VIA ELECTRONIC MAIL –

June 28, 2022

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

Subject: **Report of Work Completed**
Loadout Line Leak
YCF 35-33-1
Yellow Creek Field
Rio Blanco County, Colorado

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), conducted subsequent assessment soil sampling activities on June 1, 2022, associated with the December 17, 2021, produced water release discovered at the YCF 35-33-1 (Facility ID: 316660) (Site). Assessment activities were completed to further characterize the release area based on the initial characterization sampling completed on April 19, 2022. All initial spill response and investigative activities associated with the loadout line leak can be referenced under Colorado Oil and Gas Conservation Commission (COGCC) Spill/Release Point ID 481405 and Remediation Number (RN) 23230. This document serves as a report of work completed (ROWC) under Supplemental Form 27 Document Number (DN) 403089339 for the above-mentioned release. The Site is in the Yellow Creek Field area of operation in Rio Blanco County, Colorado (Figure 1).

SOIL SAMPLING ACTIVITIES – YCF 35-33-1 LOADOUT LINE LEAK

On June 1, 2022, WSP personnel returned to the Site to continue delineation efforts associated with the impacts observed during the initial investitive sampling activities associated with the off-load line release at the Site. Western Colorado Oilfield Services, LLC of Rifle, Colorado was contracted by Caerus to assist in delineation efforts associated with the impacts observed during the initial investitive sampling activities. Using a hydro-vacuum truck, eight additional hydro-vacuum potholes were advanced along the southern and southwestern exterior of the metal containment to profile the spill path. Pothole locations are shown on Figure 2. Samples were collected using a hand auger to collect samples below the bottom of the hydro-vac pothole at specific intervals. Pothole location PH01 was advanced immediately adjacent to the initial point of compliance [20220419-YCF 35-33-1(POCA)] sample collected in April in an attempt to determine extent of impact beneath the production tank containment liner. The remaining potholes were advanced along the south end of the production tank containment on the working pad, and around the pump shed located on the southwest corner of the production tank containment. Due to bedrock being encountered, on average, at 2 to 3 feet below ground surface (bgs) during the potholing, the initial plan to collect samples in two-foot intervals was inhibited. After each pothole was advance to 2 feet bgs, with the exception of PH08, the potholes were advanced in half-foot intervals in an effort to collect samples before terminating at bedrock. The soil sample depths ranged from 1.5 feet bgs in PH08 to 7 feet bgs at PH07. A total of eight pothole soil samples were collected. During the potholing, the soil was characterized along the intervals listed above by visually inspecting the confirmation soil samples and field screening the soil using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors. Each sample was collected in clean laboratory prepared containers and submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis under the COGCC Directors approved reduced suite which includes arsenic, barium, total petroleum hydrocarbons (TPH),

benzene, toluene, ethylbenzene, total xylenes (BTEX), 1,3,5-trimethlybenzene, 1- methylnaphthalene, 2-methylnaphthalaene, naphthalene, and sodium adsorption ration (SAR).

ANALYTICAL RESULTS – YCF 35-33-1 LOADOUT LINE LEAK

Laboratory analytical results of the eight assessment pothole soil samples indicate exceedances of the COGCC Table 915-1 Protection of Ground Water Soil Screening Level Concentrations (PGSSLC) maximum containment level (M) for arsenic, barium, BTEX and exceeded the COGCC Table 915-1 PGSSLC risk based (R) for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. The R and M exceedances are summarized below:

- Arsenic concentrations were exceeded by all eight assessment pothole soil samples collected with concentrations ranging from 3.43 milligrams per kilogram (mg/kg) in soil sample 20220601-YCF 35-33-1 (PH08) @ 1.5' to 8.68 mg/kg in soil sample 20220601-YCF 35-33-1 (PH05) @ 3';
- Barium concentrations were exceeded by all eight assessment pothole soil samples collected with concentrations ranging from 129 mg/kg in soil sample 20220601-YCF 35-33-1 (PH08) @ 1.5' to 443 mg/kg in soil sample 20220601-YCF 35-33-1 (PH03) @2'-4';
- Benzene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1(PH01) @ 2'-4' and 20220601-YCF 35-33-1 (PH03) @ 2'-4' with concentrations of 0.935 mg/kg and 1.52 mg/kg, respectively;
- Toluene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1(PH01) @ 2'-4' and 20220601-YCF 35-33-1 (PH03) @ 2'-4' with concentrations of 36.1 mg/kg and 40.2 mg/kg, respectively;
- Ethylbenzene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4' and 20220601-YCF 35-33-1 (PH03) @ 2'-4' with concentrations of 9.08 mg/kg and 7.10 mg/kg, respectively;
- Total Xylenes concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1(PH03) @2'-4', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations of 209 mg/kg, 310 mg/kg, and 29.8 mg/kg, respectively;
- 1,2,4-trimethylbenzene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH03) @ 2'-4', 20220601-YCF 35-33-1 (PH05) @ 3', 20220601-YCF 35-33-1 (PH07) @ 2.25', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations ranging from 0.0689 mg/kg to 89.7 mg/kg;
- 1,3,5-trimethylbenzene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH02) @ 4.5', 20220601-YCF 35-33-1 (PH03) @ 2'-4', 20220601-YCF 35-33-1 (PH05) @ 3', 20220601-YCF 35-33-1 (PH07) @ 2.25', 20220601-YCF 35-33-1 (PH07) @ 7', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations ranging from 0.0149 mg/kg to 90.8 mg/kg;
- 1-methylnapthlaene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH03) @ 2'-4', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations of 3.18 mg/kg, 3.73 mg/kg, and 0.597 mg/kg, respectively;
- 2-methylnapthlaene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH03) @ 2'-4', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations of 12.8 mg/kg, 14.7 mg/kg, and 1.77 mg/kg, respectively; and
- Naphthalene concentrations were exceeded by assessment pothole soil samples 20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH03) @ 2'-4', and 20220601-YCF 35-33-1 (PH08) @ 1.5' with concentrations of 5.14 mg/kg, 6.18 mg/kg, and 0.407 mg/kg, respectively.

Laboratory analytical results for four of the eight soil samples collected on June 1, 2022 [20220601-YCF 35-33-1 (PH02) @ 4.5', 20220601-YCF 35-33-1 (PH04) @ 2', 20220601-YCF 35-33-1 (PH05) @ 3', and 20220601-YCF 35-33-1 (PH08) @ 1.5'] indicated exceedances of COGCC Table 915-1 Cleanup Concentration (CC) for SAR with values ranging from 6.94 in 20220601-YCF 35-33-1 (PH08) @ 1.5' to 17.0 in 20220601-YCF 35-33-1 (PH04) @ 2'. Three of the eight soil samples [20220601-YCF 35-33-1 (PH01) @ 2'-4', 20220601-YCF 35-33-1 (PH03) @ 2'-4',

and 20220601-YCF 35-33-1 (PH08) @ 1.5'] exceeded the COGCC Table 915-1 CC for TPH with concentrations ranging from 930.80 mg/kg in 20220601-YCF 35-33-1 (PH08) @ 1.5' to 5,195.8 mg/kg in 20220601-YCF 35-33-1 (PH03) @ 2'-4'.

Laboratory analytical results are included in Enclosure A and summarized in Table 1.

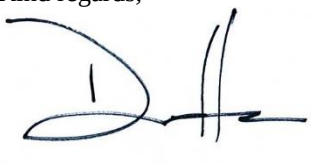
CONCLUSIONS – YCF 35-33-1 LOADOUT LINE LEAK

Based on the analytical data provided from the subsequent assessment and sampling completed on June 1, 2022, the previously delineation of the identified contaminants of concern remain unchanged. WSP recommends that Caerus continue site assessment activities using an environmental drill rig to delineate the subsurface impacts vertically and laterally along the southern and western extents of the production tank secondary containment.

WSP recommends that at least five soil borings be advanced; one located immediately adjacent to PH-01 location and four in each cardinal direction surrounding identified release area. If vertical and/or lateral impacts are observed beyond the four advanced surrounding the release area, subsequent soil borings will be advanced in each cardinal direction until impacts are defined. These soil borings will be advanced up to five feet past field observed hydrocarbon impacts.

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

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

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

Encl.

FIGURES

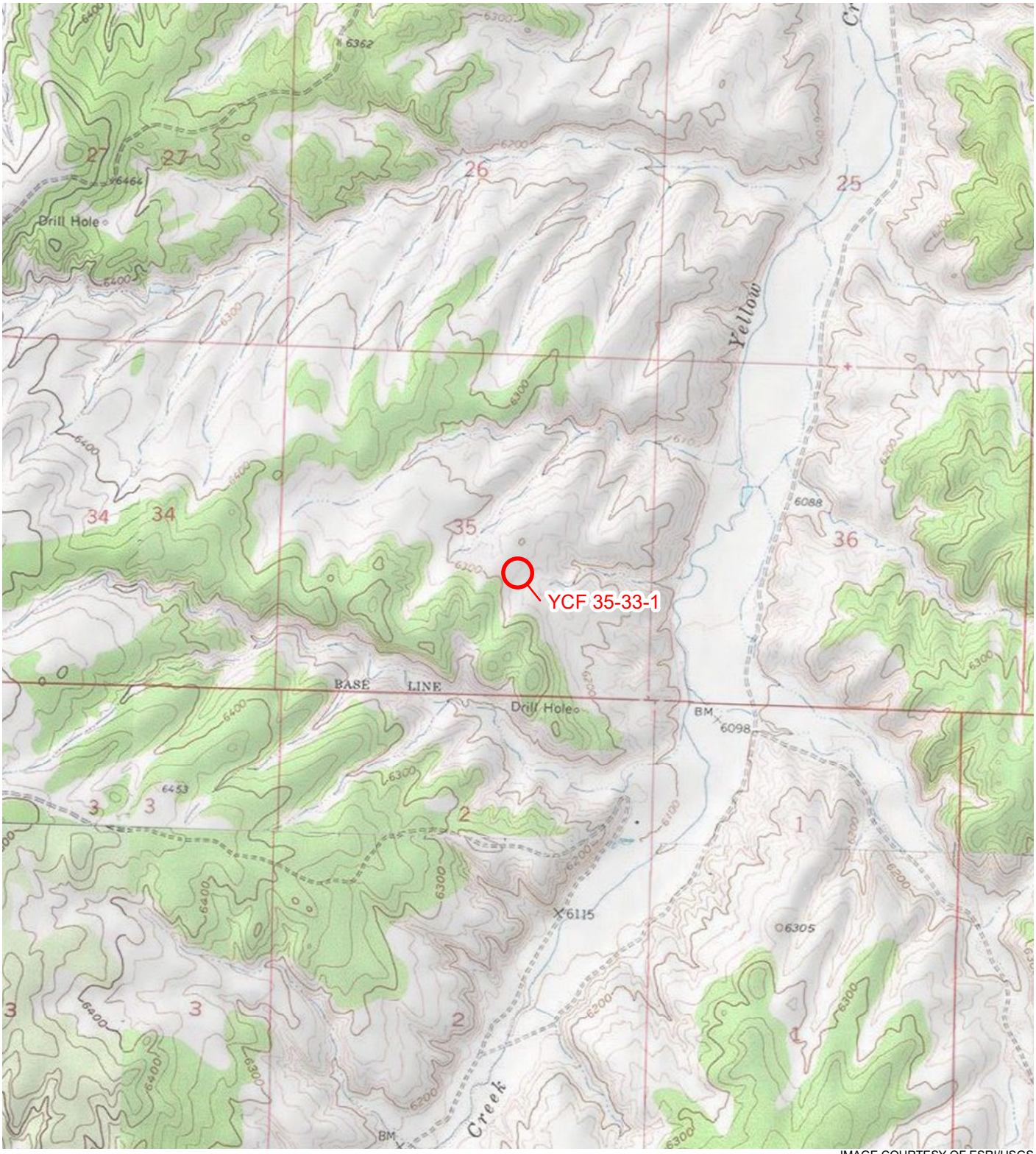


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
YCF 35-33-1
NWSE SEC 35-T1S-R98W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

C:\Users\USJG689584\OneDrive - WSP O365\Documents\31404550_001_YCF 35-33-1\MXD\31404550_001_FIG01_SL_2022.mxd

IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

POTHOLE SOIL SAMPLE

RELEASE FOOTPRINT (4/19/2022)

0 40 80

Feet

N

FIGURE 2
POTHOLE SOIL SAMPLE LOCATION MAP
YCF 35-33-1
NWSE SEC 35-T1S-R98W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

C:\Users\USTJ689650\OneDrive - WSP O365\Caerus\31404550.001_YCF 35-33-1\MXD\31404550_001_FIG03_PH_LOC_JUNE_2022.mxd

TABLE

TABLE 1

SOIL ANALYTICAL RESULTS
YCF 35-33-1
RIO BLANCO, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES							
				20220601-YCF 35-33-1 (PH01) @ 2'-4'	**20220601-YCF 35-33-1 (PH02) @ 4.5'**	**20220601-YCF 35-33-1 (PH03) @ 2'-4'**	**20220601-YCF 35-33-1 (PH04) @ 2'**	**20220601-YCF 35-33-1 (PH05) @ 3'**	**20220601-YCF 35-33-1 (PH07) @ 2.25'**	**20220601-YCF 35-33-1 (PH07) @ 7'**	**20220601-YCF 35-33-1 (PH08) @ 1.5'**
Sample Date				6/1/2022	6/1/2022	6/1/2022	6/1/2022	6/1/2022	6/1/2022	6/1/2022	6/1/2022
Sample Depth /Range (feet)				2-4	4.5	2-4	2	3	2.25	7	1.5
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	**3.55**	**5.76**	**5.15**	**5.11**	**8.68**	**8.62**	**5.15**	**3.43**
Barium	15,000	82 (M)	mg/kg	**374**	**324**	**443**	**258**	**271**	**405**	**389**	**129**
Boron	2	2	mg/l	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA	NA	NA	NA	NA	NA
SAR	<6	<6	unitless	4.61	**11.2**	3.35	**17.0**	**12.6**	1.46	3.24	**6.94**
TPH-GRO			mg/kg	2,060	ND	2,270	0.287	5.25	3.82	0.142	794
TPH-DRO			mg/kg	2,060	ND	2,890	4.29	137	ND	115	127
TPH-ORO			mg/kg	104	ND	35.8	ND	14.3	ND	16.0	9.80
TPH	500	500	mg/kg	**4,224**	ND	**5,195.8**	4.577	156.55	3.82	131.142	**930.80**
Benzene	1.2	0.0026 (M)	mg/kg	**0.935**	ND	**1.52**	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	**36.1**	ND	**40.2**	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	**9.08**	ND	**7.10**	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	**209**	ND	**310**	0.0192	0.0634	0.141	ND	**29.8**
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	**47.4**	ND	**89.7**	0.00587	**0.0689**	**0.0699**	ND	**13.6**
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	**46.1**	**0.0178**	**90.8**	0.00671	**1.19**	**0.846**	**0.0149**	**14.7**
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3,-cd)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	**3.18**	ND	**3.73**	ND	ND	ND	ND	**0.597**
2-methylnaphthalene	24	0.019 (R)	mg/kg	**12.8**	ND	**14.7**	ND	ND	ND	ND	**1.77**
Naphthalene	2	0.0038 (R)	mg/kg	**5.14**	ND	**6.18**	ND	ND	ND	ND	**0.407**
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentration
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter
SAR - sodium adsorption ratio
SU - standard unit
TPH-ORO - total petroleum hydrcarbons- oil range orgainc
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

June 23, 2022

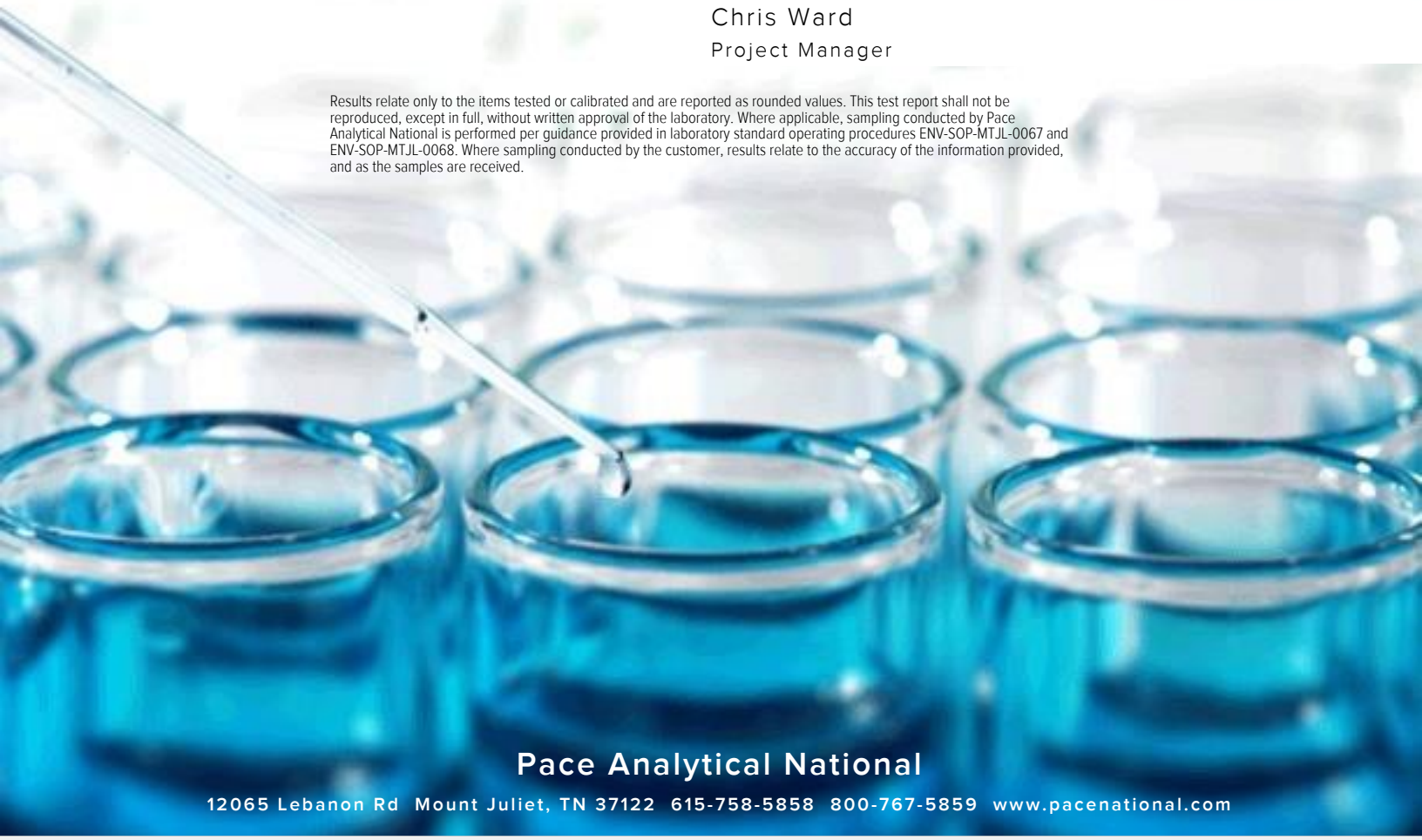
1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Caerus Oil and Gas

Sample Delivery Group:	L1501204
Samples Received:	06/03/2022
Project Number:	YCF 35-33-1
Description:	YCF 35-33-1
Site:	YCF 35-33-1
Report To:	Blair Rollins 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

20220601-YCF 35-33-1 (PH01) @ 2'-4' L1501204-01 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 09:12 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876003	1	06/14/22 01:00	06/14/22 01:00	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:15	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:07	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874732	250	06/04/22 20:44	06/06/22 17:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	20	06/04/22 20:44	06/09/22 06:39	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1877555	400	06/04/22 20:44	06/11/22 15:30	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/15/22 00:21	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	20	06/14/22 17:22	06/15/22 10:07	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 16:34	SAW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	10	06/14/22 08:00	06/15/22 12:17	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH02) @ 4.5' L1501204-03 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 09:55 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876003	1	06/14/22 01:03	06/14/22 01:03	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:18	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:10	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874734	1	06/04/22 20:44	06/06/22 14:53	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	1	06/04/22 20:44	06/09/22 02:28	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/14/22 23:43	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 16:52	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH03) @ 2'-4' L1501204-04 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 10:05 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876003	1	06/14/22 01:06	06/14/22 01:06	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:26	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:22	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874732	250	06/04/22 20:44	06/06/22 18:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	20	06/04/22 20:44	06/09/22 06:58	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1877555	200	06/04/22 20:44	06/11/22 15:49	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/15/22 00:09	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	25	06/14/22 17:22	06/15/22 10:07	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 17:10	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	10	06/14/22 08:00	06/15/22 12:37	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH04) @ 2' L1501204-05 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 10:30 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876392	1	06/13/22 10:55	06/13/22 10:55	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:29	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:25	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874734	1	06/04/22 20:44	06/06/22 15:14	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	1	06/04/22 20:44	06/09/22 02:47	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/14/22 23:56	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 17:27	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH05) @ 3' L1501204-07 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 10:55 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876392	1	06/13/22 10:58	06/13/22 10:58	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:32	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:28	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874734	1	06/04/22 20:44	06/06/22 15:34	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	1	06/04/22 20:44	06/09/22 03:07	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/15/22 09:54	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 17:45	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH07) @ 2.25' L1501204-09 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 11:30 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876392	1	06/13/22 11:06	06/13/22 11:06	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:35	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:31	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1875991	1	06/04/22 20:44	06/08/22 13:54	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	1	06/04/22 20:44	06/09/22 03:26	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/14/22 22:53	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 18:03	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH07) @ 7' L1501204-10 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 12:25 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876392	1	06/13/22 11:09	06/13/22 11:09	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:38	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:35	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1875739	1	06/04/22 20:44	06/07/22 19:19	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	1	06/04/22 20:44	06/09/22 03:45	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/14/22 22:15	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 18:21	AMG	Mt. Juliet, TN

20220601-YCF 35-33-1 (PH08) @ 1.5' L1501204-11 Solid

Collected by: K. Moreland | Collected date/time: 06/01/22 13:00 | Received date/time: 06/03/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1876392	1	06/13/22 11:11	06/13/22 11:11	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1876247	1	06/15/22 07:39	06/15/22 18:41	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883245	5	06/21/22 21:52	06/22/22 21:38	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1874732	250	06/04/22 20:44	06/06/22 18:37	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1876600	20	06/04/22 20:44	06/09/22 07:18	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1879143	1	06/14/22 17:22	06/14/22 23:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1878891	1	06/14/22 08:00	06/14/22 18:39	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	4.61		1	06/14/2022 01:00	WG1876003

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	374		0.500	1	06/15/2022 18:15	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.55		1.00	5	06/22/2022 21:07	WG1883245

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	2060		25.0	250	06/06/2022 17:54	WG1874732
(S) a,a,a-Trifluorotoluene(FID)	*79.5*		*77.0-120*		*06/06/2022 17:54*	WG1874732

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.935		0.0200	20	06/09/2022 06:39	WG1876600
Toluene	36.1		0.100	20	06/09/2022 06:39	WG1876600
Ethylbenzene	9.08		0.0500	20	06/09/2022 06:39	WG1876600
Xylenes, Total	209		2.60	400	06/11/2022 15:30	WG1877555
1,2,4-Trimethylbenzene	47.4		0.100	20	06/09/2022 06:39	WG1876600
1,3,5-Trimethylbenzene	46.1		0.100	20	06/09/2022 06:39	WG1876600
(S) Toluene-d8	*91.4*		*75.0-131*		*06/09/2022 06:39*	WG1876600
(S) Toluene-d8	*103*		*75.0-131*		*06/11/2022 15:30*	WG1877555
(S) 4-Bromofluorobenzene	*92.4*		*67.0-138*		*06/09/2022 06:39*	WG1876600
(S) 4-Bromofluorobenzene	*96.8*		*67.0-138*		*06/11/2022 15:30*	WG1877555
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*06/09/2022 06:39*	WG1876600
(S) 1,2-Dichloroethane-d4	*117*		*70.0-130*		*06/11/2022 15:30*	WG1877555

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	2060		80.0	20	06/15/2022 10:07	WG1879143
C28-C36 Motor Oil Range	104		4.00	1	06/15/2022 00:21	WG1879143
(S) o-Terphenyl	*0.000*	J2	*18.0-148*		*06/15/2022 00:21*	WG1879143
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*06/15/2022 10:07*	WG1879143

Sample Narrative:

L1501204-01 WG1879143: Surrogate failure due to matrix interference

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	3.18		0.0200	1	06/14/2022 16:34	WG1878891
2-Methylnaphthalene	12.8		0.200	10	06/15/2022 12:17	WG1878891
Naphthalene	5.14		0.200	10	06/15/2022 12:17	WG1878891
(S) p-Terphenyl-d14	*106*		*23.0-120*		*06/15/2022 12:17*	WG1878891
(S) p-Terphenyl-d14	*104*		*23.0-120*		*06/14/2022 16:34*	WG1878891

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) Nitrobenzene-d5	*1620*	J1	*14.0-149*		*06/15/2022 12:17*	WG1878891
(S) Nitrobenzene-d5	*1660*	J1	*14.0-149*		*06/14/2022 16:34*	WG1878891
(S) 2-Fluorobiphenyl	*80.0*		*34.0-125*		*06/15/2022 12:17*	WG1878891
(S) 2-Fluorobiphenyl	*113*		*34.0-125*		*06/14/2022 16:34*	WG1878891

Sample Narrative:

L1501204-01 WG1878891: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	11.2		1	06/14/2022 01:03	WG1876003

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	324		0.500	1	06/15/2022 18:18	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.76		1.00	5	06/22/2022 21:10	WG1883245

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	06/06/2022 14:53	WG1874734
(S) a,a,a-Trifluorotoluene(FID)	*93.0*		*77.0-120*		*06/06/2022 14:53*	WG1874734

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	06/09/2022 02:28	WG1876600
Toluene	ND		0.00500	1	06/09/2022 02:28	WG1876600
Ethylbenzene	ND		0.00250	1	06/09/2022 02:28	WG1876600
Xylenes, Total	ND		0.00650	1	06/09/2022 02:28	WG1876600
1,2,4-Trimethylbenzene	ND		0.00500	1	06/09/2022 02:28	WG1876600
1,3,5-Trimethylbenzene	0.0178		0.00500	1	06/09/2022 02:28	WG1876600
(S) Toluene-d8	*103*		*75.0-131*		*06/09/2022 02:28*	WG1876600
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*06/09/2022 02:28*	WG1876600
(S) 1,2-Dichloroethane-d4	*96.3*		*70.0-130*		*06/09/2022 02:28*	WG1876600

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	06/14/2022 23:43	WG1879143
C28-C36 Motor Oil Range	ND		4.00	1	06/14/2022 23:43	WG1879143
(S) o-Terphenyl	*70.1*		*18.0-148*		*06/14/2022 23:43*	WG1879143

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	ND		0.0200	1	06/14/2022 16:52	WG1878891
2-Methylnaphthalene	ND		0.0200	1	06/14/2022 16:52	WG1878891
Naphthalene	ND		0.0200	1	06/14/2022 16:52	WG1878891
(S) p-Terphenyl-d14	*106*		*23.0-120*		*06/14/2022 16:52*	WG1878891
(S) Nitrobenzene-d5	*83.4*		*14.0-149*		*06/14/2022 16:52*	WG1878891
(S) 2-Fluorobiphenyl	*87.1*		*34.0-125*		*06/14/2022 16:52*	WG1878891

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	3.35		1	06/14/2022 01:06	WG1876003

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	443		0.500	1	06/15/2022 18:26	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.15		1.00	5	06/22/2022 21:22	WG1883245

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	2270		25.0	250	06/06/2022 18:15	WG1874732
(S) a,a,a-Trifluorotoluene(FID)	*77.9*		*77.0-120*		*06/06/2022 18:15*	WG1874732

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	1.52		0.0200	20	06/09/2022 06:58	WG1876600
Toluene	40.2		0.100	20	06/09/2022 06:58	WG1876600
Ethylbenzene	7.10		0.0500	20	06/09/2022 06:58	WG1876600
Xylenes, Total	310		1.30	200	06/11/2022 15:49	WG1877555
1,2,4-Trimethylbenzene	89.7		1.00	200	06/11/2022 15:49	WG1877555
1,3,5-Trimethylbenzene	90.8		1.00	200	06/11/2022 15:49	WG1877555
(S) Toluene-d8	*89.4*		*75.0-131*		*06/09/2022 06:58*	WG1876600
(S) Toluene-d8	*101*		*75.0-131*		*06/11/2022 15:49*	WG1877555
(S) 4-Bromofluorobenzene	*94.8*		*67.0-138*		*06/09/2022 06:58*	WG1876600
(S) 4-Bromofluorobenzene	*96.5*		*67.0-138*		*06/11/2022 15:49*	WG1877555
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*06/09/2022 06:58*	WG1876600
(S) 1,2-Dichloroethane-d4	*117*		*70.0-130*		*06/11/2022 15:49*	WG1877555

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	2890		100	25	06/15/2022 10:07	WG1879143
C28-C36 Motor Oil Range	35.8		4.00	1	06/15/2022 00:09	WG1879143
(S) o-Terphenyl	*0.000*	J7	*18.0-148*		*06/15/2022 10:07*	WG1879143
(S) o-Terphenyl	*0.000*	J2	*18.0-148*		*06/15/2022 00:09*	WG1879143

Sample Narrative:

L1501204-04 WG1879143: Surrogate failure due to matrix interference

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	3.73		0.0200	1	06/14/2022 17:10	WG1878891
2-Methylnaphthalene	14.7		0.200	10	06/15/2022 12:37	WG1878891
Naphthalene	6.18		0.200	10	06/15/2022 12:37	WG1878891
(S) p-Terphenyl-d14	*98.7*		*23.0-120*		*06/14/2022 17:10*	WG1878891
(S) p-Terphenyl-d14	*94.9*		*23.0-120*		*06/15/2022 12:37*	WG1878891

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) Nitrobenzene-d5	*1420*	J1	*14.0-149*		*06/15/2022 12:37*	WG1878891
(S) Nitrobenzene-d5	*1570*	J1	*14.0-149*		*06/14/2022 17:10*	WG1878891
(S) 2-Fluorobiphenyl	*108*		*34.0-125*		*06/14/2022 17:10*	WG1878891
(S) 2-Fluorobiphenyl	*75.1*		*34.0-125*		*06/15/2022 12:37*	WG1878891

Sample Narrative:

L1501204-04 WG1878891: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	17.0		1	06/13/2022 10:55	WG1876392

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	258		0.500	1	06/15/2022 18:29	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.11		1.00	5	06/22/2022 21:25	WG1883245

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	0.287		0.100	1	06/06/2022 15:14	WG1874734
(S) a,a,a-Trifluorotoluene(FID)	*91.8*		*77.0-120*		*06/06/2022 15:14*	WG1874734

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	06/09/2022 02:47	WG1876600
Toluene	ND		0.00500	1	06/09/2022 02:47	WG1876600
Ethylbenzene	ND		0.00250	1	06/09/2022 02:47	WG1876600
Xylenes, Total	0.0192		0.00650	1	06/09/2022 02:47	WG1876600
1,2,4-Trimethylbenzene	0.00587		0.00500	1	06/09/2022 02:47	WG1876600
1,3,5-Trimethylbenzene	0.00671		0.00500	1	06/09/2022 02:47	WG1876600
(S) Toluene-d8	*103*		*75.0-131*		*06/09/2022 02:47*	WG1876600
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*06/09/2022 02:47*	WG1876600
(S) 1,2-Dichloroethane-d4	*94.4*		*70.0-130*		*06/09/2022 02:47*	WG1876600

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	4.29	B	4.00	1	06/14/2022 23:56	WG1879143
C28-C36 Motor Oil Range	ND		4.00	1	06/14/2022 23:56	WG1879143
(S) o-Terphenyl	*56.4*		*18.0-148*		*06/14/2022 23:56*	WG1879143

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	ND		0.0200	1	06/14/2022 17:27	WG1878891
2-Methylnaphthalene	ND		0.0200	1	06/14/2022 17:27	WG1878891
Naphthalene	ND		0.0200	1	06/14/2022 17:27	WG1878891
(S) p-Terphenyl-d14	*84.6*		*23.0-120*		*06/14/2022 17:27*	WG1878891
(S) Nitrobenzene-d5	*74.0*		*14.0-149*		*06/14/2022 17:27*	WG1878891
(S) 2-Fluorobiphenyl	*69.8*		*34.0-125*		*06/14/2022 17:27*	WG1878891

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	12.6		1	06/13/2022 10:58	WG1876392

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	271		0.500	1	06/15/2022 18:32	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	8.68		1.00	5	06/22/2022 21:28	WG1883245

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	5.25		0.100	1	06/06/2022 15:34	WG1874734
(S) a,a,a-Trifluorotoluene(FID)	*90.1*		*77.0-120*		*06/06/2022 15:34*	WG1874734

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	06/09/2022 03:07	WG1876600
Toluene	ND		0.00500	1	06/09/2022 03:07	WG1876600
Ethylbenzene	ND		0.00250	1	06/09/2022 03:07	WG1876600
Xylenes, Total	0.0634		0.00650	1	06/09/2022 03:07	WG1876600
1,2,4-Trimethylbenzene	0.0689		0.00500	1	06/09/2022 03:07	WG1876600
1,3,5-Trimethylbenzene	1.19		0.00500	1	06/09/2022 03:07	WG1876600
(S) Toluene-d8	*98.0*		*75.0-131*		*06/09/2022 03:07*	WG1876600
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*06/09/2022 03:07*	WG1876600
(S) 1,2-Dichloroethane-d4	*102*		*70.0-130*		*06/09/2022 03:07*	WG1876600

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	137		4.00	1	06/15/2022 09:54	WG1879143
C28-C36 Motor Oil Range	14.3	B	4.00	1	06/15/2022 09:54	WG1879143
(S) o-Terphenyl	*74.5*		*18.0-148*		*06/15/2022 09:54*	WG1879143

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	ND		0.0200	1	06/14/2022 17:45	WG1878891
2-Methylnaphthalene	ND		0.0200	1	06/14/2022 17:45	WG1878891
Naphthalene	ND		0.0200	1	06/14/2022 17:45	WG1878891
(S) p-Terphenyl-d14	*98.0*		*23.0-120*		*06/14/2022 17:45*	WG1878891
(S) Nitrobenzene-d5	*190*	J1	*14.0-149*		*06/14/2022 17:45*	WG1878891
(S) 2-Fluorobiphenyl	*78.6*		*34.0-125*		*06/14/2022 17:45*	WG1878891

Sample Narrative:

L1501204-07 WG1878891: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	1.46		1	06/13/2022 11:06	WG1876392

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	405		0.500	1	06/15/2022 18:35	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	8.62		1.00	5	06/22/2022 21:31	WG1883245

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	3.82		0.100	1	06/08/2022 13:54	WG1875991
(S) a,a,a-Trifluorotoluene(FID)	*92.3*		*77.0-120*		*06/08/2022 13:54*	WG1875991

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	06/09/2022 03:26	WG1876600
Toluene	ND		0.00500	1	06/09/2022 03:26	WG1876600
Ethylbenzene	ND		0.00250	1	06/09/2022 03:26	WG1876600
Xylenes, Total	0.141		0.00650	1	06/09/2022 03:26	WG1876600
1,2,4-Trimethylbenzene	0.0699		0.00500	1	06/09/2022 03:26	WG1876600
1,3,5-Trimethylbenzene	0.846		0.00500	1	06/09/2022 03:26	WG1876600
(S) Toluene-d8	*99.7*		*75.0-131*		*06/09/2022 03:26*	WG1876600
(S) 4-Bromofluorobenzene	*98.0*		*67.0-138*		*06/09/2022 03:26*	WG1876600
(S) 1,2-Dichloroethane-d4	*99.1*		*70.0-130*		*06/09/2022 03:26*	WG1876600

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	06/14/2022 22:53	WG1879143
C28-C36 Motor Oil Range	ND		4.00	1	06/14/2022 22:53	WG1879143
(S) o-Terphenyl	*55.6*		*18.0-148*		*06/14/2022 22:53*	WG1879143

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	ND		0.0200	1	06/14/2022 18:03	WG1878891
2-Methylnaphthalene	ND		0.0200	1	06/14/2022 18:03	WG1878891
Naphthalene	ND		0.0200	1	06/14/2022 18:03	WG1878891
(S) p-Terphenyl-d14	*106*		*23.0-120*		*06/14/2022 18:03*	WG1878891
(S) Nitrobenzene-d5	*128*		*14.0-149*		*06/14/2022 18:03*	WG1878891
(S) 2-Fluorobiphenyl	*84.9*		*34.0-125*		*06/14/2022 18:03*	WG1878891

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	3.24		1	06/13/2022 11:09	WG1876392

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	389		0.500	1	06/15/2022 18:38	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.15		1.00	5	06/22/2022 21:35	WG1883245

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	0.142		0.100	1	06/07/2022 19:19	WG1875739
(S) a,a,a-Trifluorotoluene(FID)	*109*		*77.0-120*		*06/07/2022 19:19*	WG1875739

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	06/09/2022 03:45	WG1876600
Toluene	ND		0.00500	1	06/09/2022 03:45	WG1876600
Ethylbenzene	ND		0.00250	1	06/09/2022 03:45	WG1876600
Xylenes, Total	ND		0.00650	1	06/09/2022 03:45	WG1876600
1,2,4-Trimethylbenzene	ND		0.00500	1	06/09/2022 03:45	WG1876600
1,3,5-Trimethylbenzene	0.0149		0.00500	1	06/09/2022 03:45	WG1876600
(S) Toluene-d8	*102*		*75.0-131*		*06/09/2022 03:45*	WG1876600
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*06/09/2022 03:45*	WG1876600
(S) 1,2-Dichloroethane-d4	*91.1*		*70.0-130*		*06/09/2022 03:45*	WG1876600

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	115		4.00	1	06/14/2022 22:15	WG1879143
C28-C36 Motor Oil Range	16.0	B	4.00	1	06/14/2022 22:15	WG1879143
(S) o-Terphenyl	*64.4*		*18.0-148*		*06/14/2022 22:15*	WG1879143

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
1-Methylnaphthalene	ND		0.0200	1	06/14/2022 18:21	WG1878891
2-Methylnaphthalene	ND		0.0200	1	06/14/2022 18:21	WG1878891
Naphthalene	ND		0.0200	1	06/14/2022 18:21	WG1878891
(S) p-Terphenyl-d14	*80.8*		*23.0-120*		*06/14/2022 18:21*	WG1878891
(S) Nitrobenzene-d5	*65.2*		*14.0-149*		*06/14/2022 18:21*	WG1878891
(S) 2-Fluorobiphenyl	*70.4*		*34.0-125*		*06/14/2022 18:21*	WG1878891

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.94		1	06/13/2022 11:11	WG1876392

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	129		0.500	1	06/15/2022 18:41	WG1876247

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.43		1.00	5	06/22/2022 21:38	WG1883245

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	794		25.0	250	06/06/2022 18:37	WG1874732
(S) a,a,a-Trifluorotoluene(FID)	*105*		*77.0-120*		*06/06/2022 18:37*	WG1874732

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0200	20	06/09/2022 07:18	WG1876600
Toluene	ND		0.100	20	06/09/2022 07:18	WG1876600
Ethylbenzene	ND		0.0500	20	06/09/2022 07:18	WG1876600
Xylenes, Total	29.8		0.130	20	06/09/2022 07:18	WG1876600
1,2,4-Trimethylbenzene	13.6		0.100	20	06/09/2022 07:18	WG1876600
1,3,5-Trimethylbenzene	14.7		0.100	20	06/09/2022 07:18	WG1876600
(S) Toluene-d8	*98.7*		*75.0-131*		*06/09/2022 07:18*	WG1876600
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*06/09/2022 07:18*	WG1876600
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*06/09/2022 07:18*	WG1876600

Sample Narrative:

L1501204-11 WG1876600: Non-target compounds too high to run at a lower dilution.

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	127		4.00	1	06/14/2022 23:18	WG1879143
C28-C36 Motor Oil Range	9.80	B	4.00	1	06/14/2022 23:18	WG1879143
(S) o-Terphenyl	*55.7*		*18.0-148*		*06/14/2022 23:18*	WG1879143

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	0.597	V	0.0200	1	06/14/2022 18:39	WG1878891
2-Methylnaphthalene	1.77	V	0.0200	1	06/14/2022 18:39	WG1878891
Naphthalene	0.407	V	0.0200	1	06/14/2022 18:39	WG1878891
(S) p-Terphenyl-d14	*96.6*		*23.0-120*		*06/14/2022 18:39*	WG1878891
(S) Nitrobenzene-d5	*301*	J1	*14.0-149*		*06/14/2022 18:39*	WG1878891
(S) 2-Fluorobiphenyl	*69.9*		*34.0-125*		*06/14/2022 18:39*	WG1878891

Sample Narrative:

L1501204-11 WG1878891: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R3803637-1 06/15/22 17:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500

Laboratory Control Sample (LCS)

(LCS) R3803637-2 06/15/22 17:56

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

L1500300-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1500300-02 06/15/22 17:59 • (MS) R3803637-5 06/15/22 18:07 • (MSD) R3803637-6 06/15/22 18:10

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	134	285	255	151	122	1	75.0-125	J5		10.8	20

Method Blank (MB)

(MB) R3806301-1 06/22/22 17:55

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) R3806301-2 06/22/22 17:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

L1500028-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1500028-01 06/22/22 18:01 • (MS) R3806301-5 06/22/22 18:11 • (MSD) R3806301-6 06/22/22 18:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.77	86.1	86.0	83.3	83.2	5	75.0-125			0.118	20

Method Blank (MB)

(MB) R3799973-4 06/06/22 09:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	*109*			*77.0-120*

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

(LCS) R3799973-2 06/06/22 07:50 • (LCSD) R3799973-3 06/06/22 08:11

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	4.59	4.23	83.5	76.9	72.0-127			8.16	20
(S) a,a,a-Trifluorotoluene(FID)				*99.6*	*99.0*	*77.0-120*				

L1499427-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499427-10 06/06/22 11:47 • (MS) R3799973-7 06/06/22 20:24 • (MSD) R3799973-8 06/06/22 20:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	219	ND	179	182	90.4	91.9	36	10.0-151			1.66	28
(S) a,a,a-Trifluorotoluene(FID)					*99.8*	*99.3*		*77.0-120*				

Method Blank (MB)

(MB) R3801210-2 06/06/22 08:19

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)	*97.2*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3801210-1 06/06/22 07:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.92	108	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*110*	*77.0-120*	

Method Blank (MB)

(MB) R3801194-2 06/07/22 18:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*112*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3801194-1 06/07/22 17:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.42	98.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*99.6*	*77.0-120*	

L1501204-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1501204-10 06/07/22 19:19 • (MS) R3801194-3 06/08/22 01:04 • (MSD) R3801194-4 06/08/22 01:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.45	0.142	2.33	2.31	40.1	39.4	1	10.0-151			0.862	28
(S) a,a,a-Trifluorotoluene(FID)					*93.9*	*94.5*		*77.0-120*				

Method Blank (MB)

(MB) R3801472-2 06/08/22 06:39

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)	*95.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3801472-1 06/08/22 05:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.68	103	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.4*	*77.0-120*	

Method Blank (MB)

(MB) R3801741-3 06/09/22 01:10

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	*105*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*95.5*			*70.0-130*

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

(LCS) R3801741-1 06/08/22 23:53 • (LCSD) R3801741-2 06/09/22 00:13

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	0.112	92.0	89.6	70.0-123			2.64	20
Toluene	0.125	0.114	0.110	91.2	88.0	75.0-121			3.57	20
Ethylbenzene	0.125	0.125	0.117	100	93.6	74.0-126			6.61	20
Xylenes, Total	0.375	0.370	0.353	98.7	94.1	72.0-127			4.70	20
1,2,4-Trimethylbenzene	0.125	0.119	0.116	95.2	92.8	70.0-126			2.55	20
1,3,5-Trimethylbenzene	0.125	0.115	0.109	92.0	87.2	73.0-127			5.36	20
(S) Toluene-d8				*99.5*	*100*	*75.0-131*				
(S) 4-Bromofluorobenzene				*104*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*108*	*106*	*70.0-130*				

Method Blank (MB)

(MB) R3802166-3 06/11/22 11:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*109*			*75.0-131*
(S) 4-Bromofluorobenzene	*90.6*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*98.7*			*70.0-130*

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

(LCS) R3802166-1 06/11/22 10:17 • (LCSD) R3802166-2 06/11/22 10:36

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 %
Xylenes, Total	0.375	0.349	0.323	93.1	86.1	72.0-127			7.74	20
1,2,4-Trimethylbenzene	0.125	0.123	0.115	98.4	92.0	70.0-126			6.72	20
1,3,5-Trimethylbenzene	0.125	0.127	0.121	102	96.8	73.0-127			4.84	20
(S) Toluene-d8				*102*	*105*	*75.0-131*				
(S) 4-Bromofluorobenzene				*93.8*	*92.9*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*118*	*119*	*70.0-130*				

Method Blank (MB)

(MB) R3803251-1 06/14/22 22:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	2.31	J	1.61	4.00
C28-C36 Motor Oil Range	3.27	J	0.274	4.00
(S) o-Terphenyl	*82.0*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3803251-2 06/14/22 22:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	40.1	80.2	50.0-150	
(S) o-Terphenyl			*59.5*	*18.0-148*	

Method Blank (MB)

(MB) R3803083-2 06/14/22 13:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	*110*			*23.0-120*
(S) Nitrobenzene-d5	*83.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*90.2*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3803083-1 06/14/22 13:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0692	86.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0664	83.0	50.0-120	
Naphthalene	0.0800	0.0678	84.8	50.0-120	
(S) p-Terphenyl-d14			*109*	*23.0-120*	
(S) Nitrobenzene-d5			*86.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*89.0*	*34.0-125*	

L1501204-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1501204-11 06/14/22 18:39 • (MS) R3803083-3 06/14/22 18:56 • (MSD) R3803083-4 06/14/22 19:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1-Methylnaphthalene	0.0796	0.597	0.731	0.768	168	216	1	10.0-142	V	V	4.94	28
2-Methylnaphthalene	0.0796	1.77	2.14	2.25	465	606	1	10.0-137	V	V	5.01	28
Naphthalene	0.0796	0.407	0.616	0.632	263	284	1	10.0-135	V	V	2.56	27
(S) p-Terphenyl-d14					*101*	*103*		*23.0-120*				
(S) Nitrobenzene-d5					*318*	*318*		*14.0-149*	J1	J1		
(S) 2-Fluorobiphenyl					*70.7*	*71.8*		*34.0-125*				

Sample Narrative:

OS: Surrogate failure due to matrix interference

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

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

Billing Information: **Same as above**

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

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

Project Description: **YCF 35-33-1**

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

Phone: 949 3142506 Fax:

Client Project # **YCF 35-33-1**

Lab Project # **YCF 35-33-1**

Collected by (print): **K. MORELAND**

Site/Facility ID # **YCF 35-33-1**

P.O. # **YCF 35-33-1**

Collected by (signature): K. Moreland

Immediately Packed on Ice N ____ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

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

L# L1501204

F144

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	BTEX	1&2-methylnapthalene	SAR	naphthalene	arsenic, barium	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Remarks	Sample # (lab only)
20220601-YCF 35-33-1(PH01)@ 2'-4'	GRAB	SS	2'-4'	6/1/22	912	2	X	X	X	X	X	X	X	X		-01
20220601-YCF 35-33-1(PH02)@2'-4'			2'-4'		945										HOLD	-02
20220601-YCF 35-33-1(PH02)@4.5'			4.5'		955											-03
20220601-YCF 35-33-1(PH03)@2'-4'			2'-4'		1005											-04
20220601-YCF 35-33-1(PH04)@ 2'			2'		1030											-05
20220601-YCF 35-33-1(PH05)@2.5'			2.5'		1045										HOLD	-06
20220601-YCF35-33-1(PH05)@ 3'			3'		1055											-07
20220601-YCF35-33-1(PH06)@ 2'			2'		1110										HOLD	-08
20220601-YCF35-33-1(PH07)@2.25'			2.25'		1130											-09
20220601-YCF35-33-1(PH07)@ 7'			7'		1225											-10

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

Remarks:
* HOLD - Pending client approval
- Submit all others

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
K. Moreland	6/2/22	1230		0
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.4/4.0 °C Bottles Received: 22
	6/2/22	1706		0.2+0=0.7
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6/3/22 Time: 845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 2 of 2

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

Billing Information: **Same as above**

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

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

Project Description: **YCF 35-33-1**

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

Phone: 949 374 2506 Fax:

Client Project # **YCF 35-33-1**

Lab Project # **YCF 35-33-1**

Collected by (print): K. MORELAND

Site/Facility ID # **YCF 35-33-1**

P.O. # **YCF 35-33-1**

Collected by (signature): K. Moreland

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: ~~Standard TAT~~

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

L # L501204
Table #
Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	TPH-GRO,DRO,ORO	BTEX	1&2-methylnapthalene	SAR	naphthalene	arsenic, barium	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Remarks	Sample # (lab only)
20220601-YCF35-33-1(PH08)@1.5'	GRAB	SS	1.5'	6/1/22	1300	2		X	X	X	X	X	X	X	X		-11

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
K. Moreland	6/2/22	1230	
Relinquished by : (Signature)	Date:	Time:	~~Received by: (Signature)~~
	6/2/22	1700	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 3.4/4.6 °C Bottles Received:
0.7+0=0.7

If preservation required by Login: Date/Time

Date: 6/3/22 Time: 845

Hold:

Condition: NCF / OK