/09/2022 06:31*	WG1860016
(S) o-Terphenyl	*0.000*	J2	*18.0-148*		*05/09/2022 05:10*	WG1860016

Sample Narrative:

L1487528-02 WG1860016: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.256		0.00600	1	05/05/2022 06:35	WG1858627
Anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(a)anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(b)fluoranthene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(k)fluoranthene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Benzo(a)pyrene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Chrysene	0.00955		0.00600	1	05/05/2022 06:35	WG1858627
Dibenz(a,h)anthracene	ND		0.00600	1	05/05/2022 06:35	WG1858627
Fluoranthene	0.0179		0.00600	1	05/05/2022 06:35	WG1858627
Fluorene	1.03		0.00600	1	05/05/2022 06:35	WG1858627
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/05/2022 06:35	WG1858627
1-Methylnaphthalene	2.87		0.0200	1	05/05/2022 06:35	WG1858627
2-Methylnaphthalene	7.40		0.200	10	05/05/2022 16:56	WG1858627
Naphthalene	2.77		0.0200	1	05/05/2022 06:35	WG1858627
Pyrene	0.0181		0.00600	1	05/05/2022 06:35	WG1858627
(S) p-Terphenyl-d14	*88.5*		*23.0-120*		*05/05/2022 16:56*	WG1858627
(S) p-Terphenyl-d14	*105*		*23.0-120*		*05/05/2022 06:35*	WG1858627
(S) Nitrobenzene-d5	*2070*	J1	*14.0-149*		*05/05/2022 06:35*	WG1858627
(S) Nitrobenzene-d5	*0.000*	J2	*14.0-149*		*05/05/2022 16:56*	WG1858627
(S) 2-Fluorobiphenyl	*120*		*34.0-125*		*05/05/2022 06:35*	WG1858627
(S) 2-Fluorobiphenyl	*101*		*34.0-125*		*05/05/2022 16:56*	WG1858627

Sample Narrative:

L1487528-02 WG1858627: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.145		1	05/04/2022 18:55	WG1857118

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.54	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:
L1487528-03 WG1856872: 7.54 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	452		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:
L1487528-03 WG1857068: at 25C

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	1.03		0.200	1	05/05/2022 10:52	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	16.0		1.00	5	05/02/2022 19:27	WG1856809
Barium	300		2.50	5	05/02/2022 19:27	WG1856809

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.110		1	05/04/2022 18:58	WG1857118

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	T8	1	04/30/2022 15:00	WG1856872

Sample Narrative:
L1487528-04 WG1856872: 7.97 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	217		10.0	1	05/04/2022 10:10	WG1857068

Sample Narrative:
L1487528-04 WG1857068: at 25C

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	0.557		0.200	1	05/05/2022 10:55	WG1857120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	14.5		1.00	5	05/02/2022 19:30	WG1856809
Barium	232		2.50	5	05/02/2022 19:30	WG1856809

QUALITY CONTROL SUMMARY

L1487528-01,02

Method Blank (MB)

(MB) R3788931-1 05/05/22 17:21

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

L1486366-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1486366-09 05/05/22 18:29 • (DUP) R3788931-7 05/05/22 18:37

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	1.72	1.35	1	24.0	P1	20

L1487429-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487429-02 05/05/22 19:34 • (DUP) R3788931-8 05/05/22 19:39

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	20.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R3788931-2 05/05/22 17:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1486366-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1486366-07 05/05/22 17:44 • (MS) R3788931-3 05/05/22 17:49 • (MSD) R3788931-4 05/05/22 17:55

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	ND	ND	0.000	0.000	1	75.0-125	J6	J6	0.000	20

Sample Narrative:

OS: Sample is a reducer.

L1486366-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1486366-07 05/05/22 17:44 • (MS) R3788931-5 05/05/22 18:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	636	ND	500	78.6	50	75.0-125	

Sample Narrative:

OS: Sample is a reducer.

L1487523-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487523-01 04/30/22 15:00 • (DUP) R3786757-2 04/30/22 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	9.18	9.19	1	0.109		1

Sample Narrative:

OS: 9.18 at 21.3C

DUP: 9.19 at 21.3C

L1487533-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1487533-04 04/30/22 15:00 • (DUP) R3786757-3 04/30/22 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.75	8.74	1	0.114		1

Sample Narrative:

OS: 8.75 at 21C

DUP: 8.74 at 21C

Laboratory Control Sample (LCS)

(LCS) R3786757-1 04/30/22 15:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 at 20.1C

L1487959-45 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-45 05/02/22 14:00 • (DUP) R3787224-2 05/02/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.65	7.60	1	0.656		1

Sample Narrative:

OS: 7.65 at 19.9C

DUP: 7.6 at 20.2C

L1487959-59 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-59 05/02/22 14:00 • (DUP) R3787224-3 05/02/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.42	7.42	1	0.000		1

Sample Narrative:

OS: 7.42 at 19.6C

DUP: 7.42 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3787224-1 05/02/22 14:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 20.3C

Method Blank (MB)

(MB) R3787862-1 05/04/22 10:10

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

L1487528-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1487528-04 05/04/22 10:10 • (DUP) R3787862-3 05/04/22 10:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	217	220	1	1.37		20

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

L1487939-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1487939-03 05/04/22 10:10 • (DUP) R3787862-4 05/04/22 10:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	137	127	1	7.87		20

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

Laboratory Control Sample (LCS)

(LCS) R3787862-2 05/04/22 10:10

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	287	107	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3787767-1 05/03/22 20:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3787767-2 05/03/22 20:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	94.2	94.2	80.0-120	
Cadmium	100	93.3	93.3	80.0-120	
Copper	100	95.9	95.9	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	96.6	96.6	80.0-120	
Selenium	100	90.6	90.6	80.0-120	
Silver	20.0	16.7	83.5	80.0-120	
Zinc	100	90.0	90.0	80.0-120	

L1487523-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-08 05/03/22 21:02 • (MS) R3787767-5 05/03/22 21:10 • (MSD) R3787767-6 05/03/22 21:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	188	274	262	85.6	74.0	1	75.0-125		J6	4.35	20
Cadmium	100	ND	91.5	97.2	91.2	97.0	1	75.0-125			6.08	20
Copper	100	16.6	109	116	92.4	99.3	1	75.0-125			6.12	20
Lead	100	8.29	105	110	96.3	102	1	75.0-125			5.13	20
Nickel	100	26.2	124	131	98.0	105	1	75.0-125			5.16	20
Selenium	100	ND	84.9	91.4	84.9	91.4	1	75.0-125			7.36	20
Silver	20.0	ND	16.7	17.8	83.4	89.0	1	75.0-125			6.54	20
Zinc	100	35.5	114	120	78.9	84.5	1	75.0-125			4.80	20

Method Blank (MB)

(MB) R3788518-1 05/05/22 10:36

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) R3788518-2 05/05/22 10:39 • (LCSD) R3788518-3 05/05/22 10:41

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	0.994	1.01	99.4	101	80.0-120			2.03	20

Method Blank (MB)

(MB) R3787293-1 05/02/22 19:52

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) R3787293-2 05/02/22 19:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.1	89.1	80.0-120	

L1487523-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-08 05/02/22 19:58 • (MS) R3787293-5 05/02/22 20:08 • (MSD) R3787293-6 05/02/22 20:12

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	10.5	91.2	101	80.7	90.8	5	75.0-125			10.5	20

Method Blank (MB)

(MB) R3787289-1 05/02/22 19:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50

Laboratory Control Sample (LCS)

(LCS) R3787289-2 05/02/22 19:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.0	92.0	80.0-120	
Barium	100	92.3	92.3	80.0-120	

L1487120-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487120-10 05/02/22 19:11 • (MS) R3787289-5 05/02/22 19:21 • (MSD) R3787289-6 05/02/22 19:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.8	ND	96.8	86.6	96.2	86.1	5	75.0-125			11.1	20
Barium	99.8	68.8	166	159	97.5	90.2	5	75.0-125			4.49	20

Method Blank (MB)

(MB) R3787263-3 05/02/22 11:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	*112*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3787263-2 05/02/22 10:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.17	94.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.6*	*77.0-120*	

L1487515-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487515-01 05/02/22 17:25 • (MS) R3787263-4 05/02/22 21:42 • (MSD) R3787263-5 05/02/22 22:14

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	92.4	ND	91.8	93.8	99.4	102	25	10.0-151			2.16	28
(S) a,a,a-Trifluorotoluene(FID)					*101*	*101*		*77.0-120*				

Method Blank (MB)

(MB) R3788014-3 05/02/22 13:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*96.6*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*

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

(LCS) R3788014-1 05/02/22 12:17 • (LCSD) R3788014-2 05/02/22 12:36

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	0.125	0.131	100	105	70.0-123			4.69	20
Toluene	0.125	0.123	0.128	98.4	102	75.0-121			3.98	20
Ethylbenzene	0.125	0.117	0.124	93.6	99.2	74.0-126			5.81	20
Xylenes, Total	0.375	0.352	0.365	93.9	97.3	72.0-127			3.63	20
1,2,4-Trimethylbenzene	0.125	0.128	0.135	102	108	70.0-126			5.32	20
1,3,5-Trimethylbenzene	0.125	0.126	0.133	101	106	73.0-127			5.41	20
(S) Toluene-d8				*96.3*	*95.3*	*75.0-131*				
(S) 4-Bromofluorobenzene				*101*	*101*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*115*	*116*	*70.0-130*				

Method Blank (MB)

(MB) R3788469-3 05/04/22 23:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*95.1*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*87.8*			*70.0-130*

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

(LCS) R3788469-1 05/04/22 21:44 • (LCSD) R3788469-2 05/04/22 23:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.126	0.129	101	103	70.0-123			2.35	20
Toluene	0.125	0.108	0.114	86.4	91.2	75.0-121			5.41	20
Ethylbenzene	0.125	0.105	0.110	84.0	88.0	74.0-126			4.65	20
Xylenes, Total	0.375	0.301	0.308	80.3	82.1	72.0-127			2.30	20
1,2,4-Trimethylbenzene	0.125	0.103	0.102	82.4	81.6	70.0-126			0.976	20
1,3,5-Trimethylbenzene	0.125	0.102	0.101	81.6	80.8	73.0-127			0.985	20
(S) Toluene-d8				*93.0*	*93.4*	*75.0-131*				
(S) 4-Bromofluorobenzene				*100*	*99.9*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*91.6*	*91.4*	*70.0-130*				

Method Blank (MB)

(MB) R3788810-1 05/06/22 04:03

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	*56.9*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3788810-2 05/06/22 04:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	28.1	56.2	50.0-150	
(S) o-Terphenyl			*74.3*	*18.0-148*	

L1487528-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487528-01 05/06/22 05:38 • (MS) R3788810-3 05/06/22 05:52 • (MSD) R3788810-4 05/06/22 06:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	2550	1930	3410	0.000	1720	5	50.0-150	E V	E J3 V	55.4	20
(S) o-Terphenyl					*77.6*	*133*		*18.0-148*				

Method Blank (MB)

(MB) R3789456-1 05/08/22 22:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*53.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3789456-2 05/08/22 22:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	31.5	63.0	50.0-150	
(S) o-Terphenyl			*71.5*	*18.0-148*	

L1489846-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489846-05 05/08/22 22:59 • (MS) R3789456-3 05/08/22 23:13 • (MSD) R3789456-4 05/08/22 23:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.2	10.2	38.3	35.1	57.1	50.6	1	50.0-150			8.72	20
(S) o-Terphenyl					*48.3*	*44.1*		*18.0-148*				

Method Blank (MB)

(MB) R3788620-2 05/05/22 00:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*120*			*23.0-120*
(S) Nitrobenzene-d5	*84.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*94.5*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3788620-1 05/04/22 23:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0720	90.0	50.0-120	
Anthracene	0.0800	0.0711	88.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0730	91.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0693	86.6	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0703	87.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0605	75.6	42.0-120	
Chrysene	0.0800	0.0747	93.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0678	84.8	47.0-125	
Fluoranthene	0.0800	0.0742	92.8	49.0-129	
Fluorene	0.0800	0.0755	94.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0703	87.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0734	91.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0706	88.3	50.0-120	
Naphthalene	0.0800	0.0695	86.9	50.0-120	
Pyrene	0.0800	0.0771	96.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3788620-1 05/04/22 23:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*114*	*23.0-120*	
(S) Nitrobenzene-d5			*90.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*96.2*	*34.0-125*	

L1487523-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487523-07 05/05/22 00:42 • (MS) R3788620-3 05/05/22 01:01 • (MSD) R3788620-4 05/05/22 01:21

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 %
Acenaphthene	0.0800	ND	0.0640	0.0619	80.0	77.4	1	14.0-127			3.34	27
Anthracene	0.0800	ND	0.0634	0.0596	79.3	74.5	1	10.0-145			6.18	30
Benzo(a)anthracene	0.0800	ND	0.0644	0.0613	80.5	76.6	1	10.0-139			4.93	30
Benzo(b)fluoranthene	0.0800	ND	0.0620	0.0609	77.5	76.1	1	10.0-140			1.79	36
Benzo(k)fluoranthene	0.0800	ND	0.0630	0.0613	78.8	76.6	1	10.0-137			2.74	31
Benzo(a)pyrene	0.0800	ND	0.0607	0.0597	75.9	74.6	1	10.0-141			1.66	31
Chrysene	0.0800	ND	0.0662	0.0649	82.8	81.1	1	10.0-145			1.98	30
Dibenz(a,h)anthracene	0.0800	ND	0.0593	0.0573	74.1	71.6	1	10.0-132			3.43	31
Fluoranthene	0.0800	ND	0.0661	0.0638	82.6	79.8	1	10.0-153			3.54	33
Fluorene	0.0800	ND	0.0689	0.0656	86.1	82.0	1	11.0-130			4.91	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0603	0.0578	75.4	72.3	1	10.0-137			4.23	32
1-Methylnaphthalene	0.0800	ND	0.0684	0.0660	85.5	82.5	1	10.0-142			3.57	28
2-Methylnaphthalene	0.0800	ND	0.0648	0.0623	81.0	77.9	1	10.0-137			3.93	28
Naphthalene	0.0800	ND	0.0642	0.0625	80.3	78.1	1	10.0-135			2.68	27
Pyrene	0.0800	ND	0.0690	0.0667	86.3	83.4	1	10.0-148			3.39	35
(S) p-Terphenyl-d14					*100*	*99.2*		*23.0-120*				
(S) Nitrobenzene-d5					*79.9*	*76.9*		*14.0-149*				
(S) 2-Fluorobiphenyl					*86.1*	*85.5*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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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.
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Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY L1487528

Company: Campos EPC 970-619-0600	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: P27-595	State: CO County/City: /Garfield Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: P27-595 Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Evan Mason	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	COGCC Table 915-1	EC, SAR, pH, Boron (hot water sol.), Arsenic, Barium									Lab Sample # / Comments:
20220426-P27-595(PORO1)@6'	SL	Grab	4/26/22	1215	-	-	-	3	X										JAA6 1.6 to= 1.6 -01
20220426-P27-595(PORO2)@6'	↓	↓	↓	1230	-	-	-	3	X										-02
20220426-P27-595(BG-N)@2'				1300	-	-	-	1		X									-03
20220426-P27-595(BG-S)@3'				1345	-	-	-	2		X									-04
					-	-	-												
					-	-	-												
					-	-	-												

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 5016 1231 9257

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____oC

Cooler 1 Therm Corr. Factor: _____oC

Cooler 1 Corrected Temp: _____oC

Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	4/27/22 1200		4/27 1300
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	4/27 1700		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			4/28/22 0900

A194

Acctnum:

Template:

Prelogin:

PM:

PB:

Trip Blank Received: Y (N) NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

ANALYTICAL REPORT

May 05, 2022

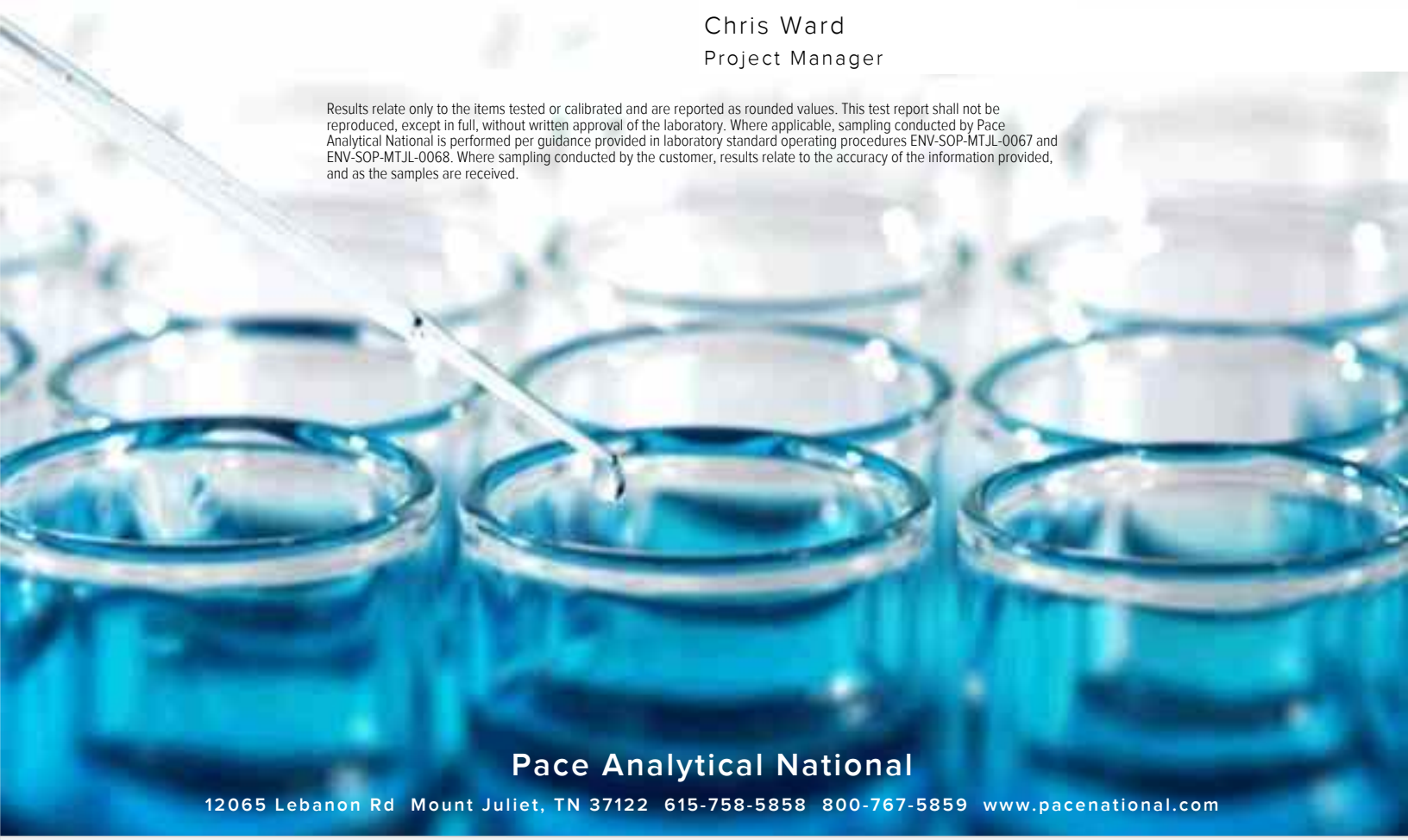
Caerus Oil and Gas

Sample Delivery Group:	L1487530
Samples Received:	04/28/2022
Project Number:	
Description:	P27-595
Site:	P27-595
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager



Pace Analytical National

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

TABLE OF CONTENTS

SAMPLE SUMMARY

20220426-P27-595 (SW-01) L1487530-01 GW

Collected by: Evan Mason
Collected date/time: 04/26/22 11:30
Received date/time: 04/28/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1857921	1	05/03/22 11:23	05/03/22 14:15	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1858204	1	05/04/22 00:50	05/04/22 00:50	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1856735	1	04/30/22 03:46	04/30/22 03:46	JAH	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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	225		10.0	1	05/03/2022 14:15	WG1857921

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	1.80		1.00	1	05/04/2022 00:50	WG1858204
Sulfate	16.3		5.00	1	05/04/2022 00:50	WG1858204

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	04/30/2022 03:46	WG1856735
Toluene	ND		0.00100	1	04/30/2022 03:46	WG1856735
Ethylbenzene	ND		0.00100	1	04/30/2022 03:46	WG1856735
Xylenes, Total	ND		0.00300	1	04/30/2022 03:46	WG1856735
Naphthalene	ND		0.00500	1	04/30/2022 03:46	WG1856735
1,2,4-Trimethylbenzene	ND		0.00100	1	04/30/2022 03:46	WG1856735
1,3,5-Trimethylbenzene	ND		0.00100	1	04/30/2022 03:46	WG1856735
(S) Toluene-d8	*94.6*		*80.0-120*		*04/30/2022 03:46*	WG1856735
(S) 4-Bromofluorobenzene	*99.0*		*77.0-126*		*04/30/2022 03:46*	WG1856735
(S) 1,2-Dichloroethane-d4	*148*	J1	*70.0-130*		*04/30/2022 03:46*	WG1856735

Method Blank (MB)

(MB) R3788156-1 05/03/22 14:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1487530-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487530-01 05/03/22 14:15 • (DUP) R3788156-3 05/03/22 14:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	225	221	1	1.79		5

L1487531-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1487531-02 05/03/22 14:15 • (DUP) R3788156-4 05/03/22 14:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	ND	ND	1	0.000		5

Laboratory Control Sample (LCS)

(LCS) R3788156-2 05/03/22 14:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	2460	2390	97.2	81.7-118	

Method Blank (MB)

(MB) R3787886-1 05/03/22 12:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1487484-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487484-01 05/03/22 19:54 • (DUP) R3787886-3 05/03/22 20:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	16.4	16.5	1	0.262		15
Sulfate	14.1	14.2	1	0.642		15

L1487530-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1487530-01 05/04/22 00:50 • (DUP) R3787886-6 05/04/22 01:39

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1.80	1.79	1	0.156		15
Sulfate	16.3	16.6	1	1.56		15

Laboratory Control Sample (LCS)

(LCS) R3787886-2 05/03/22 12:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.0	97.5	80.0-120	
Sulfate	40.0	39.6	99.1	80.0-120	

L1487484-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487484-01 05/03/22 19:54 • (MS) R3787886-4 05/03/22 20:27 • (MSD) R3787886-5 05/03/22 20:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	16.4	65.9	67.2	99.1	102	1	80.0-120			1.95	15
Sulfate	50.0	14.1	64.4	65.1	101	102	1	80.0-120			1.15	15

L1487530-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1487530-01 05/04/22 00:50 • (MS) R3787886-7 05/04/22 01:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	1.80	58.4	113	1	80.0-120	
Sulfate	50.0	16.3	73.6	115	1	80.0-120	

Method Blank (MB)

(MB) R3787256-2 04/29/22 21:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	*97.7*			*80.0-120*
(S) 4-Bromofluorobenzene	*96.9*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*128*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3787256-1 04/29/22 21:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00471	94.2	70.0-123	
Toluene	0.00500	0.00426	85.2	79.0-120	
Ethylbenzene	0.00500	0.00426	85.2	79.0-123	
Xylenes, Total	0.0150	0.0132	88.0	79.0-123	
Naphthalene	0.00500	0.00362	72.4	54.0-135	
1,2,4-Trimethylbenzene	0.00500	0.00518	104	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00508	102	76.0-122	
(S) Toluene-d8			*93.9*	*80.0-120*	
(S) 4-Bromofluorobenzene			*102*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*125*	*70.0-130*	

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Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC 970-619-0600	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: P27-595	State: CO County/City: /Garfield Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: P27-595 Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Evan Mason	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: COGCC Table 915-1	Lab Profile/Line
20220426-P27-595 (SW-01)	GW	Grab	4/26/22	1130	-	-	-	9	x	-01
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			

Container Preservative Type **

Lab Project Manager:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips: _____	
Sample pH Acceptable	Y N NA
pH Strips: _____	
Sulfide Present	Y N NA
Lead Acetate Strips: _____	

LAB USE ONLY: Lab Sample # / Comments: LH87530

JAA6 1.6 to = 1.6

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 5016 1231 9257

Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____oC

Cooler 1 Therm Corr. Factor: _____oC

Cooler 1 Corrected Temp: _____oC

Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	4/27/22 1200		4/27 1300
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	4/27 1700		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			4/28/22 0900

A193

Template:

Prelogin:

PM:

PB:

Trip Blank Received: Y (N) NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

ANALYTICAL REPORT

June 03, 2022

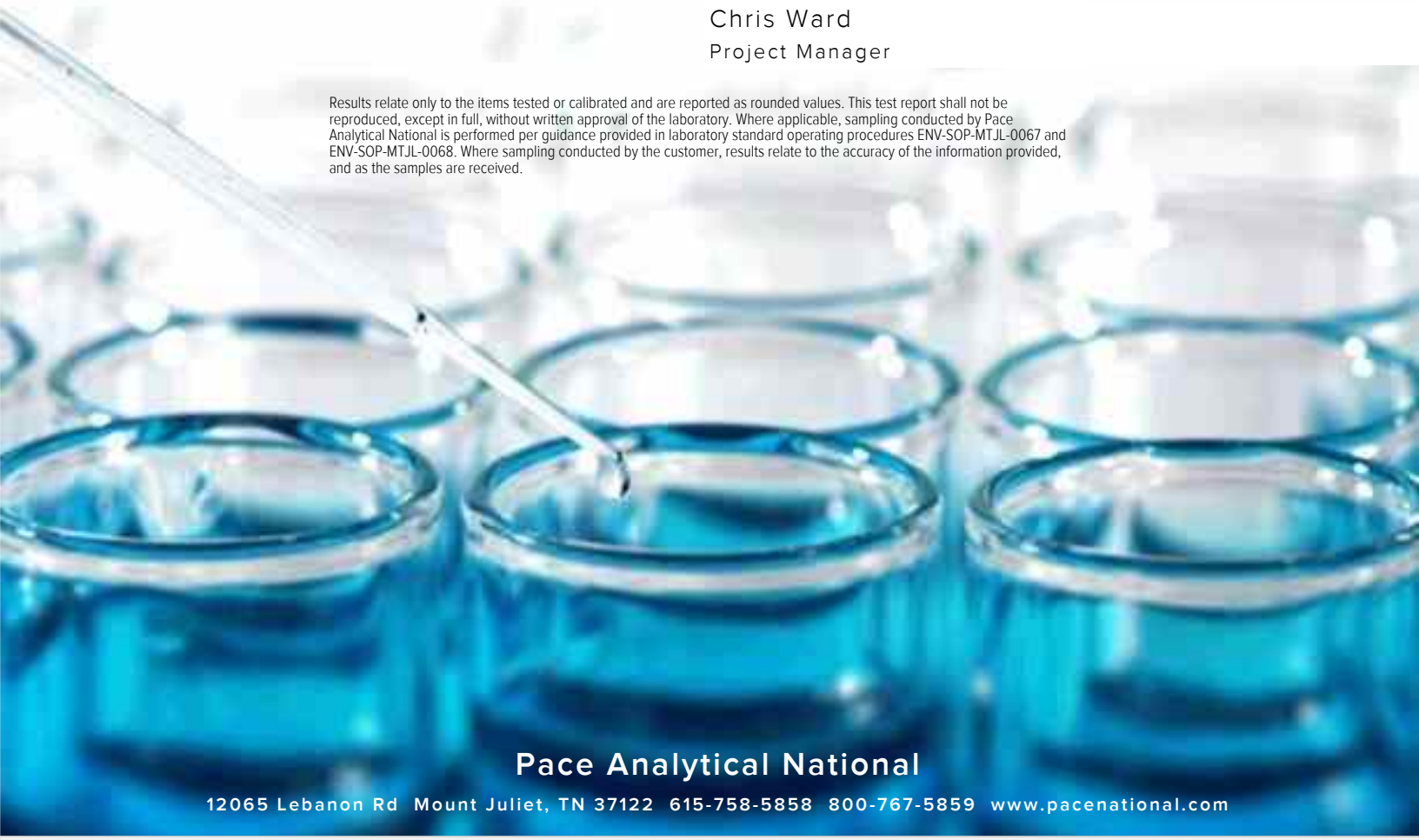
Caerus Oil and Gas

Sample Delivery Group:	L1496507
Samples Received:	05/20/2022
Project Number:	
Description:	P27-595
Site:	P27-595
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager



Pace Analytical National

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

TABLE OF CONTENTS

20220518-P27(POR01)@9' L1496507-01 Solid

Collected by: S. Sivigliano | Collected date/time: 05/18/22 10:15 | Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:42	05/26/22 14:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1869754	1	05/25/22 18:00	05/26/22 16:18	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869997	1	05/26/22 10:00	05/27/22 10:20	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1869906	1	05/26/22 11:20	05/26/22 18:54	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869824	1	05/25/22 23:48	05/26/22 13:23	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:42	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1869823	5	05/25/22 23:46	05/26/22 11:51	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868642	1	05/23/22 11:57	05/24/22 14:29	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1869113	1	05/23/22 11:57	05/25/22 12:01	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871689	1	05/31/22 09:41	06/01/22 10:52	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871685	1	06/01/22 13:38	06/01/22 22:00	AMG	Mt. Juliet, TN

20220518-P27(E.WALL)@8' L1496507-02 Solid

Collected by: S. Sivigliano | Collected date/time: 05/18/22 10:30 | Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:45	05/26/22 14:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1869754	1	05/25/22 18:00	05/26/22 16:28	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869997	1	05/26/22 10:00	05/27/22 10:20	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1869906	1	05/26/22 11:20	05/26/22 18:54	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869824	1	05/25/22 23:48	05/26/22 13:26	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:50	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1869823	5	05/25/22 23:46	05/26/22 11:54	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868642	1	05/23/22 11:57	05/24/22 14:50	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1869113	1	05/23/22 11:57	05/25/22 12:20	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871689	1	05/31/22 09:41	06/01/22 11:17	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871685	1	06/01/22 13:38	06/01/22 20:14	AMG	Mt. Juliet, TN

20220518-P27(N.WALL)@8' L1496507-03 Solid

Collected by: S. Sivigliano | Collected date/time: 05/18/22 10:45 | Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:48	05/26/22 14:48	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1869754	1	05/25/22 18:00	05/26/22 16:34	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869997	1	05/26/22 10:00	05/27/22 10:20	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1869906	1	05/26/22 11:20	05/26/22 18:54	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869824	1	05/25/22 23:48	05/26/22 13:29	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:52	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1869823	5	05/25/22 23:46	05/26/22 11:57	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868642	1	05/23/22 11:57	05/24/22 15:10	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1869113	1	05/23/22 11:57	05/25/22 12:39	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871689	1	05/31/22 09:41	06/01/22 10:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871685	1	06/01/22 13:38	06/01/22 22:18	AMG	Mt. Juliet, TN

20220518-P27(S.WALL)@8' L1496507-04 Solid

Collected by: S. Sivigliano | Collected date/time: 05/18/22 11:00 | Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 13:38	05/26/22 13:38	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1872284	1	05/31/22 17:05	06/01/22 10:00	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869997	1	05/26/22 10:00	05/27/22 10:20	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1869906	1	05/26/22 11:20	05/26/22 18:54	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869824	1	05/25/22 23:48	05/26/22 13:32	CCE	Mt. Juliet, TN

20220518-P27(S.WALL)@8' L1496507-04 Solid

Collected by: S. Sivigliano
Collected date/time: 05/18/22 11:00
Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1869823	5	05/25/22 23:46	05/26/22 12:01	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868642	1	05/23/22 11:57	05/24/22 15:31	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1869113	1	05/23/22 11:57	05/25/22 12:58	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871689	1	05/31/22 09:41	06/01/22 11:17	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871685	1	06/01/22 13:38	06/01/22 22:36	AMG	Mt. Juliet, TN

20220518-P27(W.WALL)@8' L1496507-05 Solid

Collected by: S. Sivigliano
Collected date/time: 05/18/22 11:15
Received date/time: 05/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869127	1	06/01/22 21:51	06/01/22 21:51	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1872284	1	05/31/22 17:05	06/01/22 10:05	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1870618	1	05/28/22 09:00	05/28/22 11:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1869906	1	05/26/22 11:20	05/26/22 18:54	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1869824	1	05/25/22 23:48	05/26/22 13:35	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869126	1	05/27/22 11:36	06/02/22 18:34	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1869823	5	05/25/22 23:46	05/26/22 12:04	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1868642	1	05/23/22 11:57	05/24/22 15:51	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1869113	1	05/23/22 11:57	05/25/22 13:17	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1871689	1	05/31/22 09:41	06/01/22 11:30	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1871685	1	06/01/22 13:38	06/01/22 22:54	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.96		1	05/26/2022 14:42	WG1869122

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/26/2022 16:18	WG1869754

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.49	T8	1	05/27/2022 10:20	WG1869997

Sample Narrative:
L1496507-01 WG1869997: 8.49 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1570		10.0	1	05/26/2022 18:54	WG1869906

Sample Narrative:
L1496507-01 WG1869906: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	343		0.500	1	05/26/2022 13:23	WG1869824
Cadmium	ND		0.500	1	05/26/2022 13:23	WG1869824
Copper	27.0		2.00	1	05/26/2022 13:23	WG1869824
Lead	15.7		0.500	1	05/26/2022 13:23	WG1869824
Nickel	18.2		2.00	1	05/26/2022 13:23	WG1869824
Selenium	ND		2.00	1	05/26/2022 13:23	WG1869824
Silver	ND		1.00	1	05/26/2022 13:23	WG1869824
Zinc	51.5		5.00	1	05/26/2022 13:23	WG1869824

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	1.07		0.200	1	05/26/2022 15:42	WG1869120

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	23.2		1.00	5	05/26/2022 11:51	WG1869823

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	1.08		0.100	1	05/24/2022 14:29	WG1868642
(S) a,a,a-Trifluorotoluene(FID)	*96.0*		*77.0-120*		*05/24/2022 14:29*	WG1868642

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	05/25/2022 12:01	WG1869113
Toluene	ND		0.00500	1	05/25/2022 12:01	WG1869113
Ethylbenzene	ND		0.00250	1	05/25/2022 12:01	WG1869113
Xylenes, Total	ND		0.00650	1	05/25/2022 12:01	WG1869113
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2022 12:01	WG1869113
1,3,5-Trimethylbenzene	0.00983		0.00500	1	05/25/2022 12:01	WG1869113
(S) Toluene-d8	*103*		*75.0-131*		*05/25/2022 12:01*	WG1869113
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*05/25/2022 12:01*	WG1869113
(S) 1,2-Dichloroethane-d4	*102*		*70.0-130*		*05/25/2022 12:01*	WG1869113

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	20.7		4.00	1	06/01/2022 10:52	WG1871689
C28-C36 Motor Oil Range	52.0		4.00	1	06/01/2022 10:52	WG1871689
(S) o-Terphenyl	*93.0*		*18.0-148*		*06/01/2022 10:52*	WG1871689

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Anthracene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Benzo(a)anthracene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Benzo(b)fluoranthene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Benzo(k)fluoranthene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Benzo(a)pyrene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Chrysene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Dibenz(a,h)anthracene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Fluoranthene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Fluorene	ND		0.00600	1	06/01/2022 22:00	WG1871685
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/01/2022 22:00	WG1871685
1-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:00	WG1871685
2-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:00	WG1871685
Naphthalene	ND		0.0200	1	06/01/2022 22:00	WG1871685
Pyrene	ND		0.00600	1	06/01/2022 22:00	WG1871685
(S) p-Terphenyl-d14	*79.4*		*23.0-120*		*06/01/2022 22:00*	WG1871685
(S) Nitrobenzene-d5	*57.9*		*14.0-149*		*06/01/2022 22:00*	WG1871685
(S) 2-Fluorobiphenyl	*63.3*		*34.0-125*		*06/01/2022 22:00*	WG1871685

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	3.38		1	05/26/2022 14:45	WG1869122

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	05/26/2022 16:28	WG1869754

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.25	T8	1	05/27/2022 10:20	WG1869997

Sample Narrative:

L1496507-02 WG1869997: 8.25 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	374		10.0	1	05/26/2022 18:54	WG1869906

Sample Narrative:

L1496507-02 WG1869906: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	270		0.500	1	05/26/2022 13:26	WG1869824
Cadmium	ND		0.500	1	05/26/2022 13:26	WG1869824
Copper	19.8		2.00	1	05/26/2022 13:26	WG1869824
Lead	9.18		0.500	1	05/26/2022 13:26	WG1869824
Nickel	13.5		2.00	1	05/26/2022 13:26	WG1869824
Selenium	ND		2.00	1	05/26/2022 13:26	WG1869824
Silver	ND		1.00	1	05/26/2022 13:26	WG1869824
Zinc	38.1		5.00	1	05/26/2022 13:26	WG1869824

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	0.818		0.200	1	05/26/2022 15:50	WG1869120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	24.7		1.00	5	05/26/2022 11:54	WG1869823

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	0.196		0.100	1	05/24/2022 14:50	WG1868642
(S) a,a,a-Trifluorotoluene(FID)	*96.6*		*77.0-120*		*05/24/2022 14:50*	WG1868642

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	05/25/2022 12:20	WG1869113
Toluene	ND		0.00500	1	05/25/2022 12:20	WG1869113
Ethylbenzene	ND		0.00250	1	05/25/2022 12:20	WG1869113
Xylenes, Total	ND		0.00650	1	05/25/2022 12:20	WG1869113
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2022 12:20	WG1869113
1,3,5-Trimethylbenzene	ND		0.00500	1	05/25/2022 12:20	WG1869113
(S) Toluene-d8	*105*		*75.0-131*		*05/25/2022 12:20*	WG1869113
(S) 4-Bromofluorobenzene	*99.9*		*67.0-138*		*05/25/2022 12:20*	WG1869113
(S) 1,2-Dichloroethane-d4	*100*		*70.0-130*		*05/25/2022 12:20*	WG1869113

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	11.1		4.00	1	06/01/2022 11:17	WG1871689
C28-C36 Motor Oil Range	44.8		4.00	1	06/01/2022 11:17	WG1871689
(S) o-Terphenyl	*59.8*		*18.0-148*		*06/01/2022 11:17*	WG1871689

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Anthracene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Benzo(a)anthracene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Benzo(b)fluoranthene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Benzo(k)fluoranthene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Benzo(a)pyrene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Chrysene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Dibenz(a,h)anthracene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Fluoranthene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Fluorene	ND		0.00600	1	06/01/2022 20:14	WG1871685
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/01/2022 20:14	WG1871685
1-Methylnaphthalene	ND		0.0200	1	06/01/2022 20:14	WG1871685
2-Methylnaphthalene	ND		0.0200	1	06/01/2022 20:14	WG1871685
Naphthalene	ND		0.0200	1	06/01/2022 20:14	WG1871685
Pyrene	ND		0.00600	1	06/01/2022 20:14	WG1871685
(S) p-Terphenyl-d14	*84.5*		*23.0-120*		*06/01/2022 20:14*	WG1871685
(S) Nitrobenzene-d5	*61.7*		*14.0-149*		*06/01/2022 20:14*	WG1871685
(S) 2-Fluorobiphenyl	*68.7*		*34.0-125*		*06/01/2022 20:14*	WG1871685

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	5.20		1	05/26/2022 14:48	WG1869122

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	05/26/2022 16:34	WG1869754

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	7.92	T8	1	05/27/2022 10:20	WG1869997

Sample Narrative:

L1496507-03 WG1869997: 7.92 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	1670		10.0	1	05/26/2022 18:54	WG1869906

Sample Narrative:

L1496507-03 WG1869906: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	233		0.500	1	05/26/2022 13:29	WG1869824
Cadmium	ND		0.500	1	05/26/2022 13:29	WG1869824
Copper	22.3		2.00	1	05/26/2022 13:29	WG1869824
Lead	13.7		0.500	1	05/26/2022 13:29	WG1869824
Nickel	16.9		2.00	1	05/26/2022 13:29	WG1869824
Selenium	ND		2.00	1	05/26/2022 13:29	WG1869824
Silver	ND		1.00	1	05/26/2022 13:29	WG1869824
Zinc	48.6		5.00	1	05/26/2022 13:29	WG1869824

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	0.906		0.200	1	05/26/2022 15:52	WG1869120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	14.7		1.00	5	05/26/2022 11:57	WG1869823

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	0.204		0.100	1	05/24/2022 15:10	WG1868642
(S) a,a,a-Trifluorotoluene(FID)	*95.7*		*77.0-120*		*05/24/2022 15:10*	WG1868642

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	05/25/2022 12:39	WG1869113
Toluene	ND		0.00500	1	05/25/2022 12:39	WG1869113
Ethylbenzene	ND		0.00250	1	05/25/2022 12:39	WG1869113
Xylenes, Total	ND		0.00650	1	05/25/2022 12:39	WG1869113
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2022 12:39	WG1869113
1,3,5-Trimethylbenzene	0.00620		0.00500	1	05/25/2022 12:39	WG1869113
(S) Toluene-d8	*108*		*75.0-131*		*05/25/2022 12:39*	WG1869113
(S) 4-Bromofluorobenzene	*100*		*67.0-138*		*05/25/2022 12:39*	WG1869113
(S) 1,2-Dichloroethane-d4	*98.1*		*70.0-130*		*05/25/2022 12:39*	WG1869113

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	33.7		4.00	1	06/01/2022 10:39	WG1871689
C28-C36 Motor Oil Range	38.1		4.00	1	06/01/2022 10:39	WG1871689
(S) o-Terphenyl	*94.5*		*18.0-148*		*06/01/2022 10:39*	WG1871689

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Anthracene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Benzo(a)anthracene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Benzo(b)fluoranthene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Benzo(k)fluoranthene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Benzo(a)pyrene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Chrysene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Dibenz(a,h)anthracene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Fluoranthene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Fluorene	ND		0.00600	1	06/01/2022 22:18	WG1871685
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/01/2022 22:18	WG1871685
1-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:18	WG1871685
2-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:18	WG1871685
Naphthalene	ND		0.0200	1	06/01/2022 22:18	WG1871685
Pyrene	ND		0.00600	1	06/01/2022 22:18	WG1871685
(S) p-Terphenyl-d14	*73.5*		*23.0-120*		*06/01/2022 22:18*	WG1871685
(S) Nitrobenzene-d5	*61.0*		*14.0-149*		*06/01/2022 22:18*	WG1871685
(S) 2-Fluorobiphenyl	*62.0*		*34.0-125*		*06/01/2022 22:18*	WG1871685

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	6.07		1	05/26/2022 13:38	WG1869122

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/01/2022 10:00	WG1872284

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.23	T8	1	05/27/2022 10:20	WG1869997

Sample Narrative:

L1496507-04 WG1869997: 8.23 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	591		10.0	1	05/26/2022 18:54	WG1869906

Sample Narrative:

L1496507-04 WG1869906: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	266		0.500	1	05/26/2022 13:32	WG1869824
Cadmium	ND		0.500	1	05/26/2022 13:32	WG1869824
Copper	25.9		2.00	1	05/26/2022 13:32	WG1869824
Lead	16.5		0.500	1	05/26/2022 13:32	WG1869824
Nickel	19.2		2.00	1	05/26/2022 13:32	WG1869824
Selenium	ND		2.00	1	05/26/2022 13:32	WG1869824
Silver	ND		1.00	1	05/26/2022 13:32	WG1869824
Zinc	51.5		5.00	1	05/26/2022 13:32	WG1869824

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	1.57		0.200	1	05/26/2022 15:55	WG1869120

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	20.3		1.00	5	05/26/2022 12:01	WG1869823

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	0.248		0.100	1	05/24/2022 15:31	WG1868642
(S) a,a,a-Trifluorotoluene(FID)	*95.6*		*77.0-120*		*05/24/2022 15:31*	WG1868642

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	05/25/2022 12:58	WG1869113
Toluene	ND		0.00500	1	05/25/2022 12:58	WG1869113
Ethylbenzene	ND		0.00250	1	05/25/2022 12:58	WG1869113
Xylenes, Total	ND		0.00650	1	05/25/2022 12:58	WG1869113
1,2,4-Trimethylbenzene	ND		0.00500	1	05/25/2022 12:58	WG1869113
1,3,5-Trimethylbenzene	0.00635		0.00500	1	05/25/2022 12:58	WG1869113
(S) Toluene-d8	*106*		*75.0-131*		*05/25/2022 12:58*	WG1869113
(S) 4-Bromofluorobenzene	*101*		*67.0-138*		*05/25/2022 12:58*	WG1869113
(S) 1,2-Dichloroethane-d4	*99.9*		*70.0-130*		*05/25/2022 12:58*	WG1869113

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	15.2		4.00	1	06/01/2022 11:17	WG1871689
C28-C36 Motor Oil Range	43.9		4.00	1	06/01/2022 11:17	WG1871689
(S) o-Terphenyl	*122*		*18.0-148*		*06/01/2022 11:17*	WG1871689

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Anthracene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Benzo(a)anthracene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Benzo(b)fluoranthene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Benzo(k)fluoranthene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Benzo(a)pyrene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Chrysene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Dibenz(a,h)anthracene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Fluoranthene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Fluorene	ND		0.00600	1	06/01/2022 22:36	WG1871685
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/01/2022 22:36	WG1871685
1-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:36	WG1871685
2-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:36	WG1871685
Naphthalene	ND		0.0200	1	06/01/2022 22:36	WG1871685
Pyrene	ND		0.00600	1	06/01/2022 22:36	WG1871685
(S) p-Terphenyl-d14	*87.3*		*23.0-120*		*06/01/2022 22:36*	WG1871685
(S) Nitrobenzene-d5	*67.0*		*14.0-149*		*06/01/2022 22:36*	WG1871685
(S) 2-Fluorobiphenyl	*73.3*		*34.0-125*		*06/01/2022 22:36*	WG1871685

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	28.6		1	06/01/2022 21:51	WG1869127

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	06/01/2022 10:05	WG1872284

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	05/28/2022 11:00	WG1870618

Sample Narrative:
L1496507-05 WG1870618: 8.01 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	4330		10.0	1	05/26/2022 18:54	WG1869906

Sample Narrative:
L1496507-05 WG1869906: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	477		0.500	1	05/26/2022 13:35	WG1869824
Cadmium	ND		0.500	1	05/26/2022 13:35	WG1869824
Copper	25.8		2.00	1	05/26/2022 13:35	WG1869824
Lead	13.1		0.500	1	05/26/2022 13:35	WG1869824
Nickel	17.0		2.00	1	05/26/2022 13:35	WG1869824
Selenium	ND		2.00	1	05/26/2022 13:35	WG1869824
Silver	ND		1.00	1	05/26/2022 13:35	WG1869824
Zinc	51.6		5.00	1	05/26/2022 13:35	WG1869824

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	1.08		0.200	1	06/02/2022 18:34	WG1869126

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.1		1.00	5	05/26/2022 12:04	WG1869823

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	0.690		0.100	1	05/24/2022 15:51	WG1868642
(S) a,a,a-Trifluorotoluene(FID)	*93.0*		*77.0-120*		*05/24/2022 15:51*	WG1868642

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	05/25/2022 13:17	WG1869113
Toluene	ND		0.00500	1	05/25/2022 13:17	WG1869113
Ethylbenzene	ND		0.00250	1	05/25/2022 13:17	WG1869113
Xylenes, Total	0.0267		0.00650	1	05/25/2022 13:17	WG1869113
1,2,4-Trimethylbenzene	0.00507		0.00500	1	05/25/2022 13:17	WG1869113
1,3,5-Trimethylbenzene	0.0728		0.00500	1	05/25/2022 13:17	WG1869113
(S) Toluene-d8	*106*		*75.0-131*		*05/25/2022 13:17*	WG1869113
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*05/25/2022 13:17*	WG1869113
(S) 1,2-Dichloroethane-d4	*97.8*		*70.0-130*		*05/25/2022 13:17*	WG1869113

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	26.5		4.00	1	06/01/2022 11:30	WG1871689
C28-C36 Motor Oil Range	37.2		4.00	1	06/01/2022 11:30	WG1871689
(S) o-Terphenyl	*85.5*		*18.0-148*		*06/01/2022 11:30*	WG1871689

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Anthracene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Benzo(a)anthracene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Benzo(b)fluoranthene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Benzo(k)fluoranthene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Benzo(a)pyrene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Chrysene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Dibenz(a,h)anthracene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Fluoranthene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Fluorene	ND		0.00600	1	06/01/2022 22:54	WG1871685
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/01/2022 22:54	WG1871685
1-Methylnaphthalene	ND		0.0200	1	06/01/2022 22:54	WG1871685
2-Methylnaphthalene	0.0307		0.0200	1	06/01/2022 22:54	WG1871685
Naphthalene	ND		0.0200	1	06/01/2022 22:54	WG1871685
Pyrene	ND		0.00600	1	06/01/2022 22:54	WG1871685
(S) p-Terphenyl-d14	*86.4*		*23.0-120*		*06/01/2022 22:54*	WG1871685
(S) Nitrobenzene-d5	*84.9*		*14.0-149*		*06/01/2022 22:54*	WG1871685
(S) 2-Fluorobiphenyl	*76.1*		*34.0-125*		*06/01/2022 22:54*	WG1871685

Method Blank (MB)

(MB) R3796712-1 05/26/22 13:53

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

L1496238-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1496238-13 05/26/22 14:03 • (DUP) R3796712-3 05/26/22 14:08

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

L1496507-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1496507-01 05/26/22 16:18 • (DUP) R3796712-8 05/26/22 16:23

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) R3796712-2 05/26/22 13:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.56	95.6	80.0-120	

L1496238-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496238-21 05/26/22 15:00 • (MS) R3796712-4 05/26/22 15:05 • (MSD) R3796712-5 05/26/22 15:11

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	20.2	19.7	101	98.3	1	75.0-125			2.64	20

L1496238-21 Original Sample (OS) • Matrix Spike (MS)

(OS) L1496238-21 05/26/22 15:00 • (MS) R3796712-6 05/26/22 15:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	687	ND	689	100	50	75.0-125	

Method Blank (MB)

(MB) R3798208-1 06/01/22 09:48

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

L1497352-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1497352-04 06/01/22 11:13 • (DUP) R3798208-7 06/01/22 11:18

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

L1497829-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1497829-01 06/01/22 12:10 • (DUP) R3798208-8 06/01/22 12:15

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) R3798208-2 06/01/22 09:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.43	94.3	80.0-120	

L1496917-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496917-01 06/01/22 10:11 • (MS) R3798208-3 06/01/22 10:16 • (MSD) R3798208-4 06/01/22 10:21

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 %
Hexavalent Chromium	20.0	ND	18.8	19.1	91.7	92.9	1	75.0-125			1.24	20

L1496917-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1496917-01 06/01/22 10:11 • (MS) R3798208-5 06/01/22 10:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	693	ND	617	89.1	50	75.0-125	

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

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

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

Sample Narrative:

OS: 7.82 at 20.9C

DUP: 7.85 at 20.5C

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

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

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

Sample Narrative:

OS: 8.03 at 21.2C

DUP: 8.01 at 21.2C

Laboratory Control Sample (LCS)

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

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

Sample Narrative:

LCS: 9.94 at 21.1C

L1496519-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1496519-01 05/28/22 11:00 • (DUP) R3797123-2 05/28/22 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.69	7.74	1	0.648		1

Sample Narrative:

OS: 7.69 at 20.5C

DUP: 7.74 at 20.6C

L1497640-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1497640-05 05/28/22 11:00 • (DUP) R3797123-3 05/28/22 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.90	6.93	1	0.434		1

Sample Narrative:

OS: 6.9 at 21.6C

DUP: 6.93 at 21.6C

Laboratory Control Sample (LCS)

(LCS) R3797123-1 05/28/22 11:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.92	99.2	99.0-101	

Sample Narrative:

LCS: 9.92 at 21.4C

Method Blank (MB)

(MB) R3796648-1 05/26/22 18:54

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

L1496498-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1496498-01 05/26/22 18:54 • (DUP) R3796648-3 05/26/22 18:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4660	4770	1	2.33		20

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

L1496507-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1496507-01 05/26/22 18:54 • (DUP) R3796648-4 05/26/22 18:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1570	1560	1	0.767		20

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

Laboratory Control Sample (LCS)

(LCS) R3796648-2 05/26/22 18:54

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	279	104	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3796532-1 05/26/22 12:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3796532-2 05/26/22 12:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	104	104	80.0-120	
Cadmium	100	99.5	99.5	80.0-120	
Copper	100	103	103	80.0-120	
Lead	100	99.2	99.2	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	101	101	80.0-120	
Silver	20.0	18.6	92.8	80.0-120	
Zinc	100	98.3	98.3	80.0-120	

L1496506-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496506-01 05/26/22 12:18 • (MS) R3796532-5 05/26/22 12:27 • (MSD) R3796532-6 05/26/22 12:29

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	204	337	344	134	140	1	75.0-125	J5	J5	1.90	20
Cadmium	100	ND	102	99.7	102	99.6	1	75.0-125			2.59	20
Copper	100	13.2	124	117	110	104	1	75.0-125			5.17	20
Lead	100	8.76	111	108	102	99.5	1	75.0-125			2.63	20
Nickel	100	23.0	139	120	116	97.4	1	75.0-125			14.1	20
Selenium	100	ND	102	101	102	101	1	75.0-125			0.945	20
Silver	20.0	ND	19.2	18.6	96.0	92.9	1	75.0-125			3.26	20
Zinc	100	35.6	132	130	96.9	94.5	1	75.0-125			1.84	20

Method Blank (MB)

(MB) R3796739-1 05/26/22 14:28

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) R3796739-2 05/26/22 14:47 • (LCSD) R3796739-3 05/26/22 14:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.07	1.08	107	108	80.0-120			0.825	20

Method Blank (MB)

(MB) R3798968-1 06/02/22 18:12

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

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

(LCS) R3798968-2 06/02/22 18:15 • (LCSD) R3798968-3 06/02/22 18:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	0.989	100	98.9	80.0-120			1.13	20

Method Blank (MB)

(MB) R3796270-1 05/26/22 10:20

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) R3796270-2 05/26/22 10:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	81.3	81.3	80.0-120	

L1496506-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496506-01 05/26/22 10:27 • (MS) R3796270-5 05/26/22 10:37 • (MSD) R3796270-6 05/26/22 10:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	8.09	88.2	92.1	80.1	84.0	5	75.0-125			4.33	20

Method Blank (MB)

(MB) R3795772-2 05/24/22 11:13

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

Laboratory Control Sample (LCS)

(LCS) R3795772-1 05/24/22 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.21	94.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*77.0-120*	

Method Blank (MB)

(MB) R3796410-3 05/25/22 08:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*97.7*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*91.9*			*70.0-130*

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

(LCS) R3796410-1 05/25/22 07:01 • (LCSD) R3796410-2 05/25/22 07:20

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	0.108	0.109	86.4	87.2	70.0-123			0.922	20
Toluene	0.125	0.116	0.118	92.8	94.4	75.0-121			1.71	20
Ethylbenzene	0.125	0.116	0.115	92.8	92.0	74.0-126			0.866	20
Xylenes, Total	0.375	0.340	0.335	90.7	89.3	72.0-127			1.48	20
1,2,4-Trimethylbenzene	0.125	0.0982	0.0987	78.6	79.0	70.0-126			0.508	20
1,3,5-Trimethylbenzene	0.125	0.103	0.105	82.4	84.0	73.0-127			1.92	20
(S) Toluene-d8				*104*	*103*	*75.0-131*				
(S) 4-Bromofluorobenzene				*106*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*103*	*103*	*70.0-130*				

L1495308-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495308-01 05/25/22 08:35 • (MS) R3796410-4 05/25/22 14:52 • (MSD) R3796410-5 05/25/22 15:11

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	0.141	ND	0.124	0.116	103	96.7	1	10.0-149			6.67	37
Toluene	0.141	ND	0.135	0.129	113	107	1	10.0-156			4.55	38
Ethylbenzene	0.141	ND	0.131	0.123	109	103	1	10.0-160			6.30	38
Xylenes, Total	0.424	ND	0.387	0.363	107	101	1	10.0-160			6.40	38
1,2,4-Trimethylbenzene	0.141	ND	0.110	0.120	91.7	100	1	10.0-160			8.70	36
1,3,5-Trimethylbenzene	0.141	ND	0.119	0.130	99.2	108	1	10.0-160			8.84	38
(S) Toluene-d8					*104*	*105*		*75.0-131*				
(S) 4-Bromofluorobenzene					*107*	*101*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*104*	*99.4*		*70.0-130*				

Method Blank (MB)

(MB) R3798142-1 06/01/22 09:24

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	1.23	J	0.274	4.00
(S) o-Terphenyl	*158*	J1		*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3798142-2 06/01/22 09:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	40.5	81.0	50.0-150	
(S) o-Terphenyl			*156*	*18.0-148*	J1

L1496507-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496507-04 06/01/22 11:17 • (MS) R3798142-3 06/01/22 11:30 • (MSD) R3798142-4 06/01/22 11:42

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	48.3	15.2	48.4	51.9	68.7	76.8	1	50.0-150			6.98	20
(S) o-Terphenyl					*105*	*94.8*		*18.0-148*				

Method Blank (MB)

(MB) R3798464-2 06/01/22 16:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*86.7*			*23.0-120*
(S) Nitrobenzene-d5	*64.5*			*14.0-149*
(S) 2-Fluorobiphenyl	*71.1*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3798464-1 06/01/22 16:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0611	76.4	50.0-120	
Anthracene	0.0800	0.0595	74.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0582	72.8	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0597	74.6	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0593	74.1	49.0-125	
Benzo(a)pyrene	0.0800	0.0503	62.9	42.0-120	
Chrysene	0.0800	0.0597	74.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0594	74.3	47.0-125	
Fluoranthene	0.0800	0.0591	73.9	49.0-129	
Fluorene	0.0800	0.0623	77.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0572	71.5	46.0-125	
1-Methylnaphthalene	0.0800	0.0607	75.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0587	73.4	50.0-120	
Naphthalene	0.0800	0.0588	73.5	50.0-120	
Pyrene	0.0800	0.0603	75.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3798464-1 06/01/22 16:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*91.1*	*23.0-120*	
(S) Nitrobenzene-d5			*71.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*77.0*	*34.0-125*	

L1496395-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1496395-11 06/01/22 19:03 • (MS) R3798464-3 06/01/22 19:21 • (MSD) R3798464-4 06/01/22 19:38

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0788	ND	0.0492	0.0405	62.4	51.4	1	14.0-127			19.4	27
Anthracene	0.0788	ND	0.0462	0.0371	58.6	47.1	1	10.0-145			21.8	30
Benzo(a)anthracene	0.0788	ND	0.0454	0.0355	57.6	45.1	1	10.0-139			24.5	30
Benzo(b)fluoranthene	0.0788	ND	0.0465	0.0361	59.0	45.8	1	10.0-140			25.2	36
Benzo(k)fluoranthene	0.0788	ND	0.0477	0.0369	60.5	46.8	1	10.0-137			25.5	31
Benzo(a)pyrene	0.0788	ND	0.0465	0.0362	59.0	45.9	1	10.0-141			24.9	31
Chrysene	0.0788	ND	0.0483	0.0376	61.3	47.7	1	10.0-145			24.9	30
Dibenz(a,h)anthracene	0.0788	ND	0.0455	0.0364	57.7	46.2	1	10.0-132			22.2	31
Fluoranthene	0.0788	ND	0.0473	0.0376	60.0	47.7	1	10.0-153			22.9	33
Fluorene	0.0788	ND	0.0501	0.0406	63.6	51.5	1	11.0-130			20.9	29
Indeno(1,2,3-cd)pyrene	0.0788	ND	0.0462	0.0350	58.6	44.4	1	10.0-137			27.6	32
1-Methylnaphthalene	0.0788	ND	0.0583	0.0454	74.0	57.6	1	10.0-142			24.9	28
2-Methylnaphthalene	0.0788	ND	0.0600	0.0402	76.1	51.0	1	10.0-137		J3	39.5	28
Naphthalene	0.0788	ND	0.0532	0.0428	67.5	54.3	1	10.0-135			21.7	27
Pyrene	0.0788	ND	0.0493	0.0393	62.6	49.9	1	10.0-148			22.6	35
(S) p-Terphenyl-d14					*68.5*	*62.4*		*23.0-120*				
(S) Nitrobenzene-d5					*56.9*	*49.9*		*14.0-149*				
(S) 2-Fluorobiphenyl					*62.4*	*55.8*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
T8	Sample(s) received past/too close to holding time expiration.

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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To: BRollins@caerusoilandgas.com	Site Collection Info/Address:
Customer Project Name/Number: P27-595	State: CO / County/City: Time Zone Collected: [ ]PT [✓]MT [ ]CT [ ]ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: P27-595 Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): S. Sivigliano	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: standard Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [X] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	COGCC Table 915-1 Arsenic, pH, EC, SAR, Boron (hot water sol.)	Lab Sample # / Comments
20220518-P27(POR@)@9'	S		5/18	10:15	-	-	-	2	x	L1496307 -01
20220518-P27(E.Wall)@8'	S			10:30	-	-	-	2	x	-02
20220518-P27(N.Wall)@8'	S			10:45	-	-	-	2	x	-03
20220518-P27(S.Wall)@8'	S			11:00	-	-	-	2	x	-04
20220518-P27(W.Wall)@8'	S			11:15	-	-	-	2	x	-05
					-	-	-			
					-	-	-			

Container Preservative Type **

Lab Project Manager:

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y (N)	NA
Custody Signatures Present	(Y) N	NA
Collector Signature Present	(Y) N	NA
Bottles Intact	(Y) N	NA
Correct Bottles	(Y) N	NA
Sufficient Volume	(Y) N	NA
Samples Received on Ice	(Y) N	NA
VOA - Headspace Acceptable	Y N	(NA)
USDA Regulated Soils	Y (N)	NA
Samples in Holding Time	(Y) N	NA
Residual Chlorine Present	Y N	(NA)
Cl Strips: _____		
Sample pH Acceptable	Y N	(NA)
pH Strips: _____		
Sulfide Present	Y N	(NA)
Lead Acetate Strips: _____		

LAB USE ONLY:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): (Y) N NA

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____oC

Cooler 1 Therm Corr. Factor: _____oC

Cooler 1 Corrected Temp: _____oC

Comments: MMAT 3.1+0=3.1

Trip Blank Received: Y (N) NA HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	5/19/22 - 14:00		5/19 1400
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	5/19/22 1500		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			5/20/22 900

G128

Template:

Prelogin:

PM:

PB:

Non Conformance(s): YES / NO

Page: _____ of: _____

ANALYTICAL REPORT

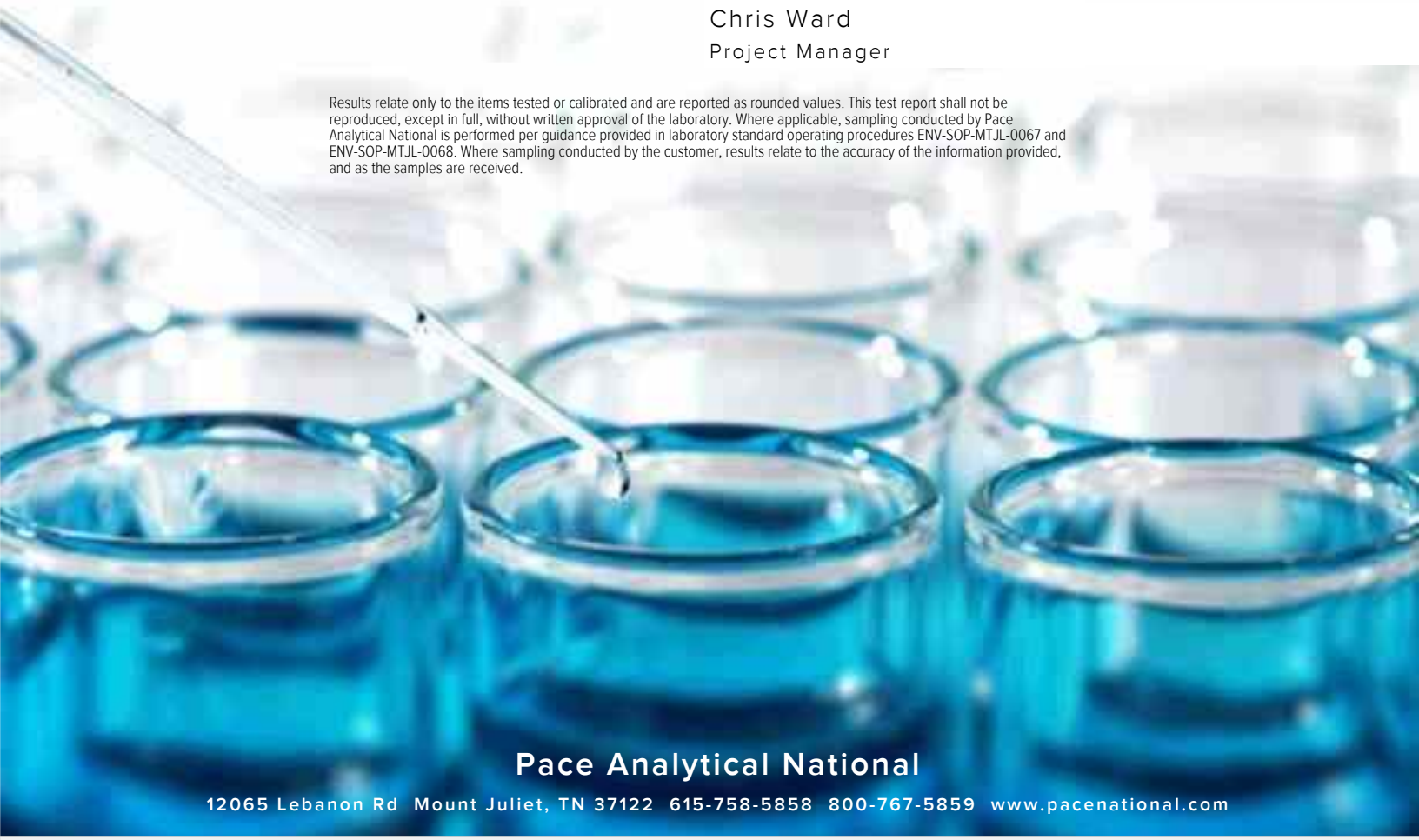
June 20, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1498429
Samples Received:	05/26/2022
Project Number:	
Description:	P27-595
Site:	P27-595
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward
Project Manager



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

TABLE OF CONTENTS

20220524-P27-595(SEP-NWALL)@8' L1498429-01 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 13:00 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 17:48	06/13/22 17:48	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1872287	1	05/31/22 18:00	06/01/22 16:19	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/07/22 17:03	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878282	1	06/12/22 15:59	06/12/22 18:42	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873327	5	06/06/22 14:39	06/07/22 03:20	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872639	1	05/27/22 16:50	06/01/22 14:01	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 04:47	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 02:10	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	5	06/06/22 16:52	06/07/22 11:29	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 23:22	AMG	Mt. Juliet, TN

20220524-P27-595(SEP-SWALL)@8' L1498429-02 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 13:15 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 17:51	06/13/22 17:51	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873627	1	06/05/22 17:00	06/06/22 13:52	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1875176	1	06/06/22 16:32	06/08/22 21:37	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878282	1	06/12/22 15:59	06/12/22 18:45	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873336	5	06/06/22 11:39	06/08/22 16:16	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872639	1	05/27/22 16:50	06/01/22 14:24	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 05:06	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 02:49	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/08/22 00:02	AMG	Mt. Juliet, TN

20220524-P27-595(SEP-EWALL)@8' L1498429-03 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 13:30 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 17:53	06/13/22 17:53	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873627	1	06/05/22 17:00	06/06/22 13:57	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/07/22 17:06	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878282	1	06/12/22 15:59	06/12/22 18:48	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873327	5	06/06/22 14:39	06/07/22 03:23	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872639	1	05/27/22 16:50	06/01/22 14:47	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 05:24	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 03:02	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 23:02	AMG	Mt. Juliet, TN

20220524-P27-595(SEP-WWALL)@8' L1498429-04 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 13:45 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 17:56	06/13/22 17:56	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873627	1	06/05/22 17:00	06/06/22 14:13	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN

20220524-P27-595(SEP-WWALL)@8' L1498429-04 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 13:45 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/07/22 17:09	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878282	1	06/12/22 15:59	06/12/22 18:51	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873327	5	06/06/22 14:39	06/07/22 03:26	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872635	25	05/27/22 16:50	06/01/22 13:50	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 05:43	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 03:41	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	5	06/06/22 16:52	06/07/22 11:42	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 22:42	AMG	Mt. Juliet, TN

20220524-P27-595(SEP-BASE)@12' L1498429-05 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 14:00 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 17:59	06/13/22 17:59	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873627	1	06/05/22 17:00	06/06/22 14:18	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/07/22 17:11	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878282	1	06/12/22 15:59	06/12/22 18:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873327	5	06/06/22 14:39	06/07/22 03:29	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872635	25	05/27/22 16:50	06/01/22 14:10	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 06:03	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 03:28	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	5	06/06/22 16:52	06/07/22 12:33	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 22:22	AMG	Mt. Juliet, TN

20220524-P27-595(SEP-NWWALL)@9' L1498429-06 Solid

Collected by: Evan Mason | Collected date/time: 05/24/22 15:30 | Received date/time: 05/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875455	1	06/13/22 18:02	06/13/22 18:02	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873627	1	06/05/22 17:00	06/06/22 14:23	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873129	1	06/02/22 14:00	06/02/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/07/22 17:20	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1873325	1	06/06/22 14:36	06/08/22 21:59	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1878368	1	06/15/22 19:46	06/20/22 10:58	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873327	5	06/06/22 14:39	06/07/22 03:40	SJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872635	25	05/27/22 16:50	06/01/22 14:31	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1873614	1	05/27/22 16:50	06/03/22 06:22	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875073	1	06/06/22 16:52	06/07/22 03:54	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 23:42	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	2.81		1	06/13/2022 17:48	WG1875455

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/01/2022 16:19	WG1872287

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.39	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:

L1498429-01 WG1873129: 8.39 at 23.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	632		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:

L1498429-01 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	2010		0.500	1	06/07/2022 17:03	WG1873325
Cadmium	ND		0.500	1	06/07/2022 17:03	WG1873325
Copper	22.7		2.00	1	06/07/2022 17:03	WG1873325
Lead	14.5		0.500	1	06/07/2022 17:03	WG1873325
Nickel	18.2		2.00	1	06/07/2022 17:03	WG1873325
Selenium	ND		2.00	1	06/07/2022 17:03	WG1873325
Silver	ND		1.00	1	06/07/2022 17:03	WG1873325
Zinc	50.5		5.00	1	06/07/2022 17:03	WG1873325

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	ND		0.200	1	06/12/2022 18:42	WG1878282

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	20.3		1.00	5	06/07/2022 03:20	WG1873327

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	0.716		0.100	1	06/01/2022 14:01	WG1872639
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*77.0-120*		*06/01/2022 14:01*	WG1872639

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0171		0.00100	1	06/03/2022 04:47	WG1873614
Toluene	0.113		0.00500	1	06/03/2022 04:47	WG1873614
Ethylbenzene	0.0175		0.00250	1	06/03/2022 04:47	WG1873614
Xylenes, Total	0.249		0.00650	1	06/03/2022 04:47	WG1873614
1,2,4-Trimethylbenzene	0.0776		0.00500	1	06/03/2022 04:47	WG1873614
1,3,5-Trimethylbenzene	0.266		0.00500	1	06/03/2022 04:47	WG1873614
(S) Toluene-d8	*97.7*		*75.0-131*		*06/03/2022 04:47*	WG1873614
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*06/03/2022 04:47*	WG1873614
(S) 1,2-Dichloroethane-d4	*99.2*		*70.0-130*		*06/03/2022 04:47*	WG1873614

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	221	J3 V	4.00	1	06/07/2022 02:10	WG1875073
C28-C36 Motor Oil Range	312		20.0	5	06/07/2022 11:29	WG1875073
(S) o-Terphenyl	*114*		*18.0-148*		*06/07/2022 11:29*	WG1875073
(S) o-Terphenyl	*61.9*		*18.0-148*		*06/07/2022 02:10*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Anthracene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Chrysene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Fluoranthene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Fluorene	ND		0.00600	1	06/07/2022 23:22	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/07/2022 23:22	WG1874657
1-Methylnaphthalene	0.0515		0.0200	1	06/07/2022 23:22	WG1874657
2-Methylnaphthalene	0.120		0.0200	1	06/07/2022 23:22	WG1874657
Naphthalene	0.0827		0.0200	1	06/07/2022 23:22	WG1874657
Pyrene	ND		0.00600	1	06/07/2022 23:22	WG1874657
(S) p-Terphenyl-d14	*95.2*		*23.0-120*		*06/07/2022 23:22*	WG1874657
(S) Nitrobenzene-d5	*100*		*14.0-149*		*06/07/2022 23:22*	WG1874657
(S) 2-Fluorobiphenyl	*78.6*		*34.0-125*		*06/07/2022 23:22*	WG1874657

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	11.0		1	06/13/2022 17:51	WG1875455

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/06/2022 13:52	WG1873627

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.74	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:

L1498429-02 WG1873129: 8.74 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	780		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:

L1498429-02 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	388		0.500	1	06/08/2022 21:37	WG1875176
Cadmium	ND		0.500	1	06/08/2022 21:37	WG1875176
Copper	26.1		2.00	1	06/08/2022 21:37	WG1875176
Lead	16.3		0.500	1	06/08/2022 21:37	WG1875176
Nickel	18.3		2.00	1	06/08/2022 21:37	WG1875176
Selenium	ND		2.00	1	06/08/2022 21:37	WG1875176
Silver	ND		1.00	1	06/08/2022 21:37	WG1875176
Zinc	59.8		5.00	1	06/08/2022 21:37	WG1875176

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	0.376		0.200	1	06/12/2022 18:45	WG1878282

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	16.8		1.00	5	06/08/2022 16:16	WG1873336

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	0.284		0.100	1	06/01/2022 14:24	WG1872639
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*77.0-120*		*06/01/2022 14:24*	WG1872639

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0201		0.00100	1	06/03/2022 05:06	WG1873614
Toluene	0.122		0.00500	1	06/03/2022 05:06	WG1873614
Ethylbenzene	0.0227		0.00250	1	06/03/2022 05:06	WG1873614
Xylenes, Total	0.316		0.00650	1	06/03/2022 05:06	WG1873614
1,2,4-Trimethylbenzene	0.0816		0.00500	1	06/03/2022 05:06	WG1873614
1,3,5-Trimethylbenzene	0.327		0.00500	1	06/03/2022 05:06	WG1873614
(S) Toluene-d8	*98.1*		*75.0-131*		*06/03/2022 05:06*	WG1873614
(S) 4-Bromofluorobenzene	*110*		*67.0-138*		*06/03/2022 05:06*	WG1873614
(S) 1,2-Dichloroethane-d4	*99.7*		*70.0-130*		*06/03/2022 05:06*	WG1873614

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	85.0		4.00	1	06/07/2022 02:49	WG1875073
C28-C36 Motor Oil Range	127		4.00	1	06/07/2022 02:49	WG1875073
(S) o-Terphenyl	*61.5*		*18.0-148*		*06/07/2022 02:49*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Anthracene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Chrysene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Fluoranthene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Fluorene	ND		0.00600	1	06/08/2022 00:02	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 00:02	WG1874657
1-Methylnaphthalene	ND		0.0200	1	06/08/2022 00:02	WG1874657
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 00:02	WG1874657
Naphthalene	ND		0.0200	1	06/08/2022 00:02	WG1874657
Pyrene	ND		0.00600	1	06/08/2022 00:02	WG1874657
(S) p-Terphenyl-d14	*101*		*23.0-120*		*06/08/2022 00:02*	WG1874657
(S) Nitrobenzene-d5	*95.0*		*14.0-149*		*06/08/2022 00:02*	WG1874657
(S) 2-Fluorobiphenyl	*78.6*		*34.0-125*		*06/08/2022 00:02*	WG1874657

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	12.3		1	06/13/2022 17:53	WG1875455

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/06/2022 13:57	WG1873627

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	9.38	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:

L1498429-03 WG1873129: 9.38 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	680		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:

L1498429-03 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	486		0.500	1	06/07/2022 17:06	WG1873325
Cadmium	ND		0.500	1	06/07/2022 17:06	WG1873325
Copper	24.7		2.00	1	06/07/2022 17:06	WG1873325
Lead	11.8		0.500	1	06/07/2022 17:06	WG1873325
Nickel	17.6		2.00	1	06/07/2022 17:06	WG1873325
Selenium	ND		2.00	1	06/07/2022 17:06	WG1873325
Silver	ND		1.00	1	06/07/2022 17:06	WG1873325
Zinc	56.3		5.00	1	06/07/2022 17:06	WG1873325

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	ND		0.200	1	06/12/2022 18:48	WG1878282

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	22.5		1.00	5	06/07/2022 03:23	WG1873327

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	0.393		0.100	1	06/01/2022 14:47	WG1872639
(S) a,a,a-Trifluorotoluene(FID)	*99.0*		*77.0-120*		*06/01/2022 14:47*	WG1872639

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00498		0.00100	1	06/03/2022 05:24	WG1873614
Toluene	0.0322		0.00500	1	06/03/2022 05:24	WG1873614
Ethylbenzene	0.00965		0.00250	1	06/03/2022 05:24	WG1873614
Xylenes, Total	0.157		0.00650	1	06/03/2022 05:24	WG1873614
1,2,4-Trimethylbenzene	0.0684		0.00500	1	06/03/2022 05:24	WG1873614
1,3,5-Trimethylbenzene	0.343		0.00500	1	06/03/2022 05:24	WG1873614
(S) Toluene-d8	*99.5*		*75.0-131*		*06/03/2022 05:24*	WG1873614
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*06/03/2022 05:24*	WG1873614
(S) 1,2-Dichloroethane-d4	*95.5*		*70.0-130*		*06/03/2022 05:24*	WG1873614

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	56.8		4.00	1	06/07/2022 03:02	WG1875073
C28-C36 Motor Oil Range	101		4.00	1	06/07/2022 03:02	WG1875073
(S) o-Terphenyl	*62.1*		*18.0-148*		*06/07/2022 03:02*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Anthracene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Chrysene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Fluoranthene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Fluorene	ND		0.00600	1	06/07/2022 23:02	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/07/2022 23:02	WG1874657
1-Methylnaphthalene	ND		0.0200	1	06/07/2022 23:02	WG1874657
2-Methylnaphthalene	ND		0.0200	1	06/07/2022 23:02	WG1874657
Naphthalene	ND		0.0200	1	06/07/2022 23:02	WG1874657
Pyrene	ND		0.00600	1	06/07/2022 23:02	WG1874657
(S) p-Terphenyl-d14	*97.0*		*23.0-120*		*06/07/2022 23:02*	WG1874657
(S) Nitrobenzene-d5	*86.1*		*14.0-149*		*06/07/2022 23:02*	WG1874657
(S) 2-Fluorobiphenyl	*82.4*		*34.0-125*		*06/07/2022 23:02*	WG1874657

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	14.0		1	06/13/2022 17:56	WG1875455

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	06/06/2022 14:13	WG1873627

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.23	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:
L1498429-04 WG1873129: 9.23 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	814		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:
L1498429-04 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	289		0.500	1	06/07/2022 17:09	WG1873325
Cadmium	ND		0.500	1	06/07/2022 17:09	WG1873325
Copper	25.3		2.00	1	06/07/2022 17:09	WG1873325
Lead	13.5		0.500	1	06/07/2022 17:09	WG1873325
Nickel	18.4		2.00	1	06/07/2022 17:09	WG1873325
Selenium	ND		2.00	1	06/07/2022 17:09	WG1873325
Silver	ND		1.00	1	06/07/2022 17:09	WG1873325
Zinc	47.3		5.00	1	06/07/2022 17:09	WG1873325

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	06/12/2022 18:51	WG1878282

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	26.1		1.00	5	06/07/2022 03:26	WG1873327

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	14.3		2.50	25	06/01/2022 13:50	WG1872635
(S) a,a,a-Trifluorotoluene(FID)	*95.0*		*77.0-120*		*06/01/2022 13:50*	WG1872635

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00537		0.00100	1	06/03/2022 05:43	WG1873614
Toluene	0.0203		0.00500	1	06/03/2022 05:43	WG1873614
Ethylbenzene	ND		0.00250	1	06/03/2022 05:43	WG1873614
Xylenes, Total	0.0305		0.00650	1	06/03/2022 05:43	WG1873614
1,2,4-Trimethylbenzene	0.00735		0.00500	1	06/03/2022 05:43	WG1873614
1,3,5-Trimethylbenzene	0.0888		0.00500	1	06/03/2022 05:43	WG1873614
(S) Toluene-d8	*98.2*		*75.0-131*		*06/03/2022 05:43*	WG1873614
(S) 4-Bromofluorobenzene	*110*		*67.0-138*		*06/03/2022 05:43*	WG1873614
(S) 1,2-Dichloroethane-d4	*99.6*		*70.0-130*		*06/03/2022 05:43*	WG1873614

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	219		4.00	1	06/07/2022 03:41	WG1875073
C28-C36 Motor Oil Range	384		20.0	5	06/07/2022 11:42	WG1875073
(S) o-Terphenyl	*111*		*18.0-148*		*06/07/2022 11:42*	WG1875073
(S) o-Terphenyl	*67.4*		*18.0-148*		*06/07/2022 03:41*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Anthracene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Chrysene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Fluoranthene	ND		0.00600	1	06/07/2022 22:42	WG1874657
Fluorene	0.0137		0.00600	1	06/07/2022 22:42	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/07/2022 22:42	WG1874657
1-Methylnaphthalene	0.0521		0.0200	1	06/07/2022 22:42	WG1874657
2-Methylnaphthalene	0.0977		0.0200	1	06/07/2022 22:42	WG1874657
Naphthalene	0.0276		0.0200	1	06/07/2022 22:42	WG1874657
Pyrene	ND		0.00600	1	06/07/2022 22:42	WG1874657
(S) p-Terphenyl-d14	*98.3*		*23.0-120*		*06/07/2022 22:42*	WG1874657
(S) Nitrobenzene-d5	*129*		*14.0-149*		*06/07/2022 22:42*	WG1874657
(S) 2-Fluorobiphenyl	*81.9*		*34.0-125*		*06/07/2022 22:42*	WG1874657

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.2		1	06/13/2022 17:59	WG1875455

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	06/06/2022 14:18	WG1873627

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.10	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:
L1498429-05 WG1873129: 9.1 at 23.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1100		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:
L1498429-05 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	221		0.500	1	06/07/2022 17:11	WG1873325
Cadmium	ND		0.500	1	06/07/2022 17:11	WG1873325
Copper	21.2		2.00	1	06/07/2022 17:11	WG1873325
Lead	14.2		0.500	1	06/07/2022 17:11	WG1873325
Nickel	15.2		2.00	1	06/07/2022 17:11	WG1873325
Selenium	ND		2.00	1	06/07/2022 17:11	WG1873325
Silver	ND		1.00	1	06/07/2022 17:11	WG1873325
Zinc	46.1		5.00	1	06/07/2022 17:11	WG1873325

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	0.267		0.200	1	06/12/2022 18:55	WG1878282

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.0		1.00	5	06/07/2022 03:29	WG1873327

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	45.7		2.50	25	06/01/2022 14:10	WG1872635
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*06/01/2022 14:10*	WG1872635

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00235		0.00100	1	06/03/2022 06:03	WG1873614
Toluene	0.00943		0.00500	1	06/03/2022 06:03	WG1873614
Ethylbenzene	ND		0.00250	1	06/03/2022 06:03	WG1873614
Xylenes, Total	0.0537		0.00650	1	06/03/2022 06:03	WG1873614
1,2,4-Trimethylbenzene	0.0183		0.00500	1	06/03/2022 06:03	WG1873614
1,3,5-Trimethylbenzene	0.742		0.00500	1	06/03/2022 06:03	WG1873614
(S) Toluene-d8	*96.0*		*75.0-131*		*06/03/2022 06:03*	WG1873614
(S) 4-Bromofluorobenzene	*146*	J1	*67.0-138*		*06/03/2022 06:03*	WG1873614
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*06/03/2022 06:03*	WG1873614

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	575		20.0	5	06/07/2022 12:33	WG1875073
C28-C36 Motor Oil Range	43.1		4.00	1	06/07/2022 03:28	WG1875073
(S) o-Terphenyl	*72.9*		*18.0-148*		*06/07/2022 12:33*	WG1875073
(S) o-Terphenyl	*84.5*		*18.0-148*		*06/07/2022 03:28*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.0183		0.00600	1	06/07/2022 22:22	WG1874657
Anthracene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Chrysene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Fluoranthene	ND		0.00600	1	06/07/2022 22:22	WG1874657
Fluorene	0.0453		0.00600	1	06/07/2022 22:22	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/07/2022 22:22	WG1874657
1-Methylnaphthalene	0.119		0.0200	1	06/07/2022 22:22	WG1874657
2-Methylnaphthalene	0.136		0.0200	1	06/07/2022 22:22	WG1874657
Naphthalene	ND		0.0200	1	06/07/2022 22:22	WG1874657
Pyrene	ND		0.00600	1	06/07/2022 22:22	WG1874657
(S) p-Terphenyl-d14	*97.8*		*23.0-120*		*06/07/2022 22:22*	WG1874657
(S) Nitrobenzene-d5	*152*	J1	*14.0-149*		*06/07/2022 22:22*	WG1874657
(S) 2-Fluorobiphenyl	*92.6*		*34.0-125*		*06/07/2022 22:22*	WG1874657

Sample Narrative:

L1498429-05 WG1874657: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.92		1	06/13/2022 18:02	WG1875455

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	06/06/2022 14:23	WG1873627

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.27	T8	1	06/02/2022 16:00	WG1873129

Sample Narrative:
L1498429-06 WG1873129: 8.27 at 23.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	782		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:
L1498429-06 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	663		0.500	1	06/07/2022 17:20	WG1873325
Cadmium	ND		0.500	1	06/07/2022 17:20	WG1873325
Copper	26.3		2.00	1	06/08/2022 21:59	WG1873325
Lead	14.2		0.500	1	06/07/2022 17:20	WG1873325
Nickel	15.8		2.00	1	06/07/2022 17:20	WG1873325
Selenium	ND		2.00	1	06/07/2022 17:20	WG1873325
Silver	ND		1.00	1	06/07/2022 17:20	WG1873325
Zinc	47.8		5.00	1	06/07/2022 17:20	WG1873325

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	0.712		0.200	1	06/20/2022 10:58	WG1878368

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	18.9		1.00	5	06/07/2022 03:40	WG1873327

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	5.57		2.50	25	06/01/2022 14:31	WG1872635
(S) a,a,a-Trifluorotoluene(FID)	*102*		*77.0-120*		*06/01/2022 14:31*	WG1872635

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	06/03/2022 06:22	WG1873614
Toluene	0.00567		0.00500	1	06/03/2022 06:22	WG1873614
Ethylbenzene	ND		0.00250	1	06/03/2022 06:22	WG1873614
Xylenes, Total	0.00918		0.00650	1	06/03/2022 06:22	WG1873614
1,2,4-Trimethylbenzene	ND		0.00500	1	06/03/2022 06:22	WG1873614
1,3,5-Trimethylbenzene	0.0103		0.00500	1	06/03/2022 06:22	WG1873614
(S) Toluene-d8	*97.9*		*75.0-131*		*06/03/2022 06:22*	WG1873614
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*06/03/2022 06:22*	WG1873614
(S) 1,2-Dichloroethane-d4	*102*		*70.0-130*		*06/03/2022 06:22*	WG1873614

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	45.6		4.00	1	06/07/2022 03:54	WG1875073
C28-C36 Motor Oil Range	86.5		4.00	1	06/07/2022 03:54	WG1875073
(S) o-Terphenyl	*71.6*		*18.0-148*		*06/07/2022 03:54*	WG1875073

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Anthracene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Benzo(a)anthracene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Benzo(b)fluoranthene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Benzo(k)fluoranthene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Benzo(a)pyrene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Chrysene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Dibenz(a,h)anthracene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Fluoranthene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Fluorene	ND		0.00600	1	06/07/2022 23:42	WG1874657
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/07/2022 23:42	WG1874657
1-Methylnaphthalene	ND		0.0200	1	06/07/2022 23:42	WG1874657
2-Methylnaphthalene	ND		0.0200	1	06/07/2022 23:42	WG1874657
Naphthalene	ND		0.0200	1	06/07/2022 23:42	WG1874657
Pyrene	ND		0.00600	1	06/07/2022 23:42	WG1874657
(S) p-Terphenyl-d14	*97.6*		*23.0-120*		*06/07/2022 23:42*	WG1874657
(S) Nitrobenzene-d5	*83.3*		*14.0-149*		*06/07/2022 23:42*	WG1874657
(S) 2-Fluorobiphenyl	*81.4*		*34.0-125*		*06/07/2022 23:42*	WG1874657

Method Blank (MB)

(MB) R3798454-1 06/01/22 13:38

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

L1498341-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498341-01 06/01/22 14:46 • (DUP) R3798454-3 06/01/22 14:51

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

L1498341-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1498341-02 06/01/22 14:56 • (DUP) R3798454-4 06/01/22 15:12

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) R3798454-2 06/01/22 13:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.58	95.8	80.0-120	

L1498341-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498341-09 06/01/22 15:48 • (MS) R3798454-5 06/01/22 15:53 • (MSD) R3798454-6 06/01/22 15:58

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 %
Hexavalent Chromium	20.0	ND	11.0	11.0	55.1	54.9	1	75.0-125	J6	J6	0.460	20

Sample Narrative:

MS: Matrix spike failure due to sample is a reducer.

MSD: Matrix spike failure due to sample is a reducer.

L1498341-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1498341-09 06/01/22 15:48 • (MS) R3798454-7 06/01/22 16:04

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	662	ND	595	89.9	50	75.0-125	

Method Blank (MB)

(MB) R3800005-1 06/06/22 13:08

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

L1495576-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1495576-08 06/06/22 13:42 • (DUP) R3800005-3 06/06/22 13:47

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	3.27		20

L1498436-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498436-01 06/06/22 14:28 • (DUP) R3800005-4 06/06/22 14:33

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) R3800005-2 06/06/22 13:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.2	102	80.0-120	

L1498436-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498436-02 06/06/22 14:39 • (MS) R3800005-5 06/06/22 14:44 • (MSD) R3800005-6 06/06/22 14:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	22.6	20.0	113	100	1	75.0-125			12.2	20

L1498436-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1498436-02 06/06/22 14:39 • (MS) R3800005-7 06/06/22 14:54

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	660	ND	798	121	50	75.0-125	

L1498341-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1498341-09 06/02/22 16:00 • (DUP) R3798846-2 06/02/22 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.95	7.97	1	0.251		1

Sample Narrative:

OS: 7.95 at 22.9C

DUP: 7.97 at 23.8C

L1498436-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498436-01 06/02/22 16:00 • (DUP) R3798846-3 06/02/22 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	9.17	9.17	1	0.000		1

Sample Narrative:

OS: 9.17 at 23.8C

DUP: 9.17 at 24C

Laboratory Control Sample (LCS)

(LCS) R3798846-1 06/02/22 16:00

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

Sample Narrative:

LCS: 9.9 at 22.9C

Method Blank (MB)

(MB) R3799342-1 06/03/22 18:12

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

L1498429-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1498429-02 06/03/22 18:12 • (DUP) R3799342-3 06/03/22 18:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	780	791	1	1.40		20

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

L1498436-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1498436-03 06/03/22 18:12 • (DUP) R3799342-4 06/03/22 18:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1150	1130	1	1.93		20

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

Laboratory Control Sample (LCS)

(LCS) R3799342-2 06/03/22 18:12

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	283	106	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3800659-1 06/07/22 16:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3800659-2 06/07/22 16:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	88.3	88.3	80.0-120	
Cadmium	100	85.3	85.3	80.0-120	
Copper	100	85.5	85.5	80.0-120	
Lead	100	86.0	86.0	80.0-120	
Nickel	100	87.7	87.7	80.0-120	
Selenium	100	84.8	84.8	80.0-120	
Silver	20.0	16.8	84.1	80.0-120	
Zinc	100	85.3	85.3	80.0-120	

L1498341-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498341-08 06/07/22 16:18 • (MS) R3800659-5 06/07/22 16:26 • (MSD) R3800659-6 06/07/22 16:29

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	273	377	343	104	70.5	1	75.0-125		J6	9.42	20
Cadmium	100	0.678	91.5	88.1	90.9	87.4	1	75.0-125			3.81	20
Copper	100	24.6	120	111	94.9	86.2	1	75.0-125			7.55	20
Lead	100	16.5	107	100	90.3	83.7	1	75.0-125			6.40	20
Nickel	100	19.8	112	104	91.8	84.0	1	75.0-125			7.23	20
Selenium	100	ND	89.7	86.6	89.7	86.6	1	75.0-125			3.51	20
Silver	20.0	ND	18.2	17.7	91.1	88.4	1	75.0-125			3.01	20
Zinc	100	59.1	132	125	73.2	65.7	1	75.0-125	J6	J6	5.83	20

Method Blank (MB)

(MB) R3801075-1 06/08/22 21:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3801075-2 06/08/22 21:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.9	97.9	80.0-120	
Cadmium	100	94.4	94.4	80.0-120	
Copper	100	97.8	97.8	80.0-120	
Lead	100	95.6	95.6	80.0-120	
Nickel	100	96.2	96.2	80.0-120	
Selenium	100	95.5	95.5	80.0-120	
Silver	20.0	18.0	90.2	80.0-120	
Zinc	100	94.3	94.3	80.0-120	

L1499768-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499768-01 06/08/22 21:22 • (MS) R3801075-5 06/08/22 21:31 • (MSD) R3801075-6 06/08/22 21:34

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	99.6	139	230	216	90.9	77.2	1	75.0-125			6.15	20
Cadmium	99.6	ND	95.6	94.2	95.4	94.1	1	75.0-125			1.40	20
Copper	99.6	5.03	103	102	98.2	97.0	1	75.0-125			1.21	20
Lead	99.6	4.79	102	99.7	97.0	94.9	1	75.0-125			2.06	20
Nickel	99.6	6.35	104	102	97.3	95.8	1	75.0-125			1.46	20
Selenium	99.6	ND	96.7	94.6	95.6	93.5	1	75.0-125			2.20	20
Silver	20.0	ND	18.5	18.2	92.6	91.1	1	75.0-125			1.64	20
Zinc	99.6	20.4	112	114	91.4	93.6	1	75.0-125			1.89	20

Method Blank (MB)

(MB) R3802344-1 06/12/22 17:58

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) R3802344-2 06/12/22 18:01 • (LCSD) R3802344-3 06/12/22 18:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	1.02	100	102	80.0-120			2.05	20

QUALITY CONTROL SUMMARY

L1498429-06

Method Blank (MB)

(MB) R3805101-1 06/20/22 10:44

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) R3805101-2 06/20/22 10:47 • (LCSD) R3805101-3 06/20/22 10:49

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	1.05	1.06	105	106	80.0-120			1.14	20

Method Blank (MB)

(MB) R3800122-1 06/07/22 02:21

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) R3800122-2 06/07/22 02:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	85.8	85.8	80.0-120	

L1498341-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498341-08 06/07/22 02:28 • (MS) R3800122-5 06/07/22 02:38 • (MSD) R3800122-6 06/07/22 02:41

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	20.0	101	94.3	80.6	74.3	5	75.0-125		J6	6.40	20

Method Blank (MB)

(MB) R3800969-1 06/08/22 15:49

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) R3800969-2 06/08/22 15:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.1	96.1	80.0-120	

L1499059-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499059-04 06/08/22 15:55 • (MS) R3800969-5 06/08/22 16:05 • (MSD) R3800969-6 06/08/22 16:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	3.72	98.3	103	94.5	99.3	5	75.0-125			4.71	20

Method Blank (MB)

(MB) R3798391-2 06/01/22 12:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	*95.9*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3798391-1 06/01/22 11:29

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)			*111*	*77.0-120*	

Method Blank (MB)

(MB) R3798747-2 06/01/22 12:04

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)	*102*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3798747-1 06/01/22 11:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.97	90.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*104*	*77.0-120*	

Method Blank (MB)

(MB) R3799063-2 06/03/22 03:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*98.5*			*75.0-131*
(S) 4-Bromofluorobenzene	*105*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*97.4*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3799063-1 06/03/22 02:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.131	105	70.0-123	
Toluene	0.125	0.121	96.8	75.0-121	
Ethylbenzene	0.125	0.126	101	74.0-126	
Xylenes, Total	0.375	0.379	101	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.0972	77.8	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.101	80.8	73.0-127	
(S) Toluene-d8			*98.5*	*75.0-131*	
(S) 4-Bromofluorobenzene			*108*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*98.3*	*70.0-130*	

L1498473-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498473-03 06/03/22 09:33 • (MS) R3799063-3 06/03/22 09:52 • (MSD) R3799063-4 06/03/22 10:11

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	0.145	0.154	116	123	1	10.0-149			6.02	37
Toluene	0.125	ND	0.127	0.137	102	110	1	10.0-156			7.58	38
Ethylbenzene	0.125	ND	0.131	0.144	105	115	1	10.0-160			9.45	38
Xylenes, Total	0.375	ND	0.387	0.421	103	112	1	10.0-160			8.42	38
1,2,4-Trimethylbenzene	0.125	ND	0.111	0.120	88.8	96.0	1	10.0-160			7.79	36
1,3,5-Trimethylbenzene	0.125	ND	0.122	0.129	97.6	103	1	10.0-160			5.58	38
(S) Toluene-d8					*96.4*	*97.1*		*75.0-131*				
(S) 4-Bromofluorobenzene					*103*	*104*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*100*	*100*		*70.0-130*				

Method Blank (MB)

(MB) R3800150-1 06/06/22 23:32

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	*95.8*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3800150-2 06/06/22 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.7	79.4	50.0-150	
(S) o-Terphenyl			*90.7*	*18.0-148*	

L1498429-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498429-01 06/07/22 02:10 • (MS) R3800150-3 06/07/22 02:23 • (MSD) R3800150-4 06/07/22 02:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.3	221	163	219	0.000	0.000	1	50.0-150	V	J3 V	29.3	20
(S) o-Terphenyl					*59.3*	*61.8*		*18.0-148*				

Method Blank (MB)

(MB) R3800588-2 06/07/22 16:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*112*			*23.0-120*
(S) Nitrobenzene-d5	*91.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*94.6*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3800588-1 06/07/22 16:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0765	95.6	50.0-120	
Anthracene	0.0800	0.0753	94.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0777	97.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0711	88.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0718	89.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0687	85.9	42.0-120	
Chrysene	0.0800	0.0738	92.3	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0736	92.0	47.0-125	
Fluoranthene	0.0800	0.0771	96.4	49.0-129	
Fluorene	0.0800	0.0757	94.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0755	94.4	46.0-125	
1-Methylnaphthalene	0.0800	0.0854	107	51.0-121	
2-Methylnaphthalene	0.0800	0.0947	118	50.0-120	
Naphthalene	0.0800	0.0885	111	50.0-120	
Pyrene	0.0800	0.0745	93.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3800588-1 06/07/22 16:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*104*	*23.0-120*	
(S) Nitrobenzene-d5			*92.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*92.0*	*34.0-125*	

L1498947-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498947-02 06/07/22 19:01 • (MS) R3800588-3 06/07/22 19:21 • (MSD) R3800588-4 06/07/22 19:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0788	ND	0.0548	0.0566	69.5	74.5	1	14.0-127			3.23	27
Anthracene	0.0788	ND	0.0518	0.0535	65.7	70.4	1	10.0-145			3.23	30
Benzo(a)anthracene	0.0788	ND	0.0515	0.0529	65.4	69.6	1	10.0-139			2.68	30
Benzo(b)fluoranthene	0.0788	ND	0.0514	0.0529	65.2	69.6	1	10.0-140			2.88	36
Benzo(k)fluoranthene	0.0788	ND	0.0542	0.0556	68.8	73.2	1	10.0-137			2.55	31
Benzo(a)pyrene	0.0788	ND	0.0522	0.0536	66.2	70.5	1	10.0-141			2.65	31
Chrysene	0.0788	ND	0.0546	0.0567	69.3	74.6	1	10.0-145			3.77	30
Dibenz(a,h)anthracene	0.0788	ND	0.0552	0.0576	70.1	75.8	1	10.0-132			4.26	31
Fluoranthene	0.0788	ND	0.0559	0.0561	70.9	73.8	1	10.0-153			0.357	33
Fluorene	0.0788	ND	0.0524	0.0542	66.5	71.3	1	11.0-130			3.38	29
Indeno(1,2,3-cd)pyrene	0.0788	ND	0.0544	0.0561	69.0	73.8	1	10.0-137			3.08	32
1-Methylnaphthalene	0.0788	ND	0.0576	0.0590	73.1	77.6	1	10.0-142			2.40	28
2-Methylnaphthalene	0.0788	ND	0.0526	0.0542	66.8	71.3	1	10.0-137			3.00	28
Naphthalene	0.0788	ND	0.0545	0.0570	69.2	75.0	1	10.0-135			4.48	27
Pyrene	0.0788	ND	0.0554	0.0564	70.3	74.2	1	10.0-148			1.79	35
(S) p-Terphenyl-d14					*82.9*	*89.0*		*23.0-120*				
(S) Nitrobenzene-d5					*64.8*	*70.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*71.4*	*76.9*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical™

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: P27-595	State: CO / County/City: / Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-819-0600 Email: same as above	Site/Facility ID #: P27-595
Collected By (print): Evan Mason	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required: standard
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)
	Compliance Monitoring? [ ] Yes [ ] No
	DW PWS ID #: DW Location Code:
	Immediately Packed on Ice: [✓] Yes [ ] No
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:
Lab Sample # / Comments:

L1498429

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	COGCC Table 915-1	EC, SAR, Boron (Hot water sol.), pH, Arsenic	
20220524-P27-595(SEP-NWALL)@8'	SL	Grab	5/24/22	1300	-	-	-	3	X		-01
20220524-P27-595(SEP-SWALL)@8'				1315	-	-	-	3	X		-02
20220524-P27-595(SEP-EWALL)@8'				1330	-	-	-	3	X		-03
20220524-P27-595(SEP-WWALL)@8'				1345	-	-	-	3	X		-04
20220524-P27-595(BA					-	-	-				
20220524-P27-595(SEP-BASE)@12'				1400	-	-	-	3	X		-05
20220524-P27-595(SEP-NWWALL)@9'				1530	-	-	-	3	X		-06

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 5755 8084 9738

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____oC

Cooler 1 Therm Corr. Factor: _____oC

Cooler 1 Corrected Temp: _____oC

Comments: 0.8

Relinquished by/Company: (Signature)	Date/Time: 5/25/22 1200	Received by/Company: (Signature)	Date/Time: 5/25 1330
Relinquished by/Company: (Signature)	Date/Time: 5/25 1600	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 5/26/22 0900

D050

Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y (N) NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

Project / Client Caerus

Sunny. 55° F. Light wind

1000: Arrive on site to collect samples & delineat impacts

- Review & sign JSA
- Review scope of work
- Calibrate PID
- Prepare equipment for sampling

Sample Name:	PID:	Time:	
~~20220426-P27(POR01)@~~ EM			
~~20220426-P27(POR02)@~~ EM			
20220426-P27-595(POR01)@6'	260.0	1215	3 jars
20220426-P27-595(POR02)@6'	403.5	1230	3 jars
20220426-P27-595(SW-01)	—	1130	
20220426-P27-595(BG-N)@2'	—	1300	1 jar
20220426-P27-595(BG-S)@3'	—	1345	2 jars

1500: All sampling complete

- Log all sample locations on GPS

1530: Wind gusts too strong to fly the drone today. Will come back on a later date to complete flight.

1600: Off site

EM 4/26/22

Caerus Oil and Gas 5-18-22

F27-595 S. Sivigliano

Sunny, high ~ 60°

08:00 - Onsite to conduct hydro-vac excavation
- Review and sign JSA and review scope of work with WCO crew, calibrate PID
- Production unit excavation is blocked by jersey barrier and overburden pile, cannot access
08:15 - Start hydro-vac at wellhead excavation
- Soil was previously excavated to identify damaged piping and expose buried flowlines
10:00 - Bottom of excavation has been lowered/cleared to 9' bgs and sidewalls cleared an additional 2-3' ~~laterally~~ laterally. Samples were screened via PID, no apparent odors/staining.

Sample ID	Time	PID ppm
20220518-F27(FORØ1)@9'	10:15	83.2
" " (E.WALL)@8'	10:30	12.7
(N.WALL)@8'	10:45	1.0
(S.WALL)@8'	11:00	27.4
(W.WALL)@8'	11:15	15.6

11:30 - Pack sample jars, place on ice, clean site
12:30 - OFF SITE, WCO off loads at F29 pad

5-18-22 Steve Sivigliano

Rite in the Rain

Location P27-595 Date 5/29/22

Project / Client Caerus

Sunny, 45°F, No Wind

900: Arrive on Site w/ WCO to hydrovac impacts at production unit

- Review + sign JSA
- Review scope
- Calibrate PID
- Prepare equipment for sampling

915: Begin Hydrovac

Sample ID:			PID:	Time:
20220529-P27-595		(SEP-N.WALL)@8'	97.3	1300
"	"	(SEP-S.WALL)@8'	62.5	1315
"	"	(SEP-E.WALL)@8'	18.0	1330
"	"	(SEP-W.WALL)@8'	108	1345
"	"	(SEP-BASE)@12'	96.9	1400
"	"	(SEP-NW.WALL)@8'	70.2	1530

1600: ALL SAMPLES COLLECTED

- LOAD EQUIPMENT
- OFF SITE

5/29/22