VIA ELECTRONIC MAIL –

December 20, 2021

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

Subject: **Report of Work Completed**
PCU F23-18G
Mamm Creek Field
Garfield County, Colorado

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), conducted drill coring and pothole confirmation soil sampling, associated with the soil vapor extraction (SVE) system located at the PCU F23-18G (Facility ID: 315347) pad location (Site). These activities were completed to evaluate the current operation of the SVE system and to assess if hydrocarbon and benzene impacts previously documented at the Site under Colorado Oil and Gas Conservation Commission (COGCC) Form 27 (Document Number 402550872) have been remediated. This document serves as a report of work completed (ROWC) under Remediation Number 9186. All previous site assessment and remediation activities associated with Remediation Number 9186 were completed under former operator XTO Energy Inc (XTO). The Site is in the Piceance Creek area of operation in Rio Blanco County, Colorado (Figure 1).

SOIL SAMPLING ACTIVITIES

DRILLING

On November 17, 2021, WSP along with Colorado Drilling and Sampling Inc (CD&S) and Western Slope Field Services, Inc. (WCO) completed drilling and hydro vacuum (hydro-vac) potholing to evaluate the operation of the existing SVE system and subsurface hydrocarbon impacts at the Site. Prior to drilling, borings were cleared of underground utilities with a hydro-vac truck by (WCO) to a depth of 7 feet below ground surface (bgs). Using a track-mounted drill rig equipped with a wireline coring drill rod, two soils borings, SB01 and SB02 were advanced to a depth 25 feet below ground surface (bgs) and 21.5 feet bgs, respectively. The soil boring locations and sample depths were based on the locations where hydrocarbon and benzene impacts were documented at the Site under former operator XTO Document Number 402311323. Boring locations are depicted on Figure 2 and boring lithology logs are included in Enclosure A.

Drilling oversight, soil sampling, and soil screening activities were conducted by a WSP geologist who screened each borehole at five-foot intervals and inspected for the presence or absence of petroleum hydrocarbons odor and/or staining. Soil was characterized utilizing the United Soil Classification System (USCS) by visually inspecting the soil samples, and field screening the soil head space using a photo-ionization detector (PID) to monitor for the presence or absence of volatile organic compounds. Samples generally were collected at each 10-foot interval starting from the bottom of the pothole to the boring terminus. The number of soil samples for each boring and the depths associated with each sample are summarized in Table 1. All soil samples were submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis of constituents listed in COGCC Table 910-Concentration Levels.

The laboratory analytical report is provided in Enclosure B. The soil sample locations are depicted on the enclosed Figure 2.

POTHOLING – HYDROVAC

Additionally, on November 17, 2021, WCO completed a hydro-vac pothole (PH01) to evaluate the subsurface hydrocarbon and benzene impacts at the Site where the drill rig was unable to reach due to above ground and subsurface utilities. The pothole was advanced to 12 feet bgs until reaching refusal. Potholing oversight, soil sampling, and soil screening activities were conducted by a WSP geologist who screened the pothole at 10-10.5 foot and 11-12 foot intervals in accordance with previously documented impacts and inspected for the presence or absence of petroleum hydrocarbons odor and/or staining. Soil was characterized utilizing the USCS by visually inspecting the soil samples and field screening the soil head space using a photo-ionization detector PID to monitor for the presence or absence of volatile organic compounds. The soil samples for the pothole and the depths associated with each sample are summarized in Table 1. All soil samples were submitted to Pace of Mount Juliet, Tennessee for analysis of constituents listed in COGCC Table 910-Concentration Levels. The laboratory analytical report is provided in Enclosure B. The soil sample locations are depicted on the enclosed Figure 2.

ANALYTICAL RESULTS

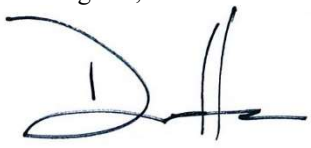
Laboratory analytical results for borehole soil samples (SB01 and SB02) indicate the soil samples exceeded the COGCC Table 910-1 Concentration Levels for total petroleum hydrocarbons (TPH) and for arsenic. Laboratory analytical results for the pothole soil samples indicate that the soils samples exceed the COGCC Table 910-1 Concentration Levels (PH01) for arsenic. TPH levels ranged from 3,930 milligrams per kilogram (mg/kg) to 5,402 mg/kg in SB01 samples 20211117-PCU F23 18G(SB01) @12-13’ and 20211117-PCU F23 18G(SB01) @8-9’. Similarly, SB02 sample 20211117-PCU F23 18G(SB02) @12-13’ was an exceedance at 2,572 mg/kg. All soils borings and pothole samples exceeded the COGCC Table 910-1 Concentration Levels for arsenic ranging from 1.4 mg/kg 20211117-PCU F23-18G(SB01)@20-21’ to 2.42 mg/kg 20211117-PCU F23-18G(SB01)@11-12’. All other analytes were either below the laboratory detection limit or within the Table 910-1 Concentration Levels. The laboratory analytical results are included in Enclosure B and summarized in Table 1.

CONCLUSIONS

Based on the summary of analytical data provided there are TPH impacts remaining in the subsurface at the Site that have not been remediated by the SVE system. The TPH exceedances are constrained between 8 feet and 13 feet bgs and benzene exceedances were not observed that were previously recorded at the Site. WSP recommends that Caerus continue to run and monitor the SVE system to remediate the remaining impacts. Caerus should request a reduced analyte suite of arsenic, boron, TPH, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnapthalene, and 2-methylnapthalene via a COGCC Initial Form 27 Site Investigation Work Plan.

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

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

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

Encl.

FIGURES

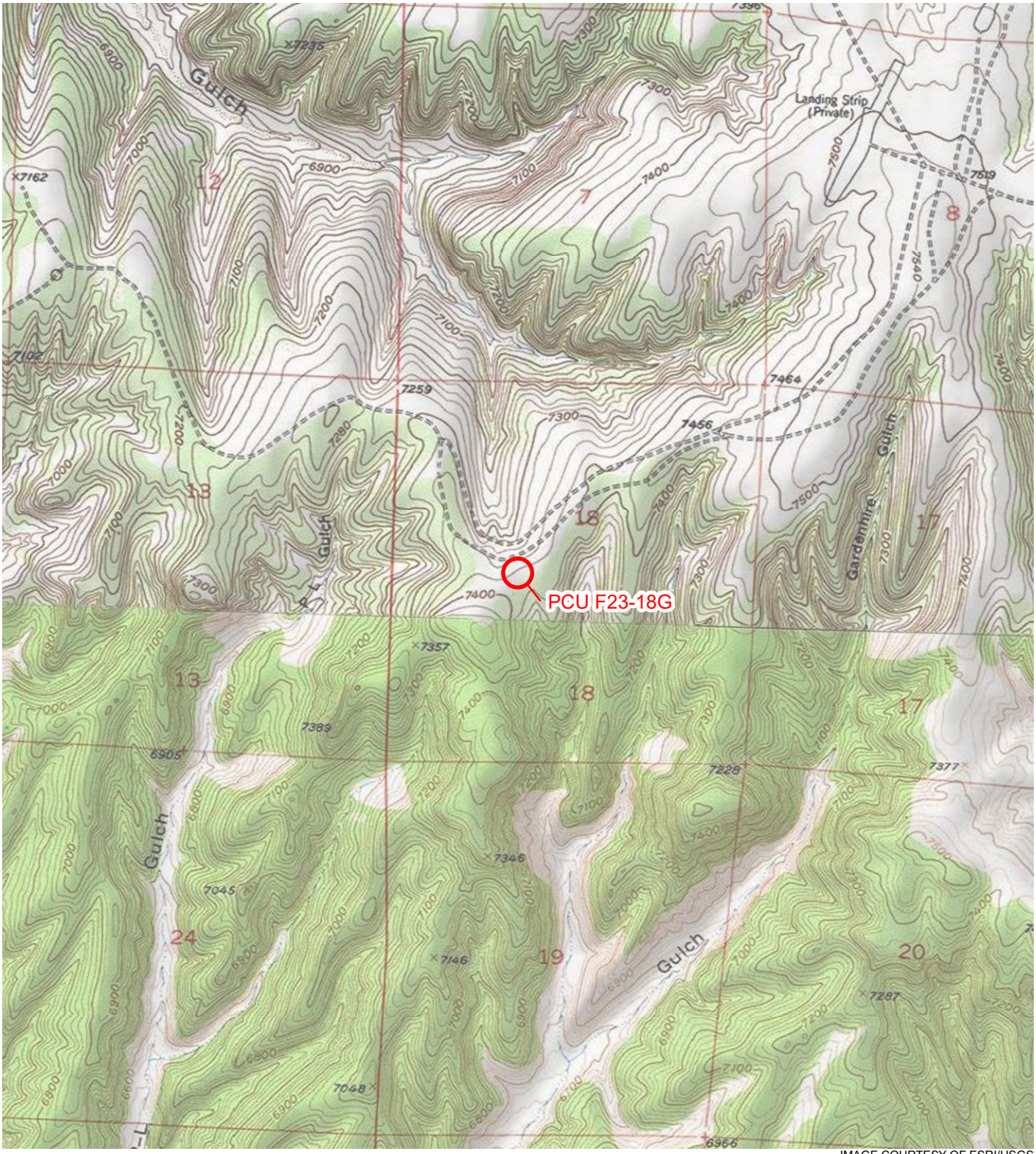


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
PCU F23-18G
NESW SEC 18-T2S-R96W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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

LEGEND

- POTHOLE
- SOIL BORING

0 60 120

Feet

N

FIGURE 2
SITE MAP
PCU F23-18G
NESW SEC 18-T2S-R96W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

wsp

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TABLE

TABLE 1
LABORATORY RESULTS SUMMARY TABLE
PCU F23-18G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

			2019 SAMPLING				
PARAMETER	**COGCC CONCENTRATION LEVELS**	**UNITS**	**SB-01 @ 8'-8.6'**	**SB-02 @ 12'-12.3'**	**SB-02 @ 20'-20.3'**	**SB-02 @ 30'-30.2'**	**SB-03 @ 10'-10.6'**
Sample Date			7/15/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019
Sample Depth Range (feet)			**8-8.6**	**12-12.3**	**20-20.3**	**30-30.2**	**10-10.6**
Sample Type			Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.39	mg/kg	NA	NA	NA	NA	NA
Barium	15,000	mg/kg	NA	NA	NA	NA	NA
Cadmium	70	mg/kg	NA	NA	NA	NA	NA
Chromium (III)	120,000	mg/kg	NA	NA	NA	NA	NA
Chromium (VI)	23	mg/kg	NA	NA	NA	NA	NA
Copper	3,100	mg/kg	NA	NA	NA	NA	NA
Lead	400	mg/kg	NA	NA	NA	NA	NA
Mercury	23	mg/kg	NA	NA	NA	NA	NA
Nickel	1,600	mg/kg	NA	NA	NA	NA	NA
Selenium	390	mg/kg	NA	NA	NA	NA	NA
Silver	390	mg/kg	NA	NA	NA	NA	NA
Zinc	23,000	mg/kg	NA	NA	NA	NA	NA
EC	4.0	mmhos/cm	NA	0.22	0.11	0.30	0.21
pH	6 - 9	SU	NA	8.37	8.67	8.28	8.35
SAR	12	unitless	NA	4.1	1.4	2.5	1.4
TPH-GRO		mg/kg	1,600	870	420	ND	ND
TPH-DRO		mg/kg	630	1,600	230	3.5 J	12
TPH	500	mg/kg	**2,230**	**2,470**	**650**	3.5	12
Benzene	0.17	mg/kg	ND	**0.24**	**0.21**	ND	ND
Toluene	85	mg/kg	0.73	24	3.7	0.095	ND
Ethylbenzene	100	mg/kg	0.35	8.1	0.77	ND	ND
Total Xylenes	175	mg/kg	45	150	36	0.19	ND
Acenaphthene	1000	mg/kg	NA	NA	NA	NA	NA
Anthracene	1000	mg/kg	NA	NA	NA	NA	NA
Benzo(A)anthracene	0.22	mg/kg	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	0.22	mg/kg	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	2.2	mg/kg	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.022	mg/kg	NA	NA	NA	NA	NA
Chrysene	22	mg/kg	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.022	mg/kg	NA	NA	NA	NA	NA
Fluoranthene	1000	mg/kg	NA	NA	NA	NA	NA
Fluorene	1000	mg/kg	NA	NA	NA	NA	NA
Indeno(1,2,3,C,D)pyrene	0.22	mg/kg	NA	NA	NA	NA	NA
Naphthalene	23	mg/kg	NA	NA	NA	NA	NA
Pyrene	1000	mg/kg	NA	NA	NA	NA	NA

NOTES:

ND - analyte not detected above the stated reporting limit
BOLD - indicates result exceeds the COGCC concentration level
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
SAR - sodium adsorption ratio
mmhos/cm - millimhos per centimeter
NA - not analyzed
mg/kg - milligrams per kilogram
J - indicates an estimated value
SU - standard unit

TABLE 1
LABORATORY RESULTS SUMMARY TABLE
PCU F23-18G
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

			2021 SAMPLING							
PARAMETER	**COGCC CONCENTRATION LEVELS**	**UNITS**	**20211117-PCU F23-18G(SB01) @8-9'**	**20211117-PCU F23-18G(SB01) @12-13'**	**20211117-PCU F23-18G(SB01) @20-21'**	**20211117-PCU F23-18G(SB01) @24-25'**	**20211117-PCU F23-18G(SB02) @12-13'**	**20211117-PCU F23-18G(SB02) @20-21.5'**	**20211117-PCU F23-18G(PH01) @10-10.5'**	**20211117-PCU F23-18G(PH01) @11-12'**
Sample Date			11/17/2021	11/17/2021	11/17/2021	11/17/2021	11/17/2021	11/17/2021	11/17/2021	11/17/2021
Sample Depth Range (feet)			**44417**	**12-13**	**20-21**	**24-25**	**12-13**	**21-21.5**	**10-10.5**	**11-12**
Sample Type			Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.39	mg/kg	**1.66**	**2.15**	**1.40**	**1.70**	**2.43**	**1.35**	**2.37**	**2.42**
Barium	15,000	mg/kg	82.2	74.1	135	129	87.4	140	116	110
Cadmium	70	mg/kg	0.142	0.158	0.170	0.199	0.157	0.166	0.143	0.143
Chromium (III)	120,000	mg/kg	32.5	28.1	26.8	30.5	31.4	29.2	33.2	32.9
Chromium (VI)	23	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Copper	3,100	mg/kg	6.98	5.26	6.60	6.83	5.64	6.40	5.85	6.41
Lead	400	mg/kg	6.97	6.90	8.97	9.20	8.05	8.65	7.92	7.96
Mercury	23	mg/kg	ND	ND	0.0182	ND	ND	ND	0.0223	ND
Nickel	1,600	mg/kg	12.0	12.4	12.5	14.9	14.0	13.5	15.8	16.8
Selenium	390	mg/kg	ND	ND	ND	ND	ND	ND	ND	0.767
Silver	390	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	23,000	mg/kg	28.2	28.5	34.0	35.4	34.4	34.3	29.6	30.5
EC	4.0	mmhos/cm	0.279	0.141	1.610	1.190	0.771	0.806	0.260	0.276
pH	6 - 9	SU	8.53	8.24	7.78	7.99	7.82	7.88	8.83	8.60
SAR	12	unitless	4.97	2.10	0.944	1.14	0.506	0.939	2.20	2.84
TPH-GRO		mg/kg	602	1,020	1.98	0.136	972	0.127	0.0540	0.0451
TPH-DRO		mg/kg	4,800	2,910	97.8	7.14	1,600	13.5	2.36	1.31
TPH	500	mg/kg	**5,402**	**3,930**	99.78	7.276	**2,572**	13.627	2.4140	1.3551
Benzene	0.17	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	85	mg/kg	0.00505	0.0136	ND	ND	1.78	ND	ND	ND
Ethylbenzene	100	mg/kg	0.00503	ND	ND	ND	0.408	ND	ND	ND
Total Xylenes	175	mg/kg	0.101	17.0	0.0183	0.00337	29.8	0.00103	ND	ND
Acenaphthene	1000	mg/kg	ND	0.124	0.0115	ND	0.0870	ND	ND	ND
Anthracene	1000	mg/kg	0.0173	0.143	0.00746	ND	0.0770	ND	ND	ND
Benzo(A)anthracene	0.22	mg/kg	0.0130	0.00784	ND	ND	0.00559	ND	ND	ND
Benzo(B)fluoranthene	0.22	mg/kg	0.00646	0.00428	ND	ND	0.00341	ND	ND	ND
Benzo(K)fluoranthene	2.2	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	22	mg/kg	0.0111	0.0112	ND	ND	0.00923	ND	ND	ND
Dibenzo(A,H)anthracene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1000	mg/kg	0.0247	0.0222	ND	ND	0.0207	ND	ND	ND
Fluorene	1000	mg/kg	0.217	0.633	0.0367	ND	0.422	ND	ND	ND
Indeno(1,2,3,C,D)pyrene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	23	mg/kg	0.209	2.50	0.0725	ND	1.48	ND	ND	ND
Pyrene	1000	mg/kg	0.0508	0.0281	0.00215	ND	0.0363	ND	ND	ND

NOTES:
ND - analyte not detected above the stated reporting limit
BOLD - indicates result exceeds the COGCC concentration level
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
SAR - sodium adsorption ratio

ENCLOSURE A – SOIL BORING LOGS

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME:	PCU 23-18G		
PROJECT NO:	31403401.003.0508	**LOGGED BY:**	Dustin Held
BORING/WELL ID:	SB02	**SAMPLE METHOD:**	Continous
COMPLETION DATE:	11/17/2021	**DRILL METHOD:**	Core
TD (ft bgs):	21.5	**DRILLED BY:**	CO Drilling & Sampling
DTW (ft bgs):	NA	**DETECTOR:**	UltraRAE 3000
SCREEN SLOT:	NA	**FILTER PACK:**	NA
CASING LENGTH:	NA	**ANNULUS SEAL:**	Bentonite Chips
SCREEN LENGTH:	NA	**SURFACE SEAL:**	NA

HOLE DIAMETER: 4.25"
WELL DIAMETER: NA
CASING TYPE: NA
SCREEN TYPE: NA

PID (ppm)	Staining	Moisture Content	Sample ID	Recovery (%)	Depth (ft)	USCS	USCS Graphic	Lithology Description	Well Construction
					0				
N/A		dry						0' - 7' - Hydrovacuumed to 7' bgs.	
					5				
				/		SP		7' - 11' - SANDSTONE, tan to brown, medium grained, well incorporated, cobble at the top 4".	
					10				
878			SB02 @12-13'	/		SP		11' - 13' - SANDSTONE, tan, weathered, medium grained, hard, strong odor.	
					15				
710			SB02 @20-21.5'	/	20	SP		19' - 21' - SANDSTONE, tan, medium grained, very hard, strong odor.	

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME:	PCU 23-18G		
PROJECT NO:	31403401.003.0508	**LOGGED BY:**	Dustin Held
BORING/WELL ID:	SB01	**SAMPLE METHOD:**	Continous
COMPLETION DATE:	11/17/2021	**DRILL METHOD:**	Core
TD (ft bgs):	25'	**DRILLED BY:**	CO Drilling & Sampling
DTW (ft bgs):	NA	**DETECTOR:**	UltraRAE 3000
SCREEN SLOT:	NA	**FILTER PACK:**	NA
CASING LENGTH:	NA	**ANNULUS SEAL:**	Bentonite Chips
SCREEN LENGTH:	NA	**SURFACE SEAL:**	NA

HOLE DIAMETER: 4.25"
WELL DIAMETER: NA
CASING TYPE: NA
SCREEN TYPE: NA

PID (ppm)	Staining	Moisture Content	Sample ID	Recovery (%)	Depth (ft)	USCS	USCS Graphic	Lithology Description	Well Construction
					0			0' - 7' - Hydrovacuumed to 7' bgs due to sandstone shelf.	
903		dry	SB01 @8-9'	/	5	SP		7' - 9' - SANDSTONE, tan, medium grained, hard, gray staining.	
					10				
792			SB01 @12-13'	/		SP		11' - 13' - SANDSTONE, tan, medium grained, 3" clay layer, very hard, strong odor.	
					15				
646			SB01 @20-21'	/	20	SP		19' - 21' - SANDSTONE, tan, medium grained, 3" clay layer, very hard, strong odor.	
95.6			SB01 @24-25'	/	25	SP		23' - 25' - SANDSTONE, tan, medium grained, subangular mostly quartz grains, very hard, no odor.	

ENCLOSURE B – LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

December 08, 2021

Revised Report

Caerus Oil and Gas

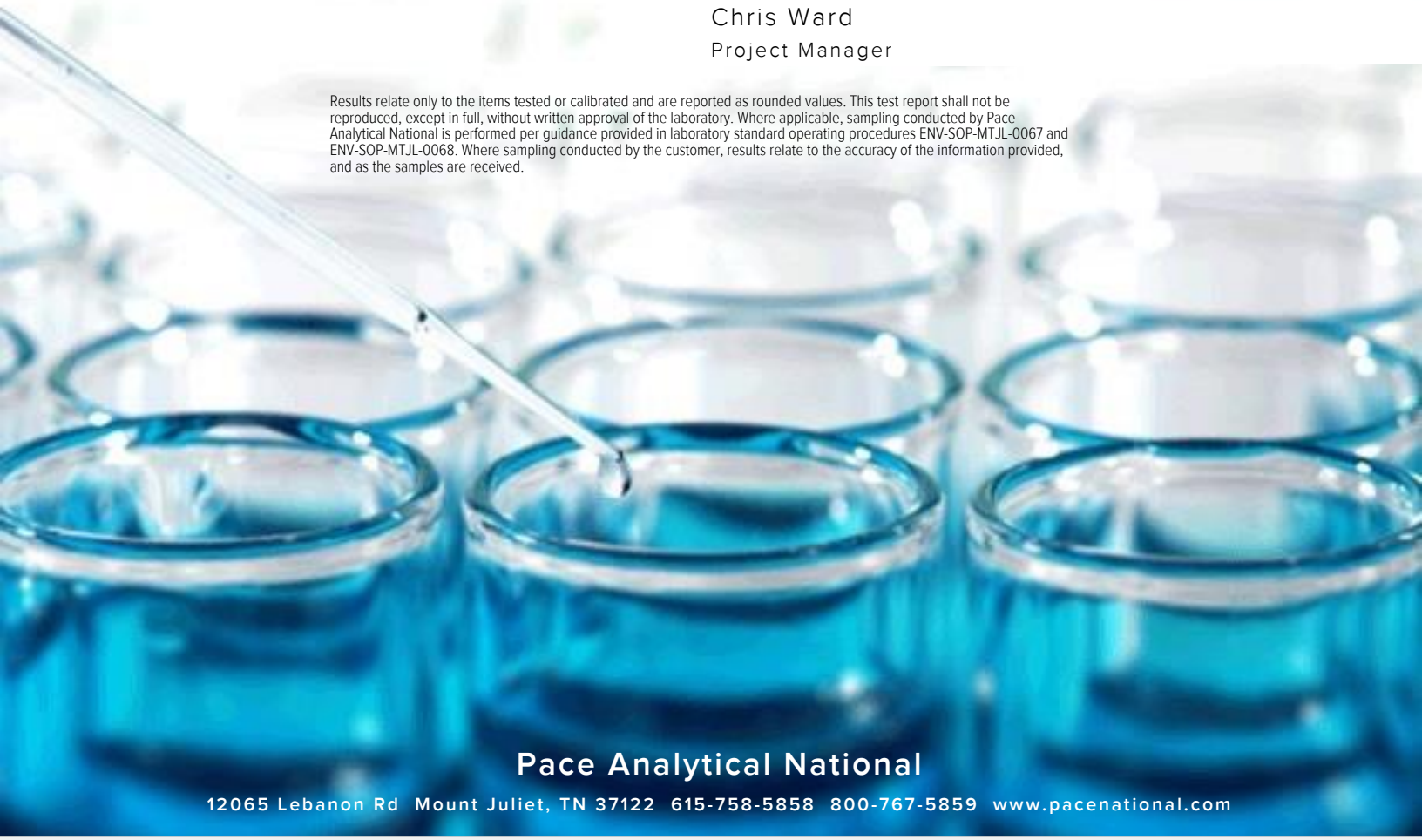
Sample Delivery Group:	L1434837
Samples Received:	11/20/2021
Project Number:	PCU F23-18G
Description:	PCU F23-18G
Site:	PCU F23-18G
Report To:	Jake Janicek 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

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

TABLE OF CONTENTS

20211117-PW F23-18G (SB01) @8-9' L1434837-01 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 12:37 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:10	11/30/21 13:10	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:38	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:24	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:48	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:38	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:24	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:35	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1782162	250	11/24/21 16:30	12/01/21 13:10	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 05:42	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	25	11/29/21 16:18	11/30/21 10:10	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/29/21 22:08	SAW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	20	11/29/21 17:15	11/30/21 18:59	LEA	Mt. Juliet, TN

20211117-PW F23-18G (SB01) 12-13' L1434837-02 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 12:57 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:13	11/30/21 13:13	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:41	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:25	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:50	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:41	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:27	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:39	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780294	100	11/24/21 16:30	11/27/21 05:07	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	8	11/24/21 16:30	11/27/21 10:48	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	20	11/29/21 16:18	11/30/21 09:43	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/29/21 22:28	AGW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	10	11/29/21 17:15	12/02/21 13:15	SHG	Mt. Juliet, TN

20211117-PW F23-18G (SB01) @20-21' L1434837-03 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 13:14 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:16	11/30/21 13:16	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:49	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:25	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:52	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:49	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:30	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:42	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1781837	1	11/30/21 16:24	11/30/21 16:46	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 06:01	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	1	11/29/21 16:18	11/30/21 00:36	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/29/21 23:28	AGW	Mt. Juliet, TN

20211117-PW F23-18G (SB01) @24-25' L1434837-04 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 13:50 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:18	11/30/21 13:18	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:52	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:26	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:54	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:52	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:33	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:46	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780300	1	11/24/21 16:30	11/26/21 16:56	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 06:20	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	1	11/29/21 16:18	11/30/21 00:49	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/29/21 23:48	AGW	Mt. Juliet, TN

20211117-PW F23-18G (SB02) @12-13' L1434837-05 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 11:04 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:21	11/30/21 13:21	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:54	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:26	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:56	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:54	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:36	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:49	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780644	100	11/24/21 16:30	11/27/21 20:43	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	8	11/24/21 16:30	11/27/21 11:07	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	10	11/29/21 16:18	11/30/21 09:57	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/30/21 00:08	AGW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	10	11/29/21 17:15	11/30/21 18:19	LEA	Mt. Juliet, TN

20211117-PW F23-18G (SB02) @20-21.5' L1434837-06 Solid

Collected by: PC/DH | Collected date/time: 11/17/21 11:47 | Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:24	11/30/21 13:24	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:57	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:26	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782049	1	11/30/21 18:51	11/30/21 21:45	KAB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 09:58	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:57	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 14:59	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780300	1	11/24/21 16:30	11/26/21 17:20	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 06:39	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	1	11/29/21 16:18	11/30/21 01:16	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/30/21 00:27	AGW	Mt. Juliet, TN

20211117-PW F23-18G (PH01) @11-12' L1434837-07 Solid

Collected by: PC/DH
Collected date/time: 11/17/21 11:30
Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:26	11/30/21 13:26	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 12:23	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:27	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 10:00	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	1	11/29/21 07:49	11/30/21 12:23	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:39	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	5	11/29/21 08:04	11/29/21 13:44	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780300	1	11/24/21 16:30	11/26/21 17:44	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 06:58	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	1	11/29/21 16:18	11/30/21 01:57	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/30/21 00:47	AGW	Mt. Juliet, TN

20211117-PW F23-18G (PH01) @10-10.5' L1434837-08 Solid

Collected by: PC/DH
Collected date/time: 11/17/21 11:00
Received date/time: 11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:29	11/30/21 13:29	EL	Mt. Juliet, TN
Calculated Results	WG1780840	1	11/29/21 07:49	11/30/21 13:00	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1780076	1	11/28/21 19:00	11/29/21 18:27	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1780800	1	11/28/21 10:07	11/28/21 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1780197	1	11/26/21 04:50	11/26/21 09:29	ARD	Mt. Juliet, TN
Mercury by Method 7471A	WG1780438	1	11/26/21 11:35	11/28/21 10:02	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780840	.8928571	11/29/21 07:49	11/30/21 13:00	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1780171	1	11/28/21 14:39	11/30/21 13:42	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1780841	4.464286	11/29/21 08:04	11/29/21 15:03	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780300	1	11/24/21 16:30	11/26/21 18:08	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780502	1	11/24/21 16:30	11/27/21 07:17	AV	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1781151	1	11/29/21 16:18	11/30/21 02:10	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781270	1	11/29/21 17:15	11/30/21 01:07	AGW	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Report Revision History

Level II Report - Version 1: 12/02/21 16:57
Level II Report - Version 2: 12/08/21 11:00

Project Narrative

Insufficient volume for Hot Water Soluble Boron on -06.
Rerun to correct sample IDs per Dustin H.

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.97		1	11/30/2021 13:10	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	32.5		0.133	1.00	1	11/30/2021 12:38	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:24	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-01 WG1780800: 8.53 at 19.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	279		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-01 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 09:48	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	82.2		0.0852	0.500	1	11/30/2021 12:38	WG1780840
Cadmium	0.142	J	0.0471	0.500	1	11/30/2021 12:38	WG1780840
Chromium	32.5		0.133	1.00	1	11/30/2021 12:38	WG1780840
Copper	6.98		0.400	2.00	1	11/30/2021 12:38	WG1780840
Lead	6.97		0.208	0.500	1	11/30/2021 12:38	WG1780840
Nickel	12.0		0.132	2.00	1	11/30/2021 12:38	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:38	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:38	WG1780840
Zinc	28.2		0.832	5.00	1	11/30/2021 12:38	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.889		0.0167	0.200	1	11/30/2021 13:24	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.66		0.100	1.00	5	11/29/2021 14:35	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	602		5.43	25.0	250	12/01/2021 13:10	WG1782162
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*		*12/01/2021 13:10*	WG1782162

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/27/2021 05:42	WG1780502
Toluene	0.00505		0.00130	0.00500	1	11/27/2021 05:42	WG1780502
Ethylbenzene	0.00503		0.000737	0.00250	1	11/27/2021 05:42	WG1780502
Total Xylenes	0.101		0.000880	0.00650	1	11/27/2021 05:42	WG1780502
(S) Toluene-d8	*108*			*75.0-131*		*11/27/2021 05:42*	WG1780502
(S) 4-Bromofluorobenzene	*131*			*67.0-138*		*11/27/2021 05:42*	WG1780502
(S) 1,2-Dichloroethane-d4	*95.7*			*70.0-130*		*11/27/2021 05:42*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	4800		19.2	100	25	11/30/2021 10:10	WG1781151
(S) o-Terphenyl	*0.000*	J7		*18.0-148*		*11/30/2021 10:10*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0173		0.00230	0.00600	1	11/29/2021 22:08	WG1781270
Acenaphthene	U		0.0418	0.120	20	11/30/2021 18:59	WG1781270
Acenaphthylene	U		0.0432	0.120	20	11/30/2021 18:59	WG1781270
Benzo(a)anthracene	0.0130		0.00173	0.00600	1	11/29/2021 22:08	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/29/2021 22:08	WG1781270
Benzo(b)fluoranthene	0.00646		0.00153	0.00600	1	11/29/2021 22:08	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/29/2021 22:08	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/29/2021 22:08	WG1781270
Chrysene	0.0111		0.00232	0.00600	1	11/29/2021 22:08	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/29/2021 22:08	WG1781270
Fluoranthene	0.0247		0.00227	0.00600	1	11/29/2021 22:08	WG1781270
Fluorene	0.217	V3	0.00205	0.00600	1	11/29/2021 22:08	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/29/2021 22:08	WG1781270
Naphthalene	0.209		0.00408	0.0200	1	11/29/2021 22:08	WG1781270
Phenanthrene	0.0851		0.00231	0.00600	1	11/29/2021 22:08	WG1781270
Pyrene	0.0508		0.00200	0.00600	1	11/29/2021 22:08	WG1781270
1-Methylnaphthalene	0.149		0.00449	0.0200	1	11/29/2021 22:08	WG1781270
2-Methylnaphthalene	0.202		0.00427	0.0200	1	11/29/2021 22:08	WG1781270
2-Chloronaphthalene	U		0.0932	0.400	20	11/30/2021 18:59	WG1781270
(S) p-Terphenyl-d14	*123*	J7		*23.0-120*		*11/30/2021 18:59*	WG1781270
(S) p-Terphenyl-d14	*101*			*23.0-120*		*11/29/2021 22:08*	WG1781270
(S) Nitrobenzene-d5	*0.000*	J7		*14.0-149*		*11/30/2021 18:59*	WG1781270
(S) Nitrobenzene-d5	*547*	J1		*14.0-149*		*11/29/2021 22:08*	WG1781270
(S) 2-Fluorobiphenyl	*302*	J1		*34.0-125*		*11/29/2021 22:08*	WG1781270
(S) 2-Fluorobiphenyl	*0.000*	J7		*34.0-125*		*11/30/2021 18:59*	WG1781270

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

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	

Sample Narrative:

L1434837-01 WG1781270: Surrogate failure due to matrix interference

L1434837-01 WG1781270: IS/SURR failed on lower dilution.

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.10		1	11/30/2021 13:13	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	28.1		0.133	1.00	1	11/30/2021 12:41	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:25	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.24	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-02 WG1780800: 8.24 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	141		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-02 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 09:50	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	74.1		0.0852	0.500	1	11/30/2021 12:41	WG1780840
Cadmium	0.158	J	0.0471	0.500	1	11/30/2021 12:41	WG1780840
Chromium	28.1		0.133	1.00	1	11/30/2021 12:41	WG1780840
Copper	5.26		0.400	2.00	1	11/30/2021 12:41	WG1780840
Lead	6.90		0.208	0.500	1	11/30/2021 12:41	WG1780840
Nickel	12.4		0.132	2.00	1	11/30/2021 12:41	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:41	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:41	WG1780840
Zinc	28.5		0.832	5.00	1	11/30/2021 12:41	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.379		0.0167	0.200	1	11/30/2021 13:27	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.15		0.100	1.00	5	11/29/2021 14:39	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1020		2.17	10.0	100	11/27/2021 05:07	WG1780294
(S) a,a,a-Trifluorotoluene(FID)	*93.7*			*77.0-120*		*11/27/2021 05:07*	WG1780294

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.00374	0.00800	8	11/27/2021 10:48	WG1780502
Toluene	0.0136	J	0.0104	0.0400	8	11/27/2021 10:48	WG1780502
Ethylbenzene	U		0.00590	0.0200	8	11/27/2021 10:48	WG1780502
Total Xylenes	17.0		0.00704	0.0520	8	11/27/2021 10:48	WG1780502
(S) Toluene-d8	*107*			*75.0-131*		*11/27/2021 10:48*	WG1780502
(S) 4-Bromofluorobenzene	*116*			*67.0-138*		*11/27/2021 10:48*	WG1780502
(S) 1,2-Dichloroethane-d4	*96.3*			*70.0-130*		*11/27/2021 10:48*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	2910		15.4	80.0	20	11/30/2021 09:43	WG1781151
(S) o-Terphenyl	*0.000*	J7		*18.0-148*		*11/30/2021 09:43*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.143	J6	0.00230	0.00600	1	11/29/2021 22:28	WG1781270
Acenaphthene	0.124		0.00209	0.00600	1	11/29/2021 22:28	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/29/2021 22:28	WG1781270
Benzo(a)anthracene	0.00784		0.00173	0.00600	1	11/29/2021 22:28	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/29/2021 22:28	WG1781270
Benzo(b)fluoranthene	0.00428	J	0.00153	0.00600	1	11/29/2021 22:28	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/29/2021 22:28	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/29/2021 22:28	WG1781270
Chrysene	0.0112		0.00232	0.00600	1	11/29/2021 22:28	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/29/2021 22:28	WG1781270
Fluoranthene	0.0222		0.00227	0.00600	1	11/29/2021 22:28	WG1781270
Fluorene	0.633	V	0.00205	0.00600	1	11/29/2021 22:28	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/29/2021 22:28	WG1781270
Naphthalene	2.50	V	0.00408	0.0200	1	11/29/2021 22:28	WG1781270
Phenanthrene	0.518		0.00231	0.00600	1	11/29/2021 22:28	WG1781270
Pyrene	0.0281		0.00200	0.00600	1	11/29/2021 22:28	WG1781270
1-Methylnaphthalene	2.34	V	0.00449	0.0200	1	11/29/2021 22:28	WG1781270
2-Methylnaphthalene	11.2		0.0427	0.200	10	12/02/2021 13:15	WG1781270
2-Chloronaphthalene	U	J6	0.00466	0.0200	1	11/29/2021 22:28	WG1781270
(S) p-Terphenyl-d14	*102*			*23.0-120*		*11/29/2021 22:28*	WG1781270
(S) p-Terphenyl-d14	*102*			*23.0-120*		*12/02/2021 13:15*	WG1781270
(S) Nitrobenzene-d5	*0.000*	J2		*14.0-149*		*11/29/2021 22:28*	WG1781270
(S) Nitrobenzene-d5	*0.000*	J2		*14.0-149*		*12/02/2021 13:15*	WG1781270
(S) 2-Fluorobiphenyl	*95.0*			*34.0-125*		*11/29/2021 22:28*	WG1781270
(S) 2-Fluorobiphenyl	*110*			*34.0-125*		*12/02/2021 13:15*	WG1781270

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	

Sample Narrative:

L1434837-02 WG1781270: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.944		1	11/30/2021 13:16	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	26.8		0.133	1.00	1	11/30/2021 12:49	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:25	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.78	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-03 WG1780800: 7.78 at 19C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1610		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-03 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0182	J	0.0180	0.0400	1	11/28/2021 09:52	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	135		0.0852	0.500	1	11/30/2021 12:49	WG1780840
Cadmium	0.170	J	0.0471	0.500	1	11/30/2021 12:49	WG1780840
Chromium	26.8		0.133	1.00	1	11/30/2021 12:49	WG1780840
Copper	6.60		0.400	2.00	1	11/30/2021 12:49	WG1780840
Lead	8.97		0.208	0.500	1	11/30/2021 12:49	WG1780840
Nickel	12.5		0.132	2.00	1	11/30/2021 12:49	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:49	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:49	WG1780840
Zinc	34.0		0.832	5.00	1	11/30/2021 12:49	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.0607	J	0.0167	0.200	1	11/30/2021 13:30	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	1.40		0.100	1.00	5	11/29/2021 14:42	WG1780841

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1.98		0.0217	0.100	1	11/30/2021 16:46	WG1781837
(S) a,a,a-Trifluorotoluene(FID)	*82.5*			*77.0-120*		*11/30/2021 16:46*	WG1781837

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Benzene	U		0.000467	0.00100	1	11/27/2021 06:01	WG1780502
Toluene	U		0.00130	0.00500	1	11/27/2021 06:01	WG1780502
Ethylbenzene	U		0.000737	0.00250	1	11/27/2021 06:01	WG1780502
Total Xylenes	0.0183		0.000880	0.00650	1	11/27/2021 06:01	WG1780502
(S) Toluene-d8	*105*			*75.0-131*		*11/27/2021 06:01*	WG1780502
(S) 4-Bromofluorobenzene	*102*			*67.0-138*		*11/27/2021 06:01*	WG1780502
(S) 1,2-Dichloroethane-d4	*93.1*			*70.0-130*		*11/27/2021 06:01*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
TPH (GC/FID) High Fraction	97.8		0.769	4.00	1	11/30/2021 00:36	WG1781151
(S) o-Terphenyl	*90.3*			*18.0-148*		*11/30/2021 00:36*	WG1781151

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	0.00746		0.00230	0.00600	1	11/29/2021 23:28	WG1781270
Acenaphthene	0.0115		0.00209	0.00600	1	11/29/2021 23:28	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/29/2021 23:28	WG1781270
Benzo(a)anthracene	U		0.00173	0.00600	1	11/29/2021 23:28	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/29/2021 23:28	WG1781270
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/29/2021 23:28	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/29/2021 23:28	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/29/2021 23:28	WG1781270
Chrysene	U		0.00232	0.00600	1	11/29/2021 23:28	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/29/2021 23:28	WG1781270
Fluoranthene	U		0.00227	0.00600	1	11/29/2021 23:28	WG1781270
Fluorene	0.0367		0.00205	0.00600	1	11/29/2021 23:28	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/29/2021 23:28	WG1781270
Naphthalene	0.0725		0.00408	0.0200	1	11/29/2021 23:28	WG1781270
Phenanthrene	0.0349		0.00231	0.00600	1	11/29/2021 23:28	WG1781270
Pyrene	0.00215	J	0.00200	0.00600	1	11/29/2021 23:28	WG1781270
1-Methylnaphthalene	0.120		0.00449	0.0200	1	11/29/2021 23:28	WG1781270
2-Methylnaphthalene	0.339		0.00427	0.0200	1	11/29/2021 23:28	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/29/2021 23:28	WG1781270
(S) p-Terphenyl-d14	*78.6*			*23.0-120*		*11/29/2021 23:28*	WG1781270
(S) Nitrobenzene-d5	*115*			*14.0-149*		*11/29/2021 23:28*	WG1781270
(S) 2-Fluorobiphenyl	*74.1*			*34.0-125*		*11/29/2021 23:28*	WG1781270

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.14		1	11/30/2021 13:18	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	30.5		0.133	1.00	1	11/30/2021 12:52	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:26	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.99	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-04 WG1780800: 7.99 at 18.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1190		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-04 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 09:54	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	129		0.0852	0.500	1	11/30/2021 12:52	WG1780840
Cadmium	0.199	J	0.0471	0.500	1	11/30/2021 12:52	WG1780840
Chromium	30.5		0.133	1.00	1	11/30/2021 12:52	WG1780840
Copper	6.83		0.400	2.00	1	11/30/2021 12:52	WG1780840
Lead	9.20		0.208	0.500	1	11/30/2021 12:52	WG1780840
Nickel	14.9		0.132	2.00	1	11/30/2021 12:52	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:52	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:52	WG1780840
Zinc	35.4		0.832	5.00	1	11/30/2021 12:52	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.0422	J	0.0167	0.200	1	11/30/2021 13:33	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.70		0.100	1.00	5	11/29/2021 14:46	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.136		0.0217	0.100	1	11/26/2021 16:56	WG1780300
(S) a,a,a-Trifluorotoluene(FID)	*102*			*77.0-120*		*11/26/2021 16:56*	WG1780300

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/27/2021 06:20	WG1780502
Toluene	U		0.00130	0.00500	1	11/27/2021 06:20	WG1780502
Ethylbenzene	U		0.000737	0.00250	1	11/27/2021 06:20	WG1780502
Total Xylenes	0.00337	J	0.000880	0.00650	1	11/27/2021 06:20	WG1780502
(S) Toluene-d8	*105*			*75.0-131*		*11/27/2021 06:20*	WG1780502
(S) 4-Bromofluorobenzene	*99.8*			*67.0-138*		*11/27/2021 06:20*	WG1780502
(S) 1,2-Dichloroethane-d4	*94.8*			*70.0-130*		*11/27/2021 06:20*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	7.14		0.769	4.00	1	11/30/2021 00:49	WG1781151
(S) o-Terphenyl	*71.8*			*18.0-148*		*11/30/2021 00:49*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/29/2021 23:48	WG1781270
Acenaphthene	U		0.00209	0.00600	1	11/29/2021 23:48	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/29/2021 23:48	WG1781270
Benzo(a)anthracene	U		0.00173	0.00600	1	11/29/2021 23:48	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/29/2021 23:48	WG1781270
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/29/2021 23:48	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/29/2021 23:48	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/29/2021 23:48	WG1781270
Chrysene	U		0.00232	0.00600	1	11/29/2021 23:48	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/29/2021 23:48	WG1781270
Fluoranthene	U		0.00227	0.00600	1	11/29/2021 23:48	WG1781270
Fluorene	U		0.00205	0.00600	1	11/29/2021 23:48	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/29/2021 23:48	WG1781270
Naphthalene	U		0.00408	0.0200	1	11/29/2021 23:48	WG1781270
Phenanthrene	U		0.00231	0.00600	1	11/29/2021 23:48	WG1781270
Pyrene	U		0.00200	0.00600	1	11/29/2021 23:48	WG1781270
1-Methylnaphthalene	U		0.00449	0.0200	1	11/29/2021 23:48	WG1781270
2-Methylnaphthalene	U		0.00427	0.0200	1	11/29/2021 23:48	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/29/2021 23:48	WG1781270
(S) p-Terphenyl-d14	*92.3*			*23.0-120*		*11/29/2021 23:48*	WG1781270
(S) Nitrobenzene-d5	*52.0*			*14.0-149*		*11/29/2021 23:48*	WG1781270
(S) 2-Fluorobiphenyl	*73.9*			*34.0-125*		*11/29/2021 23:48*	WG1781270

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.506		1	11/30/2021 13:21	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	31.4		0.133	1.00	1	11/30/2021 12:54	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:26	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.82	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-05 WG1780800: 7.82 at 19C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	771		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-05 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 09:56	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	87.4		0.0852	0.500	1	11/30/2021 12:54	WG1780840
Cadmium	0.157	J	0.0471	0.500	1	11/30/2021 12:54	WG1780840
Chromium	31.4		0.133	1.00	1	11/30/2021 12:54	WG1780840
Copper	5.64		0.400	2.00	1	11/30/2021 12:54	WG1780840
Lead	8.05		0.208	0.500	1	11/30/2021 12:54	WG1780840
Nickel	14.0		0.132	2.00	1	11/30/2021 12:54	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:54	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:54	WG1780840
Zinc	34.4		0.832	5.00	1	11/30/2021 12:54	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.0539	J	0.0167	0.200	1	11/30/2021 13:36	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.43		0.100	1.00	5	11/29/2021 14:49	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	972		2.17	10.0	100	11/27/2021 20:43	WG1780644
(S) a,a,a-Trifluorotoluene(FID)	*92.5*			*77.0-120*		*11/27/2021 20:43*	WG1780644

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.00374	0.00800	8	11/27/2021 11:07	WG1780502
Toluene	1.78		0.0104	0.0400	8	11/27/2021 11:07	WG1780502
Ethylbenzene	0.408		0.00590	0.0200	8	11/27/2021 11:07	WG1780502
Total Xylenes	29.8		0.00704	0.0520	8	11/27/2021 11:07	WG1780502
(S) Toluene-d8	*107*			*75.0-131*		*11/27/2021 11:07*	WG1780502
(S) 4-Bromofluorobenzene	*133*			*67.0-138*		*11/27/2021 11:07*	WG1780502
(S) 1,2-Dichloroethane-d4	*97.6*			*70.0-130*		*11/27/2021 11:07*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1600		7.69	40.0	10	11/30/2021 09:57	WG1781151
(S) o-Terphenyl	*118*			*18.0-148*		*11/30/2021 09:57*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0770		0.00230	0.00600	1	11/30/2021 00:08	WG1781270
Acenaphthene	0.0870		0.00209	0.00600	1	11/30/2021 00:08	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/30/2021 00:08	WG1781270
Benzo(a)anthracene	0.00559	J	0.00173	0.00600	1	11/30/2021 00:08	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/30/2021 00:08	WG1781270
Benzo(b)fluoranthene	0.00341	J	0.00153	0.00600	1	11/30/2021 00:08	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/30/2021 00:08	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/30/2021 00:08	WG1781270
Chrysene	0.00923		0.00232	0.00600	1	11/30/2021 00:08	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/30/2021 00:08	WG1781270
Fluoranthene	0.0207		0.00227	0.00600	1	11/30/2021 00:08	WG1781270
Fluorene	0.422		0.00205	0.00600	1	11/30/2021 00:08	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/30/2021 00:08	WG1781270
Naphthalene	1.48		0.00408	0.0200	1	11/30/2021 00:08	WG1781270
Phenanthrene	0.487		0.00231	0.00600	1	11/30/2021 00:08	WG1781270
Pyrene	0.0363		0.00200	0.00600	1	11/30/2021 00:08	WG1781270
1-Methylnaphthalene	1.85		0.00449	0.0200	1	11/30/2021 00:08	WG1781270
2-Methylnaphthalene	7.30		0.0427	0.200	10	11/30/2021 18:19	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/30/2021 00:08	WG1781270
(S) p-Terphenyl-d14	*98.0*			*23.0-120*		*11/30/2021 00:08*	WG1781270
(S) p-Terphenyl-d14	*107*			*23.0-120*		*11/30/2021 18:19*	WG1781270
(S) Nitrobenzene-d5	*0.000*	J2		*14.0-149*		*11/30/2021 00:08*	WG1781270
(S) Nitrobenzene-d5	*0.000*	J2		*14.0-149*		*11/30/2021 18:19*	WG1781270
(S) 2-Fluorobiphenyl	*120*			*34.0-125*		*11/30/2021 18:19*	WG1781270
(S) 2-Fluorobiphenyl	*92.2*			*34.0-125*		*11/30/2021 00:08*	WG1781270

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	

Sample Narrative:

L1434837-05 WG1781270: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.939		1	11/30/2021 13:24	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	29.2		0.133	1.00	1	11/30/2021 12:57	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:26	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.88	T8	1	11/30/2021 21:45	WG1782049

Sample Narrative:

L1434837-06 WG1782049: 7.88 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	806		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-06 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 09:58	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	140		0.0852	0.500	1	11/30/2021 12:57	WG1780840
Cadmium	0.166	J	0.0471	0.500	1	11/30/2021 12:57	WG1780840
Chromium	29.2		0.133	1.00	1	11/30/2021 12:57	WG1780840
Copper	6.40		0.400	2.00	1	11/30/2021 12:57	WG1780840
Lead	8.65		0.208	0.500	1	11/30/2021 12:57	WG1780840
Nickel	13.5		0.132	2.00	1	11/30/2021 12:57	WG1780840
Selenium	U		0.764	2.00	1	11/30/2021 12:57	WG1780840
Silver	U		0.127	1.00	1	11/30/2021 12:57	WG1780840
Zinc	34.3		0.832	5.00	1	11/30/2021 12:57	WG1780840

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.35		0.100	1.00	5	11/29/2021 14:59	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.127		0.0217	0.100	1	11/26/2021 17:20	WG1780300
(S) a,a,a-Trifluorotoluene(FID)	*102*			*77.0-120*		*11/26/2021 17:20*	WG1780300

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/27/2021 06:39	WG1780502
Toluene	U		0.00130	0.00500	1	11/27/2021 06:39	WG1780502
Ethylbenzene	U		0.000737	0.00250	1	11/27/2021 06:39	WG1780502
Total Xylenes	0.00103	J	0.000880	0.00650	1	11/27/2021 06:39	WG1780502
(S) Toluene-d8	*105*			*75.0-131*		*11/27/2021 06:39*	WG1780502
(S) 4-Bromofluorobenzene	*97.1*			*67.0-138*		*11/27/2021 06:39*	WG1780502
(S) 1,2-Dichloroethane-d4	*94.8*			*70.0-130*		*11/27/2021 06:39*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	13.5	J6	0.769	4.00	1	11/30/2021 01:16	WG1781151
(S) o-Terphenyl	*79.8*			*18.0-148*		*11/30/2021 01:16*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/30/2021 00:27	WG1781270
Acenaphthene	U		0.00209	0.00600	1	11/30/2021 00:27	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/30/2021 00:27	WG1781270
Benzo(a)anthracene	U		0.00173	0.00600	1	11/30/2021 00:27	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/30/2021 00:27	WG1781270
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/30/2021 00:27	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/30/2021 00:27	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/30/2021 00:27	WG1781270
Chrysene	U		0.00232	0.00600	1	11/30/2021 00:27	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/30/2021 00:27	WG1781270
Fluoranthene	U		0.00227	0.00600	1	11/30/2021 00:27	WG1781270
Fluorene	U		0.00205	0.00600	1	11/30/2021 00:27	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/30/2021 00:27	WG1781270
Naphthalene	U		0.00408	0.0200	1	11/30/2021 00:27	WG1781270
Phenanthrene	U		0.00231	0.00600	1	11/30/2021 00:27	WG1781270
Pyrene	U		0.00200	0.00600	1	11/30/2021 00:27	WG1781270
1-Methylnaphthalene	U		0.00449	0.0200	1	11/30/2021 00:27	WG1781270
2-Methylnaphthalene	U		0.00427	0.0200	1	11/30/2021 00:27	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/30/2021 00:27	WG1781270
(S) p-Terphenyl-d14	*63.1*			*23.0-120*		*11/30/2021 00:27*	WG1781270
(S) Nitrobenzene-d5	*41.0*			*14.0-149*		*11/30/2021 00:27*	WG1781270
(S) 2-Fluorobiphenyl	*52.5*			*34.0-125*		*11/30/2021 00:27*	WG1781270

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.84		1	11/30/2021 13:26	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	32.9		0.133	1.00	1	11/30/2021 12:23	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:27	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.60	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-07 WG1780800: 8.6 at 18.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	276		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-07 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	11/28/2021 10:00	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	110	J6 O1	0.0852	0.500	1	11/30/2021 12:23	WG1780840
Cadmium	0.143	J	0.0471	0.500	1	11/30/2021 12:23	WG1780840
Chromium	32.9		0.133	1.00	1	11/30/2021 12:23	WG1780840
Copper	6.41		0.400	2.00	1	11/30/2021 12:23	WG1780840
Lead	7.96		0.208	0.500	1	11/30/2021 12:23	WG1780840
Nickel	16.8		0.132	2.00	1	11/30/2021 12:23	WG1780840
Selenium	0.767	J	0.764	2.00	1	11/30/2021 12:23	WG1780840
Silver	U	O1	0.127	1.00	1	11/30/2021 12:23	WG1780840
Zinc	30.5		0.832	5.00	1	11/30/2021 12:23	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.116	J	0.0167	0.200	1	11/30/2021 13:39	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.42		0.100	1.00	5	11/29/2021 13:44	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0451	J	0.0217	0.100	1	11/26/2021 17:44	WG1780300
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*		*11/26/2021 17:44*	WG1780300

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/27/2021 06:58	WG1780502
Toluene	U		0.00130	0.00500	1	11/27/2021 06:58	WG1780502
Ethylbenzene	U		0.000737	0.00250	1	11/27/2021 06:58	WG1780502
Total Xylenes	U		0.000880	0.00650	1	11/27/2021 06:58	WG1780502
(S) Toluene-d8	*106*			*75.0-131*		*11/27/2021 06:58*	WG1780502
(S) 4-Bromofluorobenzene	*97.4*			*67.0-138*		*11/27/2021 06:58*	WG1780502
(S) 1,2-Dichloroethane-d4	*92.1*			*70.0-130*		*11/27/2021 06:58*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1.31	J	0.769	4.00	1	11/30/2021 01:57	WG1781151
(S) o-Terphenyl	*58.3*			*18.0-148*		*11/30/2021 01:57*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/30/2021 00:47	WG1781270
Acenaphthene	U		0.00209	0.00600	1	11/30/2021 00:47	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/30/2021 00:47	WG1781270
Benzo(a)anthracene	U		0.00173	0.00600	1	11/30/2021 00:47	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/30/2021 00:47	WG1781270
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/30/2021 00:47	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/30/2021 00:47	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/30/2021 00:47	WG1781270
Chrysene	U		0.00232	0.00600	1	11/30/2021 00:47	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/30/2021 00:47	WG1781270
Fluoranthene	U		0.00227	0.00600	1	11/30/2021 00:47	WG1781270
Fluorene	U		0.00205	0.00600	1	11/30/2021 00:47	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/30/2021 00:47	WG1781270
Naphthalene	U		0.00408	0.0200	1	11/30/2021 00:47	WG1781270
Phenanthrene	U		0.00231	0.00600	1	11/30/2021 00:47	WG1781270
Pyrene	U		0.00200	0.00600	1	11/30/2021 00:47	WG1781270
1-Methylnaphthalene	U		0.00449	0.0200	1	11/30/2021 00:47	WG1781270
2-Methylnaphthalene	U		0.00427	0.0200	1	11/30/2021 00:47	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/30/2021 00:47	WG1781270
(S) p-Terphenyl-d14	*76.8*			*23.0-120*		*11/30/2021 00:47*	WG1781270
(S) Nitrobenzene-d5	*45.8*			*14.0-149*		*11/30/2021 00:47*	WG1781270
(S) 2-Fluorobiphenyl	*68.1*			*34.0-125*		*11/30/2021 00:47*	WG1781270

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.20		1	11/30/2021 13:29	WG1780181

Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	33.2		0.119	0.893	1	11/30/2021 13:00	WG1780840

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/29/2021 18:27	WG1780076

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.83	T8	1	11/28/2021 12:00	WG1780800

Sample Narrative:

L1434837-08 WG1780800: 8.83 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	260		10.0	1	11/26/2021 09:29	WG1780197

Sample Narrative:

L1434837-08 WG1780197: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0223	J	0.0180	0.0400	1	11/28/2021 10:02	WG1780438

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	116		0.0761	0.446	.8928571	11/30/2021 13:00	WG1780840
Cadmium	0.143	J	0.0420	0.446	.8928571	11/30/2021 13:00	WG1780840
Chromium	33.2		0.119	0.893	.8928571	11/30/2021 13:00	WG1780840
Copper	5.85		0.357	1.79	.8928571	11/30/2021 13:00	WG1780840
Lead	7.92		0.186	0.446	.8928571	11/30/2021 13:00	WG1780840
Nickel	15.8		0.118	1.79	.8928571	11/30/2021 13:00	WG1780840
Selenium	U		0.682	1.79	.8928571	11/30/2021 13:00	WG1780840
Silver	U		0.113	0.893	.8928571	11/30/2021 13:00	WG1780840
Zinc	29.6		0.743	4.46	.8928571	11/30/2021 13:00	WG1780840

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.101	J	0.0167	0.200	1	11/30/2021 13:42	WG1780171

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.37		0.0893	0.893	4.464286	11/29/2021 15:03	WG1780841

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0540	J	0.0217	0.100	1	11/26/2021 18:08	WG1780300
(S) a,a,a-Trifluorotoluene(FID)	*98.9*			*77.0-120*		*11/26/2021 18:08*	WG1780300

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	11/27/2021 07:17	WG1780502
Toluene	U		0.00130	0.00500	1	11/27/2021 07:17	WG1780502
Ethylbenzene	U		0.000737	0.00250	1	11/27/2021 07:17	WG1780502
Total Xylenes	U		0.000880	0.00650	1	11/27/2021 07:17	WG1780502
(S) Toluene-d8	*105*			*75.0-131*		*11/27/2021 07:17*	WG1780502
(S) 4-Bromofluorobenzene	*96.4*			*67.0-138*		*11/27/2021 07:17*	WG1780502
(S) 1,2-Dichloroethane-d4	*93.6*			*70.0-130*		*11/27/2021 07:17*	WG1780502

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	2.36	J	0.769	4.00	1	11/30/2021 02:10	WG1781151
(S) o-Terphenyl	*91.2*			*18.0-148*		*11/30/2021 02:10*	WG1781151

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	11/30/2021 01:07	WG1781270
Acenaphthene	U		0.00209	0.00600	1	11/30/2021 01:07	WG1781270
Acenaphthylene	U		0.00216	0.00600	1	11/30/2021 01:07	WG1781270
Benzo(a)anthracene	U		0.00173	0.00600	1	11/30/2021 01:07	WG1781270
Benzo(a)pyrene	U		0.00179	0.00600	1	11/30/2021 01:07	WG1781270
Benzo(b)fluoranthene	U		0.00153	0.00600	1	11/30/2021 01:07	WG1781270
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	11/30/2021 01:07	WG1781270
Benzo(k)fluoranthene	U		0.00215	0.00600	1	11/30/2021 01:07	WG1781270
Chrysene	U		0.00232	0.00600	1	11/30/2021 01:07	WG1781270
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	11/30/2021 01:07	WG1781270
Fluoranthene	U		0.00227	0.00600	1	11/30/2021 01:07	WG1781270
Fluorene	U		0.00205	0.00600	1	11/30/2021 01:07	WG1781270
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	11/30/2021 01:07	WG1781270
Naphthalene	U		0.00408	0.0200	1	11/30/2021 01:07	WG1781270
Phenanthrene	U		0.00231	0.00600	1	11/30/2021 01:07	WG1781270
Pyrene	U		0.00200	0.00600	1	11/30/2021 01:07	WG1781270
1-Methylnaphthalene	U		0.00449	0.0200	1	11/30/2021 01:07	WG1781270
2-Methylnaphthalene	U		0.00427	0.0200	1	11/30/2021 01:07	WG1781270
2-Chloronaphthalene	U		0.00466	0.0200	1	11/30/2021 01:07	WG1781270
(S) p-Terphenyl-d14	*97.4*			*23.0-120*		*11/30/2021 01:07*	WG1781270
(S) Nitrobenzene-d5	*52.9*			*14.0-149*		*11/30/2021 01:07*	WG1781270
(S) 2-Fluorobiphenyl	*76.9*			*34.0-125*		*11/30/2021 01:07*	WG1781270

Method Blank (MB)

(MB) R3734927-1 11/29/21 18:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1434837-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1434837-03 11/29/21 18:25 • (DUP) R3734927-7 11/29/21 18:26

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

L1435428-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1435428-01 11/29/21 18:28 • (DUP) R3734927-8 11/29/21 18:28

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

Laboratory Control Sample (LCS)

(LCS) R3734927-2 11/29/21 18:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	25.3	106	80.0-120	

L1433715-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433715-02 11/29/21 18:20 • (MS) R3734927-3 11/29/21 18:21 • (MSD) R3734927-4 11/29/21 18:21

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 %
Chromium,Hexavalent	20.0	U	18.7	17.5	93.3	87.4	1	75.0-125			6.54	20

L1434125-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1434125-05 11/28/21 12:00 • (DUP) R3734414-2 11/28/21 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.00	8.99	1	0.111		1

Sample Narrative:

OS: 9 at 19.8C

DUP: 8.99 at 19.8C

L1434837-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1434837-02 11/28/21 12:00 • (DUP) R3734414-3 11/28/21 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.24	8.23	1	0.121		1

Sample Narrative:

OS: 8.24 at 19.3C

DUP: 8.23 at 19.4C

Laboratory Control Sample (LCS)

(LCS) R3734414-1 11/28/21 12:00

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

Sample Narrative:

LCS: 9.99 at 18.1C

L1435387-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1435387-02 11/30/21 21:45 • (DUP) R3735496-2 11/30/21 21:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.24	7.27	1	0.414		1

Sample Narrative:

OS: 7.24 at 20C

DUP: 7.27 at 20C

L1435393-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435393-03 11/30/21 21:45 • (DUP) R3735496-3 11/30/21 21:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.97	6.97	1	0.000		1

Sample Narrative:

OS: 6.97 at 20C

DUP: 6.97 at 20C

Laboratory Control Sample (LCS)

(LCS) R3735496-1 11/30/21 21:45

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

Sample Narrative:

LCS: 10 at 19.9C

Method Blank (MB)

(MB) R3734011-1 11/26/21 09:29

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

L1434732-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1434732-05 11/26/21 09:29 • (DUP) R3734011-3 11/26/21 09:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	240	232	1	3.77		20

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

L1434837-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1434837-06 11/26/21 09:29 • (DUP) R3734011-4 11/26/21 09:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	806	826	1	2.45		20

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

Laboratory Control Sample (LCS)

(LCS) R3734011-2 11/26/21 09:29

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	275	103	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3734687-1 11/28/21 09:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3734687-2 11/28/21 09:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.537	107	80.0-120	

L1434137-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434137-01 11/29/21 10:17 • (MS) R3734688-1 11/29/21 10:19 • (MSD) R3734688-2 11/29/21 10:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	4.33	4.28	4.56	0.000	45.9	5	75.0-125	V	V	6.39	20

Method Blank (MB)

(MB) R3735287-1 11/30/21 12:18

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
Chromium	U		0.133	1.00
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) R3735287-2 11/30/21 12:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	100	100	80.0-120	
Cadmium	100	95.9	95.9	80.0-120	
Chromium	100	100	100	80.0-120	
Copper	100	98.7	98.7	80.0-120	
Lead	100	97.4	97.4	80.0-120	
Nickel	100	98.7	98.7	80.0-120	
Selenium	100	97.9	97.9	80.0-120	
Silver	20.0	16.7	83.6	80.0-120	
Zinc	100	95.2	95.2	80.0-120	

L1434837-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434837-07 11/30/21 12:23 • (MS) R3735287-5 11/30/21 12:31 • (MSD) R3735287-6 11/30/21 12:33

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	89.3	110	175	177	73.0	67.4	.8928571	75.0-125	J6	J6	1.27	20
Cadmium	89.3	0.143	85.0	87.2	95.0	87.1	.8928571	75.0-125			2.61	20
Chromium	89.3	32.9	115	121	91.8	87.9	.8928571	75.0-125			5.02	20
Copper	89.3	6.41	90.8	93.3	94.5	86.9	.8928571	75.0-125			2.72	20
Lead	89.3	7.96	94.8	97.6	97.2	89.7	.8928571	75.0-125			2.98	20
Nickel	89.3	16.8	101	106	94.7	88.8	.8928571	75.0-125			4.11	20
Selenium	89.3	0.767	74.2	81.4	82.3	80.7	.8928571	75.0-125			9.26	20
Silver	17.9	U	14.9	15.2	83.3	75.8	.8928571	75.0-125			1.65	20
Zinc	89.3	30.5	101	107	79.2	76.2	.8928571	75.0-125			5.24	20

Method Blank (MB)

(MB) R3735317-1 11/30/21 13:16

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) R3735317-2 11/30/21 13:19 • (LCSD) R3735317-3 11/30/21 13:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.957	0.951	95.7	95.1	80.0-120			0.552	20

QUALITY CONTROL SUMMARY

L1434837-01,02,03,04,05,06,07,08

Method Blank (MB)

(MB) R3734850-1 11/29/21 13:37

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) R3734850-6 11/29/21 15:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.2	90.2	80.0-120	

L1434837-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434837-07 11/29/21 13:44 • (MS) R3734850-4 11/29/21 13:54 • (MSD) R3734850-5 11/29/21 13:57

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 %
Arsenic	89.3	2.42	77.7	79.7	84.3	77.3	4.464286	75.0-125			2.53	20

Method Blank (MB)

(MB) R3735138-2 11/26/21 21:47

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)	*87.3*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3735138-1 11/26/21 21:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.60	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*110*	*77.0-120*	

Method Blank (MB)

(MB) R3735254-3 11/26/21 11:11

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)	*99.1*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3735254-2 11/26/21 10:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.61	83.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	

Method Blank (MB)

(MB) R3735294-3 11/27/21 12:08

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

Laboratory Control Sample (LCS)

(LCS) R3735294-2 11/27/21 11:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.97	90.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	

L1434908-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434908-02 11/27/21 16:49 • (MS) R3735294-6 11/27/21 22:16 • (MSD) R3735294-7 11/27/21 22:39

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	106	U	73.9	86.5	69.7	81.6	25	10.0-151			15.7	28
(S) a,a,a-Trifluorotoluene(FID)					*99.1*	*100*		*77.0-120*				

Method Blank (MB)

(MB) R3735415-1 11/30/21 10:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0223	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*85.0*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3735415-2 11/30/21 16:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.14	75.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*98.7*	*77.0-120*	

Method Blank (MB)

(MB) R3735871-2 12/01/21 12:24

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)	*114*			*77.0-120*

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

(LCS) R3735871-1 12/01/21 11:36 • (LCSD) R3735871-3 12/01/21 13:54

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	4.62	5.55	84.0	101	72.0-127			18.3	20
(S) a,a,a-Trifluorotoluene(FID)				*100*	*100*	*77.0-120*				

Method Blank (MB)

(MB) R3735087-3 11/27/21 04:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*107*			*75.0-131*
(S) 4-Bromofluorobenzene	*95.0*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*90.3*			*70.0-130*

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

(LCS) R3735087-1 11/27/21 03:48 • (LCSD) R3735087-2 11/27/21 04:07

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	0.110	0.110	88.0	88.0	70.0-123			0.000	20
Ethylbenzene	0.125	0.115	0.113	92.0	90.4	74.0-126			1.75	20
Toluene	0.125	0.115	0.111	92.0	88.8	75.0-121			3.54	20
Xylenes, Total	0.375	0.340	0.345	90.7	92.0	72.0-127			1.46	20
(S) Toluene-d8				*106*	*104*	*75.0-131*				
(S) 4-Bromofluorobenzene				*99.2*	*98.3*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*98.4*	*101*	*70.0-130*				

Method Blank (MB)

(MB) R3735160-1 11/29/21 23:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*79.9*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3735160-2 11/29/21 23:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	45.0	90.0	50.0-150	
(S) o-Terphenyl			*125*	*18.0-148*	

L1434837-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434837-06 11/30/21 01:16 • (MS) R3735160-3 11/30/21 01:30 • (MSD) R3735160-4 11/30/21 01:43

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) High Fraction	49.4	13.5	36.7	36.7	47.0	46.4	1	50.0-150	J6	J6	0.000	20
(S) o-Terphenyl					*72.9*	*68.3*		*18.0-148*				

Method Blank (MB)

(MB) R3735433-2 11/29/21 21:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*65.3*			*14.0-149*
(S) 2-Fluorobiphenyl	*85.1*			*34.0-125*
(S) p-Terphenyl-d14	*109*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3735433-1 11/29/21 21:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0600	75.0	50.0-126	
Acenaphthene	0.0800	0.0612	76.5	50.0-120	
Acenaphthylene	0.0800	0.0670	83.8	50.0-120	
Benzo(a)anthracene	0.0800	0.0621	77.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0475	59.4	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0516	64.5	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0523	65.4	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0546	68.3	49.0-125	
Chrysene	0.0800	0.0609	76.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0589	73.6	47.0-125	
Fluoranthene	0.0800	0.0651	81.4	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3735433-1 11/29/21 21:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0628	78.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0566	70.8	46.0-125	
Naphthalene	0.0800	0.0609	76.1	50.0-120	
Phenanthrene	0.0800	0.0584	73.0	47.0-120	
Pyrene	0.0800	0.0616	77.0	43.0-123	
1-Methylnaphthalene	0.0800	0.0661	82.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0597	74.6	50.0-120	
2-Chloronaphthalene	0.0800	0.0577	72.1	50.0-120	
(S) Nitrobenzene-d5			*67.5*	*14.0-149*	
(S) 2-Fluorobiphenyl			*85.6*	*34.0-125*	
(S) p-Terphenyl-d14			*104*	*23.0-120*	

L1434837-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434837-02 11/29/21 22:28 • (MS) R3735433-3 11/29/21 22:48 • (MSD) R3735433-4 11/29/21 23:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0760	0.143	0.0512	0.0487	0.000	0.000	1	10.0-145	J6	J6	5.01	30
Acenaphthene	0.0760	0.124	0.199	0.188	98.7	83.3	1	14.0-127			5.68	27
Acenaphthylene	0.0760	U	0.0717	0.0715	94.3	93.1	1	21.0-124			0.279	25
Benzo(a)anthracene	0.0760	0.00784	0.0650	0.0646	75.2	73.9	1	10.0-139			0.617	30
Benzo(a)pyrene	0.0760	U	0.0539	0.0549	70.9	71.5	1	10.0-141			1.84	31
Benzo(b)fluoranthene	0.0760	0.00428	0.0517	0.0521	62.4	62.3	1	10.0-140			0.771	36
Benzo(g,h,i)perylene	0.0760	U	0.0468	0.0472	61.6	61.5	1	10.0-140			0.851	33
Benzo(k)fluoranthene	0.0760	U	0.0520	0.0531	68.4	69.1	1	10.0-137			2.09	31
Chrysene	0.0760	0.0112	0.0722	0.0720	80.3	79.2	1	10.0-145			0.277	30
Dibenz(a,h)anthracene	0.0760	U	0.0511	0.0519	67.2	67.6	1	10.0-132			1.55	31
Fluoranthene	0.0760	0.0222	0.0848	0.0851	82.4	81.9	1	10.0-153			0.353	33
Fluorene	0.0760	0.633	0.772	0.744	183	145	1	11.0-130	V	V	3.69	29
Indeno(1,2,3-cd)pyrene	0.0760	U	0.0504	0.0508	66.3	66.1	1	10.0-137			0.791	32
Naphthalene	0.0760	2.50	2.47	2.55	0.000	65.1	1	10.0-135	V		3.19	27
Phenanthrene	0.0760	0.518	0.615	0.581	128	82.0	1	10.0-144			5.69	31
Pyrene	0.0760	0.0281	0.0848	0.0836	74.6	72.3	1	10.0-148			1.43	35
1-Methylnaphthalene	0.0760	2.34	2.32	2.49	0.000	195	1	10.0-142	V	V	7.07	28
2-Methylnaphthalene	0.0760	7.14	7.00	7.20	0.000	78.1	1	10.0-137	E V	E	2.82	28
2-Chloronaphthalene	0.0760	U	U	U	0.000	0.000	1	29.0-120	J6	J6	0.000	24
(S) Nitrobenzene-d5					*687*	*615*		*14.0-149*	J1	J1		
(S) 2-Fluorobiphenyl					*105*	*106*		*34.0-125*				
(S) p-Terphenyl-d14					*104*	*105*		*23.0-120*				

L1434837-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434837-02 11/29/21 22:28 • (MS) R3735433-3 11/29/21 22:48 • (MSD) R3735433-4 11/29/21 23:08

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 %

Sample Narrative:

OS: Surrogate failure due to matrix interference

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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.
V	The sample concentration is too high to evaluate accurate spike recoveries.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.

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: **jjanicek@caerusoilandgas.com**

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

Project Description: ~~J17E Dumpline Release~~ PCU F23-18G DH

City/State Collected: ~~Parachute Creek, CO~~ Parachute Creek, CO DH

Phone: (970) 658-7025
Fax:

Client Project # **PCU F23-18G**

Lab Project # **PCU F23-18G**

Collected by (print): Parker Colt + Dustin Hild

Site/Facility ID # **PCU F23-18G**

P.O. # **PCU F23-18G**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Pres Chk

Analysis / Container / Preservative

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# LL434837

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO/DRO	BTEX	TABLE 910-PAH's	SAR, EC, pH	TABLE 910-Metals	Remarks	Sample # (lab only)
1) 20211117-PCU F23-18G (SB01) @ 8-9'	Grab	SS	8-9	11/17/21	1237	3	+	+	+	+	+		-01
2) 20211117-PCU F23-18G (SB01) @ 12-13'			12-13		1257	3							-02
3) 20211117-PCU F23-18G (SB01) @ 20-21'			20-21		1314	3							-03
4) 20211117-PCU F23-18G (SB01) @ 24-25'			24-25		1350	3							-04
5) 20211117-PCU F23-18G (SB02) @ 12-13'			12-13		1104	3							-05

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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: 11/17/21	Time: 1700	Received by: (Signature)	11/19 1720	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by: (Signature)	Date: 11/17/21	Time: 1700	Received by: (Signature)		Temp: 3.8+.0=3.8 °C Bottles Received: 24
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)		Date: 11/20/21 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

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

Billing Information: **Same as above**

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

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

Project Description: ~~J17E Dumpline Release~~ dir PCU F23-18G

City/State Collected: Pleasance Crk. dir ~~Parachute Creek, CO~~

Phone: (970) 658-7025
Fax:

Client Project # **PCU F23-18G**

Lab Project # **PCU F23-18G**

Collected by (print): Parker Coit + Dustin Held

Site/Facility ID # **PCU F23-18G**

P.O. # **PCU F23-18G**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Chain of Custody Page 2 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# L1434837

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	TPH- GRO/DRO	BTEX	TABLE 910- PAH's	SAR, EC, pH	TABLE 910- Metals						Remarks	Sample # (lab only)
20211117-PCU F23-18G (SB01) @ 20-21.5'	Grab	SS	~~20-21.5~~	11/17/21	1147	3		+	+	+	+	+							-06
20211117-PCU F23-18G (SB01) @ 11-12'					~~1130~~ 1130 dir	3		+	+	+	+	+							-07
20211117-PCU F23-18G (SB01) @ 10-10.5'					1100														-08

Analysis / Container / Preservative

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	11/17/21	1700	11/19 1200	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	111921	1706		3.8+1.0=3.8 24
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				11/20/21 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

11/20-NCF-CAERUSPCO L1434837/L1434845

R5

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

Members

HM Hailey Melson (responsible) Chris Ward

Due on *24 November 2021 8:00 AM* for target *Done*

- [x] Login Clarification needed
- [ ] Chain of custody is incomplete
- [ ] Please specify Metals requested
- [ ] Please specify TCLP requested
- [ ] Received additional samples not listed on COC
- [ ] Sample IDs on containers do not match IDs on COC
- [ ] Client did not "X" analysis
- [ ] Chain of Custody is missing
- [ ] If no COC: Received by:_____
- [ ] If no COC: Date/Time:_____
- [ ] If no COC: Temp./Cont.Rec./pH:_____
- [ ] If no COC: Carrier:_____
- [ ] If no COC: Tracking #:_____
- [ ] Client informed by call
- [x] Client informed by Email
- [ ] Client informed by Voicemail
- [x] Date/Time:_____11/22/21@1029_____
- [x] PM initials:_____CMW_____
- [x] Client Contact:_____Parker Coit_____

Comments

Hailey Melson *20 November 2021 6:10 PM*

Received 1 set of samples for both COC attached. What analysis are they wanting for each sample?

Chris Ward *22 November 2021 10:31 AM*

Please log to two separate SDGs

One for HWBICP, V8260, and SV8270PAHSIM under CAERUSPCO-915

The other for TABLE910