December 6, 2022

Blair Rollins
Environmental Specialist
Caerus Oil & Gas LLC
brollins@caerusoilandgas.com

Report of Work Completed – Well P&A

COGCC Location Name (ID)	ROLES-67S93W /13NESE (334558)
Client Location Name	J13W
COGCC Well Name	Roles #13-10 (J13W)
COGCC Remediation Project Number	25814
Legal Description	NWSE Sec. 13 T7S-R93W
Coordinates (Lat/Long)	39.444210 / -107.721290
County	Garfield County, Colorado

Mr. Rollins,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document findings of site investigation conducted in association with well plugging and abandonment (P&A) of Roles #13-10 (J13W) (API #05-045-06953) and associated flowline at the J13W well pad (Location). The Location is 6.6 miles southeast of Rifle, Colorado in Garfield County, as illustrated in the attached Topographic Location Map. Additional information on the Location is provided in the title block above, attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

In October 2022, the Roles #13-10 (J13W) well and associated flowline at the Location were plugged and abandoned. Colorado Oil and Gas Conservation Commission (COGCC) Form 27 Document 403209457 was submitted to open Remediation Project Number 25814.

Methodology

On October 6, 2022, Confluence provided sampling support to characterize soil beneath the plugged and abandoned equipment in accordance with Colorado Oil and Gas Conservation Commission (COGCC) Rule 911.a. Following cut and cap operations, soil around the wellhead had been removed to a depth of 8 feet below ground surface (bgs), and soil beneath the separator inlet had been removed to a depth of 5 feet bgs. One base sample was collected from the wellhead excavation at 8 feet bgs. One soil sample was collected from the base of the flowline excavation at 5 feet bgs. Composite soil samples were also collected from both related soil stockpiles. Samples were characterized using visual and olfactory observations and field-screened with a photoionization detector (PID).

On November 4, 2022, Confluence returned to the location to collect additional material from the wellhead base sample for analysis due to laboratory analytical limitations.

All soil samples were collected in laboratory provided jars, immediately placed on ice, and shipped under a completed chain-of-custody form to Pace Analytical Services (Pace) for analysis of COGCC Table 915-1 soil constituents of concern. The sample collected November 4 was submitted for sodium adsorption ratio (SAR) analysis only.

Results

These results summarize observations from onsite investigation efforts and associated laboratory analytical results. For organizational and presentation purposes, the results summary is divided between general observations of lithology and hydrogeology for the entire Location and site investigation activities.

Collected spatial data are depicted in the attached Site Diagram. Laboratory analytical reports are attached and summarized in the Laboratory Results Summary Table.

Lithology and Hydrogeology

Lithology at the Location is characterized as sandy clay with gravel. Groundwater is expected to flow southeast toward West Mamm Creek and ultimately to the Colorado River, located 6.0 miles north of the Location. No groundwater was observed during sampling activities. The Location sits approximately 20 feet higher in elevation than West Mamm Creek, located 0.11 miles southeast of the Location. Based on the elevation difference, depth to water at the Location is estimated to be approximately 20 feet bgs.

P&A Investigation

During P&A site investigation, field screening results indicated potential impacts to soil with hydrocarbon odor and staining noted in the flowline soil sample. PID readings of the wellhead soil sample measured 1.0 parts per million (ppm), and of the flowline sample measured 72.5 ppm. Analytical results of collected soil samples exceed COGCC Table 915-1 Protection of Groundwater Soil Screening Levels for 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, SAR, pH, arsenic, barium, and cadmium. The flowline sample exceeds allowable limits for 1,2,4 trimethylbenzene and 1,3,5 trimethylbenzene at 0.266 and 0.352 milligrams per kilogram (mg/kg), respectively. SAR exceeds at 7.89 in the wellhead base sample. The wellhead base sample also exceeds allowable limits for pH at 8.98. Arsenic exceedances range from 6.34 milligrams per kilogram (mg/kg) at the base of the wellhead to 6.62 mg/kg in the flowline sample. Barium exceedances range from 192 mg/kg in the flowline sample to 232 mg/kg in the wellhead sample. The flowline sample exceeds allowable limits for cadmium at 0.504 mg/kg.

Stockpile Investigation

During P&A site investigation, field screening results did not indicate impacts to soil. No hydrocarbon staining or odor were noted, and PID measurements ranged from 0.2 to 0.7 ppm. Analytical results of collected soil samples are within COGCC Table 915-1 Protection of Groundwater Soil Screening Levels for all constituents except SAR, pH, arsenic, and barium. SAR exceeds at 8.55 in the wellhead stockpile. Exceedances of pH range from 8.82 in the wellhead stockpile to 8.98 in the flowline stockpile. Arsenic exceedances range from 5.82 mg/kg

in the wellhead stockpile to 6.00 mg/kg in the flowline stockpile. Barium exceedances range from 247 mg/kg in the flowline stockpile to 282 mg/kg in the wellhead stockpile.

Recommendations and Analysis

Although SAR values above COGCC Table 915-1 Protection of Groundwater Soil Screening Levels remain within the investigation area, analytical results of background samples collected from the location in 2012 indicate native SAR levels elevated above allowable limits. Analytical results of background sampling conducted November 27, 2012, indicate native SAR at the Location ranging from 2.2 to 11. Based on Table 915-1 Footnote 1, Confluence recommends requesting an alternative allowable limit for SAR of 11.

Assuming the alternative allowable limit is accepted, Confluence also recommends requesting a reduced analyte list of 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, pH, arsenic, barium, and cadmium. Confluence also recommends additional background characterization at the Location to determine whether pH, arsenic, barium, and cadmium are elevated in native soil.

Confluence is grateful for the opportunity to support you with this project. If you have any questions about the methods, results or recommendations presented here, please do not hesitate to contact us.

Regards,

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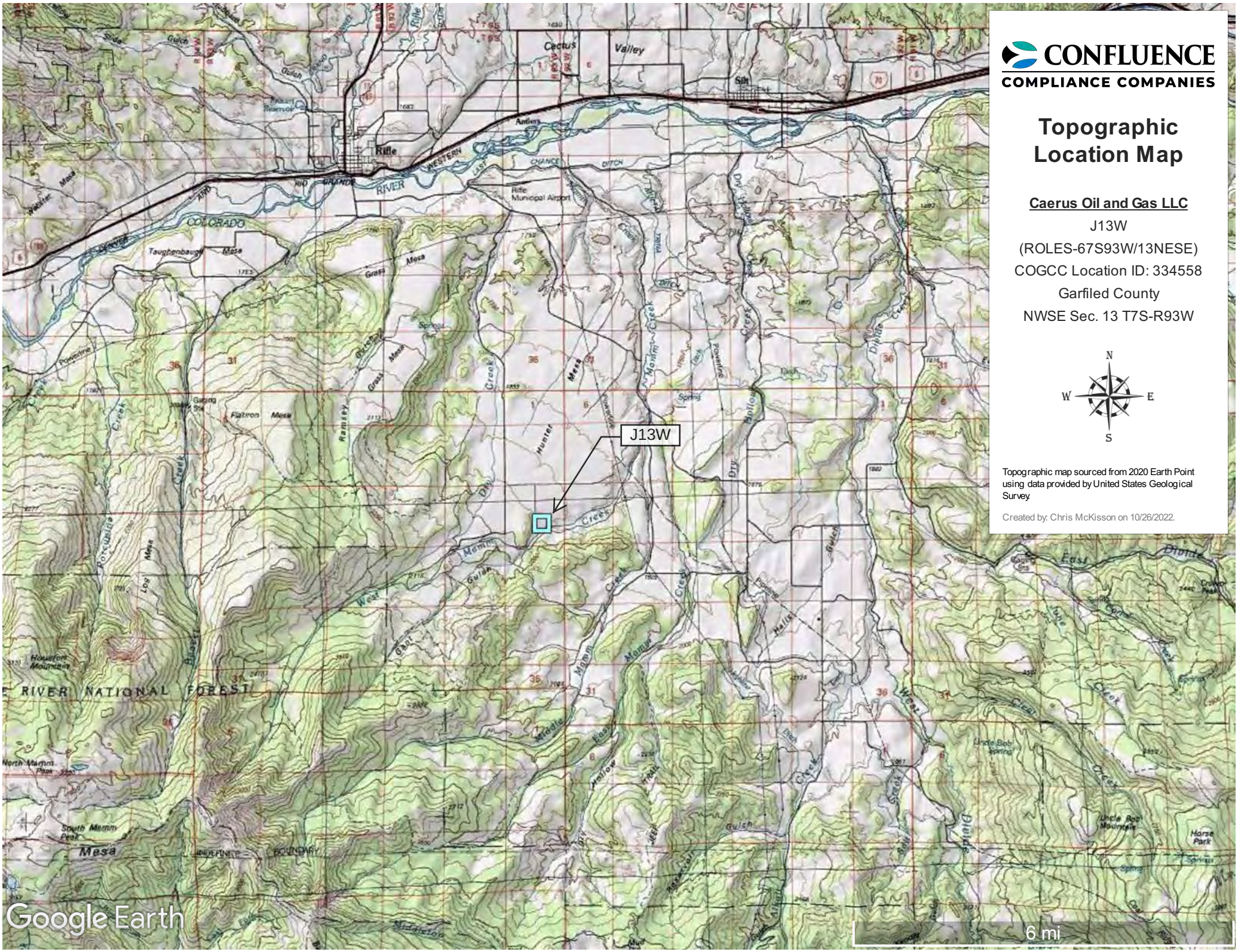
Attachments

- Topographic Location Map
- Site Diagram – P&A Sampling
- Laboratory Results Summary Table
- Laboratory Reports



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COMPLIANCE COMPANIES

Topographic Location Map

Caerus Oil and Gas LLC

J13W

(ROLES-67S93W/13NESE)

COGCC Location ID: 334558

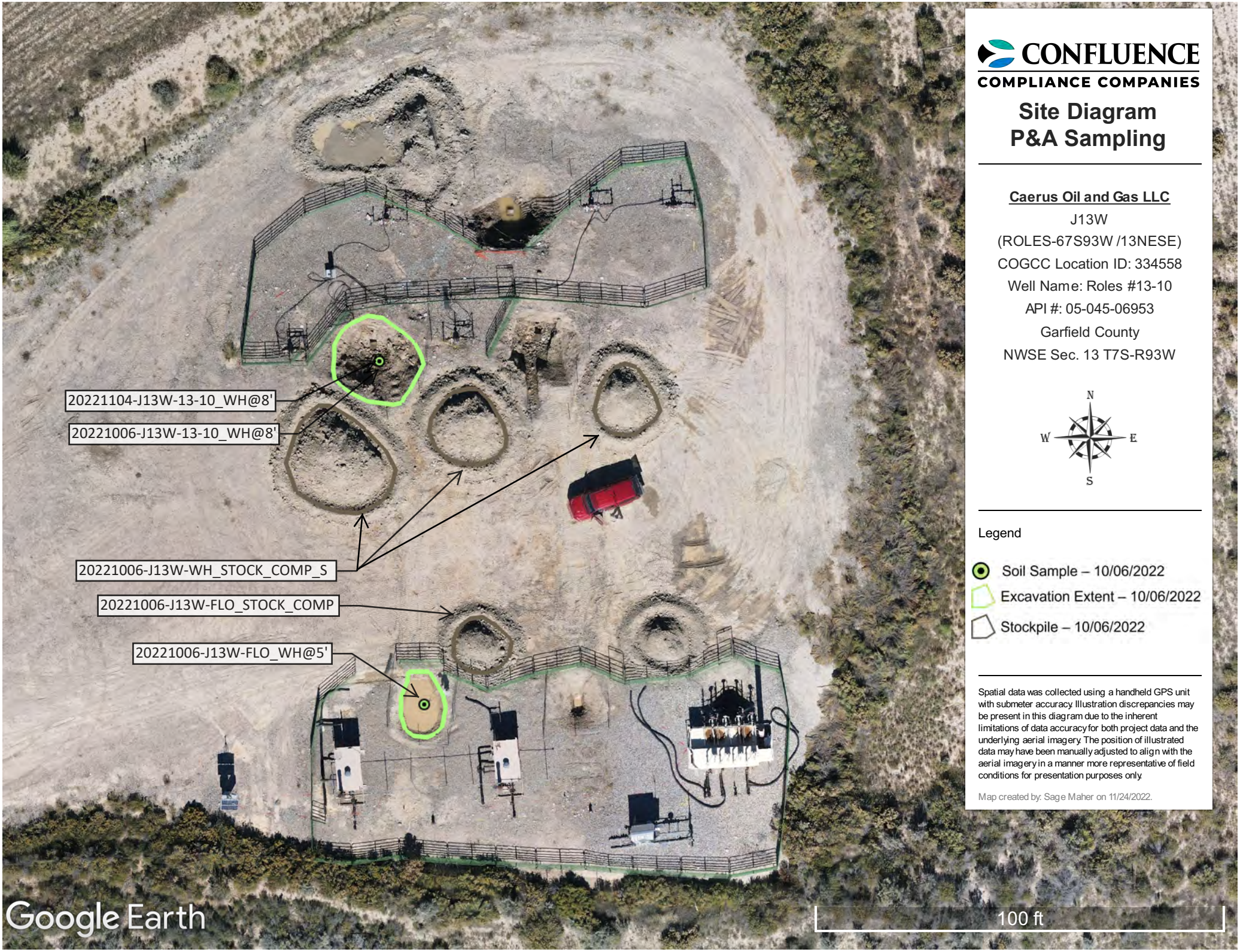
Garfiled County

NWSE Sec. 13 T7S-R93W

N
W E
S

Topographic map sourced from 2020 Earth Point using data provided by United States Geological Survey.

Created by: Chris McKisson on 10/26/2022.



CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram
P&A Sampling

Caerus Oil and Gas LLC
J13W
(ROLES-67S93W /13NESE)
COGCC Location ID: 334558
Well Name: Roles #13-10
API #: 05-045-06953
Garfield County
NWSE Sec. 13 T7S-R93W

N
W E
S

Legend

- Soil Sample – 10/06/2022
- Excavation Extent – 10/06/2022
- Stockpile – 10/06/2022

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Sage Maher on 11/24/2022.

CONFLUENCE

Laboratory Results Summary Table - Soil
J13W Roles #13-10

12/1/2022

		Soil Screening and Remediation Limits			Organic Compounds (mg/kg [ppm])																									
			COGCC Table 915-1 Residential -->	NA	500	NA	NA	NA	1.2	490	5.8	58	30	27	360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	18	24	2	180
Sample Date	Solid/Soil Source (Equipment) (Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.)	Depth - Z (feet) (NEGATIVE VALUE) below ground surface (bgs)	Sample ID	PID (ppm)	TPH (total volatile and extractable petroleum hydrocarbons) (GRO+DRO+ORO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	TPH-ORO (C28-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total (sum of o-, m-, p- isomers)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(A)pyrene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Chrysene	Dibenz(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	1 - Methylnaphthalene	2 - Methylnaphthalene	Naphthalene	Pyrene
10/6/2022	Wellhead	-8	20221006-J13W-13-10_WH@8'	1	52.9	<0.100	15.8	37.1	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600
11/4/2022	Wellhead	-8	20221104-J13W-13-10_WH@8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/6/2022	Flowline	-5	20221006-J13W-FLO_W@5'	72.5	113.3	<0.100	84.9	28.4	<0.00100	<0.00500	0.00380	0.143	0.266	0.352	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600
10/6/2022	Stockpile	0	20221006-J13W-FLO_STOCK_COMP	0.2	6.32	<0.100	<4.00	6.32	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600
10/6/2022	Stockpile	0	20221006-J13W-WH_STOCK_COMP_S	0.7	109.7	0.148	45.4	64.2	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600
11/27/2012	Background	-3	J13W - SS11 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS12 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS13 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS14 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS14 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS15 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS15 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS16 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS16 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS17 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS17 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS18 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS18 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-1	J13W - SS19 - 1 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS19 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS7 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/27/2012	Background	-3	J13W - SS9 - 3 FT - 112712	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Blue Fill = Exceedance
Dark Gray Italics = Below Reporting Detection Limit (RDL)
"NA" = Not Analyzed
mg/kg = milligrams per kilogram / parts per million

Confluence Compliance Companies, LLC
info@confluence-cc.com

CONFLUENCE

Laboratory Results Summary Table - Soil
J13W Roles #13-10

12/1/2022

		Soil Screening and Remediation Limits			Soil Suitability for Reclamation				Metals (mg/kg [ppm])									
			COGCC Table 915-1 Residential -->	NA	4	6	6-8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Depth - Z (feet) (NEGATIVE VALUE) below ground surface (bgs)	Sample ID	PID (ppm)	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	SAR (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Boron - Hot Water Soluble (mg/L)	Arsenic	Barium	Cadmium (mg/kg)	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
10/6/2022	Wellhead	-8	**20221006-J13W-13-10_WH@8'**	**1**	**0.649**	*NA*	**8.98**	*<0.400*	**6.34**	**232**	*<0.500*	*<1.00*	**16.0**	**13.4**	**19.8**	*<2.00*	*<1.00*	**71.4**
11/4/2022	Wellhead	-8	**20221104-J13W-13-10_WH@8'**	*NA*	*NA*	**7.89**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
10/6/2022	Flowline	-5	**20221006-J13W-FLO_W@5'**	**72.5**	**0.221**	**2.63**	**8.09**	**0.311**	**6.62**	**192**	**0.504**	*<1.00*	**14.2**	**9.45**	**16.3**	*<2.00*	*<1.00*	**44.9**
10/6/2022	Stockpile	0	**20221006-J13W-FLO_STOCK_COMP**	**0.2**	**0.438**	**2.69**	**8.98**	**0.468**	**6.00**	**247**	*<0.500*	*<1.00*	**14.9**	**12.9**	**19.1**	*<2.00*	*<1.00*	**62.0**
10/6/2022	Stockpile	0	**20221006-J13W-WH_STOCK_COMP_S**	**0.7**	**0.884**	**8.55**	**8.82**	**0.434**	**5.82**	**282**	*<0.500*	*<1.00*	**17.3**	**13.0**	**17.4**	*<2.00*	*<1.00*	**97.4**
11/27/2012	Background	-3	**J13W - SS11 - 3 FT - 112712**	*NA*	*NA*	**9.3**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS12 - 3 FT - 112712**	*NA*	*NA*	**2.2**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS13 - 3 FT - 112712**	*NA*	*NA*	**4.1**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS14 - 1 FT - 112712**	*NA*	*NA*	**11**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS14 - 3 FT - 112712**	*NA*	*NA*	**5.5**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS15 - 1 FT - 112712**	*NA*	*NA*	**3.4**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS15 - 3 FT - 112712**	*NA*	*NA*	**2.6**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS16 - 1 FT - 112712**	*NA*	*NA*	**8.9**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS16 - 3 FT - 112712**	*NA*	*NA*	**8.5**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS17 - 1 FT - 112712**	*NA*	*NA*	**12**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS17 - 3 FT - 112712**	*NA*	*NA*	**9.0**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS18 - 1 FT - 112712**	*NA*	*NA*	**6.6**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS18 - 3 FT - 112712**	*NA*	*NA*	**4.1**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-1	**J13W - SS19 - 1 FT - 112712**	*NA*	*NA*	**10**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS19 - 3 FT - 112712**	*NA*	*NA*	**2.7**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS7 - 3 FT - 112712**	*NA*	*NA*	**8.8**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/27/2012	Background	-3	**J13W - SS9 - 3 FT - 112712**	*NA*	*NA*	**4.1**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Confluence Compliance Companies, LLC
info@confluence-cc.com

Blue Fill = Exceedance
Dark Gray Italics = Below Reporting Detection Limit (RDL)
"NA" = Not Analyzed
mg/kg = milligrams per kilogram / parts per million

ANALYTICAL REPORT

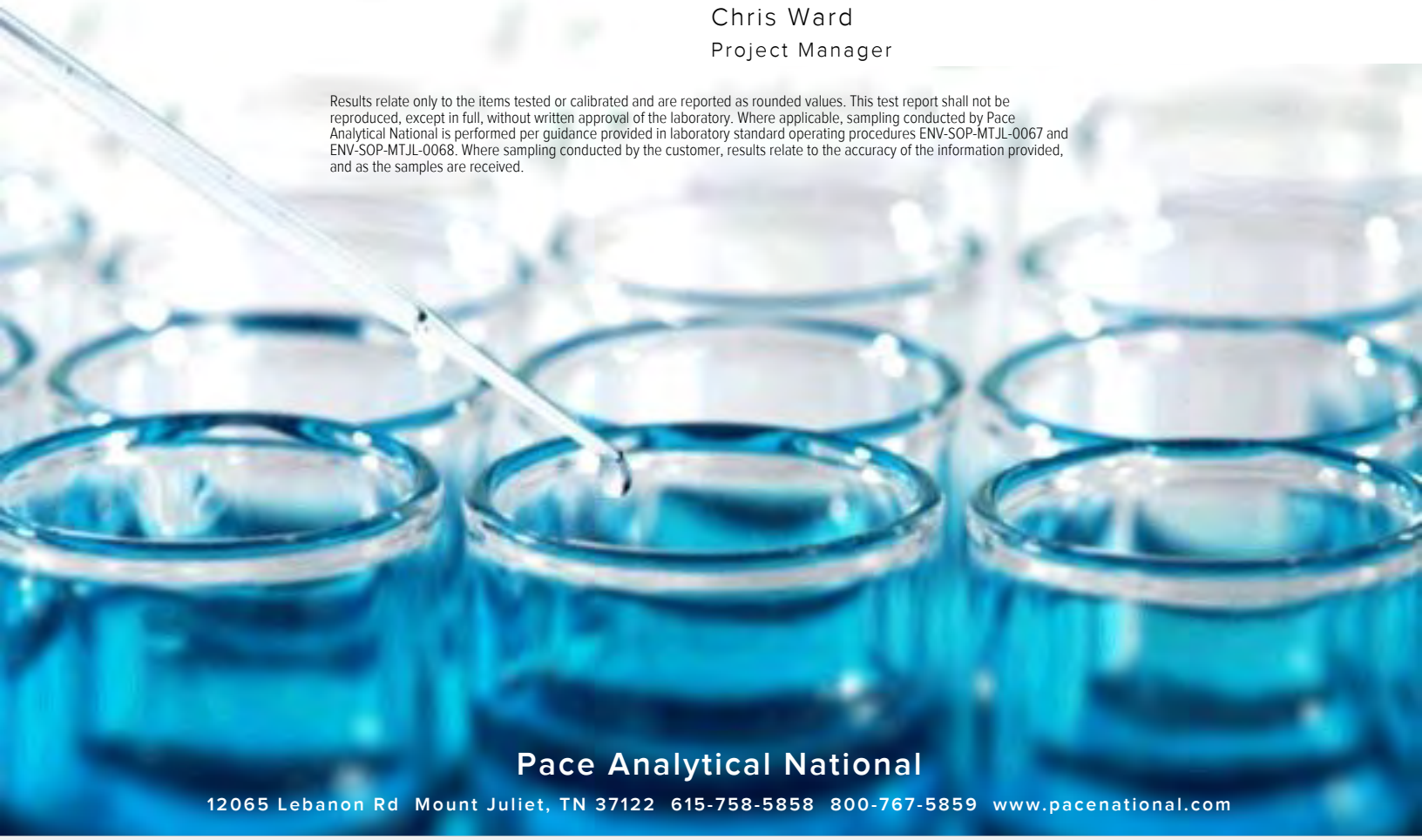
November 04, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1544659
Samples Received:	10/08/2022
Project Number:	
Description:	J13W P&A
Site:	J13W
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

20221006-J13W-13-9_WH@8' L1544659-01 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 11:05 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:27	11/03/22 15:27	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 12:50	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 20:00	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1939820	2	10/11/22 08:17	10/25/22 00:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 18:41	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 17:56	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943103	1	10/11/22 11:32	10/14/22 22:06	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 14:00	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 19:48	AMM	Mt. Juliet, TN

20221006-J13W-13-10_WH@8' L1544659-02 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 11:25 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 12:55	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 20:02	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1941230	2	10/16/22 10:47	10/27/22 00:52	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 18:44	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 18:19	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943103	1	10/11/22 11:32	10/14/22 22:25	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 14:27	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 20:06	AMM	Mt. Juliet, TN

20221006-J13W-13-7A_WH@8' L1544659-03 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 11:50 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:29	11/03/22 15:29	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 13:00	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 20:05	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1941230	1	10/16/22 10:47	10/27/22 00:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 18:48	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 18:42	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943103	1	10/11/22 11:32	10/14/22 22:44	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 13:47	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 20:24	AMM	Mt. Juliet, TN

20221006-J13W-13-7A_FLO@5' L1544659-04 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 12:10 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:32	11/03/22 15:32	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 13:05	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 19:47	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1941230	1	10/16/22 10:47	10/27/22 00:58	CCE	Mt. Juliet, TN

20221006-J13W-13-7A_FLO@5' L1544659-04 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 12:10 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 18:25	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 19:05	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943103	1	10/11/22 11:32	10/14/22 23:04	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 17:41	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 20:42	AMM	Mt. Juliet, TN

20221006-J13W-FLO_MID@5' L1544659-05 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 12:20 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:41	11/03/22 15:41	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 13:11	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 20:13	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1941230	1	10/16/22 10:47	10/27/22 01:00	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 18:57	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 19:28	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943303	1	10/11/22 11:32	10/16/22 18:03	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 14:14	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941989	1	10/14/22 04:00	10/14/22 16:06	AMM	Mt. Juliet, TN

20221006-J13W-FLO_W@5' L1544659-06 Solid

Collected by: Alex Slorby | Collected date/time: 10/06/22 12:35 | Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:44	11/03/22 15:44	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 13:16	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946583	1	10/25/22 00:30	10/26/22 20:16	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1943557	1	10/17/22 16:46	10/26/22 22:15	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946582	5	10/25/22 00:17	10/25/22 19:01	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 19:51	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943303	1	10/11/22 11:32	10/16/22 18:22	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 14:41	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941989	1	10/14/22 04:00	10/14/22 16:26	AMM	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Project Narrative

20221006-J13W-13-10_WH@8' unable to have SAR run on it due to a broken jar at receipt

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	2.28		1	11/03/2022 15:27	WG1945341

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	10/14/2022 12:50	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.96	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:

L1544659-01 WG1942356: 8.96 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	583		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544659-01 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	776		0.500	1	10/26/2022 20:00	WG1946583
Cadmium	ND		0.500	1	10/26/2022 20:00	WG1946583
Copper	17.2		2.00	1	10/26/2022 20:00	WG1946583
Lead	14.3		0.500	1	10/26/2022 20:00	WG1946583
Nickel	16.7		2.00	1	10/26/2022 20:00	WG1946583
Selenium	ND		2.00	1	10/26/2022 20:00	WG1946583
Silver	ND		1.00	1	10/26/2022 20:00	WG1946583
Zinc	86.3		5.00	1	10/26/2022 20:00	WG1946583

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	0.436		0.400	2	10/25/2022 00:55	WG1939820

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	6.39		1.00	5	10/25/2022 18:41	WG1946582

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 17:56	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*87.9*		*77.0-120*		*10/12/2022 17:56*	WG1941093

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	10/14/2022 22:06	WG1943103
Toluene	ND		0.00500	1	10/14/2022 22:06	WG1943103
Ethylbenzene	ND		0.00250	1	10/14/2022 22:06	WG1943103
Xylenes, Total	ND		0.00650	1	10/14/2022 22:06	WG1943103
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:06	WG1943103
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:06	WG1943103
(S) Toluene-d8	*103*		*75.0-131*		*10/14/2022 22:06*	WG1943103
(S) 4-Bromofluorobenzene	*95.4*		*67.0-138*		*10/14/2022 22:06*	WG1943103
(S) 1,2-Dichloroethane-d4	*85.2*		*70.0-130*		*10/14/2022 22:06*	WG1943103

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	10/15/2022 14:00	WG1942004
C28-C36 Motor Oil Range	ND		4.00	1	10/15/2022 14:00	WG1942004
(S) o-Terphenyl	*53.9*		*18.0-148*		*10/15/2022 14:00*	WG1942004

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	10/14/2022 19:48	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 19:48	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 19:48	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 19:48	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 19:48	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 19:48	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 19:48	WG1941986
(S) p-Terphenyl-d14	*57.3*		*23.0-120*		*10/14/2022 19:48*	WG1941986
(S) Nitrobenzene-d5	*70.7*		*14.0-149*		*10/14/2022 19:48*	WG1941986
(S) 2-Fluorobiphenyl	*54.6*		*34.0-125*		*10/14/2022 19:48*	WG1941986

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	10/14/2022 12:55	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.98	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:
L1544659-02 WG1942356: 8.98 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	649		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:
L1544659-02 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	232		0.500	1	10/26/2022 20:02	WG1946583
Cadmium	ND		0.500	1	10/26/2022 20:02	WG1946583
Copper	16.0		2.00	1	10/26/2022 20:02	WG1946583
Lead	13.4		0.500	1	10/26/2022 20:02	WG1946583
Nickel	19.8		2.00	1	10/26/2022 20:02	WG1946583
Selenium	ND		2.00	1	10/26/2022 20:02	WG1946583
Silver	ND		1.00	1	10/26/2022 20:02	WG1946583
Zinc	71.4		5.00	1	10/26/2022 20:02	WG1946583

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		0.400	2	10/27/2022 00:52	WG1941230

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.34		1.00	5	10/25/2022 18:44	WG1946582

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 18:19	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*92.2*		*77.0-120*		*10/12/2022 18:19*	WG1941093

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	10/14/2022 22:25	WG1943103
Toluene	ND		0.00500	1	10/14/2022 22:25	WG1943103
Ethylbenzene	ND		0.00250	1	10/14/2022 22:25	WG1943103

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Xylenes, Total	ND		0.00650	1	10/14/2022 22:25	WG1943103
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:25	WG1943103
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:25	WG1943103
(S) Toluene-d8	*105*		*75.0-131*		*10/14/2022 22:25*	WG1943103
(S) 4-Bromofluorobenzene	*94.0*		*67.0-138*		*10/14/2022 22:25*	WG1943103
(S) 1,2-Dichloroethane-d4	*85.7*		*70.0-130*		*10/14/2022 22:25*	WG1943103

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	15.8		4.00	1	10/15/2022 14:27	WG1942004
C28-C36 Motor Oil Range	37.1		4.00	1	10/15/2022 14:27	WG1942004
(S) o-Terphenyl	*51.5*		*18.0-148*		*10/15/2022 14:27*	WG1942004

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	10/14/2022 20:06	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 20:06	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 20:06	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:06	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:06	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 20:06	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 20:06	WG1941986
(S) p-Terphenyl-d14	*79.1*		*23.0-120*		*10/14/2022 20:06*	WG1941986
(S) Nitrobenzene-d5	*82.9*		*14.0-149*		*10/14/2022 20:06*	WG1941986
(S) 2-Fluorobiphenyl	*83.5*		*34.0-125*		*10/14/2022 20:06*	WG1941986

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.12		1	11/03/2022 15:29	WG1945341

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	10/14/2022 13:00	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.08	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:

L1544659-03 WG1942356: 9.08 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	347		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544659-03 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	428		0.500	1	10/26/2022 20:05	WG1946583
Cadmium	ND		0.500	1	10/26/2022 20:05	WG1946583
Copper	15.1		2.00	1	10/26/2022 20:05	WG1946583
Lead	12.1		0.500	1	10/26/2022 20:05	WG1946583
Nickel	16.9		2.00	1	10/26/2022 20:05	WG1946583
Selenium	ND		2.00	1	10/26/2022 20:05	WG1946583
Silver	ND		1.00	1	10/26/2022 20:05	WG1946583
Zinc	61.6		5.00	1	10/26/2022 20:05	WG1946583

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	10/27/2022 00:55	WG1941230

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.75		1.00	5	10/25/2022 18:48	WG1946582

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 18:42	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*87.4*		*77.0-120*		*10/12/2022 18:42*	WG1941093

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	10/14/2022 22:44	WG1943103
Toluene	ND		0.00500	1	10/14/2022 22:44	WG1943103
Ethylbenzene	ND		0.00250	1	10/14/2022 22:44	WG1943103
Xylenes, Total	ND		0.00650	1	10/14/2022 22:44	WG1943103
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:44	WG1943103
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2022 22:44	WG1943103
(S) Toluene-d8	*104*		*75.0-131*		*10/14/2022 22:44*	WG1943103
(S) 4-Bromofluorobenzene	*94.1*		*67.0-138*		*10/14/2022 22:44*	WG1943103
(S) 1,2-Dichloroethane-d4	*85.2*		*70.0-130*		*10/14/2022 22:44*	WG1943103

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	10/15/2022 13:47	WG1942004
C28-C36 Motor Oil Range	ND		4.00	1	10/15/2022 13:47	WG1942004
(S) o-Terphenyl	*45.5*		*18.0-148*		*10/15/2022 13:47*	WG1942004

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	10/14/2022 20:24	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 20:24	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 20:24	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:24	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:24	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 20:24	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 20:24	WG1941986
(S) p-Terphenyl-d14	*80.3*		*23.0-120*		*10/14/2022 20:24*	WG1941986
(S) Nitrobenzene-d5	*84.4*		*14.0-149*		*10/14/2022 20:24*	WG1941986
(S) 2-Fluorobiphenyl	*76.5*		*34.0-125*		*10/14/2022 20:24*	WG1941986

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.95		1	11/03/2022 15:32	WG1945341

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	10/14/2022 13:05	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.55	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:
L1544659-04 WG1942356: 8.55 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	411		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:
L1544659-04 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	269	J6 O1	0.500	1	10/26/2022 19:47	WG1946583
Cadmium	ND		0.500	1	10/26/2022 19:47	WG1946583
Copper	15.4		2.00	1	10/26/2022 19:47	WG1946583
Lead	12.6	O1	0.500	1	10/26/2022 19:47	WG1946583
Nickel	18.0	O1	2.00	1	10/26/2022 19:47	WG1946583
Selenium	ND		2.00	1	10/26/2022 19:47	WG1946583
Silver	ND	O1	1.00	1	10/26/2022 19:47	WG1946583
Zinc	63.2	O1	5.00	1	10/26/2022 19:47	WG1946583

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	0.491		0.200	1	10/27/2022 00:58	WG1941230

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.46		1.00	5	10/25/2022 18:25	WG1946582

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 19:05	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*88.2*		*77.0-120*		*10/12/2022 19:05*	WG1941093

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	10/14/2022 23:04	WG1943103
Toluene	ND		0.00500	1	10/14/2022 23:04	WG1943103
Ethylbenzene	ND		0.00250	1	10/14/2022 23:04	WG1943103
Xylenes, Total	ND		0.00650	1	10/14/2022 23:04	WG1943103
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2022 23:04	WG1943103
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2022 23:04	WG1943103
(S) Toluene-d8	*102*		*75.0-131*		*10/14/2022 23:04*	WG1943103
(S) 4-Bromofluorobenzene	*95.6*		*67.0-138*		*10/14/2022 23:04*	WG1943103
(S) 1,2-Dichloroethane-d4	*86.5*		*70.0-130*		*10/14/2022 23:04*	WG1943103

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.3		4.00	1	10/15/2022 17:41	WG1942004
C28-C36 Motor Oil Range	9.15		4.00	1	10/15/2022 17:41	WG1942004
(S) o-Terphenyl	*82.7*		*18.0-148*		*10/15/2022 17:41*	WG1942004

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	10/14/2022 20:42	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 20:42	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 20:42	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:42	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 20:42	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 20:42	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 20:42	WG1941986
(S) p-Terphenyl-d14	*79.2*		*23.0-120*		*10/14/2022 20:42*	WG1941986
(S) Nitrobenzene-d5	*84.7*		*14.0-149*		*10/14/2022 20:42*	WG1941986
(S) 2-Fluorobiphenyl	*67.4*		*34.0-125*		*10/14/2022 20:42*	WG1941986

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	1.02		1	11/03/2022 15:41	WG1945341

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	10/14/2022 13:11	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.65	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:

L1544659-05 WG1942356: 8.65 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	186		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544659-05 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	186		0.500	1	10/26/2022 20:13	WG1946583
Cadmium	ND		0.500	1	10/26/2022 20:13	WG1946583
Copper	13.7		2.00	1	10/26/2022 20:13	WG1946583
Lead	9.62		0.500	1	10/26/2022 20:13	WG1946583
Nickel	15.9		2.00	1	10/26/2022 20:13	WG1946583
Selenium	ND		2.00	1	10/26/2022 20:13	WG1946583
Silver	ND		1.00	1	10/26/2022 20:13	WG1946583
Zinc	44.2		5.00	1	10/26/2022 20:13	WG1946583

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	0.304		0.200	1	10/27/2022 01:00	WG1941230

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	6.50		1.00	5	10/25/2022 18:57	WG1946582

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 19:28	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*86.7*		*77.0-120*		*10/12/2022 19:28*	WG1941093

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	10/16/2022 18:03	WG1943303
Toluene	ND		0.00500	1	10/16/2022 18:03	WG1943303
Ethylbenzene	ND		0.00250	1	10/16/2022 18:03	WG1943303
Xylenes, Total	ND		0.00650	1	10/16/2022 18:03	WG1943303
1,2,4-Trimethylbenzene	ND		0.00500	1	10/16/2022 18:03	WG1943303
1,3,5-Trimethylbenzene	ND		0.00500	1	10/16/2022 18:03	WG1943303
(S) Toluene-d8	*102*		*75.0-131*		*10/16/2022 18:03*	WG1943303
(S) 4-Bromofluorobenzene	*93.3*		*67.0-138*		*10/16/2022 18:03*	WG1943303
(S) 1,2-Dichloroethane-d4	*87.4*		*70.0-130*		*10/16/2022 18:03*	WG1943303

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	10/15/2022 14:14	WG1942004
C28-C36 Motor Oil Range	5.04		4.00	1	10/15/2022 14:14	WG1942004
(S) o-Terphenyl	*44.2*		*18.0-148*		*10/15/2022 14:14*	WG1942004

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	10/14/2022 16:06	WG1941989
Anthracene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Chrysene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Fluoranthene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Fluorene	ND		0.00600	1	10/14/2022 16:06	WG1941989
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 16:06	WG1941989
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 16:06	WG1941989
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 16:06	WG1941989
Naphthalene	ND		0.0200	1	10/14/2022 16:06	WG1941989
Pyrene	ND		0.00600	1	10/14/2022 16:06	WG1941989
(S) p-Terphenyl-d14	*79.5*		*23.0-120*		*10/14/2022 16:06*	WG1941989
(S) Nitrobenzene-d5	*72.2*		*14.0-149*		*10/14/2022 16:06*	WG1941989
(S) 2-Fluorobiphenyl	*85.9*		*34.0-125*		*10/14/2022 16:06*	WG1941989

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	11/03/2022 15:44	WG1945341

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	10/14/2022 13:16	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.09	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:

L1544659-06 WG1942356: 8.09 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	221		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544659-06 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	192		0.500	1	10/26/2022 20:16	WG1946583
Cadmium	0.504		0.500	1	10/26/2022 20:16	WG1946583
Copper	14.2		2.00	1	10/26/2022 20:16	WG1946583
Lead	9.45		0.500	1	10/26/2022 20:16	WG1946583
Nickel	16.3		2.00	1	10/26/2022 20:16	WG1946583
Selenium	ND		2.00	1	10/26/2022 20:16	WG1946583
Silver	ND		1.00	1	10/26/2022 20:16	WG1946583
Zinc	44.9		5.00	1	10/26/2022 20:16	WG1946583

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	0.311		0.200	1	10/26/2022 22:15	WG1943557

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.62		1.00	5	10/25/2022 19:01	WG1946582

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 19:51	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*86.8*		*77.0-120*		*10/12/2022 19:51*	WG1941093

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	10/16/2022 18:22	WG1943303
Toluene	ND		0.00500	1	10/16/2022 18:22	WG1943303
Ethylbenzene	0.00380		0.00250	1	10/16/2022 18:22	WG1943303
Xylenes, Total	0.143		0.00650	1	10/16/2022 18:22	WG1943303
1,2,4-Trimethylbenzene	0.266		0.00500	1	10/16/2022 18:22	WG1943303
1,3,5-Trimethylbenzene	0.352		0.00500	1	10/16/2022 18:22	WG1943303
(S) Toluene-d8	*102*		*75.0-131*		*10/16/2022 18:22*	WG1943303
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*10/16/2022 18:22*	WG1943303
(S) 1,2-Dichloroethane-d4	*83.9*		*70.0-130*		*10/16/2022 18:22*	WG1943303

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	84.9		4.00	1	10/15/2022 14:41	WG1942004
C28-C36 Motor Oil Range	28.4		4.00	1	10/15/2022 14:41	WG1942004
(S) o-Terphenyl	*56.7*		*18.0-148*		*10/15/2022 14:41*	WG1942004

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	10/14/2022 16:26	WG1941989
Anthracene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Chrysene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Fluoranthene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Fluorene	ND		0.00600	1	10/14/2022 16:26	WG1941989
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 16:26	WG1941989
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 16:26	WG1941989
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 16:26	WG1941989
Naphthalene	ND		0.0200	1	10/14/2022 16:26	WG1941989
Pyrene	ND		0.00600	1	10/14/2022 16:26	WG1941989
(S) p-Terphenyl-d14	*82.7*		*23.0-120*		*10/14/2022 16:26*	WG1941989
(S) Nitrobenzene-d5	*73.8*		*14.0-149*		*10/14/2022 16:26*	WG1941989
(S) 2-Fluorobiphenyl	*74.3*		*34.0-125*		*10/14/2022 16:26*	WG1941989

Method Blank (MB)

(MB) R3853582-1 10/14/22 11:28

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

L1544561-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544561-01 10/14/22 11:40 • (DUP) R3853582-3 10/14/22 11:45

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	4.01		20

L1544663-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544663-04 10/14/22 14:15 • (DUP) R3853582-8 10/14/22 14:20

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) R3853582-2 10/14/22 11:35

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

L1544663-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-4 10/14/22 13:54 • (MSD) R3853582-5 10/14/22 13:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	18.0	17.8	90.1	89.0	1	75.0-125			1.17	20

L1544663-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-7 10/14/22 14:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	638	ND	634	99.4	50	75.0-125	

L1544649-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544649-01 10/15/22 08:00 • (DUP) R3848751-2 10/15/22 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.83	7.88	1	0.637		1

Sample Narrative:

OS: 7.83 at 20.6C

DUP: 7.88 at 20.7C

L1544663-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544663-04 10/15/22 08:00 • (DUP) R3848751-3 10/15/22 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.11	8.13	1	0.246		1

Sample Narrative:

OS: 8.11 at 20C

DUP: 8.13 at 20.1C

Laboratory Control Sample (LCS)

(LCS) R3848751-1 10/15/22 08:00

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 20.3C

Method Blank (MB)

(MB) R3847901-1 10/13/22 08:00

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

L1544637-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544637-01 10/13/22 08:00 • (DUP) R3847901-3 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	438	441	1	0.683		20

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

L1544659-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1544659-02 10/13/22 08:00 • (DUP) R3847901-4 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	649	655	1	0.920		20

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

Laboratory Control Sample (LCS)

(LCS) R3847901-2 10/13/22 08:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1100	98.6	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3853462-1 10/26/22 19:42

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) R3853462-2 10/26/22 19:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	91.3	91.3	80.0-120	
Cadmium	100	86.9	86.9	80.0-120	
Copper	100	90.0	90.0	80.0-120	
Lead	100	89.1	89.1	80.0-120	
Nickel	100	88.4	88.4	80.0-120	
Selenium	100	89.7	89.7	80.0-120	
Silver	20.0	17.1	85.5	80.0-120	
Zinc	100	86.1	86.1	80.0-120	

L1544659-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544659-04 10/26/22 19:47 • (MS) R3853462-5 10/26/22 19:55 • (MSD) R3853462-6 10/26/22 19:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	269	345	320	75.4	50.8	1	75.0-125		J6	7.40	20
Cadmium	100	ND	89.4	102	88.9	101	1	75.0-125			12.7	20
Copper	100	15.4	108	119	92.4	104	1	75.0-125			9.95	20
Lead	100	12.6	105	116	92.0	103	1	75.0-125			10.3	20
Nickel	100	18.0	109	120	90.6	102	1	75.0-125			10.3	20
Selenium	100	ND	91.2	104	91.2	104	1	75.0-125			12.9	20
Silver	20.0	ND	17.2	19.7	86.0	98.6	1	75.0-125			13.6	20
Zinc	100	63.2	146	155	82.4	92.0	1	75.0-125			6.42	20

Method Blank (MB)

(MB) R3852458-1 10/25/22 01:04

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) R3852458-2 10/25/22 01:07 • (LCSD) R3852458-3 10/25/22 01:09

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	1.16	1.16	116	116	80.0-120			0.126	20

Method Blank (MB)

(MB) R3853492-1 10/27/22 00:44

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) R3853492-2 10/27/22 00:47 • (LCSD) R3853492-3 10/27/22 00:49

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	1.02	1.05	102	105	80.0-120			3.52	20

Method Blank (MB)

(MB) R3853490-2 10/27/22 00:18

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) R3853490-3 10/27/22 00:21 • (LCSD) R3853490-1 10/26/22 22:09

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	1.02	1.01	102	101	80.0-120			0.556	20

Method Blank (MB)

(MB) R3852923-1 10/25/22 18:18

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) R3852923-2 10/25/22 18:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	87.0	87.0	80.0-120	

L1544659-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544659-04 10/25/22 18:25 • (MS) R3852923-5 10/25/22 18:34 • (MSD) R3852923-6 10/25/22 18:38

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 %
Arsenic	100	6.46	88.3	103	81.8	96.2	5	75.0-125			15.1	20

Method Blank (MB)

(MB) R3850220-2 10/12/22 13:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*89.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3850220-1 10/12/22 13:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.62	84.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.6*	*77.0-120*	

Method Blank (MB)

(MB) R3850327-3 10/14/22 21:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*96.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*86.6*			*70.0-130*

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

(LCS) R3850327-1 10/14/22 20:30 • (LCSD) R3850327-2 10/14/22 20:49

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	0.115	0.115	92.0	92.0	70.0-123			0.000	20
Toluene	0.125	0.106	0.108	84.8	86.4	75.0-121			1.87	20
Ethylbenzene	0.125	0.105	0.106	84.0	84.8	74.0-126			0.948	20
Xylenes, Total	0.375	0.294	0.319	78.4	85.1	72.0-127			8.16	20
1,2,4-Trimethylbenzene	0.125	0.0989	0.101	79.1	80.8	70.0-126			2.10	20
1,3,5-Trimethylbenzene	0.125	0.0969	0.0972	77.5	77.8	73.0-127			0.309	20
(S) Toluene-d8				*92.4*	*90.3*	*75.0-131*				
(S) 4-Bromofluorobenzene				*108*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*94.8*	*92.5*	*70.0-130*				

Method Blank (MB)

(MB) R3849296-3 10/16/22 16:27

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	*101*			*75.0-131*
(S) 4-Bromofluorobenzene	*92.2*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*88.8*			*70.0-130*

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

(LCS) R3849296-1 10/16/22 15:29 • (LCSD) R3849296-2 10/16/22 15:49

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	0.131	101	105	70.0-123			3.89	20
Toluene	0.125	0.116	0.114	92.8	91.2	75.0-121			1.74	20
Ethylbenzene	0.125	0.111	0.115	88.8	92.0	74.0-126			3.54	20
Xylenes, Total	0.375	0.341	0.345	90.9	92.0	72.0-127			1.17	20
1,2,4-Trimethylbenzene	0.125	0.113	0.112	90.4	89.6	70.0-126			0.889	20
1,3,5-Trimethylbenzene	0.125	0.110	0.106	88.0	84.8	73.0-127			3.70	20
(S) Toluene-d8				*91.5*	*88.8*	*75.0-131*				
(S) 4-Bromofluorobenzene				*102*	*103*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*95.8*	*96.3*	*70.0-130*				

Method Blank (MB)

(MB) R3848893-1 10/15/22 13:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*81.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3848893-2 10/15/22 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.6	71.2	50.0-150	
(S) o-Terphenyl			*83.9*	*18.0-148*	

L1544665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544665-01 10/15/22 14:54 • (MS) R3848893-3 10/15/22 15:08 • (MSD) R3848893-4 10/15/22 15:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.5	93.8	132	132	77.2	77.2	1	50.0-150			0.000	20
(S) o-Terphenyl					*51.8*	*48.2*		*18.0-148*				

Method Blank (MB)

(MB) R3848795-2 10/14/22 15:02

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	*96.4*			*23.0-120*
(S) Nitrobenzene-d5	*102*			*14.0-149*
(S) 2-Fluorobiphenyl	*98.3*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0714	89.3	50.0-120	
Anthracene	0.0800	0.0687	85.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0763	95.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0793	99.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0759	94.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0732	91.5	42.0-120	
Chrysene	0.0800	0.0779	97.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0748	93.5	47.0-125	
Fluoranthene	0.0800	0.0790	98.8	49.0-129	
Fluorene	0.0800	0.0717	89.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0829	104	46.0-125	
1-Methylnaphthalene	0.0800	0.0716	89.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0723	90.4	50.0-120	
Naphthalene	0.0800	0.0706	88.3	50.0-120	
Pyrene	0.0800	0.0767	95.9	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*93.5*	*23.0-120*	
(S) Nitrobenzene-d5			*98.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*96.3*	*34.0-125*	

L1544618-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544618-04 10/14/22 15:20 • (MS) R3848795-3 10/14/22 15:38 • (MSD) R3848795-4 10/14/22 15:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0768	ND	0.0652	0.0571	84.9	74.3	1	14.0-127			13.2	27
Anthracene	0.0768	ND	0.0626	0.0524	81.5	68.2	1	10.0-145			17.7	30
Benzo(a)anthracene	0.0768	ND	0.0655	0.0582	85.3	75.8	1	10.0-139			11.8	30
Benzo(b)fluoranthene	0.0768	ND	0.0669	0.0595	87.1	77.5	1	10.0-140			11.7	36
Benzo(k)fluoranthene	0.0768	ND	0.0670	0.0600	87.2	78.1	1	10.0-137			11.0	31
Benzo(a)pyrene	0.0768	ND	0.0722	0.0648	94.0	84.4	1	10.0-141			10.8	31
Chrysene	0.0768	ND	0.0679	0.0608	88.4	79.2	1	10.0-145			11.0	30
Dibenz(a,h)anthracene	0.0768	ND	0.0662	0.0579	86.2	75.4	1	10.0-132			13.4	31
Fluoranthene	0.0768	ND	0.0689	0.0603	89.7	78.5	1	10.0-153			13.3	33
Fluorene	0.0768	ND	0.0654	0.0569	85.2	74.1	1	11.0-130			13.9	29
Indeno(1,2,3-cd)pyrene	0.0768	ND	0.0722	0.0635	94.0	82.7	1	10.0-137			12.8	32
1-Methylnaphthalene	0.0768	ND	0.0655	0.0567	85.3	73.8	1	10.0-142			14.4	28
2-Methylnaphthalene	0.0768	ND	0.0664	0.0584	86.5	76.0	1	10.0-137			12.8	28
Naphthalene	0.0768	ND	0.0639	0.0572	83.2	74.5	1	10.0-135			11.1	27
Pyrene	0.0768	ND	0.0657	0.0588	85.5	76.6	1	10.0-148			11.1	35
(S) p-Terphenyl-d14					*79.3*	*74.0*		*23.0-120*				
(S) Nitrobenzene-d5					*85.8*	*82.6*		*14.0-149*				
(S) 2-Fluorobiphenyl					*90.4*	*80.6*		*34.0-125*				

Method Blank (MB)

(MB) R3848778-2 10/14/22 15:46

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	*84.7*			*23.0-120*
(S) Nitrobenzene-d5	*72.5*			*14.0-149*
(S) 2-Fluorobiphenyl	*85.6*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3848778-1 10/14/22 15:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0722	90.3	50.0-120	
Anthracene	0.0800	0.0746	93.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0719	89.9	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0699	87.4	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0720	90.0	49.0-125	
Benzo(a)pyrene	0.0800	0.0685	85.6	42.0-120	
Chrysene	0.0800	0.0760	95.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0709	88.6	47.0-125	
Fluoranthene	0.0800	0.0774	96.8	49.0-129	
Fluorene	0.0800	0.0741	92.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0737	92.1	46.0-125	
1-Methylnaphthalene	0.0800	0.0758	94.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0753	94.1	50.0-120	
Naphthalene	0.0800	0.0739	92.4	50.0-120	
Pyrene	0.0800	0.0748	93.5	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3848778-1 10/14/22 15:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*89.2*	*23.0-120*	
(S) Nitrobenzene-d5			*79.1*	*14.0-149*	
(S) 2-Fluorobiphenyl			*92.2*	*34.0-125*	

L1544663-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-01 10/14/22 19:45 • (MS) R3848778-3 10/14/22 20:05 • (MSD) R3848778-4 10/14/22 20:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0792	ND	0.0604	0.0564	76.3	74.2	1	14.0-127			6.85	27
Anthracene	0.0792	ND	0.0612	0.0571	77.3	75.1	1	10.0-145			6.93	30
Benzo(a)anthracene	0.0792	ND	0.0615	0.0576	77.7	75.8	1	10.0-139			6.55	30
Benzo(b)fluoranthene	0.0792	ND	0.0564	0.0516	71.2	67.9	1	10.0-140			8.89	36
Benzo(k)fluoranthene	0.0792	ND	0.0569	0.0517	71.8	68.0	1	10.0-137			9.58	31
Benzo(a)pyrene	0.0792	ND	0.0645	0.0595	81.4	78.3	1	10.0-141			8.06	31
Chrysene	0.0792	ND	0.0635	0.0590	80.2	77.6	1	10.0-145			7.35	30
Dibenz(a,h)anthracene	0.0792	ND	0.0575	0.0523	72.6	68.8	1	10.0-132			9.47	31
Fluoranthene	0.0792	ND	0.0660	0.0610	83.3	80.3	1	10.0-153			7.87	33
Fluorene	0.0792	ND	0.0629	0.0583	79.4	76.7	1	11.0-130			7.59	29
Indeno(1,2,3-cd)pyrene	0.0792	ND	0.0612	0.0566	77.3	74.5	1	10.0-137			7.81	32
1-Methylnaphthalene	0.0792	ND	0.0698	0.0643	88.1	84.6	1	10.0-142			8.20	28
2-Methylnaphthalene	0.0792	ND	0.0688	0.0645	81.2	78.9	1	10.0-137			6.45	28
Naphthalene	0.0792	ND	0.0646	0.0610	81.6	80.3	1	10.0-135			5.73	27
Pyrene	0.0792	ND	0.0625	0.0578	78.9	76.1	1	10.0-148			7.81	35
(S) p-Terphenyl-d14					*72.5*	*72.6*		*23.0-120*				
(S) Nitrobenzene-d5					*66.5*	*66.4*		*14.0-149*				
(S) 2-Fluorobiphenyl					*77.7*	*76.5*		*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
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.

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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:
Customer Project Name/Number: J13W P&A	State: CO / County/City: Garfield / Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET

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 _____

Phone: / Email:	Site/Facility ID #: J13W	Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Alex Slorby	Purchase Order # : / Quote #:	DW PWS ID #: / DW Location Code:
Collected By (signature): Alex Slorby	Turnaround Date Required: Standard Turnaround	Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day	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	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	Lab Sample # / Comments
20221006-J13W-13-9_WH@8'	SL	G	10/6/2022	1105				2	G	X	X	X	X	X	X	L1544659 -01
20221006-J13W-13-10_WH@8'	SL	G	10/6/2022	1125				2	G	X	X	X	X	X	X	-02
20221006-J13W-13-7A_WH@8'	SL	G	10/6/2022	1150				2	G	X	X	X	X	X	X	-03
20221006-J13W-13-7A_FLO@5'	SL	G	10/6/2022	1210				2	G	X	X	X	X	X	X	-04
20221006-J13W-FLO_MID@5'	SL	G	10/6/2022	1220				2	G	X	X	X	X	X	X	-05
20221006-J13W-FLO_W@5'	SL	G	10/6/2022	1235				2	G	X	X	X	X	X	X	-06

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:

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 #: Fedex 5882 7564 8784

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: USM7 received 11 .0+0=1.0

Relinquished by/Company: (Signature) Alex Slorby	Date/Time: 10/7/22 1100	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 10/7/22 1500	Received by/Company: (Signature)	Date/Time: 10/8/22 0900
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

1114

Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of: ____

ANALYTICAL REPORT

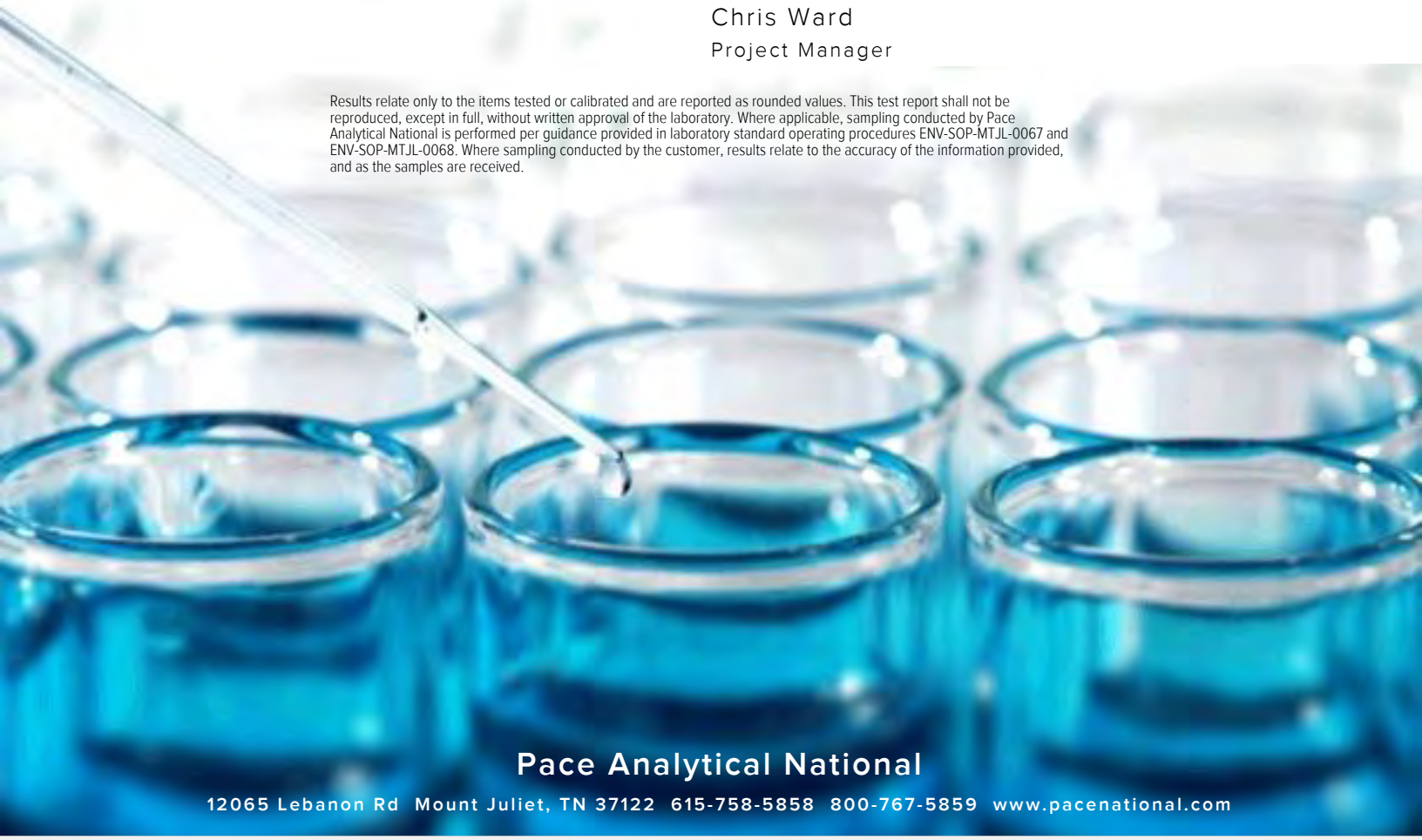
November 14, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1554573
Samples Received:	11/05/2022
Project Number:	J13W 13-10 P&A
Description:	J13W 13-10 P&A
Site:	J13W
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

TABLE OF CONTENTS

SAMPLE SUMMARY

20221104-J13W-13-10_WH@8' L1554573-01 Solid

Collected by: Andrew Smith
Collected date/time: 11/04/22 10:10
Received date/time: 11/05/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1957598	1	11/14/22 11:59	11/14/22 11:59	ABL	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	7.89		1	11/14/2022 11:59	WG1957598

GLOSSARY OF TERMS

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Abbreviations and Definitions

SDG	Sample Delivery Group.
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Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Submitting a sample via this chain-of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

L1554573

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:
Customer Project Name/Number: J13W 13-10 P&A	State: CO / County/City: Garfield Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET
Phone: / Email:	Site/Facility ID #: J13W — Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Andrew Smith	Purchase Order # : / Quote #: — DW PWS ID #: / DW Location Code:
Collected By (signature): A Smith	Turnaround Date Required: **Standard Turnaround** — Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: ____ [ ] Hold: ____	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day **[ ] 5 Day** — 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 ____

* 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	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	SAR
20221104-J13W-13-10_WH@8'	SL	G			11/4/2022	1010		3	G/P							X

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:

Customer Remarks / Special Conditions / Possible Hazards: **PLEASE HOLD ALL ADDITIONAL MATERIAL FOR ADDITIONAL ANALYSIS.**

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 #: 5882 7564 7364

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: GBA7 0.7

Relinquished by/Company: (Signature) A Smith	Date/Time: 11/04/22 1400	Received by/Company: (Signature)	Date/Time: 11/4/22 1500
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature) Caleb Tapp	Date/Time: 11/5/22 04:00

C160

Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of: ____

ANALYTICAL REPORT

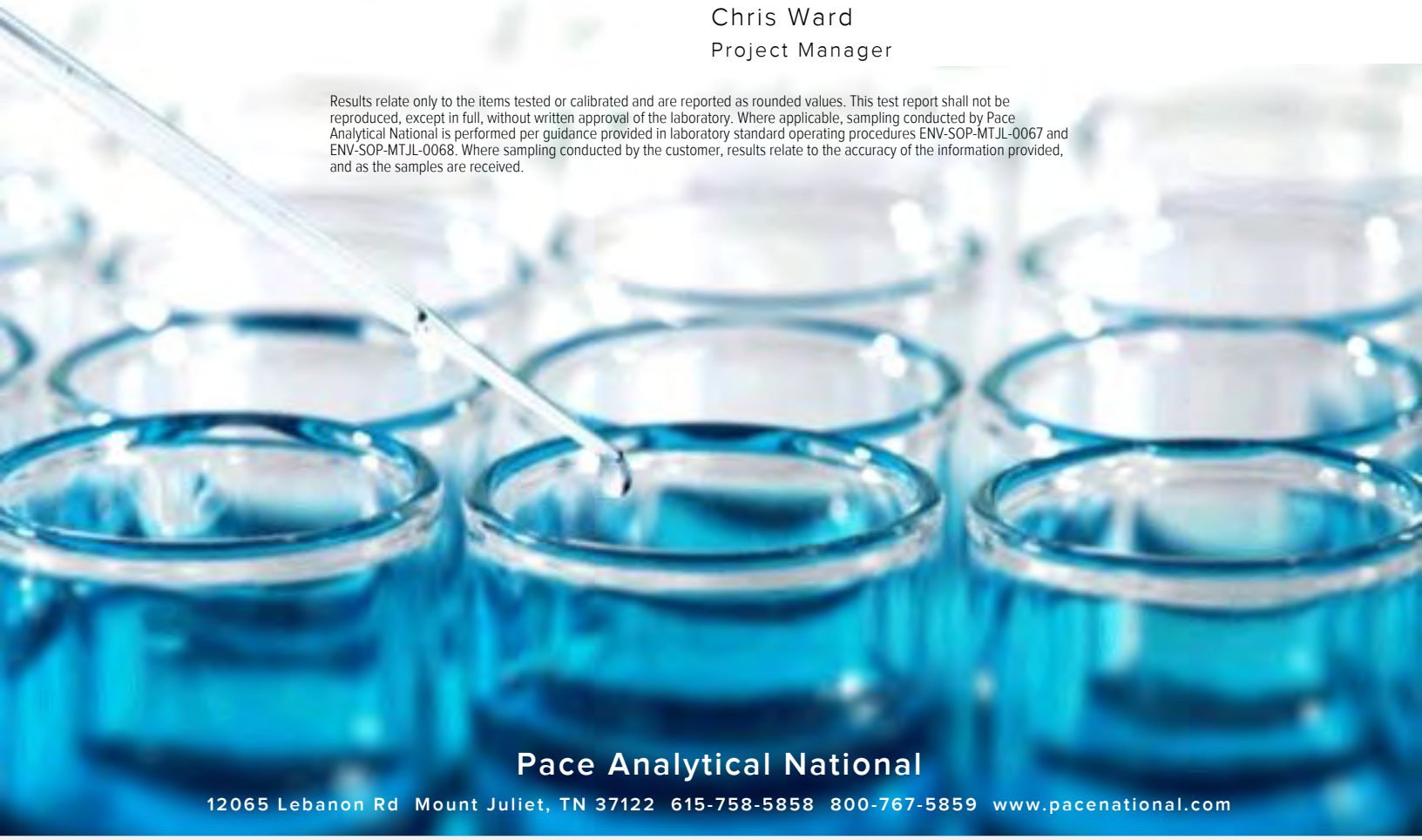
November 04, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1544657
Samples Received:	10/08/2022
Project Number:	
Description:	J13W P&A
Site:	J13W
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

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SAMPLE SUMMARY

20221006-J13W-WH_STOCK_COMP_S L1544657-01 Solid

Collected by: Alex Slorby
Collected date/time: 10/06/22 13:45
Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1945341	1	11/03/22 15:24	11/03/22 15:24	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 12:45	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942356	1	10/15/22 06:00	10/15/22 08:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946586	1	10/24/22 23:11	10/27/22 10:23	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1939820	1	10/11/22 08:17	10/25/22 00:52	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946585	5	10/24/22 21:12	10/25/22 23:33	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1941093	1	10/11/22 11:32	10/12/22 17:33	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943303	1	10/11/22 11:32	10/16/22 17:43	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 15:35	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 19:30	AMM	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	8.55		1	11/03/2022 15:24	WG1945341

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	10/14/2022 12:45	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.82	T8	1	10/15/2022 08:00	WG1942356

Sample Narrative:

L1544657-01 WG1942356: 8.82 at 20.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	884		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544657-01 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	282		0.500	1	10/27/2022 10:23	WG1946586
Cadmium	ND		0.500	1	10/27/2022 10:23	WG1946586
Copper	17.3		2.00	1	10/27/2022 10:23	WG1946586
Lead	13.0		0.500	1	10/27/2022 10:23	WG1946586
Nickel	17.4		2.00	1	10/27/2022 10:23	WG1946586
Selenium	ND		2.00	1	10/27/2022 10:23	WG1946586
Silver	ND		1.00	1	10/27/2022 10:23	WG1946586
Zinc	97.4		5.00	1	10/27/2022 10:23	WG1946586

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	0.434		0.200	1	10/25/2022 00:52	WG1939820

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.82		1.00	5	10/25/2022 23:33	WG1946585

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	0.148		0.100	1	10/12/2022 17:33	WG1941093
(S) a,a,a-Trifluorotoluene(FID)	*88.4*		*77.0-120*		*10/12/2022 17:33*	WG1941093

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	10/16/2022 17:43	WG1943303
Toluene	ND		0.00500	1	10/16/2022 17:43	WG1943303
Ethylbenzene	ND		0.00250	1	10/16/2022 17:43	WG1943303
Xylenes, Total	ND		0.00650	1	10/16/2022 17:43	WG1943303
1,2,4-Trimethylbenzene	ND		0.00500	1	10/16/2022 17:43	WG1943303
1,3,5-Trimethylbenzene	ND		0.00500	1	10/16/2022 17:43	WG1943303
(S) Toluene-d8	*100*		*75.0-131*		*10/16/2022 17:43*	WG1943303
(S) 4-Bromofluorobenzene	*94.1*		*67.0-138*		*10/16/2022 17:43*	WG1943303
(S) 1,2-Dichloroethane-d4	*83.8*		*70.0-130*		*10/16/2022 17:43*	WG1943303

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	45.4		4.00	1	10/15/2022 15:35	WG1942004
C28-C36 Motor Oil Range	64.2		4.00	1	10/15/2022 15:35	WG1942004
(S) o-Terphenyl	*36.6*		*18.0-148*		*10/15/2022 15:35*	WG1942004

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	10/14/2022 19:30	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 19:30	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 19:30	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 19:30	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 19:30	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 19:30	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 19:30	WG1941986
(S) p-Terphenyl-d14	*59.4*		*23.0-120*		*10/14/2022 19:30*	WG1941986
(S) Nitrobenzene-d5	*89.0*		*14.0-149*		*10/14/2022 19:30*	WG1941986
(S) 2-Fluorobiphenyl	*56.6*		*34.0-125*		*10/14/2022 19:30*	WG1941986

Method Blank (MB)

(MB) R3853582-1 10/14/22 11:28

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

L1544561-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544561-01 10/14/22 11:40 • (DUP) R3853582-3 10/14/22 11:45

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	4.01		20

L1544663-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544663-04 10/14/22 14:15 • (DUP) R3853582-8 10/14/22 14:20

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) R3853582-2 10/14/22 11:35

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

L1544663-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-4 10/14/22 13:54 • (MSD) R3853582-5 10/14/22 13:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	18.0	17.8	90.1	89.0	1	75.0-125			1.17	20

L1544663-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-7 10/14/22 14:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	638	ND	634	99.4	50	75.0-125	

L1544649-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544649-01 10/15/22 08:00 • (DUP) R3848751-2 10/15/22 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.83	7.88	1	0.637		1

Sample Narrative:

OS: 7.83 at 20.6C

DUP: 7.88 at 20.7C

L1544663-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544663-04 10/15/22 08:00 • (DUP) R3848751-3 10/15/22 08:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.11	8.13	1	0.246		1

Sample Narrative:

OS: 8.11 at 20C

DUP: 8.13 at 20.1C

Laboratory Control Sample (LCS)

(LCS) R3848751-1 10/15/22 08:00

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 20.3C

Method Blank (MB)

(MB) R3847901-1 10/13/22 08:00

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

L1544637-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544637-01 10/13/22 08:00 • (DUP) R3847901-3 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	438	441	1	0.683		20

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

L1544659-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1544659-02 10/13/22 08:00 • (DUP) R3847901-4 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	649	655	1	0.920		20

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

Laboratory Control Sample (LCS)

(LCS) R3847901-2 10/13/22 08:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1100	98.6	85.0-115	

Sample Narrative:
LCS: at 25C

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

Method Blank (MB)

(MB) R3853762-1 10/27/22 09:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	0.0934	J	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) R3853762-2 10/27/22 09:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.6	97.6	80.0-120	
Cadmium	100	95.3	95.3	80.0-120	
Copper	100	97.3	97.3	80.0-120	
Lead	100	91.0	91.0	80.0-120	
Nickel	100	90.5	90.5	80.0-120	
Selenium	100	92.7	92.7	80.0-120	
Silver	20.0	17.5	87.3	80.0-120	
Zinc	100	97.3	97.3	80.0-120	

L1544663-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-01 10/27/22 09:10 • (MS) R3853762-5 10/27/22 09:18 • (MSD) R3853762-6 10/27/22 09:21

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 %
Barium	100	225	320	431	95.5	206	1	75.0-125		J3 J5	29.5	20
Cadmium	100	ND	89.0	88.3	88.6	87.9	1	75.0-125			0.771	20
Copper	100	19.5	111	111	91.2	91.4	1	75.0-125			0.138	20
Lead	100	39.0	130	128	91.5	89.5	1	75.0-125			1.50	20
Nickel	100	13.0	100	98.1	87.4	85.1	1	75.0-125			2.28	20
Selenium	100	ND	85.8	83.6	85.8	83.6	1	75.0-125			2.66	20
Silver	20.0	ND	16.4	16.1	82.0	80.6	1	75.0-125			1.69	20
Zinc	100	62.1	145	145	83.3	82.8	1	75.0-125			0.333	20

Method Blank (MB)

(MB) R3852458-1 10/25/22 01:04

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) R3852458-2 10/25/22 01:07 • (LCSD) R3852458-3 10/25/22 01:09

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	1.16	1.16	116	116	80.0-120			0.126	20

Method Blank (MB)

(MB) R3852937-1 10/25/22 22:00

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) R3852937-2 10/25/22 22:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.8	93.8	80.0-120	

L1544663-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-01 10/25/22 22:07 • (MS) R3852937-5 10/25/22 22:17 • (MSD) R3852937-6 10/25/22 22:20

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	5.94	85.0	82.2	79.1	76.2	5	75.0-125			3.46	20

Method Blank (MB)

(MB) R3850220-2 10/12/22 13:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*89.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3850220-1 10/12/22 13:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.62	84.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.6*	*77.0-120*	

Method Blank (MB)

(MB) R3849296-3 10/16/22 16:27

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	*101*			*75.0-131*
(S) 4-Bromofluorobenzene	*92.2*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*88.8*			*70.0-130*

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

(LCS) R3849296-1 10/16/22 15:29 • (LCSD) R3849296-2 10/16/22 15:49

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	0.131	101	105	70.0-123			3.89	20
Toluene	0.125	0.116	0.114	92.8	91.2	75.0-121			1.74	20
Ethylbenzene	0.125	0.111	0.115	88.8	92.0	74.0-126			3.54	20
Xylenes, Total	0.375	0.341	0.345	90.9	92.0	72.0-127			1.17	20
1,2,4-Trimethylbenzene	0.125	0.113	0.112	90.4	89.6	70.0-126			0.889	20
1,3,5-Trimethylbenzene	0.125	0.110	0.106	88.0	84.8	73.0-127			3.70	20
(S) Toluene-d8				*91.5*	*88.8*	*75.0-131*				
(S) 4-Bromofluorobenzene				*102*	*103*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*95.8*	*96.3*	*70.0-130*				

Method Blank (MB)

(MB) R3848893-1 10/15/22 13:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*81.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3848893-2 10/15/22 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.6	71.2	50.0-150	
(S) o-Terphenyl			*83.9*	*18.0-148*	

L1544665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544665-01 10/15/22 14:54 • (MS) R3848893-3 10/15/22 15:08 • (MSD) R3848893-4 10/15/22 15:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.5	93.8	132	132	77.2	77.2	1	50.0-150			0.000	20
(S) o-Terphenyl					*51.8*	*48.2*		*18.0-148*				

Method Blank (MB)

(MB) R3848795-2 10/14/22 15:02

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	*96.4*			*23.0-120*
(S) Nitrobenzene-d5	*102*			*14.0-149*
(S) 2-Fluorobiphenyl	*98.3*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0714	89.3	50.0-120	
Anthracene	0.0800	0.0687	85.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0763	95.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0793	99.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0759	94.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0732	91.5	42.0-120	
Chrysene	0.0800	0.0779	97.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0748	93.5	47.0-125	
Fluoranthene	0.0800	0.0790	98.8	49.0-129	
Fluorene	0.0800	0.0717	89.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0829	104	46.0-125	
1-Methylnaphthalene	0.0800	0.0716	89.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0723	90.4	50.0-120	
Naphthalene	0.0800	0.0706	88.3	50.0-120	
Pyrene	0.0800	0.0767	95.9	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*93.5*	*23.0-120*	
(S) Nitrobenzene-d5			*98.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*96.3*	*34.0-125*	

L1544618-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544618-04 10/14/22 15:20 • (MS) R3848795-3 10/14/22 15:38 • (MSD) R3848795-4 10/14/22 15:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0768	ND	0.0652	0.0571	84.9	74.3	1	14.0-127			13.2	27
Anthracene	0.0768	ND	0.0626	0.0524	81.5	68.2	1	10.0-145			17.7	30
Benzo(a)anthracene	0.0768	ND	0.0655	0.0582	85.3	75.8	1	10.0-139			11.8	30
Benzo(b)fluoranthene	0.0768	ND	0.0669	0.0595	87.1	77.5	1	10.0-140			11.7	36
Benzo(k)fluoranthene	0.0768	ND	0.0670	0.0600	87.2	78.1	1	10.0-137			11.0	31
Benzo(a)pyrene	0.0768	ND	0.0722	0.0648	94.0	84.4	1	10.0-141			10.8	31
Chrysene	0.0768	ND	0.0679	0.0608	88.4	79.2	1	10.0-145			11.0	30
Dibenz(a,h)anthracene	0.0768	ND	0.0662	0.0579	86.2	75.4	1	10.0-132			13.4	31
Fluoranthene	0.0768	ND	0.0689	0.0603	89.7	78.5	1	10.0-153			13.3	33
Fluorene	0.0768	ND	0.0654	0.0569	85.2	74.1	1	11.0-130			13.9	29
Indeno(1,2,3-cd)pyrene	0.0768	ND	0.0722	0.0635	94.0	82.7	1	10.0-137			12.8	32
1-Methylnaphthalene	0.0768	ND	0.0655	0.0567	85.3	73.8	1	10.0-142			14.4	28
2-Methylnaphthalene	0.0768	ND	0.0664	0.0584	86.5	76.0	1	10.0-137			12.8	28
Naphthalene	0.0768	ND	0.0639	0.0572	83.2	74.5	1	10.0-135			11.1	27
Pyrene	0.0768	ND	0.0657	0.0588	85.5	76.6	1	10.0-148			11.1	35
(S) p-Terphenyl-d14					*79.3*	*74.0*		*23.0-120*				
(S) Nitrobenzene-d5					*85.8*	*82.6*		*14.0-149*				
(S) 2-Fluorobiphenyl					*90.4*	*80.6*		*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.
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.

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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:
Customer Project Name/Number: J13W P&A	State: CO / County/City: Garfield / Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET
Phone: / Email:	Site/Facility ID #: J13W / Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Alex Slorby	Purchase Order # : / Quote #: / DW PWS ID #: / DW Location Code:
Collected By (signature): Alex Slorby	Turnaround Date Required: Standard Turnaround / Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: ____ [ ] Hold: ____	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day / 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 ____

* 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	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	Lab Sample # / Comments:
20221006-J13W-WH_STOCK_COMP_S	SL	C	10/6/2022	1345				2	G	X	X	X	X	X	X	L1544657 -01

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 # Fedex 5882 7564 8794

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: received 1544 2 1.0+0=1.0

Relinquished by/Company: (Signature) Alex Slorby	Date/Time: 10/7/22 1100	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 10/7/22 1500	Received by/Company: (Signature)	Date/Time: 10/8/22 0900
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

1115

Acctnum:
Template:
Prelogin:
PM:
PB:

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

Non Conformance(s): YES / NO

Page: ____ of: ____

ANALYTICAL REPORT

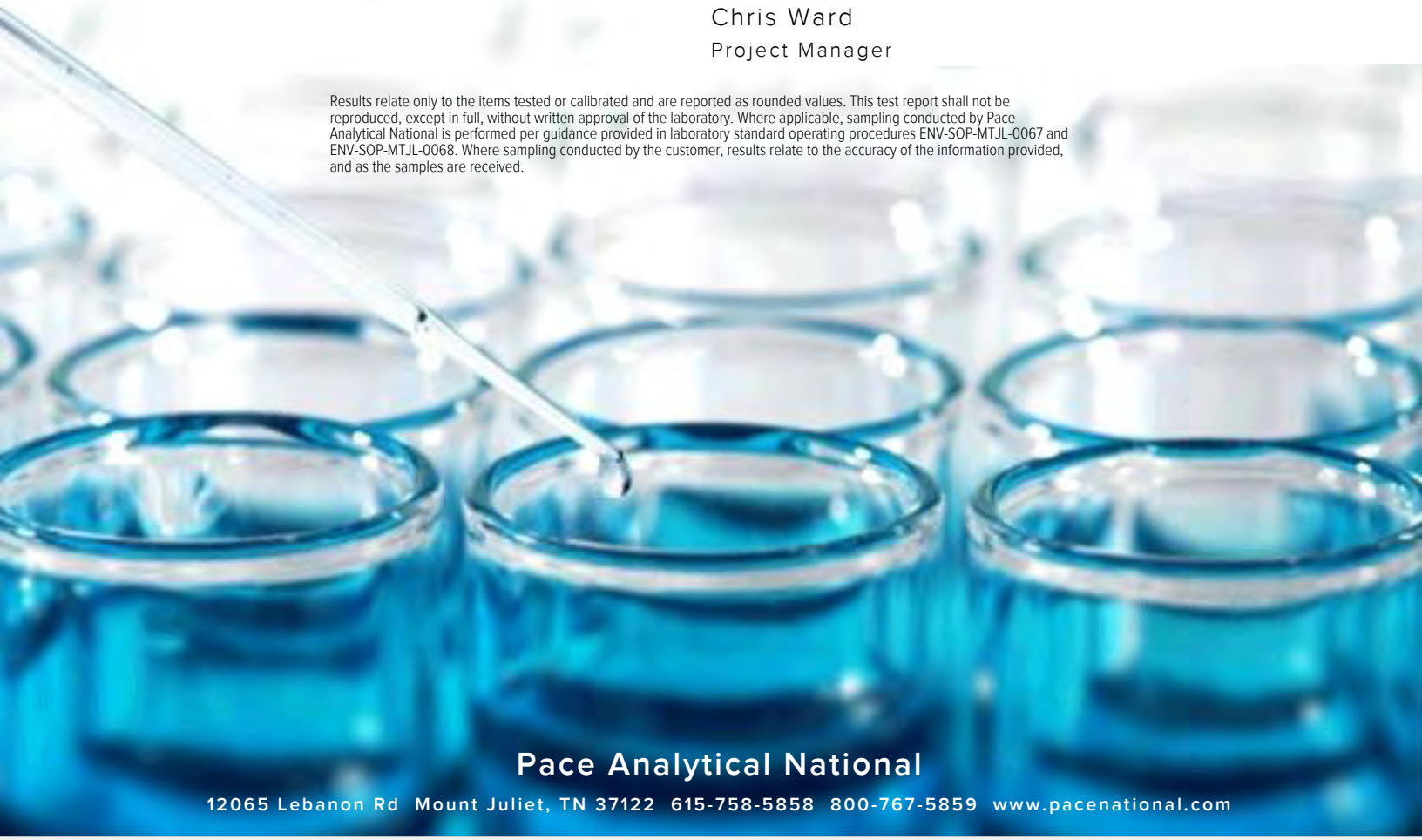
November 04, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1544637
Samples Received:	10/08/2022
Project Number:	
Description:	J13W P&A
Site:	J13W
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

20221006-J13W-FLO_STOCK_COMP L1544637-01 Solid

Collected by: Alex Slorby
Collected date/time: 10/06/22 14:10
Received date/time: 10/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1947733	1	11/03/22 13:53	11/03/22 13:53	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1941155	1	10/12/22 01:40	10/14/22 11:51	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1942116	1	10/15/22 09:00	10/15/22 11:00	NTG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1940549	1	10/12/22 08:00	10/13/22 08:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1946586	1	10/24/22 23:11	10/27/22 09:57	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1939820	1	10/12/22 10:07	10/25/22 01:50	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1946585	5	10/24/22 21:12	10/25/22 23:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1940990	1	10/09/22 16:29	10/12/22 02:00	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1943045	1	10/09/22 16:29	10/14/22 20:20	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1942004	1	10/14/22 21:25	10/15/22 14:14	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1941986	1	10/14/22 03:58	10/14/22 18:37	AMM	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	2.69		1	11/03/2022 13:53	WG1947733

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	10/14/2022 11:51	WG1941155

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.98	T8	1	10/15/2022 11:00	WG1942116

Sample Narrative:

L1544637-01 WG1942116: 8.98 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	438		10.0	1	10/13/2022 08:00	WG1940549

Sample Narrative:

L1544637-01 WG1940549: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	247		0.500	1	10/27/2022 09:57	WG1946586
Cadmium	ND		0.500	1	10/27/2022 09:57	WG1946586
Copper	14.9		2.00	1	10/27/2022 09:57	WG1946586
Lead	12.9		0.500	1	10/27/2022 09:57	WG1946586
Nickel	19.1		2.00	1	10/27/2022 09:57	WG1946586
Selenium	ND		2.00	1	10/27/2022 09:57	WG1946586
Silver	ND		1.00	1	10/27/2022 09:57	WG1946586
Zinc	62.0		5.00	1	10/27/2022 09:57	WG1946586

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	0.468		0.200	1	10/25/2022 01:50	WG1939820

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	6.00		1.00	5	10/25/2022 23:02	WG1946585

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	10/12/2022 02:00	WG1940990
(S) a,a,a-Trifluorotoluene(FID)	*87.4*		*77.0-120*		*10/12/2022 02:00*	WG1940990

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	10/14/2022 20:20	WG1943045
Toluene	ND		0.00500	1	10/14/2022 20:20	WG1943045
Ethylbenzene	ND		0.00250	1	10/14/2022 20:20	WG1943045
Xylenes, Total	ND		0.00650	1	10/14/2022 20:20	WG1943045
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2022 20:20	WG1943045
1,3,5-Trimethylbenzene	ND	J3	0.00500	1	10/14/2022 20:20	WG1943045
(S) Toluene-d8	*103*		*75.0-131*		*10/14/2022 20:20*	WG1943045
(S) 4-Bromofluorobenzene	*100*		*67.0-138*		*10/14/2022 20:20*	WG1943045
(S) 1,2-Dichloroethane-d4	*80.6*		*70.0-130*		*10/14/2022 20:20*	WG1943045

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	10/15/2022 14:14	WG1942004
C28-C36 Motor Oil Range	6.32		4.00	1	10/15/2022 14:14	WG1942004
(S) o-Terphenyl	*41.8*		*18.0-148*		*10/15/2022 14:14*	WG1942004

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	10/14/2022 18:37	WG1941986
Anthracene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Benzo(a)anthracene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Benzo(b)fluoranthene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Benzo(k)fluoranthene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Benzo(a)pyrene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Chrysene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Dibenz(a,h)anthracene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Fluoranthene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Fluorene	ND		0.00600	1	10/14/2022 18:37	WG1941986
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/14/2022 18:37	WG1941986
1-Methylnaphthalene	ND		0.0200	1	10/14/2022 18:37	WG1941986
2-Methylnaphthalene	ND		0.0200	1	10/14/2022 18:37	WG1941986
Naphthalene	ND		0.0200	1	10/14/2022 18:37	WG1941986
Pyrene	ND		0.00600	1	10/14/2022 18:37	WG1941986
(S) p-Terphenyl-d14	*68.0*		*23.0-120*		*10/14/2022 18:37*	WG1941986
(S) Nitrobenzene-d5	*82.7*		*14.0-149*		*10/14/2022 18:37*	WG1941986
(S) 2-Fluorobiphenyl	*61.4*		*34.0-125*		*10/14/2022 18:37*	WG1941986

Method Blank (MB)

(MB) R3853582-1 10/14/22 11:28

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

L1544561-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544561-01 10/14/22 11:40 • (DUP) R3853582-3 10/14/22 11:45

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	4.01		20

L1544663-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544663-04 10/14/22 14:15 • (DUP) R3853582-8 10/14/22 14:20

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) R3853582-2 10/14/22 11:35

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

L1544663-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-4 10/14/22 13:54 • (MSD) R3853582-5 10/14/22 13:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	18.0	17.8	90.1	89.0	1	75.0-125			1.17	20

L1544663-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1544663-03 10/14/22 13:49 • (MS) R3853582-7 10/14/22 14:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	638	ND	634	99.4	50	75.0-125	

L1544560-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544560-01 10/15/22 11:00 • (DUP) R3848785-2 10/15/22 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	9.12	9.12	1	0.000		1

Sample Narrative:

OS: 9.12 at 21C

DUP: 9.12 at 21C

L1544642-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544642-04 10/15/22 11:00 • (DUP) R3848785-3 10/15/22 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.92	7.91	1	0.126		1

Sample Narrative:

OS: 7.92 at 19.8C

DUP: 7.91 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R3848785-1 10/15/22 11:00

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

Method Blank (MB)

(MB) R3847901-1 10/13/22 08:00

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

L1544637-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544637-01 10/13/22 08:00 • (DUP) R3847901-3 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	438	441	1	0.683		20

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

L1544659-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1544659-02 10/13/22 08:00 • (DUP) R3847901-4 10/13/22 08:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	649	655	1	0.920		20

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

Laboratory Control Sample (LCS)

(LCS) R3847901-2 10/13/22 08:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1100	98.6	85.0-115	

Sample Narrative:
LCS: at 25C

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

Method Blank (MB)

(MB) R3853762-1 10/27/22 09:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	0.0934	J	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) R3853762-2 10/27/22 09:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.6	97.6	80.0-120	
Cadmium	100	95.3	95.3	80.0-120	
Copper	100	97.3	97.3	80.0-120	
Lead	100	91.0	91.0	80.0-120	
Nickel	100	90.5	90.5	80.0-120	
Selenium	100	92.7	92.7	80.0-120	
Silver	20.0	17.5	87.3	80.0-120	
Zinc	100	97.3	97.3	80.0-120	

L1544663-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-01 10/27/22 09:10 • (MS) R3853762-5 10/27/22 09:18 • (MSD) R3853762-6 10/27/22 09:21

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 %
Barium	100	225	320	431	95.5	206	1	75.0-125		J3 J5	29.5	20
Cadmium	100	ND	89.0	88.3	88.6	87.9	1	75.0-125			0.771	20
Copper	100	19.5	111	111	91.2	91.4	1	75.0-125			0.138	20
Lead	100	39.0	130	128	91.5	89.5	1	75.0-125			1.50	20
Nickel	100	13.0	100	98.1	87.4	85.1	1	75.0-125			2.28	20
Selenium	100	ND	85.8	83.6	85.8	83.6	1	75.0-125			2.66	20
Silver	20.0	ND	16.4	16.1	82.0	80.6	1	75.0-125			1.69	20
Zinc	100	62.1	145	145	83.3	82.8	1	75.0-125			0.333	20

Method Blank (MB)

(MB) R3852458-1 10/25/22 01:04

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) R3852458-2 10/25/22 01:07 • (LCSD) R3852458-3 10/25/22 01:09

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	1.16	1.16	116	116	80.0-120			0.126	20

Method Blank (MB)

(MB) R3852937-1 10/25/22 22:00

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) R3852937-2 10/25/22 22:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.8	93.8	80.0-120	

L1544663-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544663-01 10/25/22 22:07 • (MS) R3852937-5 10/25/22 22:17 • (MSD) R3852937-6 10/25/22 22:20

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	5.94	85.0	82.2	79.1	76.2	5	75.0-125			3.46	20

Method Blank (MB)

(MB) R3847528-3 10/11/22 16:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*89.1*			*77.0-120*

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

(LCS) R3847528-1 10/11/22 11:26 • (LCSD) R3847528-2 10/11/22 15:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.82	5.08	87.6	92.4	72.0-127			5.25	20
(S) a,a,a-Trifluorotoluene(FID)				*99.3*	*100*	*77.0-120*				

Method Blank (MB)

(MB) R3848788-2 10/14/22 11:34

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	*102*			*75.0-131*
(S) 4-Bromofluorobenzene	*104*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*95.4*			*70.0-130*

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

(LCS) R3848788-1 10/14/22 10:19 • (LCSD) R3848788-3 10/14/22 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	0.138	0.114	110	91.2	70.0-123			19.0	20
Toluene	0.125	0.124	0.103	99.2	82.4	75.0-121			18.5	20
Ethylbenzene	0.125	0.133	0.110	106	88.0	74.0-126			18.9	20
Xylenes, Total	0.375	0.386	0.332	103	88.5	72.0-127			15.0	20
1,2,4-Trimethylbenzene	0.125	0.121	0.0990	96.8	79.2	70.0-126			20.0	20
1,3,5-Trimethylbenzene	0.125	0.133	0.107	106	85.6	73.0-127		J3	21.7	20
(S) Toluene-d8				*98.6*	*97.3*	*75.0-131*				
(S) 4-Bromofluorobenzene				*98.1*	*101*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*106*	*111*	*70.0-130*				

Method Blank (MB)

(MB) R3848893-1 10/15/22 13:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*81.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3848893-2 10/15/22 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.6	71.2	50.0-150	
(S) o-Terphenyl			*83.9*	*18.0-148*	

L1544665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544665-01 10/15/22 14:54 • (MS) R3848893-3 10/15/22 15:08 • (MSD) R3848893-4 10/15/22 15:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.5	93.8	132	132	77.2	77.2	1	50.0-150			0.000	20
(S) o-Terphenyl					*51.8*	*48.2*		*18.0-148*				

Method Blank (MB)

(MB) R3848795-2 10/14/22 15:02

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	*96.4*			*23.0-120*
(S) Nitrobenzene-d5	*102*			*14.0-149*
(S) 2-Fluorobiphenyl	*98.3*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0714	89.3	50.0-120	
Anthracene	0.0800	0.0687	85.9	50.0-126	
Benzo(a)anthracene	0.0800	0.0763	95.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0793	99.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0759	94.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0732	91.5	42.0-120	
Chrysene	0.0800	0.0779	97.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0748	93.5	47.0-125	
Fluoranthene	0.0800	0.0790	98.8	49.0-129	
Fluorene	0.0800	0.0717	89.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0829	104	46.0-125	
1-Methylnaphthalene	0.0800	0.0716	89.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0723	90.4	50.0-120	
Naphthalene	0.0800	0.0706	88.3	50.0-120	
Pyrene	0.0800	0.0767	95.9	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3848795-1 10/14/22 14:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*93.5*	*23.0-120*	
(S) Nitrobenzene-d5			*98.6*	*14.0-149*	
(S) 2-Fluorobiphenyl			*96.3*	*34.0-125*	

L1544618-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544618-04 10/14/22 15:20 • (MS) R3848795-3 10/14/22 15:38 • (MSD) R3848795-4 10/14/22 15:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0768	ND	0.0652	0.0571	84.9	74.3	1	14.0-127			13.2	27
Anthracene	0.0768	ND	0.0626	0.0524	81.5	68.2	1	10.0-145			17.7	30
Benzo(a)anthracene	0.0768	ND	0.0655	0.0582	85.3	75.8	1	10.0-139			11.8	30
Benzo(b)fluoranthene	0.0768	ND	0.0669	0.0595	87.1	77.5	1	10.0-140			11.7	36
Benzo(k)fluoranthene	0.0768	ND	0.0670	0.0600	87.2	78.1	1	10.0-137			11.0	31
Benzo(a)pyrene	0.0768	ND	0.0722	0.0648	94.0	84.4	1	10.0-141			10.8	31
Chrysene	0.0768	ND	0.0679	0.0608	88.4	79.2	1	10.0-145			11.0	30
Dibenz(a,h)anthracene	0.0768	ND	0.0662	0.0579	86.2	75.4	1	10.0-132			13.4	31
Fluoranthene	0.0768	ND	0.0689	0.0603	89.7	78.5	1	10.0-153			13.3	33
Fluorene	0.0768	ND	0.0654	0.0569	85.2	74.1	1	11.0-130			13.9	29
Indeno(1,2,3-cd)pyrene	0.0768	ND	0.0722	0.0635	94.0	82.7	1	10.0-137			12.8	32
1-Methylnaphthalene	0.0768	ND	0.0655	0.0567	85.3	73.8	1	10.0-142			14.4	28
2-Methylnaphthalene	0.0768	ND	0.0664	0.0584	86.5	76.0	1	10.0-137			12.8	28
Naphthalene	0.0768	ND	0.0639	0.0572	83.2	74.5	1	10.0-135			11.1	27
Pyrene	0.0768	ND	0.0657	0.0588	85.5	76.6	1	10.0-148			11.1	35
(S) p-Terphenyl-d14					*79.3*	*74.0*		*23.0-120*				
(S) Nitrobenzene-d5					*85.8*	*82.6*		*14.0-149*				
(S) 2-Fluorobiphenyl					*90.4*	*80.6*		*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.
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®

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:
Customer Project Name/Number: J13W P&A	State: CO / County/City: Garfield / Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET
Phone: / Email:	Site/Facility ID #: J13W / Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Alex Slorby	Purchase Order # : / Quote #: / DW PWS ID #: / DW Location Code:
Collected By (signature): Alex Slorby	Turnaround Date Required: Standard Turnaround / Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day / 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 _____

* 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	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)				
20221006-J13W-FLO_STOCK_COMP	SL	C	10/6/2022	1410				2	G	X	X	X	X	X	X				

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: L1544637 -01

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 #: Fedex 5882 7564 8724

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: RSH received 1.0+0=1.0 3-2

Relinquished by/Company: (Signature) Alex Slorby	Date/Time: 10/7/22 1100	Received by/Company: (Signature)	Date/Time:	MTJL LAB USE ONLY 1122
Relinquished by/Company: (Signature)	Date/Time: 10/7/22 1500	Received by/Company: (Signature)	Date/Time:	Template: / Prelogin: / PM: / PB:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 10/8/22 0900	

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

Non Conformance(s): YES / NO

Page: ____ of: ____

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Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Tuesday December 04, 2012

Report Number: L608253
Samples Received: 11/29/12
Client Project: J13W

Description: J13W SAR Sampling

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-01

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS7-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 10:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	8.8			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:36

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REPORT OF ANALYSIS

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2717 County Road 215, Suite 100
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December 04, 2012

ESC Sample # : L608253-02

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS9-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 10:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	4.1			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:36

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-03

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS11-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 10:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	9.3			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:36

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
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December 04, 2012

ESC Sample # : L608253-04

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS12-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 11:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	2.2			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-05

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS13-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 11:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	4.1			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-06

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS14-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 11:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	11.			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-07

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS14-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 11:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	5.5			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-08

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS15-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	3.4			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-09

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS15-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	2.6			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-10

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS16-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	8.9			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-11

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS16-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	8.5			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-12

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS17-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:50

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	12.			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-13

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS17-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 12:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	9.0			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-14

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS18-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 13:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	6.6			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

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2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-15

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS18-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 13:05

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	4.1			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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12065 Lebanon Rd.
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(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-16

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS19-1 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 13:10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	10.			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 04, 2012

ESC Sample # : L608253-17

Date Received : November 29, 2012
Description : J13W SAR Sampling

Site ID : J13W

Sample ID : J13W-SS19-3 FT-112712

Project # : J13W

Collected By : SRM
Collection Date : 11/27/12 13:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	2.7			Calc.	12/02/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 12/03/12 11:14 Revised: 12/04/12 09:37

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EnCana Oil & Gas Inc. - CO
Chris Hines / Matt Kasten
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L608253

December 04, 2012

Batch number /Run number / Sample number cross reference

WG625510: R2462298: L608253-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L608253

December 04, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.