



VIA ELECTRONIC MAIL –

July 15, 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 site-specific background environmental drilling and soil sampling to improve definition of contaminants of concern (COC), specifically sodium adsorption ratio (SAR) and pH, associated with previously delineated impacts to soils related to production well KRK 7-7A dumpline release at the KRK-67S92W7SENE (H7) (Facility ID: 334864) pad location (Site). These activities were completed in response to the Colorado Oil and Gas Conservation Commission's (COGCC) denial to use nearby background concentrations, specifically SAR and pH, as representative background concentrations for the Site's relief of Table 915-1 Soil Suitability for Reclamation parameters as requested in Document Number (DN) 403023769. The Site is located in the Caerus Mamm Creek area of operation in Garfield County, Colorado (Figure 1).

BACKGROUND SOIL SAMPLING ACTIVITIES – H7

On June 13, 2022, a WSP geologist, Western Slope Oil Field Services, Inc. (WCO), and Colorado Drilling and Sampling (CD&S) returned to the Site to collect site-specific background samples to provide representative comparison samples for COGCC Table 915-1 Soil Suitability for Reclamation parameters, specifically SAR and pH. Prior to drilling activities, the two site-specific boring locations were cleared for underground utilities with a hydro-vacuum truck operated by WCO to depths ranging from 9 feet to 10 feet below ground surface (bgs). The two site-specific background soil borings were then advanced using a tire mounted drill rig equipped with solid stem auger. The site-specific background borings were advanced 695 feet southwest (BG01) and 674 feet north (BG-02) of the Site, respectively. The two site-specific background boreholes were advanced on undisturbed native lands to depths of 42 feet bgs. Soil samples from each of the site-specific background soil borings were characterized and sampled starting from the bottom of the hydro-vac pothole to the boring terminus which included the following intervals: 10-12 feet bgs, 15-17 feet bgs, 20-22 feet bgs, 25-27 feet bgs, 30-32 feet bgs, 35-37 feet bgs, and 40-42 feet bgs. Soil samples were collected using a split spoon sampler and characterized utilizing the United Soil Classification System. The geologist visually inspected the soil samples and field screened the soil head space using a photoionization detector to monitor for the presence or absence of volatile organic compounds. A total of seven soil samples were submitted from each site-specific background boring. All soil samples were collected in clean laboratory-prepared containers and submitted to Pace Analytical of Mount Juliet, Tennessee for analysis of the arsenic, pH, SAR, electrical conductivity (EC), and boron. The soil boring logs are included in Enclosure A. The background soil boring locations are depicted on Figure 2.

WSP USA
820 MEGAN AVENUE, UNIT B
RIFLE CO 81650

Tel.: 970-285-9985
wsp.com



BACKGROUND SOIL ANALYTICAL RESULTS – H7

Laboratory analytical results of the site-specific background soil samples collected on June 13, 2022, indicate all 14 samples exceeded the COGCC Table 915-1 Residential Soil Screening Level Concentrations (RSSLC) for arsenic with concentrations ranging from 6.69 milligrams per kilogram (mg/kg) in soil sample 20220613-H7(BG-02)@25-27' to 22.2 mg/kg in soil sample 20220613-H7(BG-02)@30-32'. Two background soil samples, 20220613-H7(BG-01)@10-12' and 20220613-H7(BG-02)@15-17', exceeded COGCC 915-1 Cleanup Concentration (CC) for EC with values of 4.650 millimhos per centimeter (mmhos/cm) and 4.720 mmhos/cm, respectively. Five of the 14 background soil samples collected exceeded COGCC 915-1 CC for pH with values ranging from 8.33 in soil sample 20220613-H7(BG-02)@40-42' to 8.67 in soil sample 20220613-H7(BG-01)@35-37'. Additionally, nine of 14 background soil samples collected exceeded the COGCC 915-1 CC for SAR with values ranging from 6.05 in soil sample 20220613-H7(BG-02)@25-27' to 10.8 in soil sample 20220613-H7(BG-01)@30-32'. Boron did not exceed the COGCC Table 915-1 RSSLC. The laboratory analytical results are included in Enclosure B and summarized in Table 1.

CONCLUSIONS – H7

The negligible impacts of the inorganic exceedances, specifically pH should be considered by the Director. Per COGCC Rule 915.e.2(C), WSP recommends that Caerus request that the elevated pH values in all soil samples associated with the delineation and remediation of this release be considered representative, and evaluated and considered as naturally occurring at the Site. The initial point of release (POR) confirmation soil sample [20211005-H7(POR)@7.5'] collected immediately below the POR exhibited a pH value of 8.38 which is an exceedance of the COGCC Table 915-1 CC for pH. Although pH values in 21 of the 27 soil boring and pothole delineation confirmation soil samples collected are considered elevated with respect to the COGCC Table 915-1 CC, these values (ranging from 8.36 to 9.46) should be considered naturally occurring. These pH values are not representative of or associated with the release, as the site-specific background soil samples collected are within range of initial POR pH values. Five of 14 of the site-specific background soil samples collected off the original pad disturbance to establish background soil conditions per COGCC Rule 915.e.(2).D. are similarly elevated and considered an exceedance to the COGCC Table 915-1 CC (values ranging from 8.33 to 8.67). In accordance with COGCC Rule 915.e.2(C) Operators can request to modify the list of COC. WSP recommends that Caerus request the Director for permission for the pH concentrations at the Site be evaluated as naturally occurring within the release area. The naturally elevated pH values observed in the release area sample does not appear to be as a result of the dumphine release, nor does it appear to be affecting native vegetation, or the disturbed area of the pad were the release occurred.

Negligible impacts of the inorganic exceedances of SAR should also be considered by the Director per COGCC Rule 915.e.2(C). WSP recommends that Caerus request that the elevated SAR values observed in the initial POR soil samples [20211005-H7(POR)@7.5', 20211104-H7(POR)@9', and 20211104-H7(POR)@12'] be disregarded and not considered when approving this request for the remaining release delineation confirmation soil samples to be considered and evaluated as representative. This request is due to the fact that the three samples mentioned above were removed from and disposed of using a hydro-vacuum truck during the initial investigation activities. With the removal of these three POR soil samples, all remaining soil samples associated with the delineation and remediation of this release are within site-specific background soil sample 20220613-H7(BG-01)@30-32' (value of 10.8) and should be considered representative, and evaluated and considered as naturally occurring at the Site. Excluding the three soil samples removed using a hydro-vacuum, 11 of the 24 soil boring and pothole delineation confirmation soil samples collected are considered elevated with respect to the COGCC Table 915-1 CC value of 6, with values ranging from 6.10 [20211118-H7 (SB-POR) @ 30-32'] to 10.5 [20211104-H7(POR)@15']. Similarly, nine of 14 background soil samples collected exceeded the COGCC 915-1 CC for SAR with values ranging from 6.05 in soil sample 20220613-H7(BG-02)@25-27' to 10.8 in soil sample 20220613-H7(BG-01)@30-32'.

All laboratory analytical results are included as Enclosure B and summarized in Table 1.

Based on the summary of site-specific background analytical data provided in response to the COA in DN 403023769, Caerus has demonstrated the most appropriate comparison for Table 915-1 Soil Suitability for



Reclamation parameters. WSP recommends that Caerus request the Director's approval to continue as planned, with the ability to backfill with the excavated material once compliance is confirmed. Additionally, based on the information provided above, Caerus requests that all future soil samples be analyzed under a further reduced suite to include TPH, BTEX, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.

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 be 'D. Held'.

Dustin Held
Sr. Consultant, Environmental Geologist

A handwritten signature in black ink, appearing to be 'Parker Coit'.

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

Encl.

FIGURES

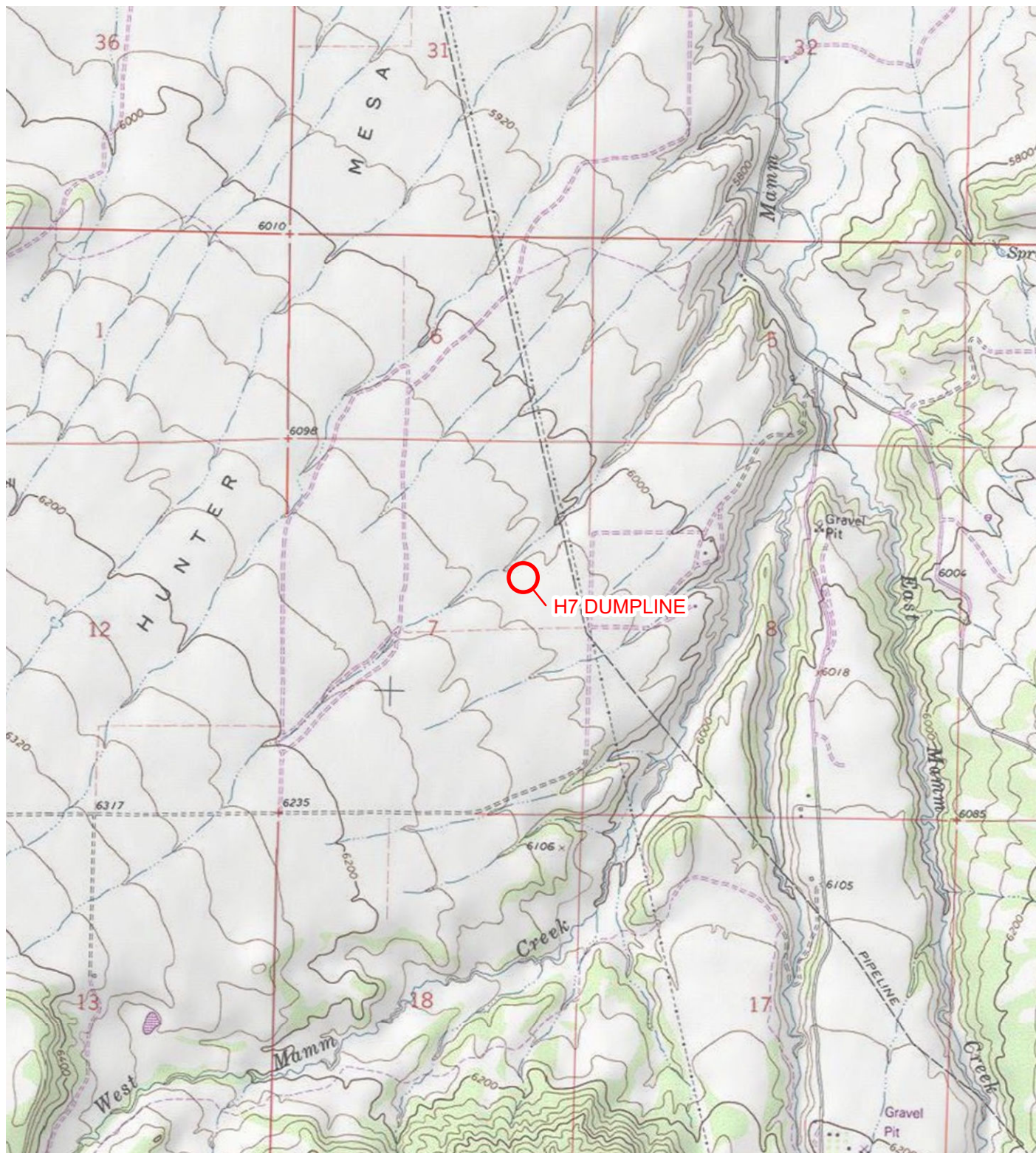


IMAGE COURTESY OF ESRI/USGS

LEGEND

○ SITE LOCATION

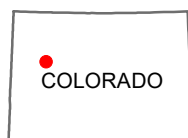
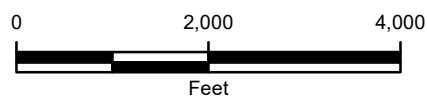
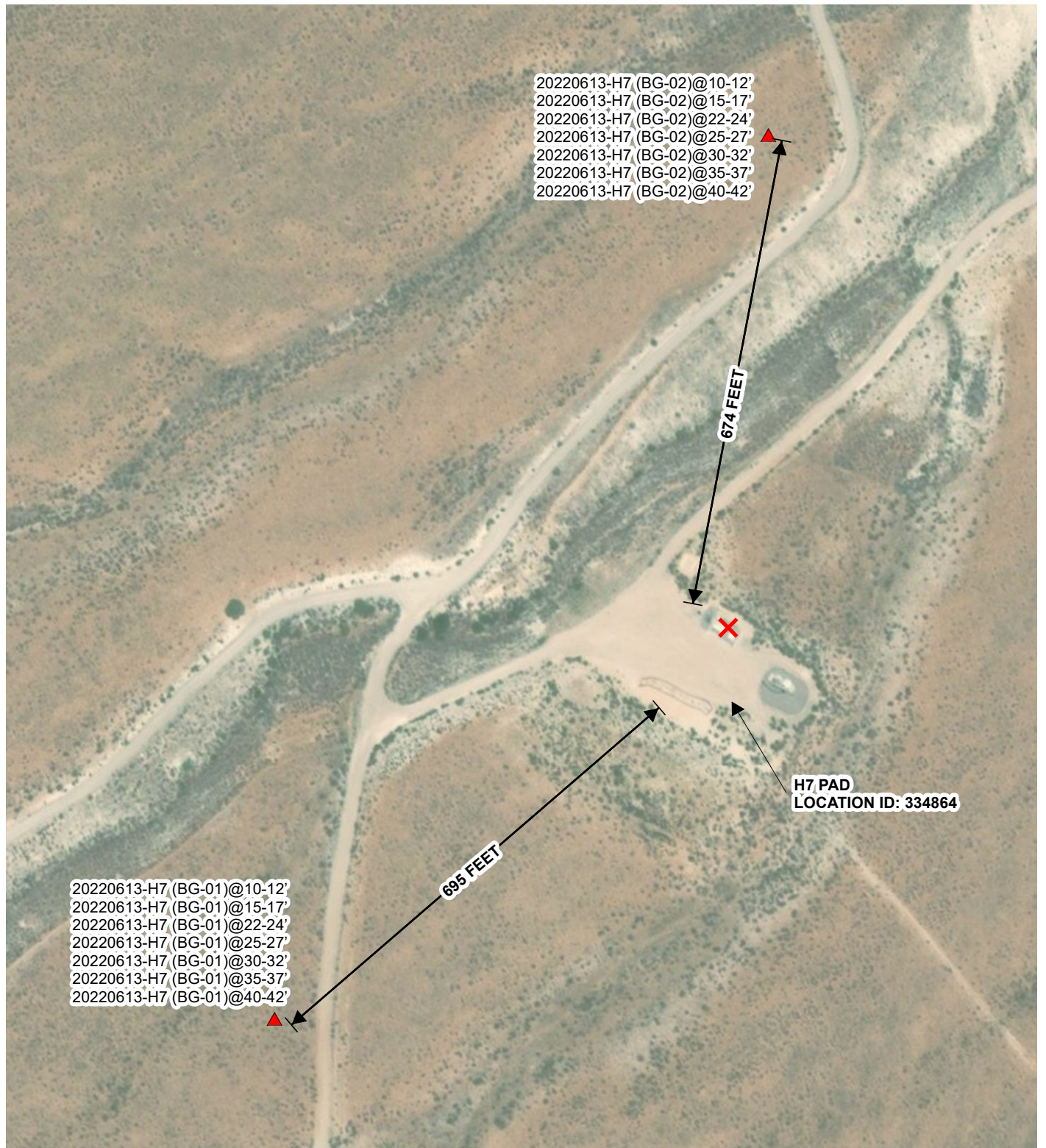


FIGURE 1
 SITE LOCATION MAP
 H7 DUMPLINE
 SENE SEC 7-T7S-R92W
 GARFIELD COUNTY, COLORADO
 CAERUS OIL AND GAS LLC





LEGEND

- ✗ POINT OF RELEASE
- ▲ BACKGROUND SOIL SAMPLE

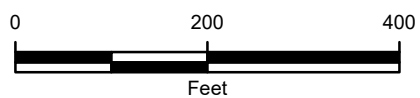


FIGURE 2
 BACKGROUND SOIL SAMPLE LOCATION MAP
 H7 DUMPLINE
 SENE SEC 7-T7S-R92W
 GARFIELD COUNTY, COLORADO
 CAERUS OIL AND GAS LLC



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		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-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-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:

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H7 DUMPLINE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

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				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

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

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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-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

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mg/kg - milligrams per kilogram

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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			
				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

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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		
				20220106-H7 (PH01) @ 11.5-13.5'	20220106-H7 (PH01) @ 16-16.5'	20220106-H7 (PH01) @ 16-16.5'
Sample Date				1/6/2022	1/6/2022	1/6/2022
Sample Depth (feet)				11.5-13.5	16-16.5	16-16.5
Sample Type				Confirmation Sample	Confirmation Sample	Confirmation Sample
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	154	190	NA
Boron	2	2	mg/l	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	1.88	ND
Copper	3,100	46 (M)	mg/kg	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	8.72	8.94	NA
SAR	<6	<6	unitless	3.66	5.07	NA
TPH-GRO			mg/kg	ND	0.109	NA
TPH-DRO			mg/kg	ND	ND	NA
TPH-ORO			mg/kg	8.30	6.53	NA
TPH	500	500	mg/kg	8.30	6.639	NA
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	NA
Toluene	490	0.69 (M)	mg/kg	ND	ND	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	NA
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	NA
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA

NOTES:

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BOLD - indicates result exceeds the COGCC concentration level

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mg/kg - milligrams per kilogram

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

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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			
				20220613-H7(BG-01)@10-12'	20220613-H7(BG-01)@15-17'	20220613-H7(BG-01)@20-22'	20220613-H7(BG-01)@25-27'
Sample Date				6/13/2022	6/13/2022	6/13/2022	6/13/2022
Sample Depth (feet)				10-12	15-17	20-22	25-27
Sample Type				Background Sample	Background Sample	Background Sample	Background Sample
Arsenic	0.68	0.29 (M)	mg/kg	19.3	11.5	10.9	9.99
Barium	15,000	82 (M)	mg/kg	NA	NA	NA	NA
Boron	2	2	mg/l	0.658	0.465	0.372	0.299
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA
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	4.650	3.730	3.680	3.350
pH	6 - 8.3	6 - 8.3	SU	7.49	7.98	8.22	8.19
SAR	<6	<6	unitless	4.45	8.36	7.77	8.54
TPH-GRO			mg/kg	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA
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	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	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA
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	BACKGROUND SOIL SAMPLES			
				20220613-H7(BG-01)@30-32'	20220613-H7(BG-01)@35-37'	20220613-H7(BG-01)@40-42'	20220613-H7(BG-02)@10-12'
Sample Date				6/13/2022	6/13/2022	6/13/2022	6/13/2022
Sample Depth (feet)				30-32	35-37	40-42	10-12
Sample Type				Background Sample	Background Sample	Background Sample	Background Sample
Arsenic	0.68	0.29 (M)	mg/kg	11.5	10.5	11.0	16.9
Barium	15,000	82 (M)	mg/kg	NA	NA	NA	NA
Boron	2	2	mg/l	0.270	0.228	0.208	0.300
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA
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	3.040	1.200	1.660	2.200
pH	6 - 8.3	6 - 8.3	SU	7.46	8.67	8.43	8.42
SAR	<6	<6	unitless	10.8	7.91	9.84	8.51
TPH-GRO			mg/kg	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA
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	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	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA
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

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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	BACKGROUND SOIL SAMPLES			
				20220613-H7(BG-02)@15-17'	20220613-H7(BG-02)@20-22'	20220613-H7(BG-02)@25-27'	20220613-H7(BG-02)@30-32'
Sample Date				6/13/2022	6/13/2022	6/13/2022	6/13/2022
Sample Depth (feet)				15-17	20-22	25-27	30-32
Sample Type				Background Sample	Background Sample	Background Sample	Background Sample
Arsenic	0.68	0.29 (M)	mg/kg	19.3	14.3	6.69	22.2
Barium	15,000	82 (M)	mg/kg	NA	NA	NA	NA
Boron	2	2	mg/l	0.227	0.237	0.222	0.178
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA
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	4.720	3.070	1.390	1.010
pH	6 - 8.3	6 - 8.3	SU	7.90	7.96	8.15	8.48
SAR	<6	<6	unitless	4.83	5.71	6.05	6.56
TPH-GRO			mg/kg	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA
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	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	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA
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

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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)

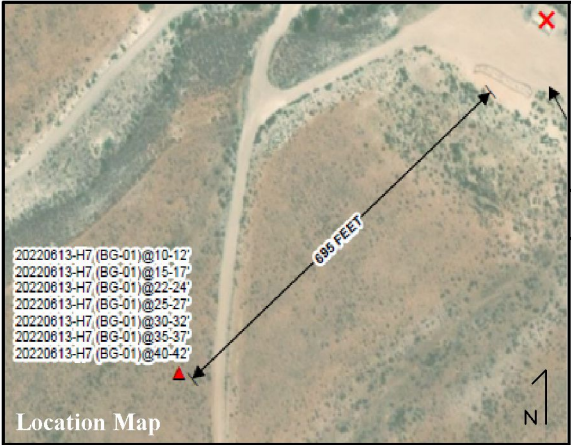
TABLE 1

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	BACKGROUND SOIL SAMPLES	
				20220613-H7(BG-02)@35-37'	20220613-H7(BG-02)@40-42'
Sample Date				6/13/2022	6/13/2022
Sample Depth (feet)				35-37	40-42
Sample Type				Background Sample	Background Sample
Arsenic	0.68	0.29 (M)	mg/kg	7.77	10.3
Barium	15,000	82 (M)	mg/kg	NA	NA
Boron	2	2	mg/l	0.216	0.206
Cadmium	71	0.38 (M)	mg/kg	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA
EC	<4	<4	mmhos/cm	1.410	0.919
pH	6 - 8.3	6 - 8.3	SU	8.22	8.33
SAR	<6	<6	unitless	5.81	5.02
TPH-GRO			mg/kg	NA	NA
TPH-DRO			mg/kg	NA	NA
TPH-ORO			mg/kg	NA	NA
TPH	500	500	mg/kg	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA
Acenaphthene	360	5.8 (R)	mg/kg	NA	NA
Anthracene	1,800	0.55 (R)	mg/kg	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA
Dibenzo(A,H)anthracene	0.11	0.11 (R)	mg/kg	NA	NA
Fluoranthene	240	0.096 (R)	mg/kg	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA
Pyrene	180	1.3 (R)	mg/kg	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
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ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

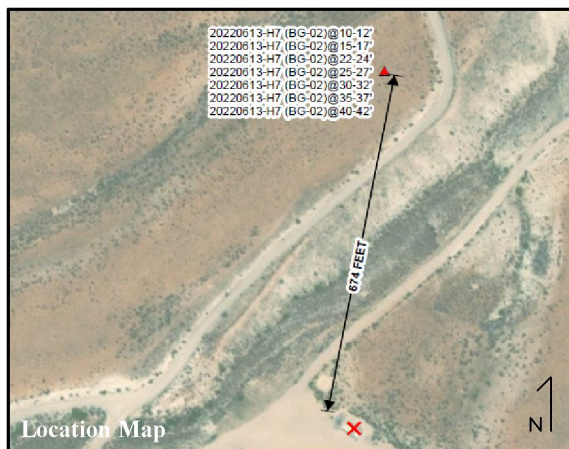
ENCLOSURE A – SOIL BORING LOGS



BORING LOG/MONITORING WELL COMPLETION DIAGRAM

HOLE DIAMETER:	4"	PROJECT NAME:	H7 Dumpline	LOGGED BY:	Kevin Fletcher
WELL DIAMETER:	NA	PROJECT NO:	31403501.013	SAMPLE METHOD:	Split Spoon
CASING TYPE:	NA	BORING/WELL ID:	BG-01	DRILL METHOD:	Solid Stem Auger
SCREEN TYPE:	NA	COMPLETION DATE:	6/13/22	DRILLED BY:	CD&S
		TD (ft bgs):	42'	DETECTOR:	MiniRAE 3000
		DTW (ft bgs):	NA	FILTER PACK:	NA
		SCREEN SLOT:	NA	ANNULUS SEAL:	Bentonite Chips
		CASING LENGTH:	NA	SURFACE SEAL:	NA
		SCREEN LENGTH:	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	
0.1		dry	BG-01 @10-12'	/	10	ML		10' - 12' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.0		dry	BG-01 @15-17'	/	15	ML		15' - 17' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.1		dry	BG-01 @20-22'	/	20	ML		20' - 22' - SILT, dry, hard, medium plasticity, no staining, no odor	
0.1		dry	BG-01 @25-27'	/	25	ML		25' - 27' - SILT, dry, hard, medium plasticity, no staining, no odor	
0.1		dry	BG-01 @30-32'	/	30	ML		30' - 32' - SILT, dry, hard, medium plasticity, no staining, no odor	
0.2		dry	BG-01 @35-37'	/	35	ML		35' - 37' - SILT, dry, hard, medium plasticity, no staining, no odor	
0.2		dry	BG-01 @40-42'	/	40	ML		40' - 42' - SILT, dry, hard, medium plasticity, no staining, no odor	



BORING LOG/MONITORING WELL COMPLETION DIAGRAM

HOLE DIAMETER: 4"
WELL DIAMETER: NA
CASING TYPE: NA
SCREEN TYPE: NA

PROJECT NAME: H7 Dumpline
PROJECT NO: 31403501.013
BORING/WELL ID: BG-02
COMPLETION DATE: 6/13/22
TD (ft bgs): 42'
DTW (ft bgs): NA
SCREEN SLOT: NA
CASING LENGTH: NA
SCREEN LENGTH: NA

LOGGED BY: Kevin Fletcher
SAMPLE METHOD: Split Spoon
DRILL METHOD: Solid Stem Auger
DRILLED BY: CD&S
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' - 10' - hydrovacuumed, interval not logged	
0.1		dry	BG-02 @10-12'	/	10	ML		10' - 12' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.1		dry	BG-02 @15-17'	/	15	ML		15' - 17' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.4		dry	BG-02 @20-22'	/	20	ML		20' - 22' - SILT w/ FINE SAND and thin sandstone lenses, dry, firm, low plasticity, no staining, no odor	
0.0		dry	BG-02 @25-27'	/	25	ML		25' - 27' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.1		dry	BG-02 @30-32'	/	30	ML		30' - 32' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.0		dry	BG-02 @35-37'	/	35	ML		35' - 37' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	
0.0		dry	BG-02 @40-42'	/	40	ML		40' - 42' - SILT w/ FINE SAND, dry, firm, low plasticity, no staining, no odor	

ENCLOSURE B – LABORATORY ANALYTICAL REPORTS

Caerus Oil and Gas

Sample Delivery Group: L1505173
Samples Received: 06/15/2022
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 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

20220613-H7 (BG-01) @ 10-12' L1505173-01 Solid

Collected by
Kevin Fletcher

Collected date/time
06/13/22 09:05

Received date/time
06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:03	07/06/22 20:03	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1881766	1	06/19/22 07:53	06/20/22 12:45	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:31	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 16:36	JPD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

20220613-H7 (BG-01) @ 15-17' L1505173-02 Solid

Collected by
Kevin Fletcher

Collected date/time
06/13/22 09:30

Received date/time
06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:06	07/06/22 20:06	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1881766	1	06/19/22 07:53	06/20/22 12:45	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:33	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:11	JPD	Mt. Juliet, TN

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

20220613-H7 (BG-01) @ 20-22' L1505173-03 Solid

Collected by
Kevin Fletcher

Collected date/time
06/13/22 10:00

Received date/time
06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:08	07/06/22 20:08	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:36	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:15	JPD	Mt. Juliet, TN

⁹ Sc

20220613-H7 (BG-01) @ 25-27' L1505173-04 Solid

Collected by
Kevin Fletcher

Collected date/time
06/13/22 10:30

Received date/time
06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:11	07/06/22 20:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:39	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:18	JPD	Mt. Juliet, TN

20220613-H7 (BG-01) @ 30-32' L1505173-05 Solid

Collected by
Kevin Fletcher

Collected date/time
06/13/22 11:00

Received date/time
06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:14	07/06/22 20:14	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:42	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:21	JPD	Mt. Juliet, TN

SAMPLE SUMMARY

20220613-H7 (BG-01) @ 35-37' L1505173-06 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 11:30
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:16	07/06/22 20:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:45	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:24	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

20220613-H7 (BG-01) @ 40-42' L1505173-07 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 12:15
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:19	07/06/22 20:19	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:53	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:28	JPD	Mt. Juliet, TN

⁵Sr

⁶Qc

⁷Gl

⁸Al

20220613-H7 (BG-02) @ 10-12' L1505173-08 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 12:55
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 20:22	07/06/22 20:22	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:56	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:31	JPD	Mt. Juliet, TN

⁹Sc

20220613-H7 (BG-02) @ 15-17' L1505173-09 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 13:20
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887986	1	07/06/22 19:16	07/06/22 19:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887982	1	06/30/22 20:55	07/06/22 19:59	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:34	JPD	Mt. Juliet, TN

20220613-H7 (BG-02) @ 20-22' L1505173-10 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 13:30
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887990	1	07/06/22 20:33	07/06/22 20:33	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887992	1	07/04/22 00:04	07/07/22 13:04	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:37	JPD	Mt. Juliet, TN

SAMPLE SUMMARY

20220613-H7 (BG-02) @ 25-27' L1505173-11 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 13:55
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887990	1	07/06/22 20:36	07/06/22 20:36	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887992	1	07/04/22 00:04	07/07/22 13:06	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 17:57	JPD	Mt. Juliet, TN



20220613-H7 (BG-02) @ 30-32' L1505173-12 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 14:15
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887990	1	07/06/22 20:38	07/06/22 20:38	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887992	1	07/04/22 00:04	07/07/22 13:09	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 18:00	JPD	Mt. Juliet, TN



20220613-H7 (BG-02) @ 35-37' L1505173-13 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 14:45
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887990	1	07/06/22 20:41	07/06/22 20:41	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887992	1	07/04/22 00:04	07/07/22 13:12	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 18:03	JPD	Mt. Juliet, TN

20220613-H7 (BG-02) @ 40-42' L1505173-14 Solid

Collected by Kevin Fletcher
Collected date/time 06/13/22 15:15
Received date/time 06/15/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1887990	1	07/06/22 20:44	07/06/22 20:44	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1883093	1	06/21/22 08:00	06/23/22 09:05	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1882850	1	06/21/22 12:40	06/21/22 14:33	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1887992	1	07/04/22 00:04	07/07/22 13:15	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1883072	5	06/23/22 17:02	06/24/22 18:07	JPD	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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.45		1	07/06/2022 20:03	WG1887986

¹Cp

²Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.49	T8	1	06/23/2022 09:05	WG1883093

³Ss

⁴Cn

Sample Narrative:
L1505173-01 WG1883093: 7.49 at 22.3C

⁵Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	<u>Qualifier</u>	RDL umhos/cm	Dilution	Analysis date / time	<u>Batch</u>
Specific Conductance	4650		10.0	1	06/20/2022 12:45	WG1881766

⁶Qc

⁷Gl

Sample Narrative:
L1505173-01 WG1881766: at 25C

⁸Al

⁹Sc

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

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Hot Water Sol. Boron	0.658		0.0167	0.200	1	07/06/2022 19:31	WG1887982

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	19.3		0.100	1.00	5	06/24/2022 16:36	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.36		1	07/06/2022 20:06	WG1887986

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	06/23/2022 09:05	WG1883093

Sample Narrative:

L1505173-02 WG1883093: 7.98 at 22.7C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	3730		10.0	1	06/20/2022 12:45	WG1881766

Sample Narrative:

L1505173-02 WG1881766: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.465		0.0167	0.200	1	07/06/2022 19:33	WG1887982

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	11.5		0.100	1.00	5	06/24/2022 17:11	WG1883072

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.77		1	07/06/2022 20:08	WG1887986

¹Cp

²Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	T8	1	06/23/2022 09:05	WG1883093

³Ss

⁴Cn

Sample Narrative:

L1505173-03 WG1883093: 8.22 at 22.4C

⁵Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3680		10.0	1	06/21/2022 14:33	WG1882850

⁶Qc

⁷Gl

Sample Narrative:

L1505173-03 WG1882850: at 25C

⁸Al

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.372		0.0167	0.200	1	07/06/2022 19:36	WG1887982

⁹Sc

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	10.9		0.100	1.00	5	06/24/2022 17:15	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.54		1	07/06/2022 20:11	WG1887986

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.19	T8	1	06/23/2022 09:05	WG1883093

3 Ss

4 Cn

Sample Narrative:

L1505173-04 WG1883093: 8.19 at 22.5C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	3350		10.0	1	06/21/2022 14:33	WG1882850

6 Qc

7 Gl

Sample Narrative:

L1505173-04 WG1882850: at 25C

8 Al

9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.299		0.0167	0.200	1	07/06/2022 19:39	WG1887982

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	9.99		0.100	1.00	5	06/24/2022 17:18	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.8		1	07/06/2022 20:14	WG1887986

¹Cp

²Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.46	T8	1	06/23/2022 09:05	WG1883093

³Ss

⁴Cn

Sample Narrative:

L1505173-05 WG1883093: 7.46 at 22.5C

⁵Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	3040		umhos/cm	1	06/21/2022 14:33	WG1882850

⁶Qc

⁷Gl

Sample Narrative:

L1505173-05 WG1882850: at 25C

⁸Al

⁹Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.270		mg/l	mg/l	1	07/06/2022 19:42	WG1887982

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	11.5		mg/kg	mg/kg	5	06/24/2022 17:21	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.91		1	07/06/2022 20:16	WG1887986

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.67	T8	1	06/23/2022 09:05	WG1883093

Sample Narrative:

L1505173-06 WG1883093: 8.67 at 22.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1200		10.0	1	06/21/2022 14:33	WG1882850

Sample Narrative:

L1505173-06 WG1882850: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.228		0.0167	0.200	1	07/06/2022 19:45	WG1887982

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	10.5		0.100	1.00	5	06/24/2022 17:24	WG1883072

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.84		1	07/06/2022 20:19	WG1887986

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.43	T8	1	06/23/2022 09:05	WG1883093

Sample Narrative:

L1505173-07 WG1883093: 8.43 at 22.7C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	1660		10.0	1	06/21/2022 14:33	WG1882850

Sample Narrative:

L1505173-07 WG1882850: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.208		0.0167	0.200	1	07/06/2022 19:53	WG1887982

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	11.0		0.100	1.00	5	06/24/2022 17:28	WG1883072

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.51		1	07/06/2022 20:22	WG1887986

1
Cp

2
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	06/23/2022 09:05	WG1883093

3
Ss

4
Cn

Sample Narrative:
L1505173-08 WG1883093: 8.42 at 22.6C

5
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2200		10.0	1	06/21/2022 14:33	WG1882850

6
Qc

7
Gl

Sample Narrative:
L1505173-08 WG1882850: at 25C

8
Al

9
Sc

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.300		0.0167	0.200	1	07/06/2022 19:56	WG1887982

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	16.9		0.100	1.00	5	06/24/2022 17:31	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.83		1	07/06/2022 19:16	WG1887986

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	T8	1	06/23/2022 09:05	WG1883093

Sample Narrative:

L1505173-09 WG1883093: 7.9 at 22.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	4720		10.0	1	06/21/2022 14:33	WG1882850

Sample Narrative:

L1505173-09 WG1882850: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.227		0.0167	0.200	1	07/06/2022 19:59	WG1887982

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg	mg/kg			
Arsenic	19.3		0.100	1.00	5	06/24/2022 17:34	WG1883072

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.71		1	07/06/2022 20:33	WG1887990

¹Cp

²Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.96	T8	1	06/23/2022 09:05	WG1883093

³Ss

⁴Cn

Sample Narrative:
L1505173-10 WG1883093: 7.96 at 22.6C

⁵Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	3070		10.0	1	06/21/2022 14:33	WG1882850

⁶Qc

⁷Gl

Sample Narrative:
L1505173-10 WG1882850: at 25C

⁸Al

⁹Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.237		0.0167	0.200	1	07/07/2022 13:04	WG1887992

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.3		0.100	1.00	5	06/24/2022 17:37	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.05		1	07/06/2022 20:36	WG1887990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.15	T8	1	06/23/2022 09:05	WG1883093

Sample Narrative:

L1505173-11 WG1883093: 8.15 at 22.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1390		10.0	1	06/21/2022 14:33	WG1882850

Sample Narrative:

L1505173-11 WG1882850: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.222		0.0167	0.200	1	07/07/2022 13:06	WG1887992

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.69		0.100	1.00	5	06/24/2022 17:57	WG1883072

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.56		1	07/06/2022 20:38	WG1887990

1
Cp

2
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.48	T8	1	06/23/2022 09:05	WG1883093

3
Ss

4
Cn

Sample Narrative:
L1505173-12 WG1883093: 8.48 at 22.6C

5
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1010		10.0	1	06/21/2022 14:33	WG1882850

6
Qc

7
Gl

Sample Narrative:
L1505173-12 WG1882850: at 25C

8
Al

9
Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.178	J	0.0167	0.200	1	07/07/2022 13:09	WG1887992

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	22.2		0.100	1.00	5	06/24/2022 18:00	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.81		1	07/06/2022 20:41	WG1887990

¹Cp

²Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	T8	1	06/23/2022 09:05	WG1883093

³Ss

⁴Cn

Sample Narrative:
L1505173-13 WG1883093: 8.22 at 22.7C

⁵Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1410		10.0	1	06/21/2022 14:33	WG1882850

⁶Qc

⁷Gl

Sample Narrative:
L1505173-13 WG1882850: at 25C

⁸Al

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.216		0.0167	0.200	1	07/07/2022 13:12	WG1887992

⁹Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.77		0.100	1.00	5	06/24/2022 18:03	WG1883072

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.02		1	07/06/2022 20:44	WG1887990

1
Cp

2
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	06/23/2022 09:05	WG1883093

3
Ss

4
Cn

Sample Narrative:
L1505173-14 WG1883093: 8.33 at 22.5C

5
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	919		10.0	1	06/21/2022 14:33	WG1882850

6
Qc

7
Gl

Sample Narrative:
L1505173-14 WG1882850: at 25C

8
Al

9
Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.206		0.0167	0.200	1	07/07/2022 13:15	WG1887992

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.3		0.100	1.00	5	06/24/2022 18:07	WG1883072

L1503726-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1503726-01 06/23/22 09:05 • (DUP) R3806454-2 06/23/22 09:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	4.61	4.60	1	0.217		1

Sample Narrative:

OS: 4.61 at 22.7C

DUP: 4.6 at 22.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1505173-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1505173-03 06/23/22 09:05 • (DUP) R3806454-3 06/23/22 09:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.22	8.23	1	0.122		1

Sample Narrative:

OS: 8.22 at 22.4C

DUP: 8.23 at 22.5C

Laboratory Control Sample (LCS)

(LCS) R3806454-1 06/23/22 09:05

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

Sample Narrative:

LCS: 9.9 at 22.9C

Method Blank (MB)

(MB) R3805020-1 06/20/22 12:45

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1504999-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1504999-05 06/20/22 12:45 • (DUP) R3805020-3 06/20/22 12:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	225	233	1	3.76		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1505001-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1505001-08 06/20/22 12:45 • (DUP) R3805020-4 06/20/22 12:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	5070	5010	1	1.19		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3805020-2 06/20/22 12:45

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	288	107	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3805607-1 06/21/22 14:33

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1505173-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1505173-12 06/21/22 14:33 • (DUP) R3805607-3 06/21/22 14:33

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1010	998	1	1.39		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1506388-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1506388-01 06/21/22 14:33 • (DUP) R3805607-4 06/21/22 14:33

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	52.0	51.7	1	0.579		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3805607-2 06/21/22 14:33

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	282	105	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3811663-1 07/06/22 18:45

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

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

(LCS) R3811663-2 07/06/22 18:48 • (LCSD) R3811663-3 07/06/22 18:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.09	1.09	109	109	80.0-120			0.152	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3812039-1 07/07/22 12:56

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3807339-1 06/24/22 16:29

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

Laboratory Control Sample (LCS)

(LCS) R3807339-2 06/24/22 16:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.6	96.6	80.0-120	

L1505173-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1505173-01 06/24/22 16:36 • (MS) R3807339-5 06/24/22 16:46 • (MSD) R3807339-6 06/24/22 16:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	19.3	120	114	101	95.2	5	75.0-125			4.69	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

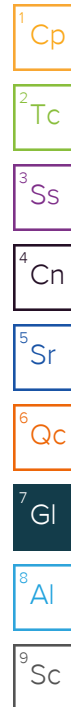
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
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.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

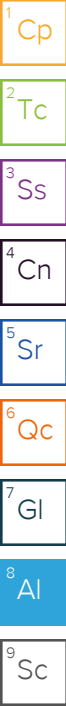
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 2



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



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):

Kevin Fletcher

Site/Facility ID #
H7

P.O. #
H7

Collected by (signature):

[Signature]

Rush? (Lab MUST Be Notified)

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

Quote #

Date Results Needed

Standard TAT

Immediately
Packed on Ice N Y X

No.
of
Cntrs

pH, EC, SAR, Boron

Arsenic

L# U505173
D142

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks

Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	pH, EC, SAR, Boron	Arsenic												
20220613-H7(BG-01)@10-12'	Grab	SS	10-12'	6/13/22	905	2	X	X												-01
20220613-H7(BG-01)@15-17'			15-17'		930															-02
20220613-H7(BG-01)@20-22'			20-22'		1000															-03
20220613-H7(BG-01)@25-27'			25-27'		1030															-04
20220613-H7(BG-01)@30-32'			30-32'		1100															-05
20220613-H7(BG-01)@35-37'			35-37'		1130															-06
20220613-H7(BG-01)@40-42'			40-42'		1215															-07
20220613-H7(BG-02)@10-12'			10-12'		1255															-08
20220613-H7(BG-02)@15-17'			15-17'		1320															-09
20220613-H7(BG-02)@20-22'			20-22'		1330															-10

* 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 #

pH Temp

Flow Other

Sample Receipt Checklist

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

Relinquished by: (Signature)

[Signature]

Date:

6/14/22

Time:

1500

Received by: (Signature)

[Signature]

Trip Blank Received: Yes/No

HCL / MeOH
TBR

Relinquished by: (Signature)

[Signature]

Date:

6/14/22

Time:

1700

Received by: (Signature)

[Signature]

Temp: DRA* Bottles Received:

1.3+0=1.3 28

If preservation required by Login: Date/Time

Relinquished by: (Signature)

[Signature]

Date:

6/15/22

Time:

0930

Received for lab by: (Signature)

[Signature]

Date:

6/15/22

Time:

0930

Hold:

Condition:

NCF / OK

[illegible]