



VIA ELECTRONIC MAIL –

January 4, 2022

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

**Subject: Report of Work Completed
Dumpline Release H7
Mamm Creek Field
Garfield County, Colorado**

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), conducted delineation soil sampling associated with hydrocarbon impacts that were identified from previous point of release (POR) soil sampling at the production well KRK 7-7A dumpline release discovered at the KRK-67S92W7SENE (H7) (Facility ID: 334864) pad location (Site). These activities were completed as a continuation assessment associated with the failed dumpline at the Site. An initial POR sampling was conducted on October 20, 2021 after a Caerus inspector discovered a leak while completing Annual Pressure Testing at the Site. This document serves as a report of work completed (ROWC) which details all investigative assessment activities since November 4, 2021. All initial investigative activities can be referenced under Colorado Oil and Gas Conservation Commission (COGCC) Initial Site Investigation and Remediation Work Plan Document Number 402845414. The Site is located in the Caerus Mamm Creek area of operation in Garfield County, Colorado (Figure 1).

ASSESSMENT SOIL SAMPLING ACTIVITIES – H7 DUMPLINE RELEASE

On November 4, 2021, WSP personnel visited the Site to complete additional assessment activities directly beneath the POR location associated with the production well KRK 7-7A dumpline release. With the assistance of Western Slope Field Services, Inc. (WCO), one hydro-vacuum (hydro-vac) pothole was advanced directly beneath the POR location to a total depth of 15 feet below ground surface (bgs). During advancement of the pothole, soil samples were collected using a hand auger at depths of 9 feet, 12 feet, and 15 feet bgs. The pothole soil sampling activities were conducted by a WSP geologist who inspected the soil samples for the presence or absence of petroleum hydrocarbons odor and/or staining. The soil samples were characterized by visually inspecting the confirmation soil samples and field screening the soil head space using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors. All soil samples were submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis of a reduced analytical suite previously approved by the Director which included barium, chromium (VI), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthene, 2-methylnaphthene, SAR, and pH. The approved analyte list was evaluated under the COGCC Table 915-1 Protection of Groundwater Soil Screening Level Concentrations milligrams per kilogram (mg/kg) Risk Based (R) and Maximum Concentration Level (MCL) Based (M). The pothole location is depicted on the enclosed Figure 2.

On November 18, 19, and 22, 2021, a WSP geologist and Colorado Drilling and Sampling (CD&S) returned to the Site to further delineate the hydrocarbon impacts using a track mounted drill rig equipped with solid stem auger. Prior to drilling activities, all proposed boring locations were cleared for underground utilities with a hydro-vac truck by WCO to depths ranging from 7 feet to 9 feet bgs. A total of five soil borings were advanced: one immediately

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adjacent to the POR location and four in each cardinal direction of the POR location. The boreholes ranged in depth from 40 feet bgs to 40.5 feet bgs.

All drilling oversight, soil sampling, and 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 by visually inspecting the soil samples and field screening the soil head space using a PID to monitor for the presence or absence of volatile organic compounds. Soil samples were collected when split spoon recovery was sufficient for laboratory submittal and when impacts were observed. Samples were collected at each 10-foot interval starting from the bottom of the pothole to the boring terminus. A total of four soil samples were submitted from each boring. All soil samples were collected in clean laboratory-prepared containers and submitted to Pace for analysis of the COGCC approved reduced analytical suite mentioned above. The soil boring logs are included in Enclosure A and laboratory analytical reports are provided in Enclosure B. The soil boring locations are depicted on Figure 2.

ANALYTICAL RESULTS – H7 DUMPLINE RELEASE

Laboratory analytical results of the POR pothole soil samples collected on November 4, 2021 indicate that all three-soil sample exceeded the COGCC Table 915-1 PGSSLC (M) for barium, benzene, toluene, ethylbenzene, total xylenes and exceeded the COGCC Table 915-1 PGSSLC (R) for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. The R and M exceedances are summarized below:

- Barium concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 259 mg/kg to 887 mg/kg;
- Benzene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 0.606 mg/kg to 1.46 mg/kg;
- Toluene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 13.7 mg/kg to 41.6 mg/kg;
- Ethylbenzene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 3.97 mg/kg to 11.7 mg/kg;
- Total xylenes concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 88.2 mg/kg to 197 mg/kg;
- 1,2,4-trimethylbenzene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 25.7 mg/kg to 62.2 mg/kg;
- 1,3,5-trimethylbenzene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 24.8 mg/kg to 65.1 mg/kg;
- 1-methylnaphthalene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 0.242 mg/kg to 1.37 mg/kg;
- 2-methylnaphthalene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 0.613 mg/kg to 3.47 mg/kg; and
- Naphthalene concentrations were exceeded by soil samples 20211104-H7(POR)@ 9', 20211104-H7(POR)@ 12', 20211104-H7(POR)@ 15' with concentrations ranging from 0.321 mg/kg to 1.98 mg/kg;

All POR soil samples exceeded the COGCC Table 915-1 Clean-up Concentration (CC) for TPH with concentrations ranging from 2,870.9 mg/kg in soil sample 20211104-H7(POR)@ 15' to 5,342.9 in mg/kg in soil sample 20211104-H7(POR)@ 9'. All POR soil samples exceeded the COGCC Table 915-1 CC for SAR with values ranging from 10.5 in soil sample 20211104-H7(POR)@ 15' to 21.9 in soil sample 20211104-H7(POR)@ 9'. Lastly, soil sample 20211104-H7(POR)@ 15' exceeded the COGCC CC for pH with value of 8.64. The laboratory analytical results are included in Enclosure B and summarized in Table 1.

Laboratory analytical results of the assessment soil samples collected on November 18, 19, and 22, 2021, indicate that all 20 samples exceeded the COGCC Table 915-1 PGSSLC (M) for barium. Barium concentrations ranged from 135 mg/kg in soil sample 20211118-H7 (SB-N) @ 20-22' bgs to 364 mg/kg in soil sample 20211122-H7 (SB-S) @



20-22' bgs. Soil samples 20211118-H7 (SB-POR) @ 10-12' and 20211118-H7 (SB-POR) @ 21-23' exceeded all M concentrations for parameters that were tested for under the approved reduced analytical suite. All other M and R exceedances are listed as follows:

- Benzene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', 20211119-H7 (SB-W) @ 10-12', and 20211119-H7 (SB-W) @ 30.5-32' with values ranging from 0.00337 mg/kg to 1.46 mg/kg.
- Toluene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 9.99 mg/kg to 75.0 mg/kg.
- Ethylbenzene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 6.06 mg/kg to 11.2 mg/kg.
- Total xylenes values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 6.06 mg/kg to 205 mg/kg.
- 1,2,4-trimethylbenzene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', 20211118-H7 (SB-POR) @ 30-32', 20211118-H7 (SB-POR) @ 40-41.5', 20211118-H7 (SB-N) @ 20-22', 20211119-H7 (SB-W) @ 10-12', 20211119-H7 (SB-W) @ 20-21.5', and 20211119-H7 (SB-W) @ 30.5-32' with values ranging from 0.00950 mg/kg to 58.5 mg/kg.
- 1,3,5-trimethylbenzene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', 20211118-H7 (SB-POR) @ 30-32', 20211118-H7 (SB-POR) @ 40-41.5', 20211118-H7 (SB-N) @ 20-22', 20211119-H7 (SB-W) @ 10-12', 20211119-H7 (SB-W) @ 20-21.5', and 20211119-H7 (SB-W) @ 30.5-32' with values ranging from 0.00960 mg/kg to 54.7 mg/kg.
- 1-methylnaphthalene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 1.01 mg/kg to 1.51 mg/kg.
- 2-methylnaphthalene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', 20211118-H7 (SB-POR) @ 30-32', 20211119-H7 (SB-W) @ 10-12', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 0.0399 mg/kg to 3.75 mg/kg.
- Naphthalene values were exceeded by soil samples 20211118-H7 (SB-POR) @ 10-12', 20211118-H7 (SB-POR) @ 21-23', 20211118-H7 (SB-POR) @ 30-32', and 20211119-H7 (SB-W) @ 10-12' with values ranging from 0.0226 mg/kg to 1.89 mg/kg.

Three of the 20 soil boring samples exceeded the COGCC Table 915-1 CC for TPH with concentration ranging from 4,248.8 mg/kg in soil sample 20211118-H7 (SB-POR) @ 21-23' to 7036 mg/kg in soil sample 20211119-H7 (SB-W) @ 10-12'. Nine of the 20 soil boring samples exceeded the COGCC Table 915-1 CC for SAR with values ranging from 6.10 in soil sample 20211118-H7 (SB-POR) @ 30-32' to 9.71 in soil sample 20211118-H7 (SB-POR) @ 10-12'. Lastly, 18 of the 20 soil boring samples exceeded the COGCC CC for pH with values ranging from 8.31 in soil sample 20211118-H7 (SB-POR) @ 40-41.5' to 9.46 in soil sample 20211119-H7 (SB-E) @ 20-22'. The laboratory analytical results are included in Enclosure B and summarized in Table 1.

CONCLUSIONS – H7 DUMPINE RELEASE

Based on the summary of analytical data provided for the dumpine release, WSP recommends that Caerus continue with delineation activities at the Site focused to the west of the separator to define the westernmost extent of the impacts. Prior to the continuation of the delineation activities, Caerus should request that the Director's condition of approval, listed in COGCC Initial Site Investigation and Remediation Workplan Document Number 402845415, concerning assessing potential pathway to groundwater be reviewed and a determination to continue this project using Residential Soil Screening Level Concentrations be taken into consideration based on information provided in the COGCC Initial Form 27 "Operator Comment" section. Furthermore, Caerus should request a further reduced analyte suite of TPH, BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, SAR and pH via a COGCC Supplemental Form 27 Site Investigation Work Plan under COGCC Document Number 402898845.



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

Kind regards,

A handwritten signature in blue ink, appearing to read 'D. Held'.

Dustin Held
Sr. Consultant, Environmental Geologist

A handwritten signature in blue ink, appearing to read 'Parker Coit'.

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

Encl.

FIGURES

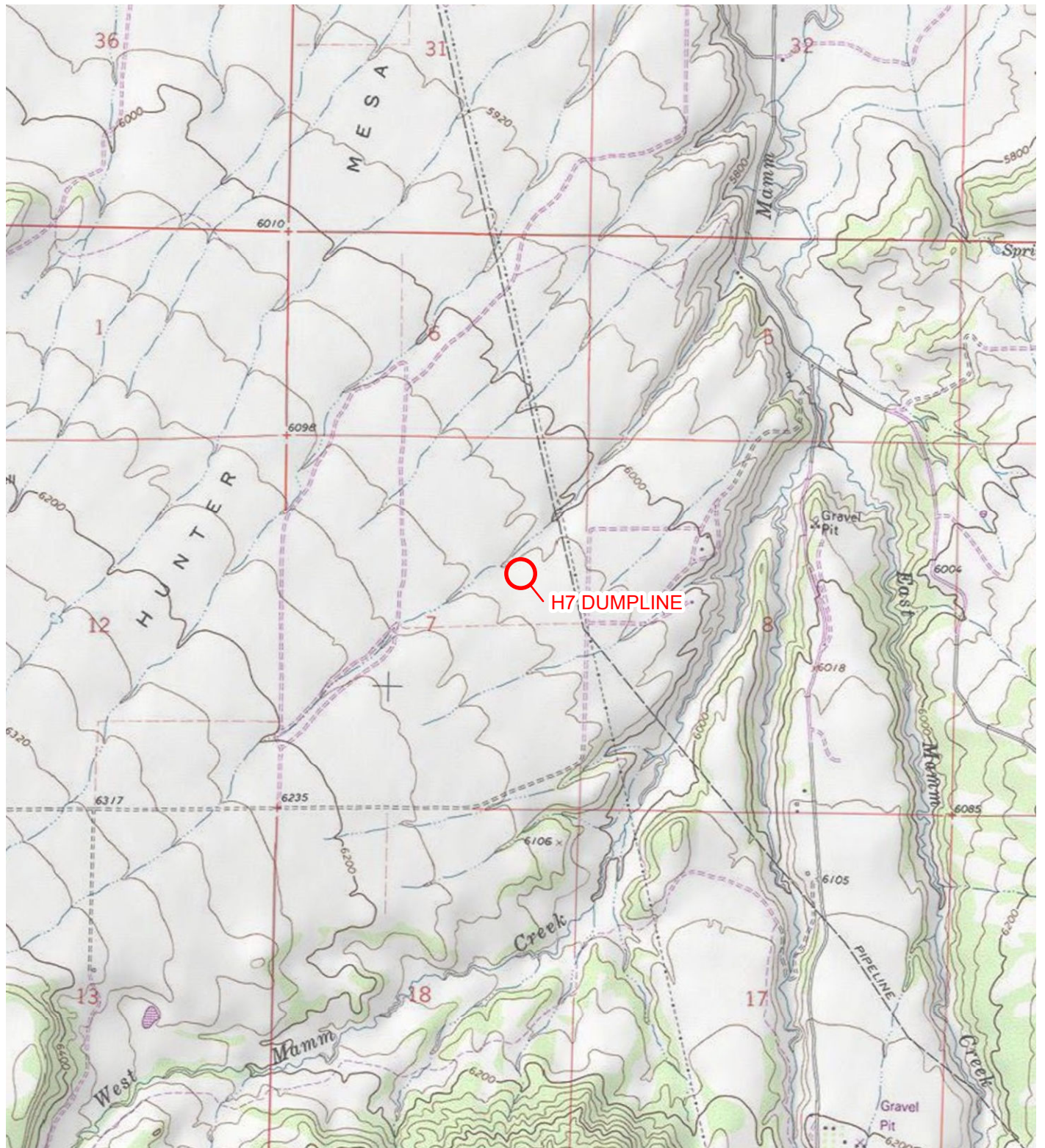


IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION

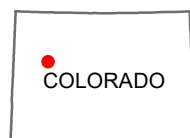
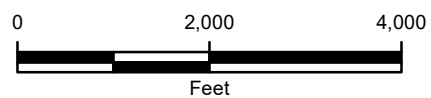


FIGURE 1
SITE LOCATION MAP
H7 DUMPLINE
SENE SEC 7-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC





IMAGE COURTESY OF ESRI (MAXAR 2018)

LEGEND

- X POINT OF RELEASE
- SOIL SAMPLE
- SOIL BORING

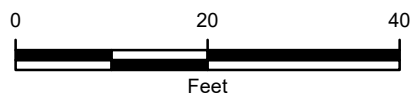


FIGURE 2
SITE MAP
H7 DUMPLINE
SENE SEC 7-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC



TABLE

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211005-H7(POR)@7.5'	20211104-H7(POR)@9'	20211104-H7(POR)@12'	20211104-H7(POR)@15'
Sample Date				10/5/2021	11/4/2021	11/4/2021	11/4/2021
Sample Depth (feet)				7.5	9	12	15
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	3.54	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	241	285	259	887
Boron	2	2	mg/l	0.769	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	0.236	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	0.277	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	10.6	NA	NA	NA
Lead	400	14 (M)	mg/kg	7.62	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	13.2	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	ND	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	ND	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	27.9	NA	NA	NA
EC	<4	<4	mmhos/cm	0.252	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.38	8.27	8.30	8.64
SAR	<6	<6	unitless	18.3	21.9	10.7	10.5
TPH-GRO			mg/kg	3,310	3,740	4,020	2,540
TPH-DRO			mg/kg	650	1,560	219	294
TPH-ORO			mg/kg	13.7	42.9	ND	36.9
TPH	500	500	mg/kg	3,973.7	5,342.9	4,239	2,870.9
Benzene	1.2	0.0026 (M)	mg/kg	0.883	1.46	1.140	0.606
Toluene	490	0.69 (M)	mg/kg	22.4	41.6	26.1	13.7
Ethylbenzene	5.8	0.78 (M)	mg/kg	5.30	11.7	7.29	3.97
Total Xylenes	58	9.9 (M)	mg/kg	89.9	197	128	88.2
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	26.0	62.6	40.5	25.7
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	23.8	65.1	42.9	24.8
Acenaphthene	360	5.8 (R)	mg/kg	0.0170	ND	ND	ND
Anthracene	1,800	0.55 (R)	mg/kg	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND
Chrysene	110	9 (R)	mg/kg	ND	0.00449	ND	ND
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	ND	ND	ND	ND
Fluoranthene	240	0.096 (R)	mg/kg	ND	0.0026	ND	ND
Fluorene	240	0.54 (R)	mg/kg	0.0346	0.0801	0.0361	0.0163
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	1.37	0.553	0.242
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	3.47	1.39	0.613
Naphthalene	2	0.0038 (R)	mg/kg	1.02	1.98	0.751	0.321
Pyrene	180	1.3 (R)	mg/kg	0.00253	0.00369	0.00222	ND

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/kg - milligrams per kilogram

mg/l - milligrams per liter

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211118-H7 (SB-POR) @ 10-12'	20211118-H7 (SB-POR) @ 21-23'	20211118-H7 (SB-POR) @ 30-32'	20211118-H7 (SB-POR) @ 40-41.5'
Sample Date				11/18/2021	11/18/2021	11/18/2021	11/18/2021
Sample Depth (feet)				10-12	21-23	30-32	40-41.5
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	267	164	145	293
Boron	2	2	mg/l	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.58	8.57	8.63	8.31
SAR	<6	<6	unitless	9.71	6.55	6.10	6.61
TPH-GRO			mg/kg	4,310	2,730	8.38	0.316
TPH-DRO			mg/kg	1,500	1,430	101	38.4
TPH-ORO			mg/kg	102	88.8	63.5	146
TPH	500	500	mg/kg	5,912	4,248.8	172.9	184.7
Benzene	1.2	0.0026 (M)	mg/kg	1.46	0.704	ND	0.00238
Toluene	490	0.69 (M)	mg/kg	75.0	9.99	0.203	0.0372
Ethylbenzene	5.8	0.78 (M)	mg/kg	8.83	6.06	0.140	0.00983
Total Xylenes	58	9.9 (M)	mg/kg	320.0	49.4	2.74	0.175
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	82.4	15.1	1.09	0.0423
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	80.3	14.8	1.08	0.0459
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	1.06	1.01	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	2.64	2.55	0.0399	ND
Naphthalene	2	0.0038 (R)	mg/kg	1.37	1.45	0.0226	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/kg - milligrams per kilogram

mg/l - milligrams per liter

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SAR - sodium adsorption ratio

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TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211118-H7 (SB-N) @ 10-12'	20211118-H7 (SB-N) @ 20-22'	20211118-H7 (SB-N) @ 30-31.5'	20211119-H7 (SB-N) @ 40-41'
Sample Date				11/18/2021	11/18/2021	11/18/2021	11/19/2021
Sample Depth (feet)				10-12	20-22	30-31.5	40-41
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	278	240	135	301
Boron	2	2	mg/l	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.82	8.36	8.25	8.42
SAR	<6	<6	unitless	3.40	3.17	3.00	3.05
TPH-GRO			mg/kg	ND	0.183	ND	0.210
TPH-DRO			mg/kg	12.8	10.2	16.6	25
TPH-ORO			mg/kg	36.9	51.2	77.5	90.5
TPH	500	500	mg/kg	49.7	61.6	94.1	115.7
Benzene	1.2	0.0026 (M)	mg/kg	0.00115	0.00230	ND	0.00176
Toluene	490	0.69 (M)	mg/kg	0.0114	0.0105	ND	0.0394
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	0.0194	0.0258	ND	0.0495
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	0.00950	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	0.00960	ND	ND
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/kg - milligrams per kilogram

mg/l - milligrams per liter

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211119-H7 (SB-W) @ 10-12'	20211119-H7 (SB-W) @ 20-21.5'	20211119-H7 (SB-W) @ 30.5-32'	20211119-H7 (SB-W) @ 40-41.5'
Sample Date				11/19/2021	11/19/2021	11/19/2021	11/19/2021
Sample Depth (feet)				10-12	20-21.5	30.5-32	40-41.5
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	217	235	284	155
Boron	2	2	mg/l	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.07	8.59	9.00	8.61
SAR	<6	<6	unitless	5.54	5.92	4.89	3.46
TPH-GRO			mg/kg	4,240	0.806	0.269	0.168
TPH-DRO			mg/kg	2,630	17	23	35.2
TPH-ORO			mg/kg	166	52.9	103	128
TPH	500	500	mg/kg	7,036	70.7	126.3	163.4
Benzene	1.2	0.0026 (M)	mg/kg	1.4	ND	0.00337	0.00193
Toluene	490	0.69 (M)	mg/kg	46.4	0.0186	0.0603	0.0265
Ethylbenzene	5.8	0.78 (M)	mg/kg	11.2	0.00715	0.00540	ND
Total Xylenes	58	9.9 (M)	mg/kg	205	0.181	0.109	0.0340
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	58.5	0.0656	0.0132	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	54.7	0.0481	0.00980	ND
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	1.51	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	3.75	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	1.89	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/kg - milligrams per kilogram

mg/l - milligrams per liter

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TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211119-H7 (SB-E) @ 10-12'	20211119-H7 (SB-E) @ 20-22'	20211122-H7 (SB-E) @ 30-32'	20211122-H7 (SB-E) @ 40.5-42.5'
Sample Date				11/19/2021	11/19/2021	11/22/2021	11/22/2021
Sample Depth (feet)				10-12	20-22	30-32	40.5-42.5
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	203	171	266	267
Boron	2	2	mg/l	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.99	9.46	8.90	8.37
SAR	<6	<6	unitless	1.08	8.38	8.92	6.33
TPH-GRO			mg/kg	0.134	0.202	0.141	0.115
TPH-DRO			mg/kg	ND	9.31	15.8	12.9
TPH-ORO			mg/kg	6.16	53.1	82.9	82.7
TPH	500	500	mg/kg	6.29	62.6	98.8	95.7
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	0.0172	0.00633	0.00615
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	0.0177	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/kg - milligrams per kilogram

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TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE			
				20211122-H7 (SB-S) @ 10-12'	20211122-H7 (SB-S) @ 20-22'	20211122-H7 (SB-S) @ 30-32'	20211122-H7 (SB-S) @ 40-42'
Sample Date				11/22/2021	11/22/2021	11/22/2021	11/22/2021
Sample Depth (feet)				10-12	20-22	30-32	40-42
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	255	364	219	222
Boron	2	2	mg/l	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.83	9.29	8.46	8.85
SAR	<6	<6	unitless	1.78	8.24	7.07	4.34
TPH-GRO			mg/kg	0.104	0.216	0.118	0.120
TPH-DRO			mg/kg	5.91	6.62	13.9	31.7
TPH-ORO			mg/kg	18.7	37.1	72.4	143
TPH	500	500	mg/kg	24.7	43.9	86.4	174.8
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	0.00638	0.00560	0.00695
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

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mg/kg - milligrams per kilogram

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TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO

NA - analyte not analyzed

ND - analyte not detected

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TABLE 1

SOIL ANALYTICAL RESULTS

H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SOIL SAMPLES			
				20211005-H7(BGS)	20211005-H7(BGE)	20211005-H7(BGN)	20211005-H7(BGW)
Sample Date				10/5/2021	10/5/2021	10/5/2021	10/5/2021
Sample Depth (feet)				0.5	0.5	0.5	0.5
Sample Type				Background Sample	Background Sample	Background Sample	Background Sample
Arsenic	0.68	0.29 (M)	mg/kg	1.72	2.03	4.11	4.47
Barium	15,000	82 (M)	mg/kg	129	141	173	169
Boron	2	2	mg/l	0.358	0.311	0.402	0.406
Cadmium	71	0.38 (M)	mg/kg	0.259	0.203	0.246	0.396
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND
Copper	3,100	46 (M)	mg/kg	11.0	11.8	12.8	13.9
Lead	400	14 (M)	mg/kg	10.3	9.9	9.24	9.38
Nickel	1,500	26 (R)	mg/kg	9.89	11.5	13.5	11.8
Selenium	390	0.26 (M)	mg/kg	ND	1.37	1.19	ND
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	21.4	22.5	28.99	28.6
EC	<4	<4	mmhos/cm	0.160	0.109	0.354	0.153
pH	6 - 8.3	6 - 8.3	SU	7.88	7.60	7.80	8.09
SAR	<6	<6	unitless	0.271	0.191	0.0826	0.148
TPH-GRO			mg/kg	0.0613	0.0559	0.0550	0.0863
TPH-DRO			mg/kg	ND	ND	ND	ND
TPH-ORO			mg/kg	0.45	ND	ND	0.955
TPH	500	500	mg/kg	0.5143	0.0559	0.0550	1.0413
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA	NA	NA
Acenaphthene	360	5.8 (R)	mg/kg	ND	ND	ND	ND
Anthracene	1,800	0.55 (R)	mg/kg	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	ND	ND	ND	ND
Fluoranthene	240	0.096 (R)	mg/kg	ND	ND	ND	ND
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	ND	ND	ND	ND

NOTES:

ND - less than the stated reporting limit

BOLD - indicates result exceeds the COGCC concentration level

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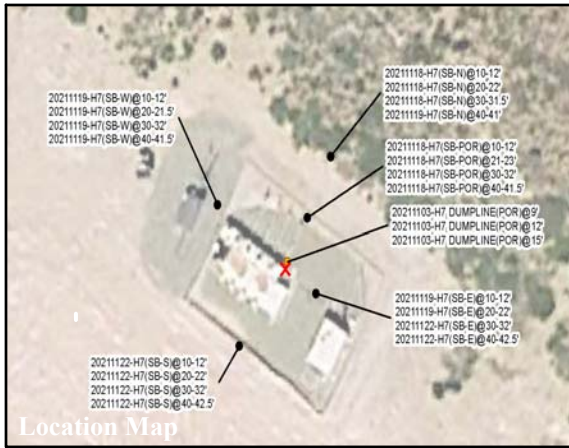
NA - analyte not analyzed

ND - analyte not detected

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ENCLOSURE A – SOIL BORING LOGS



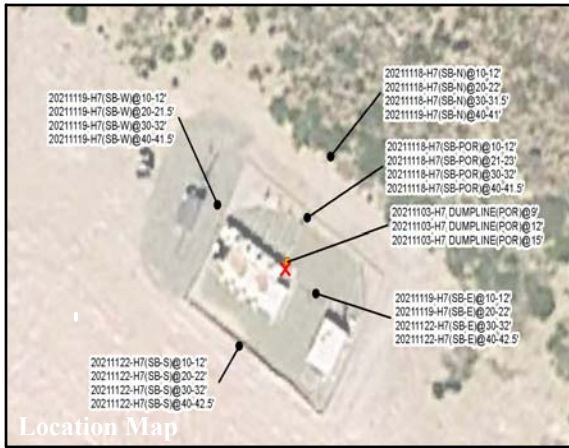
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: SB-POR
COMPLETION DATE: 11/18/21
TD (ft bgs): 40'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Dustin Held
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: Co Drilling & Sampling
DETECTOR: MiniRAE 3000
FILTER PACK: NA
ANNULUS SEAL: Bentonite Chips
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' - 8' - hydrovacuumed, interval not logged	
					5				
1,529		dry	SB-POR @10-12'	/	10	ML		10' - 12' - SILT, gray, non plastic, trace sand, some angular shale pieces, dry, staining, odor.	
					15				
1,761		dry	SB-POR @15-16.5'	/	15	ML		15' - 16.5' - SILT, brown, non plastic, trace sand, interbedded shale pieces, dry, no staining, odor.	
					20				
1,684		dry	SB-POR @21-23'	/	20	ML		21' - 23' - SILT, brown, non plastic, trace sand, interbedded shale pieces, dry, no staining, odor.	
660		moist	SB-POR @23-25'	/	25	ML		23' - 25' - Same USCS description as 21' to 23' interval	
1,137		moist	SB-POR @25-26.5'	/	25	ML		25' - 26.5' - SILT, brown, non plastic, trace sand, interbedded shale pieces, moist, no staining, odor.	
					30	SC		26.5' - 27' - CLAYEY SAND, angular grains, moist, no staining, odor.	
313		dry	SB-POR @30-32'	/	30	ML		30' - 32.5' - SILT, brown, non plastic, trace sand, interbedded shale pieces, dry, no staining, odor, 6" sandstone layer at 32.5' bgs, basalt boulder stopping samples from 34' to 40' bgs.	
					35				
32.7		dry	SB-POR @40-41.5'	/	40	GP		40' - 41.5' - SILTY GRAVEL, gravels made up of mudstone, basalt, sandstone, few clays, dry, no staining, no odor.	



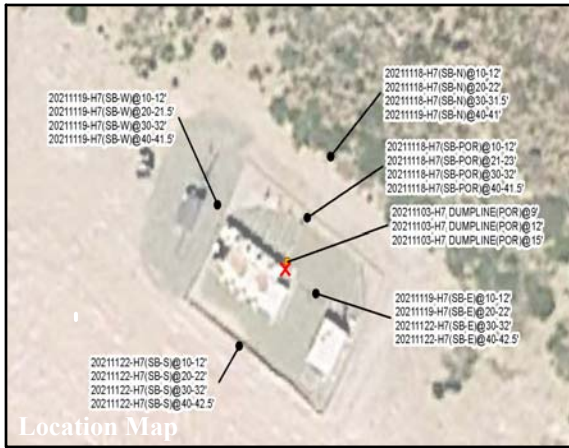
HOLE DIAMETER: 4.25"
WELL DIAMETER: NA
CASING TYPE: NA
SCREEN TYPE: NA

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: SB-N
COMPLETION DATE: 11/18-19/21
TD (ft bgs): 40'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Dustin Held
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: Co Drilling & Sampling
DETECTOR: MiniRAE 3000
FILTER PACK: NA
ANNULUS SEAL: Bentonite Chips
SURFACE SEAL: NA

PID (ppm)	Staining	Moisture Content	Sample ID	Recovery (%)	Depth (ft)	USCS	USCS Graphic	Lithology Description	Well Construction
					0			0' - 7' - hydrovacuumed, interval not logged	
3.4		dry	SB-N @10-12'	/	10	GP		10' - 12' - SILTY GRAVEL, brown, unconsolidated, interbedded shale pieces, dry, no staining, no odor.	
1.8		dry	SB-N @15-17'	/	15	ML		15' - 17' - SILT, brown, non plastic, some interbedded shale pieces at 16-17' bgs, dry, no staining, no odor.	
1.3		dry	SB-N @20-22'	/	20	ML		20' - 22' - SILT, brown, non plastic, some interbedded shale pieces, dry, no staining, no odor.	
0.5		dry	SB-N @25-26.5'	/	25	ML		25' - 26.5' - SILT, brown, non plastic, some interbedded shale pieces, dry, no staining, no odor, 75% recovery.	
0.6		dry	SB-N @30-31.5'	/	30	ML		30' - 31.5' - SILT, brown, non plastic, few interbedded shale pieces, dry, no staining, no odor, 70% recovery.	
0.4		dry	SB-N @35-36.5'	/	35	GP		35' - 36.5' - SILTY GRAVEL, brown, unconsolidated, shale and basalt cobbles at 35.7' to 35.9' bgs, dry, no staining, no odor, 75% recovery.	
0.3		dry	SB-N @40-42'	/	40	GP		40' - 42' - SILTY GRAVEL, brown, unconsolidated, shale and sandstone cobbles at 41' to 42' bgs, dry, no staining, no odor, 50% recovery.	



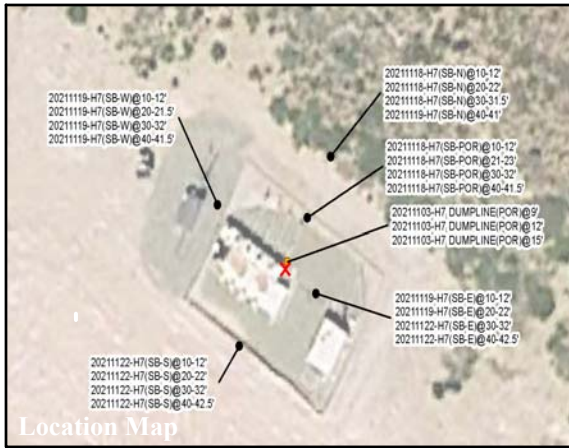
HOLE DIAMETER: 4.25"
WELL DIAMETER: NA
CASING TYPE: NA
SCREEN TYPE: NA

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: SB-W
COMPLETION DATE: 11/19/21
TD (ft bgs): 40'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Dustin Held
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: Co Drilling & Sampling
DETECTOR: MiniRAE 3000
FILTER PACK: NA
ANNULUS SEAL: Bentonite Chips
SURFACE SEAL: NA

PID (ppm)	Staining	Moisture Content	Sample ID	Recovery (%)	Depth (ft)	USCS	USCS Graphic	Lithology Description	Well Construction
					0			0' - 9' - hydrovacuumed, interval not logged	
					5				
2,034		dry	SB-W @10-12'	/	10	GP		10' - 12' - SILTY GRAVEL, gray, consolidated, interbedded shale and sandstone cobbles, dry, staining, odor.	
					15				
490		dry	SB-W @15-16.5'	/	15	ML		15' - 16.5' - SILT, non plastic, consolidated, few gravel and shale pieces, dry, staining, sweet odor, 75% recovery.	
					20				
170		dry	SB-W @20-21.5'	/	20	GP		20' - 21.5' - SILTY GRAVEL, unconsolidated, interbedded shale pieces and sandstone cobbles, trace sand, dry, staining, odor, 75% recovery.	
					25				
60		Moist	SB-W @25-25.5'	/	25	ML		25' - 25.5' - SILT, non plastic, soft, consolidated, few gravel and shale pieces, moist, no staining, odor, 70% recovery.	
					30				
3.5		Moist	SB-W @30.5-32'	/	30	ML		30.5' - 32' - SILT, non plastic, unconsolidated, interbedded sandstone and basalt cobbles at 31' bgs, moist, no staining, no odor, 70% recovery.	
					35				
9.4		dry	SB-W @35-37'	/	35	GP		35' - 37' - SILTY GRAVEL, unconsolidated, interbedded shale and basalt cobbles, dry, no staining, no odor, 90% recovery.	
					40				
0.7		dry	SB-W @40-41.5'	/	40	GP		40' - 41.5' - SILTY GRAVEL, unconsolidated, interbedded shale and basalt cobbles, dry, no staining, no odor, 75% recovery.	



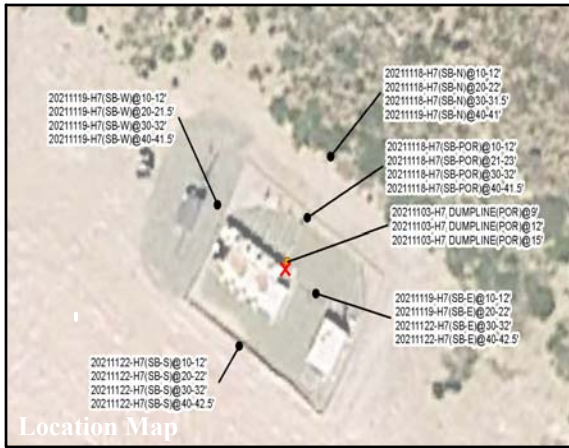
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: SB-E
COMPLETION DATE: 11/19&22/21
TD (ft bgs): 40.5'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Dustin Held
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: Co Drilling & Sampling
DETECTOR: MiniRAE 3000
FILTER PACK: NA
ANNULUS SEAL: Bentonite Chips
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' - 8' - hydrovacuumed, interval not logged	
0.5		Moist	SB-E @10-12'	/	10	ML		10' - 12' - SILT, brown, non plastic, consolidated, trace pebbles, sandstone cobble at 11.8' to 12' bgs, moist, no staining, no odor.	
0.6		Moist	SB-E @15-17'	/	15	ML		15' - 17' - SILT, brown, non plastic, consolidated, trace sand, trace clays, moist, no staining, no odor.	
0.5		Moist	SB-E @20-22'	/	20	ML		20' - 22' - SILT, brown, non plastic, consolidated, trace sand, sandstone cobble at 21.5' to 21.7' bgs, moist, no staining, no odor.	
0.5		Moist	SB-E @25-27'	/	25	ML		25' - 27' - SILT, brown, non plastic, consolidated, few sands, layer of clay at 26' to 26.5' bgs, moist, no staining, no odor.	
0.0		dry	SB-E @30-32'	/	30	GP		30' - 32' - SILTY GRAVEL, brown, consolidated, trace sand, interbedded shale and basalt , dry, no staining, no odor.	
0.0		dry	SB-E@ 35-36.5'	/	35	GP		35' - 36.5' - SILTY GRAVEL, brown, consolidated, trace sand, interbedded shale and basalt , dry, no staining, no odor, 75% recovery.	
0.0		dry	SB-E@ 40.5-42.5'	/	40	GP		40.5' - 42.5' - SILTY GRAVEL, brown, few sand, interbedded mudstone and basalt cobbles , dry, no staining, no odor, 75% recovery.	



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

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: SB-S
COMPLETION DATE: 11/22/21
TD (ft bgs): 40'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Dustin Held
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: Co Drilling & Sampling
DETECTOR: MiniRAE 3000
FILTER PACK: NA
ANNULUS SEAL: Bentonite Chips
SURFACE SEAL: NA

PID (ppm)	Staining	Moisture Content	Sample ID	Recovery (%)	Depth (ft)	USCS	USCS Graphic	Lithology Description	Well Construction
					0			0' - 8' - hydrovacuumed, interval not logged	
0.4		Moist	SB-S @10-12'	/	10	ML		10' - 12' - SILT, non plastic, consolidated, some interbedded shale pieces, moist, no staining, no odor, calcite inclusions, 90% recovery.	
0.0		Moist	SB-S @15-17'	/	15	ML		15' - 17' - SILT, non plastic, consolidated, interbedded shale pieces, clayey sand layer at 15.5' to 15.8' bgs, moist, no staining, no odor, calcite inclusions, 90% recovery.	
0.0		dry	SB-S @20-22'	/	20	ML		20' - 21' - same USCS description as 15' to 17' interval	
						shale		21' - 22' - SHALE, gray, fissile, compact, dry, no staining, no odor.	
0.2		Moist	SB-S @25-27'	/	25	ML		25' - 27' - SILT, brown, non plastic, consolidated, trace pebbles and shale, few sands at 26' to 26.4' bgs, moist, no staining, no odor, 100% recovery.	
0.0		dry	SB-S @30-32'	/	30	GP		30' - 32' - SILTY GRAVEL, brown, poorly sorted, unconsolidated, interbedded shale and sandstone, dry, no staining, no odor, 90% recovery.	
0.3		dry	SB-S @35-37'	/	35	GP		35' - 37' - SILTY GRAVEL, brown, poorly sorted, unconsolidated, shale pieces and sandstone cobbles, dry, no staining, no odor, 100% recovery.	
0.0		dry	SB-S @40-42'	/	40	GP		40' - 42' - SILTY GRAVEL, brown, poorly sorted, unconsolidated, shale pieces and sandstone cobbles, dry, no staining, no odor, 100% recovery.	

ENCLOSURE B – LABORATORY ANALYTICAL REPORTS

Caerus Oil and Gas

Sample Delivery Group: L1427662
Samples Received: 11/05/2021
Project Number: H7
Description: H7-Dumpline
Site: H7
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

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 National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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

SAMPLE SUMMARY

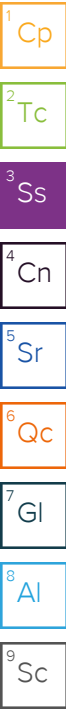
20211104-H7 DUMPLINE (POR) @ 9' L1427662-01 Solid

Collected by
K. Moreland

Collected date/time
11/03/21 09:00

Received date/time
11/05/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771267	1	11/27/21 14:41	11/27/21 14:41	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1775672	1	11/18/21 09:53	11/18/21 22:23	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1771693	1	11/10/21 14:00	11/10/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774963	1	11/17/21 07:20	11/19/21 10:49	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1771014	500	11/06/21 16:43	11/09/21 18:40	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1771559	40	11/06/21 16:43	11/10/21 07:54	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774111	10	11/15/21 09:22	11/16/21 15:00	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774111	5	11/15/21 09:22	11/15/21 20:10	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1774115	1	11/14/21 18:54	11/15/21 10:59	LEA	Mt. Juliet, TN



20211104-H7 DUMPLINE (POR) @ 12' L1427662-02 Solid

Collected by
K. Moreland

Collected date/time
11/03/21 09:25

Received date/time
11/05/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771267	1	11/27/21 14:49	11/27/21 14:49	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1771662	1	11/10/21 21:00	11/11/21 19:26	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1770243	1	11/07/21 07:38	11/07/21 13:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774963	1	11/17/21 07:20	11/19/21 10:53	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1771725	2000	11/06/21 16:43	11/11/21 09:10	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1771559	20	11/06/21 16:43	11/10/21 08:13	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1774477	20	11/06/21 16:43	11/16/21 15:50	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774111	5	11/15/21 09:22	11/15/21 21:03	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1774115	1	11/14/21 18:54	11/15/21 11:16	LEA	Mt. Juliet, TN

20211104-H7 DUMPLINE (POR) @ 15' L1427662-03 Solid

Collected by
K. Moreland

Collected date/time
11/03/21 10:10

Received date/time
11/05/21 09:00

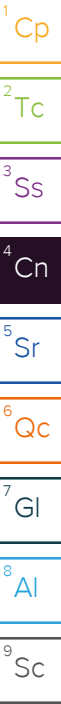
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771267	1	11/27/21 14:52	11/27/21 14:52	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1771662	1	11/10/21 21:00	11/11/21 19:42	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1770243	1	11/07/21 07:38	11/07/21 13:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1774963	1	11/17/21 07:20	11/19/21 10:55	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1771725	2000	11/06/21 16:43	11/11/21 09:32	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1771559	8	11/06/21 16:43	11/10/21 08:32	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1774477	80	11/06/21 16:43	11/16/21 16:09	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1774111	5	11/15/21 09:22	11/15/21 21:16	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1774115	1	11/14/21 18:54	11/15/21 12:08	LEA	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	21.9		1	11/27/2021 14:41	WG1771267

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	11/18/2021 22:23	WG1775672

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.27	T8		1	11/10/2021 14:00	WG1771693

Sample Narrative:

L1427662-01 WG1771693: 8.27 at 19.6C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	285		0.500	1	11/19/2021 10:49	WG1774963

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3740		50.0	500	11/09/2021 18:40	WG1771014
(S) a,a,a-Trifluorotoluene(FID)	94.5		77.0-120		11/09/2021 18:40	WG1771014

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.46		0.0400	40	11/10/2021 07:54	WG1771559
Ethylbenzene	11.7		0.100	40	11/10/2021 07:54	WG1771559
Toluene	41.6		0.200	40	11/10/2021 07:54	WG1771559
1,2,4-Trimethylbenzene	62.6		0.200	40	11/10/2021 07:54	WG1771559
1,3,5-Trimethylbenzene	65.1		0.200	40	11/10/2021 07:54	WG1771559
Xylenes, Total	197		0.260	40	11/10/2021 07:54	WG1771559
(S) Toluene-d8	92.3		75.0-131		11/10/2021 07:54	WG1771559
(S) 4-Bromofluorobenzene	95.3		67.0-138		11/10/2021 07:54	WG1771559
(S) 1,2-Dichloroethane-d4	102		70.0-130		11/10/2021 07:54	WG1771559

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1560		40.0	10	11/16/2021 15:00	WG1774111
C28-C36 Motor Oil Range	42.9		20.0	5	11/15/2021 20:10	WG1774111
(S) o-Terphenyl	64.0		18.0-148		11/15/2021 20:10	WG1774111
(S) o-Terphenyl	65.0		18.0-148		11/16/2021 15:00	WG1774111

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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	1.98		0.0200	1	11/15/2021 10:59	WG1774115
1-Methylnaphthalene	1.37		0.0200	1	11/15/2021 10:59	WG1774115
2-Methylnaphthalene	3.47		0.0200	1	11/15/2021 10:59	WG1774115
(S) p-Terphenyl-d14	105		23.0-120		11/15/2021 10:59	WG1774115
(S) Nitrobenzene-d5	0.000	J2	14.0-149		11/15/2021 10:59	WG1774115
(S) 2-Fluorobiphenyl	70.6		34.0-125		11/15/2021 10:59	WG1774115

Sample Narrative:

L1427662-01 WG1774115: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.7		1	11/27/2021 14:49	WG1771267

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	11/11/2021 19:26	WG1771662

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.30	T8	1	11/07/2021 13:00	WG1770243

Sample Narrative:

L1427662-02 WG1770243: 8.3 at 19C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	259		0.500	1	11/19/2021 10:53	WG1774963

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4020		200	2000	11/11/2021 09:10	WG1771725
(S) a,a,a-Trifluorotoluene(FID)	107		77.0-120		11/11/2021 09:10	WG1771725

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

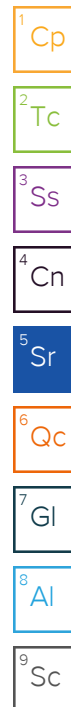
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.14		0.0200	20	11/10/2021 08:13	WG1771559
Ethylbenzene	7.29		0.0500	20	11/10/2021 08:13	WG1771559
Toluene	26.1		0.100	20	11/10/2021 08:13	WG1771559
1,2,4-Trimethylbenzene	40.5		0.100	20	11/10/2021 08:13	WG1771559
1,3,5-Trimethylbenzene	42.9		0.100	20	11/10/2021 08:13	WG1771559
Xylenes, Total	128		0.130	20	11/10/2021 08:13	WG1771559
(S) Toluene-d8	87.7		75.0-131		11/10/2021 08:13	WG1771559
(S) Toluene-d8	91.3		75.0-131		11/16/2021 15:50	WG1774477
(S) 4-Bromofluorobenzene	91.8		67.0-138		11/10/2021 08:13	WG1771559
(S) 4-Bromofluorobenzene	96.4		67.0-138		11/16/2021 15:50	WG1774477
(S) 1,2-Dichloroethane-d4	101		70.0-130		11/10/2021 08:13	WG1771559
(S) 1,2-Dichloroethane-d4	105		70.0-130		11/16/2021 15:50	WG1774477

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	219		20.0	5	11/15/2021 21:03	WG1774111
C28-C36 Motor Oil Range	ND		20.0	5	11/15/2021 21:03	WG1774111
(S) o-Terphenyl	48.3		18.0-148		11/15/2021 21:03	WG1774111

Sample Narrative:

L1427662-02 WG1774111: Dilution due to matrix.



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	0.751	<u>V</u>	0.0200	1	11/15/2021 11:16	WG1774115
1-Methylnaphthalene	0.553	<u>V</u>	0.0200	1	11/15/2021 11:16	WG1774115
2-Methylnaphthalene	1.39	<u>V</u>	0.0200	1	11/15/2021 11:16	WG1774115
(S) p-Terphenyl-d14	108		23.0-120		11/15/2021 11:16	WG1774115
(S) Nitrobenzene-d5	0.000	<u>J2</u>	14.0-149		11/15/2021 11:16	WG1774115
(S) 2-Fluorobiphenyl	73.3		34.0-125		11/15/2021 11:16	WG1774115

Sample Narrative:

L1427662-02 WG1774115: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.5		1	11/27/2021 14:52	WG1771267

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	11/11/2021 19:42	WG1771662

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.64	T8		1	11/07/2021 13:00	WG1770243

Sample Narrative:

L1427662-03 WG1770243: 8.64 at 18.9C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	887		0.500	1	11/19/2021 10:55	WG1774963

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

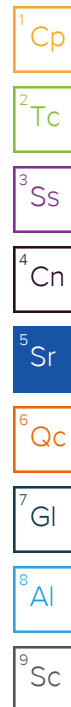
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2540		200	2000	11/11/2021 09:32	WG1771725
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		11/11/2021 09:32	WG1771725

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.606		0.00800	8	11/10/2021 08:32	WG1771559
Ethylbenzene	3.97		0.0200	8	11/10/2021 08:32	WG1771559
Toluene	13.7		0.0400	8	11/10/2021 08:32	WG1771559
1,2,4-Trimethylbenzene	25.7		0.400	80	11/16/2021 16:09	WG1774477
1,3,5-Trimethylbenzene	24.8		0.400	80	11/16/2021 16:09	WG1774477
Xylenes, Total	88.2		0.520	80	11/16/2021 16:09	WG1774477
(S) Toluene-d8	84.2		75.0-131		11/10/2021 08:32	WG1771559
(S) Toluene-d8	109		75.0-131		11/16/2021 16:09	WG1774477
(S) 4-Bromofluorobenzene	89.2		67.0-138		11/10/2021 08:32	WG1771559
(S) 4-Bromofluorobenzene	100		67.0-138		11/16/2021 16:09	WG1774477
(S) 1,2-Dichloroethane-d4	95.3		70.0-130		11/10/2021 08:32	WG1771559
(S) 1,2-Dichloroethane-d4	109		70.0-130		11/16/2021 16:09	WG1774477

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	294		20.0	5	11/15/2021 21:16	WG1774111
C28-C36 Motor Oil Range	36.9		20.0	5	11/15/2021 21:16	WG1774111
(S) o-Terphenyl	44.1		18.0-148		11/15/2021 21:16	WG1774111



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	0.321		0.0200	1	11/15/2021 12:08	WG1774115
1-Methylnaphthalene	0.242		0.0200	1	11/15/2021 12:08	WG1774115
2-Methylnaphthalene	0.613		0.0200	1	11/15/2021 12:08	WG1774115
(S) p-Terphenyl-d14	117		23.0-120		11/15/2021 12:08	WG1774115
(S) Nitrobenzene-d5	767	J1	14.0-149		11/15/2021 12:08	WG1774115
(S) 2-Fluorobiphenyl	91.4		34.0-125		11/15/2021 12:08	WG1774115

Sample Narrative:

L1427662-03 WG1774115: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3728725-1 11/11/21 18:40

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

L1427109-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1427109-11 11/11/21 18:55 • (DUP) R3728725-3 11/11/21 19:00

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

L1427665-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1427665-04 11/11/21 20:55 • (DUP) R3728725-8 11/11/21 21:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	5.15		20

Laboratory Control Sample (LCS)

(LCS) R3728725-2 11/11/21 18:45

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

L1427662-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427662-03 11/11/21 19:42 • (MS) R3728725-4 11/11/21 19:47 • (MSD) R3728725-5 11/11/21 19:52

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	15.7	17.4	78.4	86.8	1	75.0-125			10.2	20

L1427662-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1427662-03 11/11/21 19:42 • (MS) R3728725-6 11/11/21 19:57

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	647	ND	668	103	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3731651-1 11/18/21 22:10

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

L1430758-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1430758-06 11/18/21 23:15 • (DUP) R3731651-7 11/18/21 23:20

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

L1430892-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1430892-01 11/19/21 00:17 • (DUP) R3731651-8 11/19/21 00:22

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

Laboratory Control Sample (LCS)

(LCS) R3731651-2 11/18/21 22:18

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1430758-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1430758-05 11/18/21 22:33 • (MS) R3731651-3 11/18/21 22:38 • (MSD) R3731651-4 11/18/21 22:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.9	19.0	99.3	95.1	1	75.0-125			4.29	20

L1430758-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1430758-05 11/18/21 22:33 • (MS) R3731651-5 11/18/21 22:49

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	641	ND	538	84.0	50	75.0-125	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1427661-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1427661-01 11/07/21 13:00 • (DUP) R3726508-2 11/07/21 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	9.49	9.49	1	0.000		1

Sample Narrative:

OS: 9.49 at 19.3C

DUP: 9.49 at 19.3C

L1427665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1427665-01 11/07/21 13:00 • (DUP) R3726508-3 11/07/21 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	9.64	9.63	1	0.104		1

Sample Narrative:

OS: 9.64 at 18.9C

DUP: 9.63 at 19C

Laboratory Control Sample (LCS)

(LCS) R3726508-1 11/07/21 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 20C



L1424290-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1424290-02 11/10/21 14:00 • (DUP) R3727930-2 11/10/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.43	7.48	1	0.671		1

Sample Narrative:

OS: 7.43 at 19.5C

DUP: 7.48 at 19.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1428295-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1428295-02 11/10/21 14:00 • (DUP) R3727930-3 11/10/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	5.17	5.16	1	0.194		1

Sample Narrative:

OS: 5.17 at 19.1C

DUP: 5.16 at 19.5C

Laboratory Control Sample (LCS)

(LCS) R3727930-1 11/10/21 14:00

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

Sample Narrative:

LCS: 10.02 at 18.1C

Method Blank (MB)

(MB) R3731793-1 11/19/21 10:29

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

Laboratory Control Sample (LCS)

(LCS) R3731793-2 11/19/21 10:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	101	101	80.0-120	

L1427834-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427834-01 11/19/21 10:35 • (MS) R3731793-5 11/19/21 10:43 • (MSD) R3731793-6 11/19/21 10:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	99.8	289	203	229	0.000	0.000	1	75.0-125	J6	J6	11.9	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3727522-4 11/09/21 06:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0389	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	95.9			77.0-120

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

(LCS) R3727522-1 11/09/21 03:41 • (LCSD) R3727522-2 11/09/21 04:44

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	5.05	5.23	91.8	95.1	72.0-127			3.50	20
(S) a,a,a-Trifluorotoluene(FID)				101	102	77.0-120				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3729278-3 11/11/21 07:53

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

Laboratory Control Sample (LCS)

(LCS) R3729278-2 11/11/21 06:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.22	94.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3729469-2 11/10/21 02:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	101			75.0-131
(S) 4-Bromofluorobenzene	99.5			67.0-138
(S) 1,2-Dichloroethane-d4	96.1			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3729469-1 11/10/21 01:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.116	92.8	70.0-123	
Ethylbenzene	0.125	0.104	83.2	74.0-126	
Toluene	0.125	0.110	88.0	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.103	82.4	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.108	86.4	73.0-127	
Xylenes, Total	0.375	0.318	84.8	72.0-127	
(S) Toluene-d8			101	75.0-131	
(S) 4-Bromofluorobenzene			104	67.0-138	
(S) 1,2-Dichloroethane-d4			101	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3729960-3 11/16/21 06:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	116			75.0-131
(S) 4-Bromofluorobenzene	96.1			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3729960-1 11/16/21 05:09 • (LCSD) R3729960-2 11/16/21 05:28

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 %
1,2,4-Trimethylbenzene	0.125	0.125	0.118	100	94.4	70.0-126			5.76	20
1,3,5-Trimethylbenzene	0.125	0.118	0.111	94.4	88.8	73.0-127			6.11	20
Xylenes, Total	0.375	0.371	0.345	98.9	92.0	72.0-127			7.26	20
(S) Toluene-d8				111	111	75.0-131				
(S) 4-Bromofluorobenzene				96.1	95.6	67.0-138				
(S) 1,2-Dichloroethane-d4				106	105	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3729835-1 11/15/21 16:04

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

Laboratory Control Sample (LCS)

(LCS) R3729835-2 11/15/21 16:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	30.0	60.0	50.0-150	
(S) o-Terphenyl			73.4	18.0-148	

L1427662-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427662-01 11/15/21 20:10 • (MS) R3729835-3 11/15/21 20:23 • (MSD) R3729835-4 11/15/21 20:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	1630	1510	1480	0.000	0.000	5	50.0-150	V	V	2.01	20
(S) o-Terphenyl					71.6	77.0		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3729625-2 11/15/21 09:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Naphthalene	U		0.00408	0.0200
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	131			14.0-149
(S) 2-Fluorobiphenyl	94.2			34.0-125
(S) p-Terphenyl-d14	127	J1		23.0-120

Laboratory Control Sample (LCS)

(LCS) R3729625-1 11/15/21 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.0800	0.0592	74.0	50.0-120	
1-Methylnaphthalene	0.0800	0.0577	72.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0558	69.8	50.0-120	
(S) Nitrobenzene-d5			129	14.0-149	
(S) 2-Fluorobiphenyl			96.5	34.0-125	
(S) p-Terphenyl-d14			108	23.0-120	

L1427662-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1427662-02 11/15/21 11:16 • (MS) R3729625-3 11/15/21 11:33 • (MSD) R3729625-4 11/15/21 11:51

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 %
Naphthalene	0.0764	0.751	1.06	1.05	404	387	1	10.0-135	V	V	0.948	27
1-Methylnaphthalene	0.0764	0.553	0.816	0.785	344	301	1	10.0-142	V	V	3.87	28
2-Methylnaphthalene	0.0764	1.39	1.96	1.89	746	648	1	10.0-137	V	V	3.64	28
(S) Nitrobenzene-d5					0.000	0.000		14.0-149	J2	J2		
(S) 2-Fluorobiphenyl					80.0	77.8		34.0-125				
(S) p-Terphenyl-d14					111	106		23.0-120				

Sample Narrative:
OS: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

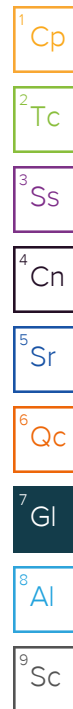
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

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



ACCREDITATIONS & LOCATIONS

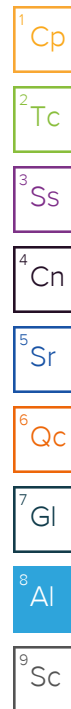
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

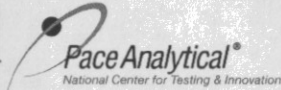
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Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina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

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

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

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



Caerus Oil & Gas LLC 143 Diamond Avenue Parachute, CO 81635 970-285-9606				Billing Information:				Pres Chk		Analysis / Container / Preservative										Chain of Custody Page ____ of ____	
				Same as above																	
Report to: bmiddleton@caerusoilandgas.com				Email To: bmiddleton@caerusoilandgas.com																12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Project Description: H7-Dumpline				City/State Collected: Mamm Creek, CO																	
Phone: (970) 618-4514		Client Project # H7		Lab Project # H7																L # 1427662	
Fax:																				J094	
Collected by (print): K. MORELAND		Site/Facility ID # H7		P.O. # H7																Acctnum:	
Collected by (signature): <i>K. Moreland</i>		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #																Template:	
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>				Date Results Needed Standard TAT																Prelogin:	
																				TSR:	
																				PB:	
																				Shipped Via:	
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH - GRO, DRO, ORO	BTEX	naphthalene	SAR, pH	barium, Chromium (VI)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-mthyl/naphthalene	2-mthyl/naphthalene	Remarks	Sample # (lab only)			
20211103-H7Dumpline-PDR @ 9'	GRAB	SS	9'	11/3/21	0900	2	X	X	X	X	X	X	X	X	X	X		01			
20211103-H7Dumpline-PDR @ 12'	↓	↓	12'	↓	0925	2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		02			
20211103-H7Dumpline-PDR @ 15'	↓	↓	15'	↓	1010	3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		03			
* Matrix:		Remarks:																			
SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____		pH _____ Temp _____ Flow _____ Other _____																			
Samples returned via:		Tracking # 501612321990																			
<input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier _____																					
Relinquished by: (Signature) <i>K. Moreland</i>		Date: 11/3/21	Time: 1330	Received by: (Signature) <i>[Signature]</i>		Trip Blank Received: Yes / No HCL / MeOH TBR												Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			
Relinquished by: (Signature) <i>[Signature]</i>		Date: 11/4/21	Time: 1500	Received by: (Signature)		Temp: 7.7-10.6 °C Bottles Received: 7												If preservation required by Login: Date/Time			
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>		Date: 11/5/21 Time: 900												Hold: Condition: NCF / OK			

December 07, 2021

Caerus Oil and Gas

Sample Delivery Group: L1434094
Samples Received: 11/20/2021
Project Number: H7
Description: H7-Dumpline
Site: H7
Report To: Brett Middleton
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

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SAMPLE SUMMARY

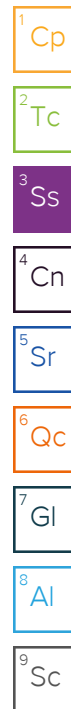
20211118-H7 (SB-POR) @ 10-12 L1434094-01 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 09:20

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1778876	1	11/27/21 11:52	11/27/21 11:52	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 12:15	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 13:50	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1781722	2500	11/23/21 16:39	11/30/21 16:42	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	8	11/23/21 16:39	11/24/21 23:41	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781753	200	11/23/21 16:39	11/30/21 17:55	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	10	11/29/21 16:18	11/30/21 04:12	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 13:23	AMG	Mt. Juliet, TN



20211118-H7 (SB-POR) @ 21-23 L1434094-02 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 10:30

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1778876	1	11/27/21 11:55	11/27/21 11:55	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 12:20	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 14:38	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1781722	2000	11/23/21 16:39	11/30/21 17:06	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	8	11/23/21 16:39	11/25/21 00:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781753	200	11/23/21 16:39	11/30/21 18:16	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	10	11/29/21 16:18	11/30/21 04:26	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 13:41	AMG	Mt. Juliet, TN

20211118-H7 (SB-POR) @ 30-32 L1434094-03 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 11:15

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1778876	1	11/27/21 11:57	11/27/21 11:57	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 12:25	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 14:41	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1779467	1.01	11/23/21 16:39	11/24/21 09:56	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	1	11/23/21 16:39	11/24/21 18:40	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	1	11/29/21 16:18	11/30/21 03:04	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 13:58	AMG	Mt. Juliet, TN

20211118-H7 (SB-POR) @ 40-41.5 L1434094-04 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 13:40

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1778876	1	11/27/21 12:05	11/27/21 12:05	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 12:30	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1779328	1	11/29/21 09:00	11/29/21 10:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 14:45	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1779467	1.01	11/23/21 16:39	11/24/21 10:17	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	1	11/23/21 16:39	11/24/21 18:59	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	5	11/29/21 16:18	11/30/21 03:45	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 17:09	LEA	Mt. Juliet, TN

SAMPLE SUMMARY

20211118-H7 (SB-N) @ 10-12 L1434094-05 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 14:20

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1778876	1	11/27/21 12:08	11/27/21 12:08	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 12:36	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 14:48	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1779857	1	11/23/21 16:39	11/24/21 15:19	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	1	11/23/21 16:39	11/24/21 19:18	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	1	11/29/21 16:18	11/30/21 02:37	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 15:08	LEA	Mt. Juliet, TN

20211118-H7 (SB-N) @ 20-22 L1434094-06 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 15:00

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780180	1	11/29/21 12:29	11/29/21 12:29	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 14:47	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 14:57	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1779467	1.01	11/23/21 16:39	11/24/21 11:00	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	1	11/23/21 16:39	11/24/21 19:36	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	1	11/29/21 16:18	11/30/21 03:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 15:25	LEA	Mt. Juliet, TN

20211118-H7 (SB-N) @ 30-31.5 L1434094-07 Solid

Collected by
Dustin H.

Collected date/time
11/18/21 15:55

Received date/time
11/20/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780180	1	11/29/21 12:32	11/29/21 12:32	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 12:06	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781740	1	11/30/21 14:00	11/30/21 15:53	KAB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1779517	1	11/24/21 14:22	11/27/21 15:00	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1779467	1	11/23/21 16:39	11/24/21 11:22	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1780030	1	11/23/21 16:39	11/24/21 19:55	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781151	1	11/29/21 16:18	11/30/21 09:30	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1780860	1	11/29/21 03:23	11/29/21 15:42	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

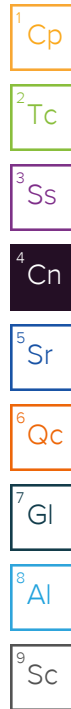
⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.71		1	11/27/2021 11:52	WG1778876

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 12:15	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1434094-01 WG1781251: 8.58 at 20.7C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	267		0.500	1	11/27/2021 13:50	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4310		250	2500	11/30/2021 16:42	WG1781722
(S) a,a,a-Trifluorotoluene(FID)	95.5		77.0-120		11/30/2021 16:42	WG1781722

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

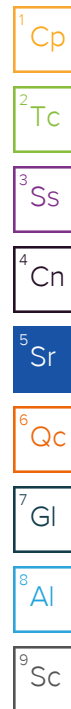
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.46		0.00800	8	11/24/2021 23:41	WG1780030
Toluene	75.0		1.00	200	11/30/2021 17:55	WG1781753
Ethylbenzene	8.83		0.0200	8	11/24/2021 23:41	WG1780030
Xylenes, Total	320		1.30	200	11/30/2021 17:55	WG1781753
1,2,4-Trimethylbenzene	82.4		1.00	200	11/30/2021 17:55	WG1781753
1,3,5-Trimethylbenzene	80.3		1.00	200	11/30/2021 17:55	WG1781753
(S) Toluene-d8	55.1	J2	75.0-131		11/24/2021 23:41	WG1780030
(S) Toluene-d8	102		75.0-131		11/30/2021 17:55	WG1781753
(S) 4-Bromofluorobenzene	58.1	J2	67.0-138		11/24/2021 23:41	WG1780030
(S) 4-Bromofluorobenzene	109		67.0-138		11/30/2021 17:55	WG1781753
(S) 1,2-Dichloroethane-d4	109		70.0-130		11/24/2021 23:41	WG1780030
(S) 1,2-Dichloroethane-d4	112		70.0-130		11/30/2021 17:55	WG1781753

Sample Narrative:

L1434094-01 WG1780030: Surrogate failure due to matrix interference.

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1500		40.0	10	11/30/2021 04:12	WG1781151
C28-C36 Motor Oil Range	102		40.0	10	11/30/2021 04:12	WG1781151
(S) o-Terphenyl	78.7		18.0-148		11/30/2021 04:12	WG1781151



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	1.37		0.0200	1	11/29/2021 13:23	WG1780860
1-Methylnaphthalene	1.06		0.0200	1	11/29/2021 13:23	WG1780860
2-Methylnaphthalene	2.64		0.0200	1	11/29/2021 13:23	WG1780860
(S) p-Terphenyl-d14	89.7		23.0-120		11/29/2021 13:23	WG1780860
(S) Nitrobenzene-d5	1200	J1	14.0-149		11/29/2021 13:23	WG1780860
(S) 2-Fluorobiphenyl	64.2		34.0-125		11/29/2021 13:23	WG1780860

Sample Narrative:

L1434094-01 WG1780860: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.55		1	11/27/2021 11:55	WG1778876

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 12:20	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.57	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1434094-02 WG1781251: 8.57 at 20.4C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	164		0.500	1	11/27/2021 14:38	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2730		200	2000	11/30/2021 17:06	WG1781722
(S) a,a,a-Trifluorotoluene(FID)	96.8		77.0-120		11/30/2021 17:06	WG1781722

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.704		0.00800	8	11/25/2021 00:00	WG1780030
Toluene	9.99		1.00	200	11/30/2021 18:16	WG1781753
Ethylbenzene	6.06		0.0200	8	11/25/2021 00:00	WG1780030
Xylenes, Total	49.4		1.30	200	11/30/2021 18:16	WG1781753
1,2,4-Trimethylbenzene	15.1		1.00	200	11/30/2021 18:16	WG1781753
1,3,5-Trimethylbenzene	14.8		1.00	200	11/30/2021 18:16	WG1781753
(S) Toluene-d8	66.8	J2	75.0-131		11/25/2021 00:00	WG1780030
(S) Toluene-d8	103		75.0-131		11/30/2021 18:16	WG1781753
(S) 4-Bromofluorobenzene	70.7		67.0-138		11/25/2021 00:00	WG1780030
(S) 4-Bromofluorobenzene	99.5		67.0-138		11/30/2021 18:16	WG1781753
(S) 1,2-Dichloroethane-d4	110		70.0-130		11/25/2021 00:00	WG1780030
(S) 1,2-Dichloroethane-d4	112		70.0-130		11/30/2021 18:16	WG1781753

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1430		40.0	10	11/30/2021 04:26	WG1781151
C28-C36 Motor Oil Range	88.8		40.0	10	11/30/2021 04:26	WG1781151
(S) o-Terphenyl	71.2		18.0-148		11/30/2021 04:26	WG1781151

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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	1.45		0.0200	1	11/29/2021 13:41	WG1780860
1-Methylnaphthalene	1.01		0.0200	1	11/29/2021 13:41	WG1780860
2-Methylnaphthalene	2.55		0.0200	1	11/29/2021 13:41	WG1780860
(S) p-Terphenyl-d14	97.8		23.0-120		11/29/2021 13:41	WG1780860
(S) Nitrobenzene-d5	1300	J1	14.0-149		11/29/2021 13:41	WG1780860
(S) 2-Fluorobiphenyl	69.9		34.0-125		11/29/2021 13:41	WG1780860

Sample Narrative:

L1434094-02 WG1780860: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.10		1	11/27/2021 11:57	WG1778876

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 12:25	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.63	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1434094-03 WG1781251: 8.63 at 20.3C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	145		0.500	1	11/27/2021 14:41	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	8.38		0.101	1.01	11/24/2021 09:56	WG1779467
(S) a,a,a-Trifluorotoluene(FID)	86.7		77.0-120		11/24/2021 09:56	WG1779467

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

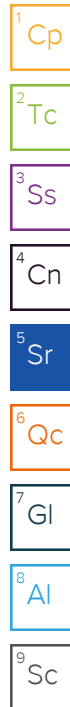
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/24/2021 18:40	WG1780030
Toluene	0.203		0.00500	1	11/24/2021 18:40	WG1780030
Ethylbenzene	0.140		0.00250	1	11/24/2021 18:40	WG1780030
Xylenes, Total	2.74		0.00650	1	11/24/2021 18:40	WG1780030
1,2,4-Trimethylbenzene	1.09		0.00500	1	11/24/2021 18:40	WG1780030
1,3,5-Trimethylbenzene	1.08		0.00500	1	11/24/2021 18:40	WG1780030
(S) Toluene-d8	96.4		75.0-131		11/24/2021 18:40	WG1780030
(S) 4-Bromofluorobenzene	96.7		67.0-138		11/24/2021 18:40	WG1780030
(S) 1,2-Dichloroethane-d4	114		70.0-130		11/24/2021 18:40	WG1780030

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	101		4.00	1	11/30/2021 03:04	WG1781151
C28-C36 Motor Oil Range	63.5		4.00	1	11/30/2021 03:04	WG1781151
(S) o-Terphenyl	75.2		18.0-148		11/30/2021 03:04	WG1781151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	0.0226		0.0200	1	11/29/2021 13:58	WG1780860
1-Methylnaphthalene	ND		0.0200	1	11/29/2021 13:58	WG1780860
2-Methylnaphthalene	0.0399		0.0200	1	11/29/2021 13:58	WG1780860



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	91.4		23.0-120		11/29/2021 13:58	WG1780860
(S) Nitrobenzene-d5	130		14.0-149		11/29/2021 13:58	WG1780860
(S) 2-Fluorobiphenyl	78.9		34.0-125		11/29/2021 13:58	WG1780860

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.61		1	11/27/2021 12:05	WG1778876

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 12:30	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	T8	1	11/29/2021 10:00	WG1779328

Sample Narrative:

L1434094-04 WG1779328: 8.31 at 17.5C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	293		0.500	1	11/27/2021 14:45	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.316		0.101	1.01	11/24/2021 10:17	WG1779467
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		11/24/2021 10:17	WG1779467

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00238		0.00100	1	11/24/2021 18:59	WG1780030
Toluene	0.0372		0.00500	1	11/24/2021 18:59	WG1780030
Ethylbenzene	0.00983		0.00250	1	11/24/2021 18:59	WG1780030
Xylenes, Total	0.175		0.00650	1	11/24/2021 18:59	WG1780030
1,2,4-Trimethylbenzene	0.0423		0.00500	1	11/24/2021 18:59	WG1780030
1,3,5-Trimethylbenzene	0.0459		0.00500	1	11/24/2021 18:59	WG1780030
(S) Toluene-d8	100		75.0-131		11/24/2021 18:59	WG1780030
(S) 4-Bromofluorobenzene	98.9		67.0-138		11/24/2021 18:59	WG1780030
(S) 1,2-Dichloroethane-d4	113		70.0-130		11/24/2021 18:59	WG1780030

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	38.4		20.0	5	11/30/2021 03:45	WG1781151
C28-C36 Motor Oil Range	146		20.0	5	11/30/2021 03:45	WG1781151
(S) o-Terphenyl	74.4		18.0-148		11/30/2021 03:45	WG1781151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	11/29/2021 17:09	WG1780860
1-Methylnaphthalene	ND		0.0200	1	11/29/2021 17:09	WG1780860
2-Methylnaphthalene	ND		0.0200	1	11/29/2021 17:09	WG1780860

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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	87.4		23.0-120		11/29/2021 17:09	WG1780860
(S) Nitrobenzene-d5	97.2		14.0-149		11/29/2021 17:09	WG1780860
(S) 2-Fluorobiphenyl	75.6		34.0-125		11/29/2021 17:09	WG1780860

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.40		1	11/27/2021 12:08	WG1778876

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 12:36	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.82	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1434094-05 WG1781251: 8.82 at 20.3C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	278		0.500	1	11/27/2021 14:48	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	11/24/2021 15:19	WG1779857
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		11/24/2021 15:19	WG1779857

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

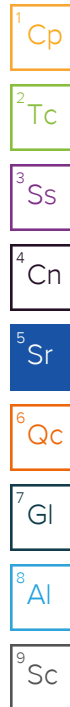
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00115		0.00100	1	11/24/2021 19:18	WG1780030
Toluene	0.0114		0.00500	1	11/24/2021 19:18	WG1780030
Ethylbenzene	ND		0.00250	1	11/24/2021 19:18	WG1780030
Xylenes, Total	0.0194		0.00650	1	11/24/2021 19:18	WG1780030
1,2,4-Trimethylbenzene	ND		0.00500	1	11/24/2021 19:18	WG1780030
1,3,5-Trimethylbenzene	ND		0.00500	1	11/24/2021 19:18	WG1780030
(S) Toluene-d8	101		75.0-131		11/24/2021 19:18	WG1780030
(S) 4-Bromofluorobenzene	99.9		67.0-138		11/24/2021 19:18	WG1780030
(S) 1,2-Dichloroethane-d4	111		70.0-130		11/24/2021 19:18	WG1780030

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	12.8		4.00	1	11/30/2021 02:37	WG1781151
C28-C36 Motor Oil Range	36.9		4.00	1	11/30/2021 02:37	WG1781151
(S) o-Terphenyl	59.9		18.0-148		11/30/2021 02:37	WG1781151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	11/29/2021 15:08	WG1780860
1-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:08	WG1780860
2-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:08	WG1780860



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	86.3		23.0-120		11/29/2021 15:08	WG1780860
(S) Nitrobenzene-d5	102		14.0-149		11/29/2021 15:08	WG1780860
(S) 2-Fluorobiphenyl	74.9		34.0-125		11/29/2021 15:08	WG1780860

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.17		1	11/29/2021 12:29	WG1780180

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 14:47	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.36	T8		1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1434094-06 WG1781251: 8.36 at 20C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	240		0.500	1	11/27/2021 14:57	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.183		0.101	1.01	11/24/2021 11:00	WG1779467
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		11/24/2021 11:00	WG1779467

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

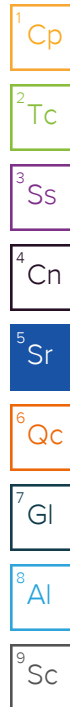
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00230		0.00100	1	11/24/2021 19:36	WG1780030
Toluene	0.0105		0.00500	1	11/24/2021 19:36	WG1780030
Ethylbenzene	ND		0.00250	1	11/24/2021 19:36	WG1780030
Xylenes, Total	0.0258		0.00650	1	11/24/2021 19:36	WG1780030
1,2,4-Trimethylbenzene	0.00950		0.00500	1	11/24/2021 19:36	WG1780030
1,3,5-Trimethylbenzene	0.00960		0.00500	1	11/24/2021 19:36	WG1780030
(S) Toluene-d8	102		75.0-131		11/24/2021 19:36	WG1780030
(S) 4-Bromofluorobenzene	100		67.0-138		11/24/2021 19:36	WG1780030
(S) 1,2-Dichloroethane-d4	111		70.0-130		11/24/2021 19:36	WG1780030

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.2		4.00	1	11/30/2021 03:18	WG1781151
C28-C36 Motor Oil Range	51.2		4.00	1	11/30/2021 03:18	WG1781151
(S) o-Terphenyl	56.7		18.0-148		11/30/2021 03:18	WG1781151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	11/29/2021 15:25	WG1780860
1-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:25	WG1780860
2-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:25	WG1780860



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	76.0		23.0-120		11/29/2021 15:25	WG1780860
(S) Nitrobenzene-d5	93.8		14.0-149		11/29/2021 15:25	WG1780860
(S) 2-Fluorobiphenyl	68.5		34.0-125		11/29/2021 15:25	WG1780860

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.00		1	11/29/2021 12:32	WG1780180

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/06/2021 12:06	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.25	T8	1	11/30/2021 15:53	WG1781740	

Sample Narrative:

L1434094-07 WG1781740: 8.25 at 19C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	135		0.500	1	11/27/2021 15:00	WG1779517

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	11/24/2021 11:22	WG1779467
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		11/24/2021 11:22	WG1779467

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/24/2021 19:55	WG1780030
Toluene	ND		0.00500	1	11/24/2021 19:55	WG1780030
Ethylbenzene	ND		0.00250	1	11/24/2021 19:55	WG1780030
Xylenes, Total	ND		0.00650	1	11/24/2021 19:55	WG1780030
1,2,4-Trimethylbenzene	ND		0.00500	1	11/24/2021 19:55	WG1780030
1,3,5-Trimethylbenzene	ND		0.00500	1	11/24/2021 19:55	WG1780030
(S) Toluene-d8	103		75.0-131		11/24/2021 19:55	WG1780030
(S) 4-Bromofluorobenzene	97.3		67.0-138		11/24/2021 19:55	WG1780030
(S) 1,2-Dichloroethane-d4	107		70.0-130		11/24/2021 19:55	WG1780030

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	16.6		4.00	1	11/30/2021 09:30	WG1781151
C28-C36 Motor Oil Range	77.5		4.00	1	11/30/2021 09:30	WG1781151
(S) o-Terphenyl	64.6		18.0-148		11/30/2021 09:30	WG1781151

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	11/29/2021 15:42	WG1780860
1-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:42	WG1780860
2-Methylnaphthalene	ND		0.0200	1	11/29/2021 15:42	WG1780860

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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	85.5		23.0-120		11/29/2021 15:42	WG1780860
(S) Nitrobenzene-d5	99.4		14.0-149		11/29/2021 15:42	WG1780860
(S) 2-Fluorobiphenyl	75.8		34.0-125		11/29/2021 15:42	WG1780860

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3736013-1 12/01/21 10:44

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

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3736013-7 12/01/21 11:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg			%		%
Hexavalent Chromium	ND		1	41.4	P1	20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3736013-8 12/01/21 12:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg			%		%
Hexavalent Chromium	2.11		1	25.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R3736013-2 12/01/21 10:52

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.9	109	80.0-120	

L1433868-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433868-01 12/01/21 10:59 • (MS) R3736013-3 12/01/21 11:07 • (MSD) R3736013-4 12/01/21 11:13

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	14.8	16.2	72.4	79.4	1	75.0-125	J6		9.07	20

L1433868-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1433868-01 12/01/21 10:59 • (MS) R3736013-5 12/01/21 11:18

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	ND	643	100	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3737878-1 12/06/21 11:28

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

L1432686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1432686-01 12/06/21 11:40 • (DUP) R3737878-3 12/06/21 11:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

L1435363-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-03 12/06/21 13:14 • (DUP) R3737878-4 12/06/21 13:19

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

Laboratory Control Sample (LCS)

(LCS) R3737878-2 12/06/21 11:35

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1435465-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-5 12/06/21 13:40 • (MSD) R3737878-6 12/06/21 13:45

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	12.1	19.5	57.2	94.2	1	75.0-125	J6	J3	46.8	20

L1435465-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-7 12/06/21 13:50

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	ND	663	103	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3736563-1 12/02/21 14:35

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

L1434666-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-18 12/02/21 14:53 • (DUP) R3736563-3 12/02/21 14:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	39.8	P1	20

L1435469-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-08 12/02/21 18:11 • (DUP) R3736563-8 12/02/21 18:47

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

Laboratory Control Sample (LCS)

(LCS) R3736563-2 12/02/21 14:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1435361-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-4 12/02/21 16:16 • (MSD) R3736563-5 12/02/21 16:22

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	18.8	19.3	93.9	96.6	1	75.0-125			2.88	20

L1435361-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-6 12/02/21 16:37

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	633	ND	679	107	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1432696-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1432696-02 11/29/21 10:00 • (DUP) R3734635-2 11/29/21 10:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.65	8.61	1	0.463		1

Sample Narrative:

OS: 8.65 at 16.5C

DUP: 8.61 at 16.1C

L1433600-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1433600-01 11/29/21 10:00 • (DUP) R3734635-3 11/29/21 10:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.62	7.60	1	0.263		1

Sample Narrative:

OS: 7.62 at 16.7C

DUP: 7.6 at 16.8C

Laboratory Control Sample (LCS)

(LCS) R3734635-1 11/29/21 10:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 16.7C



L1435363-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-06 11/29/21 14:00 • (DUP) R3734862-2 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.85	8.85	1	0.000		1

Sample Narrative:

OS: 8.85 at 18.2C

DUP: 8.85 at 18.4C

L1435558-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435558-03 11/29/21 14:00 • (DUP) R3734862-3 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.27	7.25	1	0.275		1

Sample Narrative:

OS: 7.27 at 18.5C

DUP: 7.25 at 18.3C

Laboratory Control Sample (LCS)

(LCS) R3734862-1 11/29/21 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.96	99.6	99.0-101	

Sample Narrative:

LCS: 9.96 at 16.8C



L1434094-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1434094-07 11/30/21 15:53 • (DUP) R3735371-2 11/30/21 15:53

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.25	8.21	1	0.486		1

Sample Narrative:

OS: 8.25 at 19C

DUP: 8.21 at 18.9C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1435214-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435214-03 11/30/21 15:53 • (DUP) R3735371-3 11/30/21 15:53

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	5.82	5.82	1	0.000		1

Sample Narrative:

OS: 5.82 at 18C

DUP: 5.82 at 18.3C

Laboratory Control Sample (LCS)

(LCS) R3735371-1 11/30/21 15:53

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

Sample Narrative:

LCS: 10.01 at 19C

Method Blank (MB)

(MB) R3734567-1 11/27/21 13:44

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

Laboratory Control Sample (LCS)

(LCS) R3734567-2 11/27/21 13:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	

L1434094-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1434094-01 11/27/21 13:50 • (MS) R3734567-5 11/27/21 13:59 • (MSD) R3734567-6 11/27/21 14:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	267	345	358	77.8	91.1	1	75.0-125			3.76	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3733511-2 11/24/21 06:58

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)	107			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3733511-1 11/24/21 05:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.46	81.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			95.7	77.0-120	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3734433-2 11/24/21 06:58

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)	107			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3734433-1 11/24/21 05:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.46	81.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			95.7	77.0-120	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3735563-3 11/30/21 14:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.809	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	96.7			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3735563-2 11/30/21 13:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.75	86.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3735188-2 11/24/21 17:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	100			75.0-131
(S) 4-Bromofluorobenzene	98.2			67.0-138
(S) 1,2-Dichloroethane-d4	115			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3735188-1 11/24/21 16:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.119	95.2	70.0-123	
Ethylbenzene	0.125	0.111	88.8	74.0-126	
Toluene	0.125	0.113	90.4	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.117	93.6	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.119	95.2	73.0-127	
Xylenes, Total	0.375	0.328	87.5	72.0-127	
(S) Toluene-d8			99.5	75.0-131	
(S) 4-Bromofluorobenzene			97.4	67.0-138	
(S) 1,2-Dichloroethane-d4			115	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3735726-2 11/30/21 14:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	0.00213	⌵	0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	102			75.0-131
(S) 4-Bromofluorobenzene	99.4			67.0-138
(S) 1,2-Dichloroethane-d4	113			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3735726-1 11/30/21 12:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Toluene	0.125	0.113	90.4	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.116	92.8	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.109	87.2	73.0-127	
Xylenes, Total	0.375	0.338	90.1	72.0-127	
(S) Toluene-d8			104	75.0-131	
(S) 4-Bromofluorobenzene			106	67.0-138	
(S) 1,2-Dichloroethane-d4			115	70.0-130	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	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
C10-C28 Diesel Range	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 %
C10-C28 Diesel Range	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				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3734874-2 11/29/21 10:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Naphthalene	U		0.00408	0.0200
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	111			14.0-149
(S) 2-Fluorobiphenyl	89.4			34.0-125
(S) p-Terphenyl-d14	112			23.0-120

Laboratory Control Sample (LCS)

(LCS) R3734874-1 11/29/21 10:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.0800	0.0682	85.3	50.0-120	
1-Methylnaphthalene	0.0800	0.0667	83.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0656	82.0	50.0-120	
(S) Nitrobenzene-d5			116	14.0-149	
(S) 2-Fluorobiphenyl			92.7	34.0-125	
(S) p-Terphenyl-d14			107	23.0-120	

L1433956-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433956-01 11/29/21 11:04 • (MS) R3734874-3 11/29/21 11:21 • (MSD) R3734874-4 11/29/21 11:39

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 %
Naphthalene	0.0776	ND	0.0593	0.0545	76.4	68.8	1	10.0-135			8.44	27
1-Methylnaphthalene	0.0776	ND	0.0574	0.0522	74.0	65.9	1	10.0-142			9.49	28
2-Methylnaphthalene	0.0776	ND	0.0560	0.0508	72.2	64.1	1	10.0-137			9.74	28
(S) Nitrobenzene-d5					104	96.0		14.0-149				
(S) 2-Fluorobiphenyl					80.8	76.3		34.0-125				
(S) p-Terphenyl-d14					90.4	88.7		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

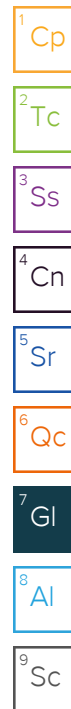
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

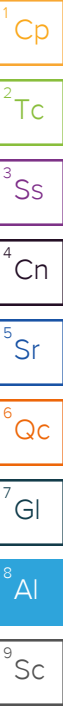
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



December 07, 2021

Caerus Oil and Gas

Sample Delivery Group: L1435361
Samples Received: 11/24/2021
Project Number: H7
Description: H7-Dumpline
Site: H7
Report To: Brett Middleton
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

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SAMPLE SUMMARY

20211119 - H7 (SB-W)@10-12' L1435361-01 Solid

Collected by
DH

Collected date/time
11/19/21 09:40

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:17	12/01/21 19:17	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 13:03	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:26	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1781873	1000	11/26/21 16:43	11/30/21 19:28	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781365	40	11/26/21 16:43	12/01/21 03:46	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	10	12/01/21 03:36	12/01/21 16:05	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 12:55	LEA	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

20211119 - H7 (SB-N)@40-41' L1435361-02 Solid

Collected by
DH

Collected date/time
11/19/21 08:40

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:25	12/01/21 19:25	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 16:11	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1782317	1	12/01/21 10:19	12/01/21 11:00	SDE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:34	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 16:04	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 12:40	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 14:17	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 18:30	LEA	Mt. Juliet, TN

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

20211119 - H7 (SB-W)@20-21.5' L1435361-03 Solid

Collected by
DH

Collected date/time
11/19/21 10:05

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:28	12/01/21 19:28	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 16:48	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:38	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 16:28	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 12:59	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 13:36	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 13:15	LEA	Mt. Juliet, TN

20211119 - H7 (SB-W)@30.5-32' L1435361-04 Solid

Collected by
DH

Collected date/time
11/19/21 11:15

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:31	12/01/21 19:31	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 16:53	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:41	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 16:52	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 13:17	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 15:11	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 18:50	LEA	Mt. Juliet, TN

SAMPLE SUMMARY

20211119 - H7 (SB-W)@40-41.5' L1435361-05 Solid

Collected by
DH

Collected date/time
11/19/21 12:40

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:34	12/01/21 19:34	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 16:58	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:44	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 17:16	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 13:36	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 14:57	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 13:34	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

20211119 - H7 (SB-E)@10-12' L1435361-06 Solid

Collected by
DH

Collected date/time
11/19/21 13:40

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:36	12/01/21 19:36	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:03	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:47	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 17:40	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 13:55	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 11:48	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 13:54	LEA	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

20211119 - H7 (SB-E)@20-22' L1435361-07 Solid

Collected by
DH

Collected date/time
11/19/21 14:10

Received date/time
11/24/21 09:15

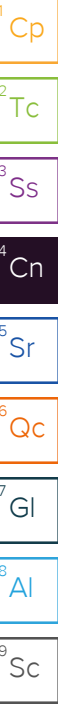
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780185	1	12/01/21 19:39	12/01/21 19:39	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:08	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1781751	1	11/30/21 13:50	12/02/21 07:50	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 18:03	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 14:14	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 13:23	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 14:14	LEA	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.54		1	12/01/2021 19:17	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/06/2021 13:03	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.07	T8		1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-01 WG1781228: 8.07 at 17.8C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	217		0.500	1	12/02/2021 07:26	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4240		100	1000	11/30/2021 19:28	WG1781873
(S) a,a,a-Trifluorotoluene(FID)	96.4		77.0-120		11/30/2021 19:28	WG1781873

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

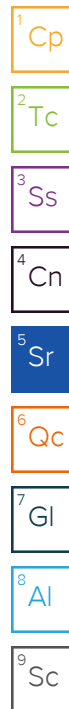
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.42		0.0400	40	12/01/2021 03:46	WG1781365
Toluene	46.4		0.200	40	12/01/2021 03:46	WG1781365
Ethylbenzene	11.2		0.100	40	12/01/2021 03:46	WG1781365
Xylenes, Total	205		0.260	40	12/01/2021 03:46	WG1781365
1,2,4-Trimethylbenzene	58.5		0.200	40	12/01/2021 03:46	WG1781365
1,3,5-Trimethylbenzene	54.7		0.200	40	12/01/2021 03:46	WG1781365
(S) Toluene-d8	99.7		75.0-131		12/01/2021 03:46	WG1781365
(S) 4-Bromofluorobenzene	96.9		67.0-138		12/01/2021 03:46	WG1781365
(S) 1,2-Dichloroethane-d4	103		70.0-130		12/01/2021 03:46	WG1781365

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2630		40.0	10	12/01/2021 16:05	WG1781811
C28-C36 Motor Oil Range	166		40.0	10	12/01/2021 16:05	WG1781811
(S) o-Terphenyl	66.6		18.0-148		12/01/2021 16:05	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	1.89		0.0200	1	12/01/2021 12:55	WG1781815
1-Methylnaphthalene	1.51		0.0200	1	12/01/2021 12:55	WG1781815
2-Methylnaphthalene	3.75		0.0200	1	12/01/2021 12:55	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	112		23.0-120		12/01/2021 12:55	WG1781815
(S) Nitrobenzene-d5	1380	J1	14.0-149		12/01/2021 12:55	WG1781815
(S) 2-Fluorobiphenyl	68.7		34.0-125		12/01/2021 12:55	WG1781815

Sample Narrative:

L1435361-01 WG1781815: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.05		1	12/01/2021 19:25	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 16:11	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	12/01/2021 11:00	WG1782317

Sample Narrative:

L1435361-02 WG1782317: 8.42 at 19.6C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	301		0.500	1	12/02/2021 07:34	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.210	B	0.100	1	11/27/2021 16:04	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	94.2		77.0-120		11/27/2021 16:04	WG1780645

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00176		0.00100	1	11/29/2021 12:40	WG1781184
Toluene	0.0394		0.00500	1	11/29/2021 12:40	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 12:40	WG1781184
Xylenes, Total	0.0495		0.00650	1	11/29/2021 12:40	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 12:40	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 12:40	WG1781184
(S) Toluene-d8	110		75.0-131		11/29/2021 12:40	WG1781184
(S) 4-Bromofluorobenzene	100		67.0-138		11/29/2021 12:40	WG1781184
(S) 1,2-Dichloroethane-d4	99.9		70.0-130		11/29/2021 12:40	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	25.0		4.00	1	12/01/2021 14:17	WG1781811
C28-C36 Motor Oil Range	90.5		4.00	1	12/01/2021 14:17	WG1781811
(S) o-Terphenyl	51.7		18.0-148		12/01/2021 14:17	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 18:30	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 18:30	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 18:30	WG1781815

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 mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	97.0		23.0-120		12/01/2021 18:30	WG1781815
(S) Nitrobenzene-d5	49.9		14.0-149		12/01/2021 18:30	WG1781815
(S) 2-Fluorobiphenyl	67.2		34.0-125		12/01/2021 18:30	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.92		1	12/01/2021 19:28	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 16:48	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.59	T8		1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-03 WG1781228: 8.59 at 17.9C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	235		0.500	1	12/02/2021 07:38	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.806		0.100	1	11/27/2021 16:28	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	98.6		77.0-120		11/27/2021 16:28	WG1780645

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 12:59	WG1781184
Toluene	0.0186		0.00500	1	11/29/2021 12:59	WG1781184
Ethylbenzene	0.00715		0.00250	1	11/29/2021 12:59	WG1781184
Xylenes, Total	0.181		0.00650	1	11/29/2021 12:59	WG1781184
1,2,4-Trimethylbenzene	0.0656		0.00500	1	11/29/2021 12:59	WG1781184
1,3,5-Trimethylbenzene	0.0481		0.00500	1	11/29/2021 12:59	WG1781184
(S) Toluene-d8	107		75.0-131		11/29/2021 12:59	WG1781184
(S) 4-Bromofluorobenzene	106		67.0-138		11/29/2021 12:59	WG1781184
(S) 1,2-Dichloroethane-d4	109		70.0-130		11/29/2021 12:59	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	17.0		4.00	1	12/01/2021 13:36	WG1781811
C28-C36 Motor Oil Range	52.9		4.00	1	12/01/2021 13:36	WG1781811
(S) o-Terphenyl	77.7		18.0-148		12/01/2021 13:36	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 13:15	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:15	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:15	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	99.7		23.0-120		12/01/2021 13:15	WG1781815
(S) Nitrobenzene-d5	66.7		14.0-149		12/01/2021 13:15	WG1781815
(S) 2-Fluorobiphenyl	74.9		34.0-125		12/01/2021 13:15	WG1781815

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.89		1	12/01/2021 19:31	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 16:53	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	9.00	T8		1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-04 WG1781228: 9 at 18C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	284		0.500	1	12/02/2021 07:41	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.269		0.100	1	11/27/2021 16:52	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	95.7		77.0-120		11/27/2021 16:52	WG1780645

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

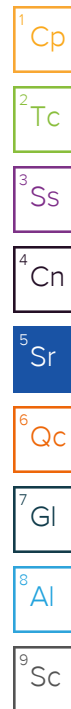
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00337		0.00100	1	11/29/2021 13:17	WG1781184
Toluene	0.0603		0.00500	1	11/29/2021 13:17	WG1781184
Ethylbenzene	0.00540		0.00250	1	11/29/2021 13:17	WG1781184
Xylenes, Total	0.109		0.00650	1	11/29/2021 13:17	WG1781184
1,2,4-Trimethylbenzene	0.0132		0.00500	1	11/29/2021 13:17	WG1781184
1,3,5-Trimethylbenzene	0.00980		0.00500	1	11/29/2021 13:17	WG1781184
(S) Toluene-d8	105		75.0-131		11/29/2021 13:17	WG1781184
(S) 4-Bromofluorobenzene	101		67.0-138		11/29/2021 13:17	WG1781184
(S) 1,2-Dichloroethane-d4	106		70.0-130		11/29/2021 13:17	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	23.0		4.00	1	12/01/2021 15:11	WG1781811
C28-C36 Motor Oil Range	103		4.00	1	12/01/2021 15:11	WG1781811
(S) o-Terphenyl	66.3		18.0-148		12/01/2021 15:11	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 18:50	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 18:50	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 18:50	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	100		23.0-120		12/01/2021 18:50	WG1781815
(S) Nitrobenzene-d5	58.5		14.0-149		12/01/2021 18:50	WG1781815
(S) 2-Fluorobiphenyl	74.4		34.0-125		12/01/2021 18:50	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.46		1	12/01/2021 19:34	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 16:58	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.61	T8		1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-05 WG1781228: 8.61 at 18.2C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	155		0.500	1	12/02/2021 07:44	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.168	B	0.100	1	11/27/2021 17:16	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.8		77.0-120		11/27/2021 17:16	WG1780645

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

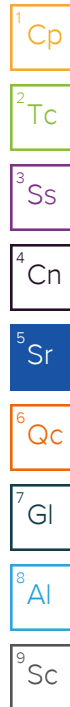
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00193		0.00100	1	11/29/2021 13:36	WG1781184
Toluene	0.0265		0.00500	1	11/29/2021 13:36	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 13:36	WG1781184
Xylenes, Total	0.0340		0.00650	1	11/29/2021 13:36	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 13:36	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 13:36	WG1781184
(S) Toluene-d8	107		75.0-131		11/29/2021 13:36	WG1781184
(S) 4-Bromofluorobenzene	101		67.0-138		11/29/2021 13:36	WG1781184
(S) 1,2-Dichloroethane-d4	104		70.0-130		11/29/2021 13:36	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	35.2		4.00	1	12/01/2021 14:57	WG1781811
C28-C36 Motor Oil Range	128		4.00	1	12/01/2021 14:57	WG1781811
(S) o-Terphenyl	76.4		18.0-148		12/01/2021 14:57	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 13:34	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:34	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:34	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	106		23.0-120		12/01/2021 13:34	WG1781815
(S) Nitrobenzene-d5	64.1		14.0-149		12/01/2021 13:34	WG1781815
(S) 2-Fluorobiphenyl	77.0		34.0-125		12/01/2021 13:34	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.08		1	12/01/2021 19:36	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:03	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.99	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-06 WG1781228: 8.99 at 18.4C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	203		0.500	1	12/02/2021 07:47	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.134	B	0.100	1	11/27/2021 17:40	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	97.5		77.0-120		11/27/2021 17:40	WG1780645

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

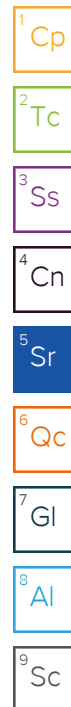
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 13:55	WG1781184
Toluene	ND		0.00500	1	11/29/2021 13:55	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 13:55	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 13:55	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 13:55	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 13:55	WG1781184
(S) Toluene-d8	109		75.0-131		11/29/2021 13:55	WG1781184
(S) 4-Bromofluorobenzene	99.9		67.0-138		11/29/2021 13:55	WG1781184
(S) 1,2-Dichloroethane-d4	107		70.0-130		11/29/2021 13:55	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	12/01/2021 11:48	WG1781811
C28-C36 Motor Oil Range	6.16	B	4.00	1	12/01/2021 11:48	WG1781811
(S) o-Terphenyl	53.9		18.0-148		12/01/2021 11:48	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 13:54	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:54	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 13:54	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	72.6		23.0-120		12/01/2021 13:54	WG1781815
(S) Nitrobenzene-d5	53.4		14.0-149		12/01/2021 13:54	WG1781815
(S) 2-Fluorobiphenyl	61.6		34.0-125		12/01/2021 13:54	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.38		1	12/01/2021 19:39	WG1780185

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:08	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	9.46	T8		1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435361-07 WG1781228: 9.46 at 18.3C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	171		0.500	1	12/02/2021 07:50	WG1781751

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.202	B	0.100	1	11/27/2021 18:03	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.6		77.0-120		11/27/2021 18:03	WG1780645

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

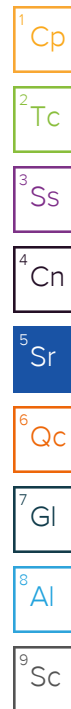
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 14:14	WG1781184
Toluene	0.0172		0.00500	1	11/29/2021 14:14	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 14:14	WG1781184
Xylenes, Total	0.0177		0.00650	1	11/29/2021 14:14	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:14	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:14	WG1781184
(S) Toluene-d8	106		75.0-131		11/29/2021 14:14	WG1781184
(S) 4-Bromofluorobenzene	99.3		67.0-138		11/29/2021 14:14	WG1781184
(S) 1,2-Dichloroethane-d4	106		70.0-130		11/29/2021 14:14	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.31		4.00	1	12/01/2021 13:23	WG1781811
C28-C36 Motor Oil Range	53.1		4.00	1	12/01/2021 13:23	WG1781811
(S) o-Terphenyl	72.8		18.0-148		12/01/2021 13:23	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 14:14	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 14:14	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 14:14	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	106		23.0-120		12/01/2021 14:14	WG1781815
(S) Nitrobenzene-d5	61.3		14.0-149		12/01/2021 14:14	WG1781815
(S) 2-Fluorobiphenyl	75.8		34.0-125		12/01/2021 14:14	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3737878-1 12/06/21 11:28

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1432686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1432686-01 12/06/21 11:40 • (DUP) R3737878-3 12/06/21 11:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

L1435363-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-03 12/06/21 13:14 • (DUP) R3737878-4 12/06/21 13:19

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

Laboratory Control Sample (LCS)

(LCS) R3737878-2 12/06/21 11:35

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1435465-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-5 12/06/21 13:40 • (MSD) R3737878-6 12/06/21 13:45

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	12.1	19.5	57.2	94.2	1	75.0-125	J6	J3	46.8	20

L1435465-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-7 12/06/21 13:50

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	ND	663	103	50	75.0-125	

Method Blank (MB)

(MB) R3736563-1 12/02/21 14:35

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

L1434666-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-18 12/02/21 14:53 • (DUP) R3736563-3 12/02/21 14:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	39.8	P1	20

L1435469-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-08 12/02/21 18:11 • (DUP) R3736563-8 12/02/21 18:47

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

Laboratory Control Sample (LCS)

(LCS) R3736563-2 12/02/21 14:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1435361-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-4 12/02/21 16:16 • (MSD) R3736563-5 12/02/21 16:22

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	18.8	19.3	93.9	96.6	1	75.0-125			2.88	20

L1435361-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-6 12/02/21 16:37

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	633	ND	679	107	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1435361-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1435361-01 11/29/21 14:00 • (DUP) R3734867-2 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.07	8.06	1	0.124		1

Sample Narrative:

OS: 8.07 at 17.8C

DUP: 8.06 at 18C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1435465-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1435465-02 11/29/21 14:00 • (DUP) R3734867-3 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.69	8.69	1	0.000		1

Sample Narrative:

OS: 8.69 at 18.2C

DUP: 8.69 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3734867-1 11/29/21 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 18.9C

L1435333-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1435333-05 12/01/21 11:00 • (DUP) R3735758-2 12/01/21 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	6.96	6.96	1	0.000		1

Sample Narrative:

OS: 6.96 at 20.4C

DUP: 6.96 at 19.9C



L1435354-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1435354-04 12/01/21 11:00 • (DUP) R3735758-3 12/01/21 11:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.54	8.53	1	0.117		1

Sample Narrative:

OS: 8.54 at 19.9C

DUP: 8.53 at 19.6C

Laboratory Control Sample (LCS)

(LCS) R3735758-1 12/01/21 11:00

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

Sample Narrative:

LCS: 9.99 at 19.1C

Method Blank (MB)

(MB) R3736406-1 12/02/21 06:28

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

Laboratory Control Sample (LCS)

(LCS) R3736406-2 12/02/21 06:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.8	97.8	80.0-120	

L1433181-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433181-17 12/02/21 06:33 • (MS) R3736406-5 12/02/21 06:41 • (MSD) R3736406-6 12/02/21 06:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	269	332	276	63.0	6.70	1	75.0-125	J6	J6	18.5	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3736399-2 11/27/21 12:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0266	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3736399-1 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	5.06	92.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3735565-3 11/30/21 14:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.809	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	96.7			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3735565-2 11/30/21 13:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.75	86.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3735276-2 11/29/21 09:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	107			75.0-131
(S) 4-Bromofluorobenzene	101			67.0-138
(S) 1,2-Dichloroethane-d4	108			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3735276-1 11/29/21 08:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.139	111	70.0-123	
Ethylbenzene	0.125	0.138	110	74.0-126	
Toluene	0.125	0.128	102	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.119	95.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.127	102	73.0-127	
Xylenes, Total	0.375	0.401	107	72.0-127	
(S) Toluene-d8			104	75.0-131	
(S) 4-Bromofluorobenzene			101	67.0-138	
(S) 1,2-Dichloroethane-d4			115	70.0-130	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3736267-3 11/30/21 21:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	107			75.0-131
(S) 4-Bromofluorobenzene	102			67.0-138
(S) 1,2-Dichloroethane-d4	108			70.0-130

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

(LCS) R3736267-1 11/30/21 19:15 • (LCSD) R3736267-2 11/30/21 19:35

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	0.113	0.118	90.4	94.4	70.0-123			4.33	20
Ethylbenzene	0.125	0.118	0.122	94.4	97.6	74.0-126			3.33	20
Toluene	0.125	0.119	0.126	95.2	101	75.0-121			5.71	20
1,2,4-Trimethylbenzene	0.125	0.131	0.137	105	110	70.0-126			4.48	20
1,3,5-Trimethylbenzene	0.125	0.123	0.131	98.4	105	73.0-127			6.30	20
Xylenes, Total	0.375	0.372	0.388	99.2	103	72.0-127			4.21	20
(S) Toluene-d8				107	106	75.0-131				
(S) 4-Bromofluorobenzene				99.2	96.4	67.0-138				
(S) 1,2-Dichloroethane-d4				110	109	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3736039-1 12/01/21 11:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.06	⬇	0.274	4.00
(S) o-Terphenyl	75.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3736039-2 12/01/21 11:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	44.3	88.6	50.0-150	
(S) o-Terphenyl			94.0	18.0-148	

L1435354-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435354-06 12/01/21 12:28 • (MS) R3736039-3 12/01/21 12:42 • (MSD) R3736039-4 12/01/21 12:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.6	ND	29.4	33.4	52.9	61.2	1	50.0-150			12.7	20
(S) o-Terphenyl					48.3	55.2		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3736026-2 12/01/21 11:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Naphthalene	U		0.00408	0.0200
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	74.8			14.0-149
(S) 2-Fluorobiphenyl	92.6			34.0-125
(S) p-Terphenyl-d14	129	J1		23.0-120

Laboratory Control Sample (LCS)

(LCS) R3736026-1 12/01/21 11:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.0800	0.0658	82.3	50.0-120	
1-Methylnaphthalene	0.0800	0.0684	85.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0607	75.9	50.0-120	
(S) Nitrobenzene-d5			66.4	14.0-149	
(S) 2-Fluorobiphenyl			81.3	34.0-125	
(S) p-Terphenyl-d14			104	23.0-120	

L1435361-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-07 12/01/21 14:14 • (MS) R3736026-3 12/01/21 14:34 • (MSD) R3736026-4 12/01/21 14:53

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 %
Naphthalene	0.0800	ND	0.0540	0.0597	67.5	74.6	1	10.0-135			10.0	27
1-Methylnaphthalene	0.0800	ND	0.0588	0.0661	73.5	82.6	1	10.0-142			11.7	28
2-Methylnaphthalene	0.0800	ND	0.0498	0.0541	62.3	67.6	1	10.0-137			8.28	28
(S) Nitrobenzene-d5					53.7	63.2		14.0-149				
(S) 2-Fluorobiphenyl					72.8	81.1		34.0-125				
(S) p-Terphenyl-d14					94.2	104		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

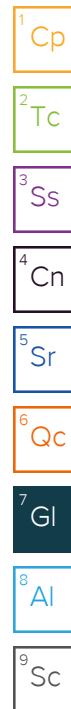
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

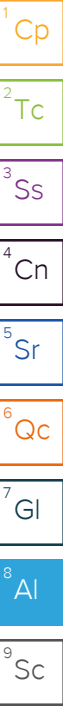
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



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

Billing Information:

Same as above

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



Report to:
bmiddleton@caerusoilandgas.com

Email To:
bmiddleton@caerusoilandgas.com

Project
Description: H7-Dumpline

City/State
Collected: Mamm Creek, CO

Phone:
Fax:
Client Project #
H7

Lab Project #
H7

Collected by (print):
Site/Facility ID #
H7

P.O. #
H7

Collected by (signature):
Rush? (Lab MUST Be Notified)

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day

Date Results Needed

Standard TAT

Immediately
Packed on Ice N Y X

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH - GRO, DRO, ORO	BTEX	naphthalene	SAR, pH	barium, Chromium (VI)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-mthyl naphthalene	2-mthyl naphthalene
20211119-H7 (SB-W) @ 10-12'	Grab	SS		11/19/21	940	2	+	+	+	+	+	+	+	+	+
20211119-H7 (SB-N) @ 40-41'					840	2									
20211119-H7 (SB-W) @ 20-21.5'					1005	2									
20211119-H7 (SB-W) @ 30-32'					1115	2									
20211119-H7 (SB-W) @ 40-41.5'					1240	2									
20211119-H7 (SB-E) @ 10-12'					1340	2									
20211119-H7 (SB-E) @ 20-22'					1410	2									

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

Remarks:

Samples returned via:
UPS FedEx Courier

Tracking #

501612322750

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: 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

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 33.0-33.3 °C
Bottles Received: 14

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 11/24/21
Time: 9:15

If preservation required by Login: Date/Time

Hold:

Condition:
NCF / OK

December 07, 2021

Caerus Oil and Gas

Sample Delivery Group: L1435363
Samples Received: 11/24/2021
Project Number: H7
Description: H7-Dumpline
Site: H7
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

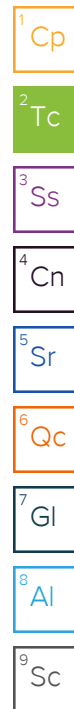
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory 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

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SAMPLE SUMMARY

20211122-H7 (SB-E)@30-32' L1435363-01 Solid

Collected by
DH

Collected date/time
11/22/21 09:15

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 13:32	11/30/21 13:32	EL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 13:09	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781228	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 16:10	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 18:27	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 14:32	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 14:30	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 15:13	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

20211122-H7 (SB-E)@40.5-42.5' L1435363-02 Solid

Collected by
DH

Collected date/time
11/22/21 11:00

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 15:09	11/30/21 15:09	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 13:28	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 16:59	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 18:51	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 14:51	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 14:03	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 15:33	LEA	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

20211122-H7 (SB-S)@10-12' L1435363-03 Solid

Collected by
DH

Collected date/time
11/22/21 11:30

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 15:12	11/30/21 15:12	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780720	1	11/28/21 10:43	12/06/21 13:14	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 17:02	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 19:15	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 15:10	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 12:15	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 15:52	LEA	Mt. Juliet, TN

20211122-H7 (SB-S)@20-22' L1435363-04 Solid

Collected by
DH

Collected date/time
11/22/21 12:00

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 15:14	11/30/21 15:14	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:14	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 17:05	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 19:38	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 15:29	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 13:09	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 16:12	LEA	Mt. Juliet, TN

SAMPLE SUMMARY

20211122-H7 (SB-S)@30-32' L1435363-05 Solid

Collected by
DH

Collected date/time
11/22/21 12:50

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 15:17	11/30/21 15:17	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780724	1	11/28/21 09:04	12/02/21 17:19	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 17:09	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 20:02	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 15:48	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 13:50	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 16:32	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

20211122-H7 (SB-S)@40-42' L1435363-06 Solid

Collected by
DH

Collected date/time
11/22/21 14:10

Received date/time
11/24/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1780181	1	11/30/21 15:20	11/30/21 15:20	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1780079	1	11/27/21 11:08	12/01/21 13:33	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1781251	1	11/29/21 13:00	11/29/21 14:00	PSN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1780890	1	11/29/21 08:13	11/30/21 17:18	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1780645	1	11/26/21 16:43	11/27/21 20:26	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1781184	1	11/26/21 16:43	11/29/21 16:06	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1781811	1	12/01/21 03:36	12/01/21 15:25	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1781815	1	11/30/21 23:33	12/01/21 16:52	LEA	Mt. Juliet, TN

⁶Qc

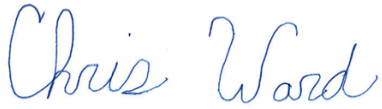
⁷Gl

⁸Al

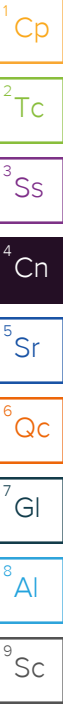
⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.92		1	11/30/2021 13:32	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/06/2021 13:09	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.90	T8	1	11/29/2021 14:00	WG1781228

Sample Narrative:

L1435363-01 WG1781228: 8.9 at 17.8C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	266	J5 J6	0.500	1	11/30/2021 16:10	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.141	B	0.100	1	11/27/2021 18:27	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.5		77.0-120		11/27/2021 18:27	WG1780645

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

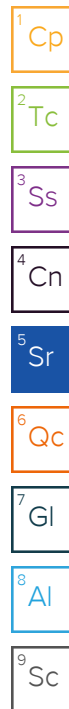
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 14:32	WG1781184
Toluene	0.00633		0.00500	1	11/29/2021 14:32	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 14:32	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 14:32	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:32	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:32	WG1781184
(S) Toluene-d8	105		75.0-131		11/29/2021 14:32	WG1781184
(S) 4-Bromofluorobenzene	103		67.0-138		11/29/2021 14:32	WG1781184
(S) 1,2-Dichloroethane-d4	109		70.0-130		11/29/2021 14:32	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	15.8		4.00	1	12/01/2021 14:30	WG1781811
C28-C36 Motor Oil Range	82.9		4.00	1	12/01/2021 14:30	WG1781811
(S) o-Terphenyl	64.0		18.0-148		12/01/2021 14:30	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 15:13	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:13	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:13	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	105		23.0-120		12/01/2021 15:13	WG1781815
(S) Nitrobenzene-d5	59.0		14.0-149		12/01/2021 15:13	WG1781815
(S) 2-Fluorobiphenyl	74.2		34.0-125		12/01/2021 15:13	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.33		1	11/30/2021 15:09	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 13:28	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.37	T8		1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1435363-02 WG1781251: 8.37 at 18.5C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	267		0.500	1	11/30/2021 16:59	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.115	B	0.100	1	11/27/2021 18:51	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.5		77.0-120		11/27/2021 18:51	WG1780645

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

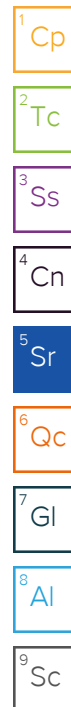
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 14:51	WG1781184
Toluene	0.00615		0.00500	1	11/29/2021 14:51	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 14:51	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 14:51	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:51	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 14:51	WG1781184
(S) Toluene-d8	108		75.0-131		11/29/2021 14:51	WG1781184
(S) 4-Bromofluorobenzene	104		67.0-138		11/29/2021 14:51	WG1781184
(S) 1,2-Dichloroethane-d4	108		70.0-130		11/29/2021 14:51	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	12.9		4.00	1	12/01/2021 14:03	WG1781811
C28-C36 Motor Oil Range	82.7		4.00	1	12/01/2021 14:03	WG1781811
(S) o-Terphenyl	65.0		18.0-148		12/01/2021 14:03	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 15:33	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:33	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:33	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	87.3		23.0-120		12/01/2021 15:33	WG1781815
(S) Nitrobenzene-d5	49.8		14.0-149		12/01/2021 15:33	WG1781815
(S) 2-Fluorobiphenyl	62.9		34.0-125		12/01/2021 15:33	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.78		1	11/30/2021 15:12	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/06/2021 13:14	WG1780720

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.83	T8		1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1435363-03 WG1781251: 8.83 at 18.4C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	255		0.500	1	11/30/2021 17:02	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.104	B	0.100	1	11/27/2021 19:15	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	97.2		77.0-120		11/27/2021 19:15	WG1780645

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 15:10	WG1781184
Toluene	ND		0.00500	1	11/29/2021 15:10	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 15:10	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 15:10	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:10	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:10	WG1781184
(S) Toluene-d8	107		75.0-131		11/29/2021 15:10	WG1781184
(S) 4-Bromofluorobenzene	100		67.0-138		11/29/2021 15:10	WG1781184
(S) 1,2-Dichloroethane-d4	106		70.0-130		11/29/2021 15:10	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	5.91		4.00	1	12/01/2021 12:15	WG1781811
C28-C36 Motor Oil Range	18.7		4.00	1	12/01/2021 12:15	WG1781811
(S) o-Terphenyl	66.7		18.0-148		12/01/2021 12:15	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 15:52	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:52	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 15:52	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	101		23.0-120		12/01/2021 15:52	WG1781815
(S) Nitrobenzene-d5	60.4		14.0-149		12/01/2021 15:52	WG1781815
(S) 2-Fluorobiphenyl	74.2		34.0-125		12/01/2021 15:52	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.24		1	11/30/2021 15:14	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:14	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.29	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1435363-04 WG1781251: 9.29 at 18.5C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	364		0.500	1	11/30/2021 17:05	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.216	B	0.100	1	11/27/2021 19:38	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.5		77.0-120		11/27/2021 19:38	WG1780645

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

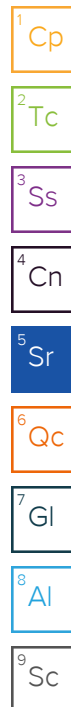
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 15:29	WG1781184
Toluene	0.00638		0.00500	1	11/29/2021 15:29	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 15:29	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 15:29	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:29	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:29	WG1781184
(S) Toluene-d8	108		75.0-131		11/29/2021 15:29	WG1781184
(S) 4-Bromofluorobenzene	103		67.0-138		11/29/2021 15:29	WG1781184
(S) 1,2-Dichloroethane-d4	107		70.0-130		11/29/2021 15:29	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.62		4.00	1	12/01/2021 13:09	WG1781811
C28-C36 Motor Oil Range	37.1		4.00	1	12/01/2021 13:09	WG1781811
(S) o-Terphenyl	48.6		18.0-148		12/01/2021 13:09	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 16:12	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:12	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:12	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	90.5		23.0-120		12/01/2021 16:12	WG1781815
(S) Nitrobenzene-d5	49.6		14.0-149		12/01/2021 16:12	WG1781815
(S) 2-Fluorobiphenyl	63.7		34.0-125		12/01/2021 16:12	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.07		1	11/30/2021 15:17	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/02/2021 17:19	WG1780724

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	RDL	Dilution	Analysis date / time	Batch
pH	8.46	T8		1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1435363-05 WG1781251: 8.46 at 18.5C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	219		0.500	1	11/30/2021 17:09	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.118	B	0.100	1	11/27/2021 20:02	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	96.9		77.0-120		11/27/2021 20:02	WG1780645

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 15:48	WG1781184
Toluene	0.00560		0.00500	1	11/29/2021 15:48	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 15:48	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 15:48	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:48	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 15:48	WG1781184
(S) Toluene-d8	105		75.0-131		11/29/2021 15:48	WG1781184
(S) 4-Bromofluorobenzene	103		67.0-138		11/29/2021 15:48	WG1781184
(S) 1,2-Dichloroethane-d4	105		70.0-130		11/29/2021 15:48	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	13.9		4.00	1	12/01/2021 13:50	WG1781811
C28-C36 Motor Oil Range	72.4		4.00	1	12/01/2021 13:50	WG1781811
(S) o-Terphenyl	65.2		18.0-148		12/01/2021 13:50	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 16:32	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:32	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:32	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	83.2		23.0-120		12/01/2021 16:32	WG1781815
(S) Nitrobenzene-d5	47.6		14.0-149		12/01/2021 16:32	WG1781815
(S) 2-Fluorobiphenyl	59.7		34.0-125		12/01/2021 16:32	WG1781815

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.34		1	11/30/2021 15:20	WG1780181

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/01/2021 13:33	WG1780079

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.85	T8	1	11/29/2021 14:00	WG1781251

Sample Narrative:

L1435363-06 WG1781251: 8.85 at 18.2C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	222		0.500	1	11/30/2021 17:18	WG1780890

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.120	B	0.100	1	11/27/2021 20:26	WG1780645
(S) a,a,a-Trifluorotoluene(FID)	94.8		77.0-120		11/27/2021 20:26	WG1780645

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

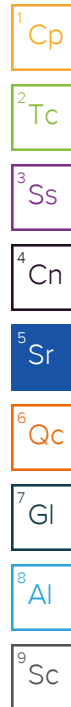
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/29/2021 16:06	WG1781184
Toluene	0.00695		0.00500	1	11/29/2021 16:06	WG1781184
Ethylbenzene	ND		0.00250	1	11/29/2021 16:06	WG1781184
Xylenes, Total	ND		0.00650	1	11/29/2021 16:06	WG1781184
1,2,4-Trimethylbenzene	ND		0.00500	1	11/29/2021 16:06	WG1781184
1,3,5-Trimethylbenzene	ND		0.00500	1	11/29/2021 16:06	WG1781184
(S) Toluene-d8	108		75.0-131		11/29/2021 16:06	WG1781184
(S) 4-Bromofluorobenzene	101		67.0-138		11/29/2021 16:06	WG1781184
(S) 1,2-Dichloroethane-d4	106		70.0-130		11/29/2021 16:06	WG1781184

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	31.7		4.00	1	12/01/2021 15:25	WG1781811
C28-C36 Motor Oil Range	143		4.00	1	12/01/2021 15:25	WG1781811
(S) o-Terphenyl	69.8		18.0-148		12/01/2021 15:25	WG1781811

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	12/01/2021 16:52	WG1781815
1-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:52	WG1781815
2-Methylnaphthalene	ND		0.0200	1	12/01/2021 16:52	WG1781815



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	105		23.0-120		12/01/2021 16:52	WG1781815
(S) Nitrobenzene-d5	60.9		14.0-149		12/01/2021 16:52	WG1781815
(S) 2-Fluorobiphenyl	76.5		34.0-125		12/01/2021 16:52	WG1781815

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3736013-1 12/01/21 10:44

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

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3736013-7 12/01/21 11:33

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND		1	41.4	P1	20

L1434809-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1434809-02 12/01/21 12:41 • (DUP) R3736013-8 12/01/21 12:56

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	1.64	2.11	1	25.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R3736013-2 12/01/21 10:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.9	109	80.0-120	

L1433868-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1433868-01 12/01/21 10:59 • (MS) R3736013-3 12/01/21 11:07 • (MSD) R3736013-4 12/01/21 11:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	14.8	16.2	72.4	79.4	1	75.0-125	J6		9.07	20

L1433868-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1433868-01 12/01/21 10:59 • (MS) R3736013-5 12/01/21 11:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	643	ND	643	100	50	75.0-125	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3737878-1 12/06/21 11:28

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

L1432686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1432686-01 12/06/21 11:40 • (DUP) R3737878-3 12/06/21 11:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

L1435363-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-03 12/06/21 13:14 • (DUP) R3737878-4 12/06/21 13:19

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

Laboratory Control Sample (LCS)

(LCS) R3737878-2 12/06/21 11:35

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1435465-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-5 12/06/21 13:40 • (MSD) R3737878-6 12/06/21 13:45

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	12.1	19.5	57.2	94.2	1	75.0-125	J6	J3	46.8	20

L1435465-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435465-01 12/06/21 13:35 • (MS) R3737878-7 12/06/21 13:50

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	643	ND	663	103	50	75.0-125	



Method Blank (MB)

(MB) R3736563-1 12/02/21 14:35

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

L1434666-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1434666-18 12/02/21 14:53 • (DUP) R3736563-3 12/02/21 14:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	39.8	P1	20

L1435469-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1435469-08 12/02/21 18:11 • (DUP) R3736563-8 12/02/21 18:47

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

Laboratory Control Sample (LCS)

(LCS) R3736563-2 12/02/21 14:42

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1435361-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-4 12/02/21 16:16 • (MSD) R3736563-5 12/02/21 16:22

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	18.8	19.3	93.9	96.6	1	75.0-125			2.88	20

L1435361-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1435361-02 12/02/21 16:11 • (MS) R3736563-6 12/02/21 16:37

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	633	ND	679	107	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1435361-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1435361-01 11/29/21 14:00 • (DUP) R3734867-2 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.07	8.06	1	0.124		1

Sample Narrative:

OS: 8.07 at 17.8C

DUP: 8.06 at 18C

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3734867-3 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte		su		%		%
pH		8.69	1	0.000		1

Sample Narrative:

DUP: 8.69 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3734867-1 11/29/21 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 18.9C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1435363-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1435363-06 11/29/21 14:00 • (DUP) R3734862-2 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.85	8.85	1	0.000		1

Sample Narrative:

OS: 8.85 at 18.2C

DUP: 8.85 at 18.4C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1435558-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1435558-03 11/29/21 14:00 • (DUP) R3734862-3 11/29/21 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.27	7.25	1	0.275		1

Sample Narrative:

OS: 7.27 at 18.5C

DUP: 7.25 at 18.3C

Laboratory Control Sample (LCS)

(LCS) R3734862-1 11/29/21 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.96	99.6	99.0-101	

Sample Narrative:

LCS: 9.96 at 16.8C

Method Blank (MB)

(MB) R3735678-1 11/30/21 16:04

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

Laboratory Control Sample (LCS)

(LCS) R3735678-2 11/30/21 16:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Barium	100	101	101	80.0-120	

L1435363-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435363-01 11/30/21 16:10 • (MS) R3735678-5 11/30/21 16:19 • (MSD) R3735678-6 11/30/21 16:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Barium	100	266	395	324	129	58.3	1	75.0-125	<u>J5</u>	<u>J6</u>	19.7	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3736399-2 11/27/21 12:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0266	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	99.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3736399-1 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	5.06	92.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3735276-2 11/29/21 09:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	107			75.0-131
(S) 4-Bromofluorobenzene	101			67.0-138
(S) 1,2-Dichloroethane-d4	108			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3735276-1 11/29/21 08:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.139	111	70.0-123	
Ethylbenzene	0.125	0.138	110	74.0-126	
Toluene	0.125	0.128	102	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.119	95.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.127	102	73.0-127	
Xylenes, Total	0.375	0.401	107	72.0-127	
(S) Toluene-d8			104	75.0-131	
(S) 4-Bromofluorobenzene			101	67.0-138	
(S) 1,2-Dichloroethane-d4			115	70.0-130	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3736039-1 12/01/21 11:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.06	⬇	0.274	4.00
(S) o-Terphenyl	75.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3736039-2 12/01/21 11:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	44.3	88.6	50.0-150	
(S) o-Terphenyl			94.0	18.0-148	

L1435354-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435354-06 12/01/21 12:28 • (MS) R3736039-3 12/01/21 12:42 • (MSD) R3736039-4 12/01/21 12:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.6	ND	29.4	33.4	52.9	61.2	1	50.0-150			12.7	20
(S) o-Terphenyl					48.3	55.2		18.0-148				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3736026-2 12/01/21 11:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Naphthalene	U		0.00408	0.0200
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	74.8			14.0-149
(S) 2-Fluorobiphenyl	92.6			34.0-125
(S) p-Terphenyl-d14	129	J1		23.0-120

Laboratory Control Sample (LCS)

(LCS) R3736026-1 12/01/21 11:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.0800	0.0658	82.3	50.0-120	
1-Methylnaphthalene	0.0800	0.0684	85.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0607	75.9	50.0-120	
(S) Nitrobenzene-d5			66.4	14.0-149	
(S) 2-Fluorobiphenyl			81.3	34.0-125	
(S) p-Terphenyl-d14			104	23.0-120	

L1435361-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1435361-07 12/01/21 14:14 • (MS) R3736026-3 12/01/21 14:34 • (MSD) R3736026-4 12/01/21 14:53

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 %
Naphthalene	0.0800	ND	0.0540	0.0597	67.5	74.6	1	10.0-135			10.0	27
1-Methylnaphthalene	0.0800	ND	0.0588	0.0661	73.5	82.6	1	10.0-142			11.7	28
2-Methylnaphthalene	0.0800	ND	0.0498	0.0541	62.3	67.6	1	10.0-137			8.28	28
(S) Nitrobenzene-d5					53.7	63.2		14.0-149				
(S) 2-Fluorobiphenyl					72.8	81.1		34.0-125				
(S) p-Terphenyl-d14					94.2	104		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

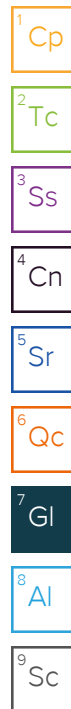
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

