VIA ELECTRONIC MAIL –

April 18, 2022

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

Subject: **Report of Work Completed 1Q 2022**
Dumpline Release – COGCC Remediation Number 17035
J17E
Mamm Creek Field
Garfield County, Colorado

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas, LLC (Caerus), conducted quarterly groundwater sampling, along with operation and maintenance (O&M) activities utilizing trailer skids (solar and pilot) associated with the dumpline release at the J17E (Facility ID: 334782) pad location (Site). These activities were completed as quarterly requirements under Remediation Number (RN) 17035 and to monitor and remediate hydrocarbon impacts entrained within the subsurface at the Site. All remediation activities prior to January 20, 2022, can be referenced in Colorado Oil and Gas Conservation Commission (COGCC) Document Number 402924072 and RN 17035. The Site is located in the Caerus Mamm Creek area of operation in Garfield County, Colorado (Figure 1).

QUARTERLY GROUNDWATER SAMPLING – J17E

On January 20, 2022, WSP personnel conducted the quarterly groundwater monitoring activities at the Site. The groundwater monitoring activities performed include fluid level gauging and the collection of groundwater samples in all existing groundwater monitoring wells. A total of 11 groundwater samples were collected. When completing the first quarter 2022 sampling activities, light non-aqueous phase liquid (LNAPL) was not observed in any of the monitoring well locations. To properly purge the wells prior to sampling, either three well casing volumes of groundwater were removed from each well or the well was purged dry using high density polyethylene (HDPE) disposable bailers. Depth to groundwater ranged from 53.85 feet in MW08 to 73.30 feet in MW01. All groundwater measurements were collected from the top of casing (TOC) of the well. Groundwater generally flows from the south to the north-northwest direction at the Site. All groundwater samples were submitted to Pace Analytical (Pace) for laboratory analysis of the contaminants listed in COGCC Table 915-1 for groundwater.

On March 4, 2022, and March 25, 2022, WSP personnel conducted additional sampling of monitoring well SB02-TB to measure the remediation effectiveness of the AS/SVE pilot trailer on the hydrocarbon plume entrained within the subsurface. No LNAPL was observed or measured during these two sampling events. To properly purge the wells prior to sampling, either three well casing volumes of groundwater were removed from each well or the well was purged dry using HDPE disposable bailers. During these two-sampling events depth to groundwater in SB02-TB ranged from 55.15 feet to 55.42 feet, respectively. Per the COGCC (Director) approved reduced analytical suite in Document Number 402853537 these groundwater samples were submitted to Pace for laboratory analysis of the benzene, toluene, ethylbenzene, and total xylenes (BTEX).

A Site Map depicting the groundwater monitoring well locations is included as Figure 2. A Potentiometric Map illustrating relative groundwater flow direction is included as Figure 3. A summary of groundwater elevation data is included in Table 1.

BENCH TEST SAMPLING – J17E

WSP planned to conduct a bench test onsite during the first quarter of 2022 but due to inconsistent weather and muddy ground conditions onsite the bench testing has been pushed forward to the second quarter 2022. This bench test is planned to help Caerus determine a path forward to incorporate the impacted stockpiled soil to be to backfill the former excavation footprint.

OPERATION AND MAINTANCE ACTIVITIES – J17E

Bi-Weekly O&M – Solar Trailer Skid (SVE Only)

On January 6, 20, February 3, 17, and March 2, 17, and 30, 2022, WSP personnel completed bi-weekly O&M activities associated with the setup of a blower trailer skid to the soil vapor extraction (SVE) well SVE1. The blower trailer skid is equipped with a 1/8 horsepower regenerative blower manufactured by GAST. Bi-weekly O&M activities included: monitoring the blower connected to SVE1, documenting blower hours, adjusting/recording flow and vacuum, and the collection of one quarterly effluent air sample. During O&M activities headspace volatile organic compounds (VOCs) measurements were collected using a photoionization detector (PID) from SVE1 and nearby observation monitoring wells which included SB02-TB, MW08, and MW09 locations. PID headspace readings ranged from 0.2 parts per million (ppm) in MW08 to 1,580 ppm in SVE1. During the first quarter of 2022 the trailer skid blower operated for a total 131.1 hours.

On March 17, 2022, following measurement collection and running the system for approximately 1 hour, one air sample was collected in a 1-liter Tedlar bag for laboratory analysis. The air sample was shipped under chain-of-custody protocol to ALS Environmental (ALS) of Simi Valley, California for laboratory analysis of total volatile petroleum hydrocarbons (TVPH) as Gasoline by EPA TO-3 Modified and benzene toluene, ethylbenzene, and total xylenes (BTEX) by EPA TO-15 Modified. Results indicate a TVPH concentration of 12 milligrams per liter (mg/L).

Weekly O&M – Pilot Trailer Skid [SVE/Air Sparge (AS) Combined]

On February 9, 17, 24, and March 3, 25, and 30, 2022, WSP personnel completed weekly O&M activities associated with the setup of a pilot trailer skid equipped with a gas-powered blower and compressor connected to wells SVE1 and AS1. Weekly O&M activities included: monitoring the blower and compressor connected to SVE1 and AS1 well locations, documenting system runtime hours, adjusting/recording flow, applied vacuum (SVE), and applied pressure (AS), along with the collection of one quarterly effluent air sample.

During O&M activities headspace VOCs measurements were collected using a PID from SVE1 (stack) and nearby observation monitoring wells which included SB02-TB, MW08, and MW09 locations. PID readings ranged from 0.2 ppm in MW08 to 4,905 ppm in stack. As O&M operations were conducted utilizing the blower and compressor flow, vacuum, pressure, and change in depth to water were all measured during each weekly site visit to gauge subsurface influence of soil and groundwater to volatilize the entrained hydrocarbons. During the first quarter of 2022 the pilot trailer skid (blower and compressor units combined) operated for a total 33.9 hours.

On February 9, 2022, following measurement collection and running of the system (SVE/AS) for approximately 1 hour, one air sample was collected in a 1-liter Tedlar bag for laboratory analysis. The air sample was shipped under chain-of-custody protocol to ALS for laboratory analysis of TVPH as Gasoline by EPA TO-3 Modified and BTEX by EPA TO-15 Modified. Results indicate a TVPH concentration of 3.8 mg/L.

To determine effectiveness of the pilot trailer skid remediating the hydrocarbons entrained within the subsurface two groundwater samples were collected from SB02-TB location which has historically exceeded COGCC Table 915-1 CC. One sample was collected 48 hours post system shutdown on March 4, 2022, and the second was collected on March 25, 2022, pre system startup. The pilot trailer skid did not operate during the 21 days (504 hours) between these sampling events. Groundwater analytical results indicated all analytes were non-detect for the sample collected on March 4, 2022. Benzene was detected above the COGCC Table 915-1 CC in the sample collected on March 25, 2022. This data illustrates when the system is continually running, the hydrocarbons are effectively being removed.

Individual system TVPH results indicated a concentration of 12 mg/L (solar trailer) and 3.8 mg/l (pilot trailer), respectively (as mentioned above). Combined estimated TVPH air emissions of the two systems currently in operation at the Site is based the two separate samples collected from each system during the first quarter of 2022. Estimated combined system TVPH air emissions are 124 pounds resulting from volatilization of hydrocarbons during operation of the systems during the first quarter of 2022. During the first quarter the systems volatilized approximately 0.5 barrels (bbls) of hydrocarbons entrained in the subsurface. The rolling 12-month VOCs emissions estimate is well below the Colorado Department of Public Health and Environment (CDPHE) air permitting threshold of 2 tons VOCs per rolling 12-month period. An air analytical summary table is enclosed as Table 3 and an air emissions summary is enclosed as Table 4. The laboratory analytical reports are included as Enclosure A.

GROUNDWATER ANALYTICAL - J17E

Laboratory analytical results of all groundwater samples collected during the first quarter sampling (MW01 through MW10 and SB02-TB) on January 20, 2022, were either below the laboratory detection limits or within the COGCC Table 915-1 Clean-up Concentrations (CC) for groundwater except for benzene at the SB02-TB location. SB02-TB reported a benzene concentration of 28.0 micrograms per liter (µg/L). Chloride concentrations ranged from 6.65 mg/L in MW02 to 41.3 mg/L in MW01. Sulfate concentrations ranged from 97.9 mg/L in SB02-TB to 109 mg/L in MW01. TDS concentrations ranged from 756 mg/L in MW03 to 961 mg/L in MW01. A summary of groundwater laboratory analytical results is included as Table 2 and a map of all sampling locations and corresponding analytical results is included as Figure 4.

Laboratory analytical results from the groundwater sample collected from SB02-TB on March 4, 2022, were below detection limits for BTEX.

Laboratory results from the groundwater sample taken from SB02-TB on March 25, 2022, were either below the laboratory detection limits or within the COGCC Table 915-1 CC for groundwater except for benzene. SB02-TB reported a benzene concentration of 6.10 µg/L. A groundwater analytical map depicting the results of samples collected in March is included as Figure 5. The laboratory analytical reports are included as Enclosure A.

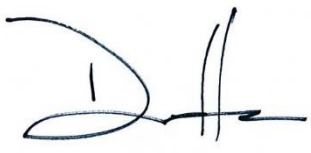
CONCLUSIONS – J17E

WSP recommends Caerus continue SVE system operation and the collection of one quarterly effluent air sampling from each system to monitor systems progress and ensure the air emissions remain below the CDPHE permitting threshold 2 tons of VOCs per rolling 12-month period.

Based on groundwater sample results from SB02-TB well location collected in March of 2022, the continued weekly runtime of the AS system associated with the Pilot Trailer Skid is effectively enhancing the removal of the entrained hydrocarbons within the groundwater at the Site.

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

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

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

Encl.

FIGURES

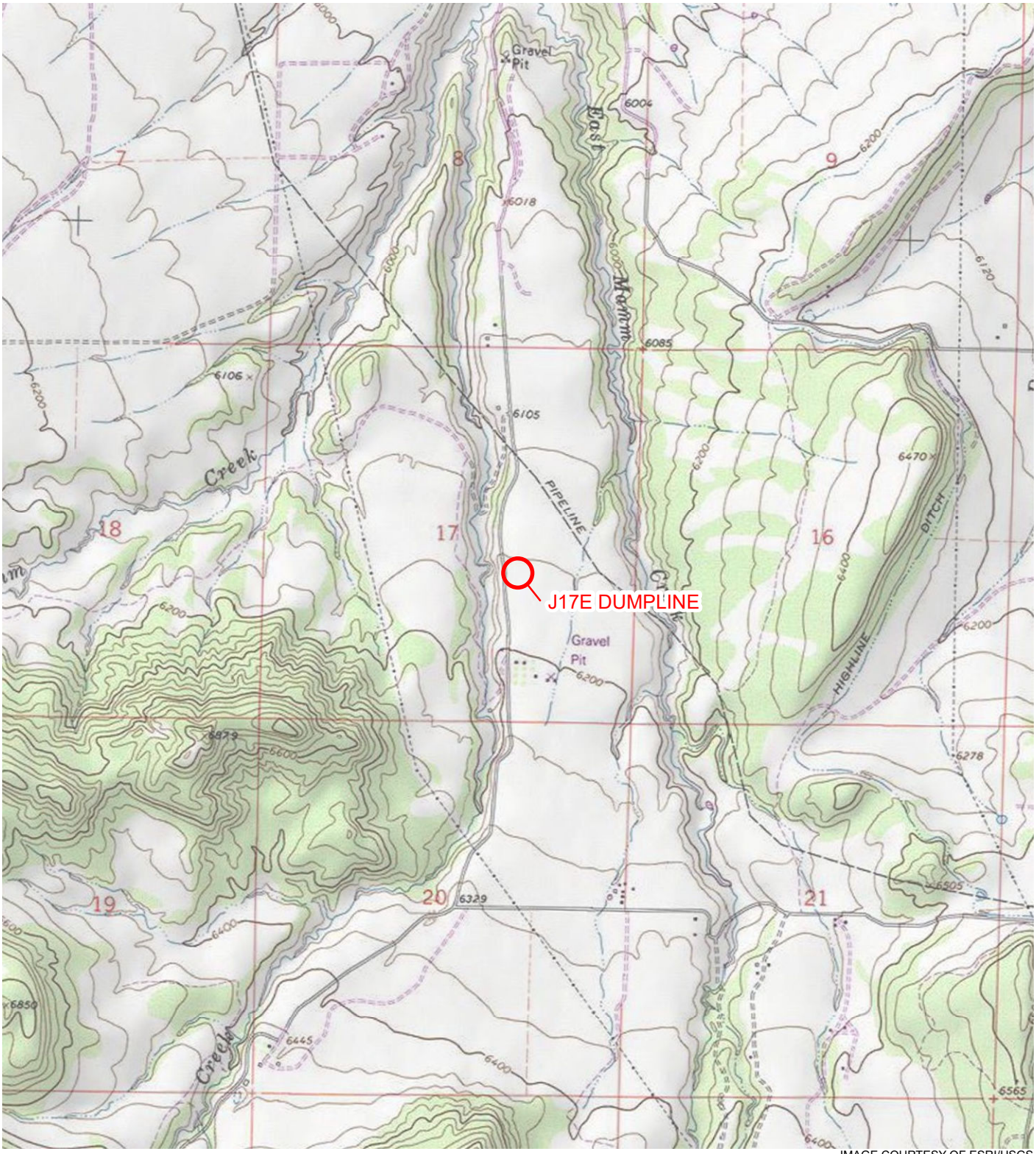


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
J17E DUMPLINE
NWSE SEC 17-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

wsp

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IMAGE COURTESY OF ESRI (MAXAR 2019)

LEGEND

- ⊗ MONITORING WELL
- ▲ AIR SPARGING WELL (AS)
- ■ SOIL VAPOR EXTRACTION WELL (SVE)

0 50 100
Feet

N

FIGURE 2
SITE MAP
J17E DUMPLINE
NWSE SEC 17-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

wsp

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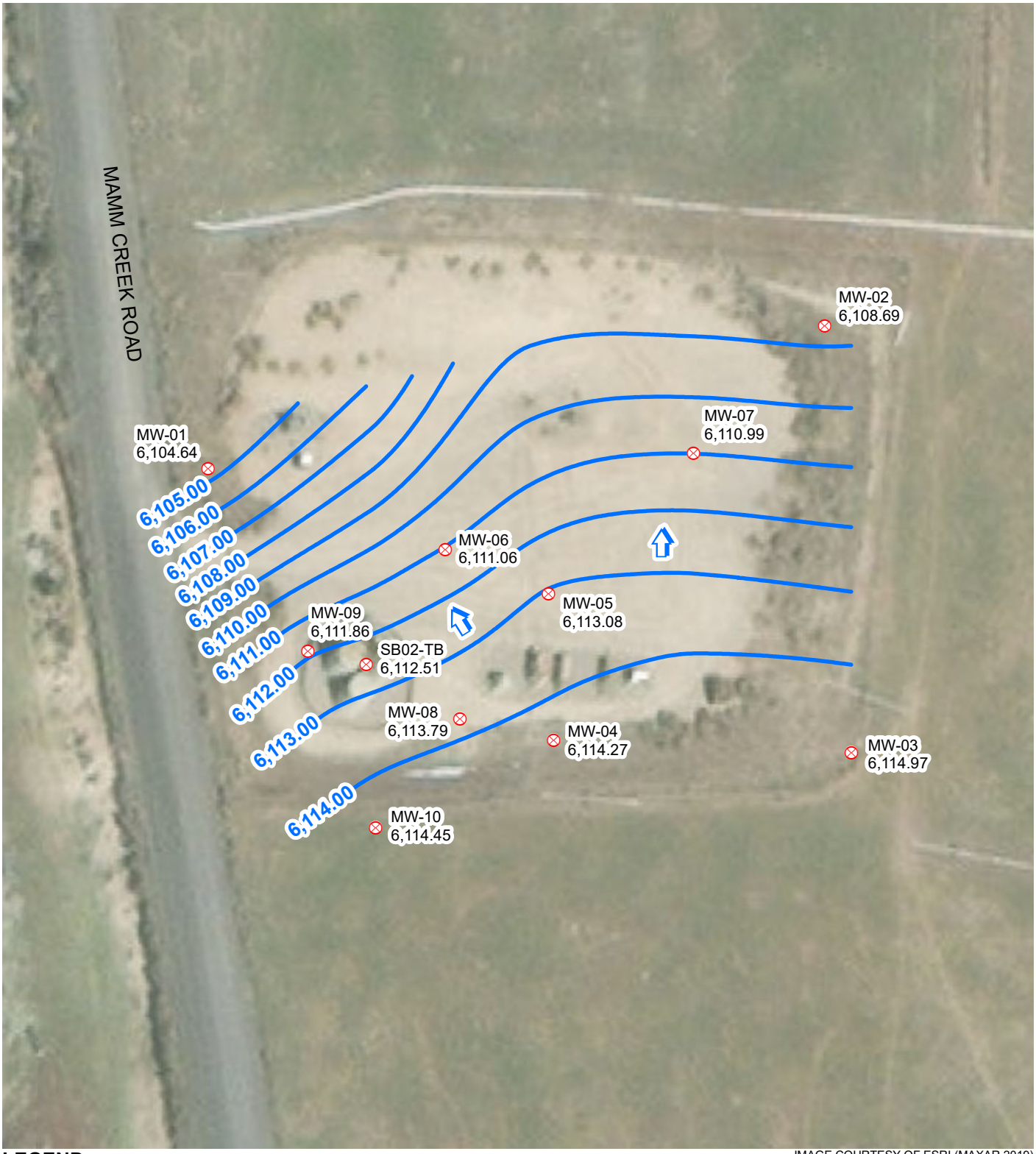

IMAGE COURTESY OF ESRI (MAXAR 2019)

LEGEND

- MONITORING WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- RELATIVE GROUNDWATER ELEVATION CONTOUR
  - CONTOUR INTERVAL = 1.00 FOOT
  - GRADIENT = 0.05 FEET/FOOT

GROUNDWATER ELEVATIONS WERE MEASURED ON JANUARY 20, 2022.

0 60 120
Feet

N

FIGURE 3
RELATIVE GROUNDWATER ELEVATION MAP
J17E DUMPLINE
NWSE SEC 17-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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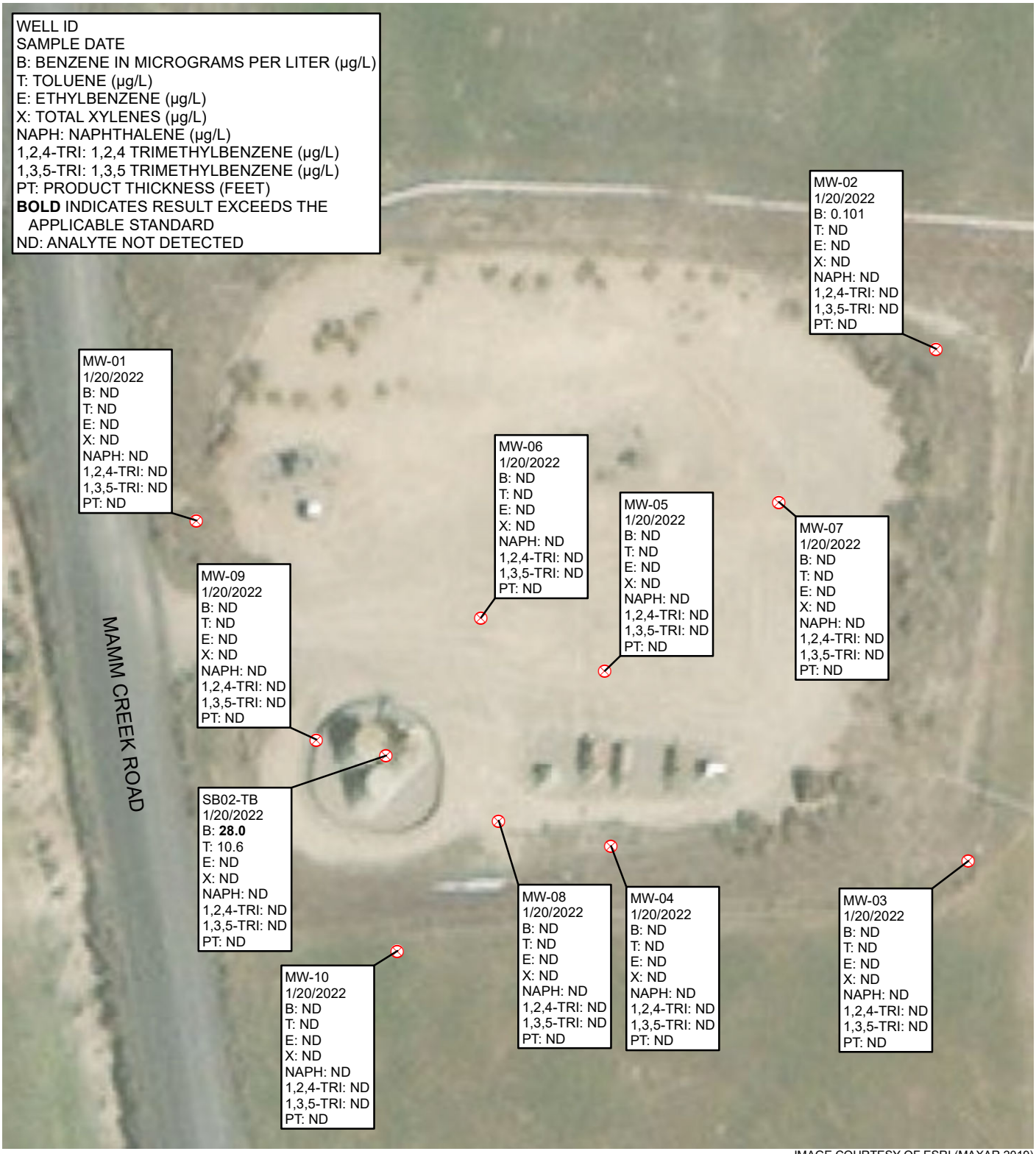

IMAGE COURTESY OF ESRI (MAXAR 2019)

LEGEND

⊗ MONITORING WELL

0 50 100

Feet

N

FIGURE 4
GROUNDWATER ANALYTICAL RESULTS
J17E DUMPLINE
NWSE SEC 17-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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IMAGE COURTESY OF ESRI (MAXAR 2019)

LEGEND

⊗ MONITORING WELL

0 50 100

Feet

N

FIGURE 5
GROUNDWATER ANALYTICAL RESULTS
J17E DUMPLINE
NWSE SEC 17-T7S-R92W
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

wsp

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TABLES

TABLE 1

GROUNDWATER ELEVATION DATA
J17E DUMPLINE
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

Wells	Date	DTW TOC (feet)	DTP TOC (feet)	Product Thickness (feet)	TD TOC (feet)	TOC Elevation (feet)	GW Elevation (feet)
MW01	4/21/2021	72.60	ND	ND	75.44	6,177.94	6,105.34
	10/4/2021	73.16	ND	ND	77.56	6,177.94	6,104.78
	1/20/2022	73.30	ND	ND	77.49	6,177.94	6,104.64
MW02	4/27/2021	66.52	ND	ND	68.36	6,175.57	6,109.05
	10/4/2021	66.81	ND	ND	68.39	6,175.57	6,108.76
	1/20/2022	66.88	ND	ND	68.30	6,175.57	6,108.69
SB02-TB	4/2/2021	52.21	ND	ND	55.21	6,167.77	6,115.56
	10/4/2021	54.99	ND	ND	57.14	6,167.77	6,112.78
	1/20/2022	55.26	ND	ND	57.04	6,167.77	6,112.51
	3/4/2022	55.15	ND	ND	57.30	6,167.77	6,112.62
	3/25/2022	55.42	ND	ND	57.04	6,167.77	6,112.35
MW03	8/26/2021	64.70	ND	ND	72.80	6180.11	6,115.41
	10/4/2021	64.84	ND	ND	72.78	6180.11	6,115.27
	1/20/2022	65.14	ND	ND	72.34	6180.11	6,114.97
MW04	9/7/2021	62.90	ND	ND	69.02	6177.55	6,114.65
	10/4/2021	62.96	ND	ND	69.04	6177.55	6,114.59
	1/20/2022	63.28	ND	ND	68.68	6177.55	6,114.27
MW05	8/27/2021	65.00	ND	ND	68.00	6178.33	6,113.33
	10/4/2021	65.00	ND	ND	70.49	6178.33	6,113.33
	1/20/2022	65.25	ND	ND	70.28	6178.33	6,113.08
MW06	8/31/2021	67.10	ND	ND	73.14	6178.22	6,111.12
	10/4/2021	67.00	ND	ND	73.06	6178.22	6,111.22
	1/20/2022	67.16	ND	ND	73.02	6178.22	6,111.06
MW07	8/26/2021	66.72	ND	ND	70.50	6177.77	6,111.05
	10/4/2021	66.62	ND	ND	69.57	6177.77	6,111.15
	1/20/2022	66.78	ND	ND	70.58	6177.77	6,110.99
MW08	9/7/2021	53.50	ND	ND	59.30	6167.64	6,114.14
	10/4/2021	53.54	ND	ND	59.43	6167.64	6,114.10
	1/20/2022	53.85	ND	ND	59.37	6167.64	6,113.79
MW09	9/7/2021	55.75	ND	ND	60.10	6167.87	6,112.12
	10/4/2021	55.83	ND	ND	60.00	6167.87	6,112.04
	1/20/2022	56.01	ND	ND	60.12	6167.87	6,111.86
MW10	9/7/2021	67.20	ND	ND	72.85	6182.15	6,114.95
	10/4/2021	67.40	ND	ND	72.86	6182.15	6,114.75
	1/20/2022	67.70	ND	ND	72.86	6182.15	6,114.45

Notes:
DTW - Depth to Water
DTP - Depth to Product
TOC - Top of Casing
TD - Total Depth
GW - Groundwater
ND - Not Detected

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
J17E DUMPLINE
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5 -Trimethylbenzene (µg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
20210330-J17E (SB-01)	3/30/2021	1.23	0.868	ND	0.336	ND	ND	ND	9.04	103	813
20210331-J17E (SB02-TB)	3/31/2021	**54.7**	21.4	1.86	10.4	ND	0.663	0.587	22.0	96.1	910
20210402-J17E (SB02-TB)	4/02/2021	**29.4**	10.9	0.707	3.40	ND	ND	0.149	13.9	102	886
20211004-J17E (SB02-TB)	10/04/2021	**186.0**	94.4	1.180	14.40	ND	ND	0.291	9.18	96.7	869
20220122-J17E(SB02-TB)	1/20/2022	**28.0**	10.6	ND	ND	NA	ND	ND	10.0	97.9	779
20220304-J17E(SB02-TB)	3/04/2022	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
20220325-J17E(SB02-TB)	3/25/2022	**6.10**	2.40	ND	0.897	NA	NA	NA	NA	NA	NA
20210421-J17E (MW01)	4/21/2021	ND	ND	ND	ND	ND	ND	ND	214	268	1,090
20211004-J17E (MW01)	10/04/2021	0.147	ND	ND	ND	ND	ND	ND	44.5	117	834
202220122-J17E(MW01)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	41.3	107	961
20210427- J17E (MW02)	4/27/2021	0.238	0.440	0.192	0.657	ND	ND	ND	6.81	98.6	910
20211004- J17E (MW02)	10/04/2021	0.101	ND	ND	ND	ND	ND	ND	6.73	98.3	833
202220122-J17E(MW02)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	6.65	109	776
20210826-J17E (MW03)	8/26/2021	0.236	1.24	0.406	1.51	ND	0.495	0.139	9.46	101	829
20211004-J17E (MW03)	10/04/2021	ND	ND	ND	ND	ND	ND	ND	7.96	97.8	797
202220122-J17E(MW03)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	7.30	99.0	756
20210907-J17E (MW04)	9/07/2021	ND	ND	ND	0.188	ND	ND	ND	10.5	98.9	772
20211004-J17E(MW04)	10/04/2021	ND	ND	ND	ND	ND	ND	ND	10.2	96.7	827
202220122-J17E(MW04)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	9.01	99.0	768
20210827-J17E (MW05)	8/27/2021	ND	ND	ND	ND	ND	ND	ND	10.3	101	885
20211004-J17E (MW05)	10/04/2021	0.098	ND	ND	ND	ND	ND	ND	10.1	95.3	829
202220122-J17E(MW05)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	9.38	99.7	760

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
J17E DUMPLINE
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5 -Trimethylbenzene (µg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
20210831-J17E (MW06)	8/31/2021	ND	ND	ND	ND	ND	ND	ND	11.3	96.5	833
20211004-J17E (MW06)	10/04/2021	0.104	ND	ND	ND	ND	ND	ND	10.4	98.1	777
202220122-J17E(MW06)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	10.9	98.4	799
20210826-J17E (MW07)	8/26/2021	0.128	0.342	ND	0.446	ND	ND	ND	8.94	103	843
20211004-J17E (MW07)	10/04/2021	0.161	ND	ND	0.232	ND	ND	ND	8.97	97.8	516
202220122-J17E(MW07)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	8.38	106	788
20210907-J17E (MW08)	9/07/2021	ND	ND	ND	ND	ND	ND	ND	10.3	100	803
20211004-J17E (MW08)	10/04/2021	0.134	ND	ND	ND	ND	ND	ND	10.7	95.3	1,230
202220122-J17E(MW08)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	9.05	99.3	803
20210907-J17E (MW09)	9/07/2021	0.196	0.374	ND	0.622	ND	ND	ND	11.5	102	797
20211004-J17E (MW09)	10/04/2021	0.111	ND	ND	ND	ND	ND	ND	11.8	99.8	800
202220122-J17E(MW09)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	13.1	106	795
20210907-J17E (MW10)	9/07/2021	ND	ND	ND	0.236	ND	ND	ND	10.0	100	819
20211004-J17E (MW10)	10/04/2021	ND	ND	ND	ND	ND	ND	ND	9.79	99.1	824
202220122-J17E(MW10)	1/20/2022	ND	ND	ND	ND	ND	ND	ND	9.09	104	767
COGCC CONCENTRATION LEVELS		5	560	700	1,400	140	67	67	1.25 x Background	1.25 x Background	1.25 x Background

Notes:
ND - analyte not detected
BOLD - indicates result exceeds the COGCC concentration level
COGCC - Colorado Oil and Gas Conservation Commission
µg/L - micrograms per liter
mg/L - millgrams per liter
NA - analyte not analyzed
TDS - total dissolved solids

TABLE 3

AIR ANALYTICAL DATA
J17E DUMPLINE RELEASE
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

Sample Information and Lab Analysis							
Trailer Type	**Date**	**Benzene (ug/l)**	**Toluene (ug/l)**	**Ethyl Benzene (ug/l)**	**Xylenes (ug/l)**	**VOCs TVPH (ug/l)**	**PID (ppm)**
Solar	12/20/2021	17,000	6,000	*5,200*	*16,200*	17,000	2,141
	3/17/2022	83,000	77,000	2,200	13,000	12,000	1,479
Pilot	2/9/2022	17,000	17,000	630	2,800	3,800	1,089

NOTES:

ug/l - micrograms per liter

VOCs - volatile organic compounds

TVPH - total volatile petroleum hydrocarbons

lb/hr - pounds per hour

PID - photo-ionization detector

ppm - part per million

Italics indicate values were reported below the method detectin limit (MDL). The MDL value is included for calculation.

TABLE 4

AIR EMISSIONS ESTIMATE
J17E DUMPLINE RELEASE
GARFIELD COUNTY, COLORADO
CAERUS OIL AND GAS LLC

Operational Hours and Flow Rates						
Trailer Type	**Well Type**	**Date**	**Total Operational Hours**	**Delta Hours**	**Exhaust Flow (cfm)**	**Total SVE Flow (cf)**
Solar	SVE1	12/20/2021	**Start-up**			
		12/20/2021	4.0	4.0	7.65	1,836
		1/6/2022	9.8	5.8	6.35	2,210
		1/20/2022	29.1	19.3	7.20	8,338
		2/3/2022	53.1	24.0	0.30	432
		2/17/2022	73.9	20.8	18.50	23,088
		3/2/2022	97.3	23.4	10.25	14,391
		3/17/2022	118.5	21.2	8.31	10,570
		3/30/2022	130.1	11.6	17.95	12,493
		4/13/2022	145.5	15.4	5.95	5,498
Pilot	SVE1	2/9/2022	**Start-up**			
		2/9/2022	8.5	8.5	76.50	39,015
		2/17/2022	14.4	5.9	63.0	22,302
		2/24/2022	16.9	2.5	58.0	8,700
		3/2/2022	23.6	6.7	91.0	36,582
		3/25/2022	28.2	4.6	78.0	21,528
		3/30/2022	33.9	5.7	86.0	29,412
		4/5/2022	40.0	6.1	88.0	32,208
		4/13/2022	46.1	6.1	90.0	32,940

Emission Rates					
Trailer Type	**Benzene (lb/hr)**	**Toulene (lb/hr)**	**Ethyl Benzene (lb/hr)**	**Total Xylenes (lb/hr)**	**VOCs TVPH (lb/hr)**
Solar	**1.71**	**1.42**	**0.13**	**0.50**	**0.50**
Pilot	**5.01**	**5.01**	**0.19**	**0.83**	**1.12**

Total Emissions						
Trailer Type	**Benzene (tons)**	**Toulene (tons)**	**Ethyl Benzene (tons)**	**Total Xylenes (tons)**	**TVPH (tons)**	**Cumulative TVPH (tons)**
Solar	**0.12**	**0.10**	**0.01**	**0.04**	**0.04**	**0.04**
Pilot	**0.12**	**0.12**	**0.00**	**0.02**	**0.03**	**0.03**
TOTAL	**0.24**	**0.22**	**0.01**	**0.06**	**0.06**	**0.06**

NOTES:

ND - analyte not detected
ug/l - micrograms per liter
TVPH - total volatile petroleum hydrocarbons
cfm - cubic feet per minute
cf - cubic feet
lb/hr - pounds per hour

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

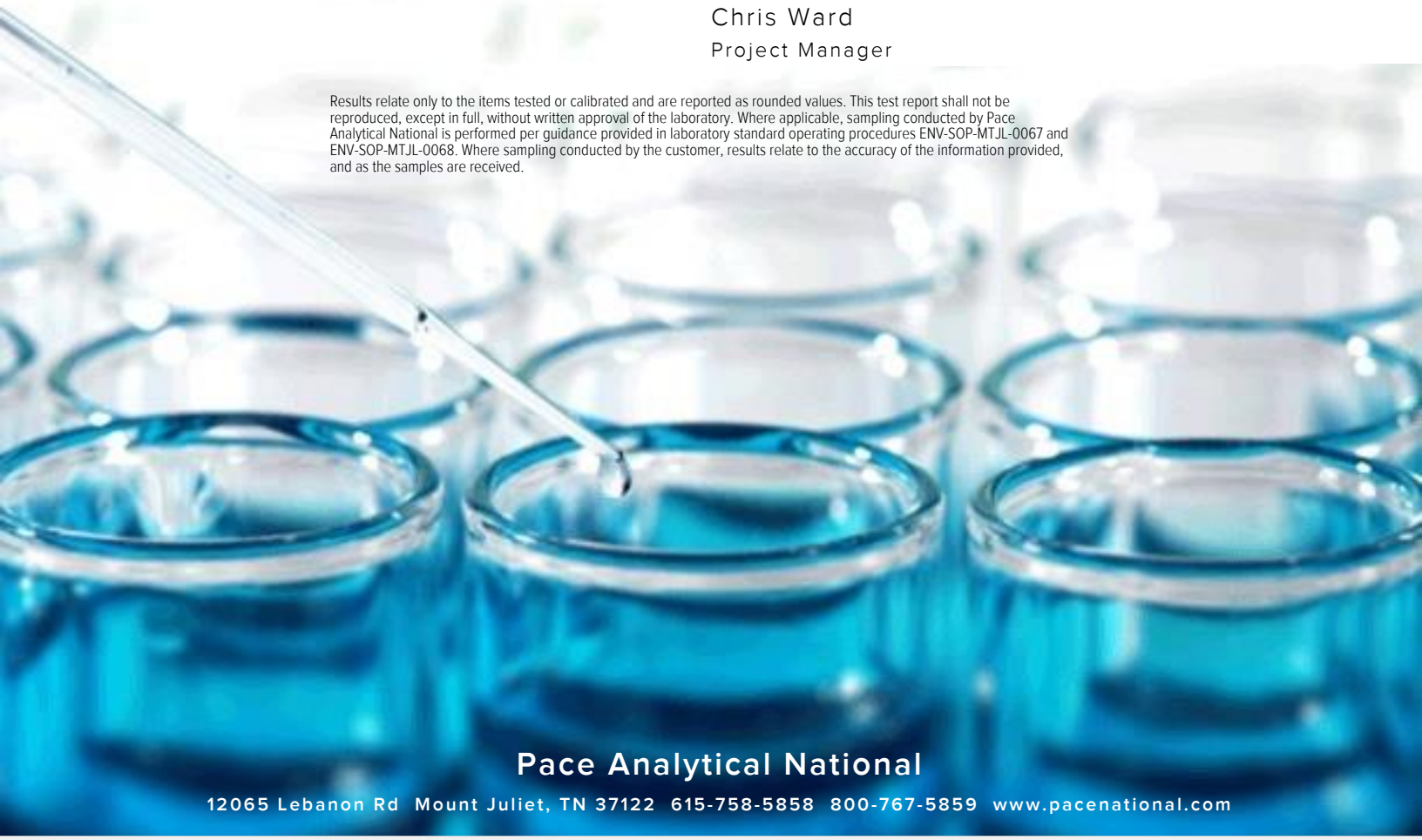
January 31, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1454498
Samples Received:	01/25/2022
Project Number:	17E
Description:	J17E Dumpline Release
Site:	17E
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

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20220120-J17E(MW01) L1454498-01 GW

Collected by: DH | Collected date/time: 01/20/22 12:35 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 16:57	01/26/22 16:57	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	5	01/26/22 17:12	01/26/22 17:12	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 02:57	01/26/22 02:57	ACG	Mt. Juliet, TN

20220120-J17E(MW02) L1454498-02 GW

Collected by: DH | Collected date/time: 01/20/22 13:10 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 17:56	01/26/22 17:56	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1809245	5	01/27/22 20:22	01/27/22 20:22	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 03:17	01/26/22 03:17	ACG	Mt. Juliet, TN

20220120-J17E(MW03) L1454498-03 GW

Collected by: DH | Collected date/time: 01/20/22 13:25 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808517	1	01/26/22 17:39	01/26/22 19:00	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 18:11	01/26/22 18:11	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 03:38	01/26/22 03:38	ACG	Mt. Juliet, TN

20220120-J17E(MW04) L1454498-04 GW

Collected by: DH | Collected date/time: 01/20/22 12:10 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808517	1	01/26/22 17:39	01/26/22 19:00	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 18:26	01/26/22 18:26	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 03:58	01/26/22 03:58	ACG	Mt. Juliet, TN

20220120-J17E(MW05) L1454498-05 GW

Collected by: DH | Collected date/time: 01/20/22 11:20 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808517	1	01/26/22 17:39	01/26/22 19:00	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 18:41	01/26/22 18:41	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 04:18	01/26/22 04:18	ACG	Mt. Juliet, TN

20220120-J17E(MW06) L1454498-06 GW

Collected by: DH | Collected date/time: 01/20/22 11:05 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 18:56	01/26/22 18:56	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 04:39	01/26/22 04:39	ACG	Mt. Juliet, TN

20220120-J17E(MW07) L1454498-07 GW

Collected by: DH | Collected date/time: 01/20/22 12:50 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 19:11	01/26/22 19:11	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1809245	5	01/27/22 20:48	01/27/22 20:48	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 04:59	01/26/22 04:59	ACG	Mt. Juliet, TN

20220120-J17E(MW08) L1454498-08 GW

Collected by: DH | Collected date/time: 01/20/22 11:30 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 19:26	01/26/22 19:26	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 05:19	01/26/22 05:19	ACG	Mt. Juliet, TN

20220120-J17E(MW09) L1454498-09 GW

Collected by: DH | Collected date/time: 01/20/22 11:45 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808326	1	01/26/22 15:47	01/26/22 17:34	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 20:11	01/26/22 20:11	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1809245	5	01/27/22 21:00	01/27/22 21:00	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1807989	1	01/26/22 05:40	01/26/22 05:40	ACG	Mt. Juliet, TN

20220120-J17E(MW10) L1454498-10 GW

Collected by: DH | Collected date/time: 01/20/22 12:25 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808517	1	01/26/22 17:39	01/26/22 19:00	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 20:55	01/26/22 20:55	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1809245	5	01/27/22 21:13	01/27/22 21:13	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1808000	1	01/26/22 01:23	01/26/22 01:23	JAH	Mt. Juliet, TN

20220120-J17E(SB02-TB) L1454498-11 GW

Collected by: DH | Collected date/time: 01/20/22 11:35 | Received date/time: 01/25/22 14:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1808517	1	01/26/22 17:39	01/26/22 19:00	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1808131	1	01/26/22 21:10	01/26/22 21:10	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1808000	1	01/26/22 01:03	01/26/22 01:03	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1809615	1	01/28/22 12:29	01/28/22 12:29	ACG	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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	961		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	41.3		1.00	1	01/26/2022 16:57	WG1808131
Sulfate	107		25.0	5	01/26/2022 17:12	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 02:57	WG1807989
Toluene	ND		0.00100	1	01/26/2022 02:57	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 02:57	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 02:57	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 02:57	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 02:57	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 02:57	WG1807989
(S) Toluene-d8	*108*		*80.0-120*		*01/26/2022 02:57*	WG1807989
(S) 4-Bromofluorobenzene	*91.2*		*77.0-126*		*01/26/2022 02:57*	WG1807989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*01/26/2022 02:57*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	776		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	6.65		1.00	1	01/26/2022 17:56	WG1808131
Sulfate	109		25.0	5	01/27/2022 20:22	WG1809245

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 03:17	WG1807989
Toluene	ND		0.00100	1	01/26/2022 03:17	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 03:17	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 03:17	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 03:17	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:17	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:17	WG1807989
(S) Toluene-d8	*106*		*80.0-120*		*01/26/2022 03:17*	WG1807989
(S) 4-Bromofluorobenzene	*91.3*		*77.0-126*		*01/26/2022 03:17*	WG1807989
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*01/26/2022 03:17*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	756		13.3	1	01/26/2022 19:00	WG1808517

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	7.30		1.00	1	01/26/2022 18:11	WG1808131
Sulfate	99.0		5.00	1	01/26/2022 18:11	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 03:38	WG1807989
Toluene	ND		0.00100	1	01/26/2022 03:38	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 03:38	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 03:38	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 03:38	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:38	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:38	WG1807989
(S) Toluene-d8	*108*		*80.0-120*		*01/26/2022 03:38*	WG1807989
(S) 4-Bromofluorobenzene	*88.4*		*77.0-126*		*01/26/2022 03:38*	WG1807989
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*01/26/2022 03:38*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	768		13.3	1	01/26/2022 19:00	WG1808517

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	9.01		1.00	1	01/26/2022 18:26	WG1808131
Sulfate	99.0		5.00	1	01/26/2022 18:26	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 03:58	WG1807989
Toluene	ND		0.00100	1	01/26/2022 03:58	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 03:58	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 03:58	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 03:58	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:58	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 03:58	WG1807989
(S) Toluene-d8	*109*		*80.0-120*		*01/26/2022 03:58*	WG1807989
(S) 4-Bromofluorobenzene	*91.8*		*77.0-126*		*01/26/2022 03:58*	WG1807989
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*01/26/2022 03:58*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	760		13.3	1	01/26/2022 19:00	WG1808517

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	9.38		1.00	1	01/26/2022 18:41	WG1808131
Sulfate	99.7		5.00	1	01/26/2022 18:41	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 04:18	WG1807989
Toluene	ND		0.00100	1	01/26/2022 04:18	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 04:18	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 04:18	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 04:18	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:18	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:18	WG1807989
(S) Toluene-d8	*107*		*80.0-120*		*01/26/2022 04:18*	WG1807989
(S) 4-Bromofluorobenzene	*88.4*		*77.0-126*		*01/26/2022 04:18*	WG1807989
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*01/26/2022 04:18*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	799		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	10.9		1.00	1	01/26/2022 18:56	WG1808131
Sulfate	98.4		5.00	1	01/26/2022 18:56	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 04:39	WG1807989
Toluene	ND		0.00100	1	01/26/2022 04:39	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 04:39	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 04:39	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 04:39	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:39	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:39	WG1807989
(S) Toluene-d8	*110*		*80.0-120*		*01/26/2022 04:39*	WG1807989
(S) 4-Bromofluorobenzene	*91.4*		*77.0-126*		*01/26/2022 04:39*	WG1807989
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*01/26/2022 04:39*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	788		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	8.38		1.00	1	01/26/2022 19:11	WG1808131
Sulfate	106		25.0	5	01/27/2022 20:48	WG1809245

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 04:59	WG1807989
Toluene	ND		0.00100	1	01/26/2022 04:59	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 04:59	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 04:59	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 04:59	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:59	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 04:59	WG1807989
(S) Toluene-d8	*105*		*80.0-120*		*01/26/2022 04:59*	WG1807989
(S) 4-Bromofluorobenzene	*85.6*		*77.0-126*		*01/26/2022 04:59*	WG1807989
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*01/26/2022 04:59*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	803		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	9.05		1.00	1	01/26/2022 19:26	WG1808131
Sulfate	99.3		5.00	1	01/26/2022 19:26	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 05:19	WG1807989
Toluene	ND		0.00100	1	01/26/2022 05:19	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 05:19	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 05:19	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 05:19	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 05:19	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 05:19	WG1807989
(S) Toluene-d8	*110*		*80.0-120*		*01/26/2022 05:19*	WG1807989
(S) 4-Bromofluorobenzene	*88.4*		*77.0-126*		*01/26/2022 05:19*	WG1807989
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*01/26/2022 05:19*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	795		13.3	1	01/26/2022 17:34	WG1808326

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	13.1		1.00	1	01/26/2022 20:11	WG1808131
Sulfate	106		25.0	5	01/27/2022 21:00	WG1809245

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 05:40	WG1807989
Toluene	ND		0.00100	1	01/26/2022 05:40	WG1807989
Ethylbenzene	ND		0.00100	1	01/26/2022 05:40	WG1807989
Xylenes, Total	ND		0.00300	1	01/26/2022 05:40	WG1807989
Naphthalene	ND		0.00500	1	01/26/2022 05:40	WG1807989
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2022 05:40	WG1807989
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2022 05:40	WG1807989
(S) Toluene-d8	*107*		*80.0-120*		*01/26/2022 05:40*	WG1807989
(S) 4-Bromofluorobenzene	*88.0*		*77.0-126*		*01/26/2022 05:40*	WG1807989
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*01/26/2022 05:40*	WG1807989

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	767		13.3	1	01/26/2022 19:00	WG1808517

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	9.09		1.00	1	01/26/2022 20:55	WG1808131
Sulfate	104		25.0	5	01/27/2022 21:13	WG1809245

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2022 01:23	WG1808000
Toluene	ND		0.00100	1	01/26/2022 01:23	WG1808000
Ethylbenzene	ND		0.00100	1	01/26/2022 01:23	WG1808000
Xylenes, Total	ND		0.00300	1	01/26/2022 01:23	WG1808000
Naphthalene	ND		0.00500	1	01/26/2022 01:23	WG1808000
1,2,4-Trimethylbenzene	ND	J4	0.00100	1	01/26/2022 01:23	WG1808000
1,3,5-Trimethylbenzene	ND	J4	0.00100	1	01/26/2022 01:23	WG1808000
(S) Toluene-d8	*113*		*80.0-120*		*01/26/2022 01:23*	WG1808000
(S) 4-Bromofluorobenzene	*86.9*		*77.0-126*		*01/26/2022 01:23*	WG1808000
(S) 1,2-Dichloroethane-d4	*96.7*		*70.0-130*		*01/26/2022 01:23*	WG1808000

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	779		13.3	1	01/26/2022 19:00	WG1808517

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	10.0		1.00	1	01/26/2022 21:10	WG1808131
Sulfate	97.9		5.00	1	01/26/2022 21:10	WG1808131

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	0.0280		0.00100	1	01/26/2022 01:03	WG1808000
Toluene	0.0106		0.00100	1	01/26/2022 01:03	WG1808000
Ethylbenzene	ND		0.00100	1	01/26/2022 01:03	WG1808000
Xylenes, Total	ND		0.00300	1	01/26/2022 01:03	WG1808000
Naphthalene	ND		0.00500	1	01/26/2022 01:03	WG1808000
1,2,4-Trimethylbenzene	ND	J4	0.00100	1	01/26/2022 01:03	WG1808000
1,3,5-Trimethylbenzene	ND		0.00100	1	01/28/2022 12:29	WG1809615
(S) Toluene-d8	*117*		*80.0-120*		*01/26/2022 01:03*	WG1808000
(S) Toluene-d8	*96.1*		*80.0-120*		*01/28/2022 12:29*	WG1809615
(S) 4-Bromofluorobenzene	*91.4*		*77.0-126*		*01/26/2022 01:03*	WG1808000
(S) 4-Bromofluorobenzene	*91.8*		*77.0-126*		*01/28/2022 12:29*	WG1809615
(S) 1,2-Dichloroethane-d4	*96.5*		*70.0-130*		*01/26/2022 01:03*	WG1808000
(S) 1,2-Dichloroethane-d4	*109*		*70.0-130*		*01/28/2022 12:29*	WG1809615

Method Blank (MB)

(MB) R3754313-1 01/26/22 17:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1454498-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1454498-06 01/26/22 17:34 • (DUP) R3754313-3 01/26/22 17:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	799	829	1	3.77		5

L1454498-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1454498-08 01/26/22 17:34 • (DUP) R3754313-4 01/26/22 17:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	803	823	1	2.46		5

Laboratory Control Sample (LCS)

(LCS) R3754313-2 01/26/22 17:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	2460	2410	98.0	77.4-123	

Method Blank (MB)

(MB) R3754777-1 01/26/22 19:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		10.0	10.0

L1453652-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1453652-01 01/26/22 19:00 • (DUP) R3754777-3 01/26/22 19:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1310	1330	1	1.71		5

L1454498-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1454498-04 01/26/22 19:00 • (DUP) R3754777-4 01/26/22 19:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	768	792	1	3.08		5

Laboratory Control Sample (LCS)

(LCS) R3754777-2 01/26/22 19:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	2460	2400	97.6	77.4-123	

Method Blank (MB)

(MB) R3754169-1 01/26/22 10:06

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	0.432	J	0.379	1.00
Sulfate	U		0.594	5.00

L1454498-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1454498-08 01/26/22 19:26 • (DUP) R3754169-5 01/26/22 19:41

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	9.05	9.00	1	0.547		15
Sulfate	99.3	99.1	1	0.159		15

L1454516-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1454516-01 01/26/22 21:25 • (DUP) R3754169-7 01/26/22 21:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	7.59	7.56	1	0.326		15
Sulfate	7.07	6.96	1	1.62		15

Laboratory Control Sample (LCS)

(LCS) R3754169-2 01/26/22 10:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.0	97.6	80.0-120	
Sulfate	40.0	39.0	97.6	80.0-120	

L1454151-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1454151-01 01/26/22 15:42 • (MS) R3754169-3 01/26/22 15:57 • (MSD) R3754169-4 01/26/22 16:12

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	110	154	152	88.0	82.6	1	80.0-120	E	E	1.74	15
Sulfate	50.0	133	177	177	88.8	87.4	1	80.0-120	E	E	0.391	15

L1454498-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1454498-08 01/26/22 19:26 • (MS) R3754169-6 01/26/22 19:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	9.05	60.1	102	1	80.0-120	
Sulfate	50.0	99.3	144	89.1	1	80.0-120	E

QUALITY CONTROL SUMMARY

L1454498-02,07,09,10

Method Blank (MB)

(MB) R3754584-1 01/27/22 19:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfate	U		0.594	5.00

L1454498-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1454498-02 01/27/22 20:22 • (DUP) R3754584-3 01/27/22 20:35

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	109	111	5	2.44		15

L1455400-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1455400-01 01/28/22 02:47 • (DUP) R3754584-6 01/28/22 03:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	28.9	29.4	1	1.71		15

Laboratory Control Sample (LCS)

(LCS) R3754584-2 01/27/22 20:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40.0	40.7	102	80.0-120	

L1455133-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1455133-02 01/27/22 22:56 • (MS) R3754584-4 01/27/22 23:09 • (MSD) R3754584-5 01/27/22 23:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50.0	77.4	130	127	106	99.3	1	80.0-120	E	E	2.56	15

L1455400-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1455400-01 01/28/22 02:47 • (MS) R3754584-7 01/28/22 03:38

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50.0	28.9	78.9	99.9	1	80.0-120	

Method Blank (MB)

(MB) R3754298-3 01/25/22 21:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*90.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*

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

(LCS) R3754298-1 01/25/22 19:59 • (LCSD) R3754298-2 01/25/22 20:19

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 %
Benzene	0.00500	0.00484	0.00508	96.8	102	70.0-123			4.84	20
Ethylbenzene	0.00500	0.00482	0.00515	96.4	103	79.0-123			6.62	20
Naphthalene	0.00500	0.00451	0.00433	90.2	86.6	54.0-135			4.07	20
Toluene	0.00500	0.00509	0.00532	102	106	79.0-120			4.42	20
1,2,4-Trimethylbenzene	0.00500	0.00381	0.00393	76.2	78.6	76.0-121			3.10	20
1,3,5-Trimethylbenzene	0.00500	0.00388	0.00397	77.6	79.4	76.0-122			2.29	20
Xylenes, Total	0.0150	0.0147	0.0151	98.0	101	79.0-123			2.68	20
(S) Toluene-d8				*106*	*102*	*80.0-120*				
(S) 4-Bromofluorobenzene				*89.8*	*90.4*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*106*	*106*	*70.0-130*				

Method Blank (MB)

(MB) R3754466-2 01/25/22 19:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) 1,2-Dichloroethane-d4	*94.2*			*70.0-130*
(S) 4-Bromofluorobenzene	*90.3*			*77.0-126*
(S) Toluene-d8	*111*			*80.0-120*

Laboratory Control Sample (LCS)

(LCS) R3754466-1 01/25/22 18:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,4-Trimethylbenzene	0.00500	0.00631	126	76.0-121	J4
1,3,5-Trimethylbenzene	0.00500	0.00756	151	76.0-122	J4
Benzene	0.00500	0.00568	114	70.0-123	
Ethylbenzene	0.00500	0.00548	110	79.0-123	
Naphthalene	0.00500	0.00538	108	54.0-135	
Toluene	0.00500	0.00569	114	79.0-120	
Xylenes, Total	0.0150	0.0160	107	79.0-123	
(S) 1,2-Dichloroethane-d4			*92.5*	*70.0-130*	
(S) 4-Bromofluorobenzene			*90.6*	*77.0-126*	
(S) Toluene-d8			*109*	*80.0-120*	

Method Blank (MB)

(MB) R3755047-3 01/28/22 12:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	*97.8*			*80.0-120*
(S) 4-Bromofluorobenzene	*92.0*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*

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

(LCS) R3755047-1 01/28/22 10:46 • (LCSD) R3755047-2 01/28/22 11:07

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 %
1,3,5-Trimethylbenzene	0.00500	0.00456	0.00495	91.2	99.0	76.0-122			8.20	20
(S) Toluene-d8				*94.0*	*98.3*	*80.0-120*				
(S) 4-Bromofluorobenzene				*90.7*	*90.2*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*113*	*112*	*70.0-130*				

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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

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

Billing Information: **Same as above**

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

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

Project Description: **J17E Dumpine**

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

Phone:
Fax:

Client Project # **17E**

Lab Project # **17E**

Collected by (print):

Site/Facility ID # **17E**

P.O. # **17E**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

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

L # 1454498

A156

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	BTEX	chloride, sulfate, TDS	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	naphthalene	Remarks	Sample # (lab only)
20220120-J17E(MW01)	Grab	GW	NA	1/20/22	1235	5		+	+	+	+	+		-01
20220120-J17E(MW02)					1310									-02
20220120-J17E(MW03)					1325									-03
20220120-J17E(MW04)					1210									-04
20220120-J17E(MW05)					1120									-05
20220120-J17E(MW06)					1105									-06
20220120-J17E(MW07)					1250									-07
20220120-J17E(MW08)					1130									-08
20220120-J17E(MW09)					1145									-09
20220120-J17E(MW10)					1225									-10

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # 5016 1231 9051

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	1/24/22	1000		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: NSA °C 3.1 to 2 3.1 Bottles Received: 55
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/25/22 Time: 1400 915 In
				Hold: Condition: NCF / OK

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

Billing Information:
Same as above

Report to:
bmiddleton@caerusoilandgas.com

Email To:
bmiddleton@caerusoilandgas.com

Project Description: **J17E Dumpine**

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

Phone:
Fax:

Client Project # **17E**

Lab Project # **17E**

Collected by (print):

Site/Facility ID # **17E**

P.O. # **17E**

Collected by (signature):

Immediately Packed on Ice N ____ Y X

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

Quote #

Date Results Needed
~~Standard~~ TAT

Chain of Custody Page 2 of 2

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Phone: 800-767-5859
Fax: 615-758-5859

L # 145498

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Analysis / Container / Preservative

Pres Chk	BTEX	chloride, sulfate, TDS	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	naphthalene							

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
20220120-J17E/SB02-TB) DW	GRAB	GW	NA	1/20/22	1135	5		-11

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	1/24/22	1000			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: NS/17°C 3.1+0=3.1 Bottles Received: 5S	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/25/22 Time: 1400 915	Hold: Condition: NCF / OK

ANALYTICAL REPORT

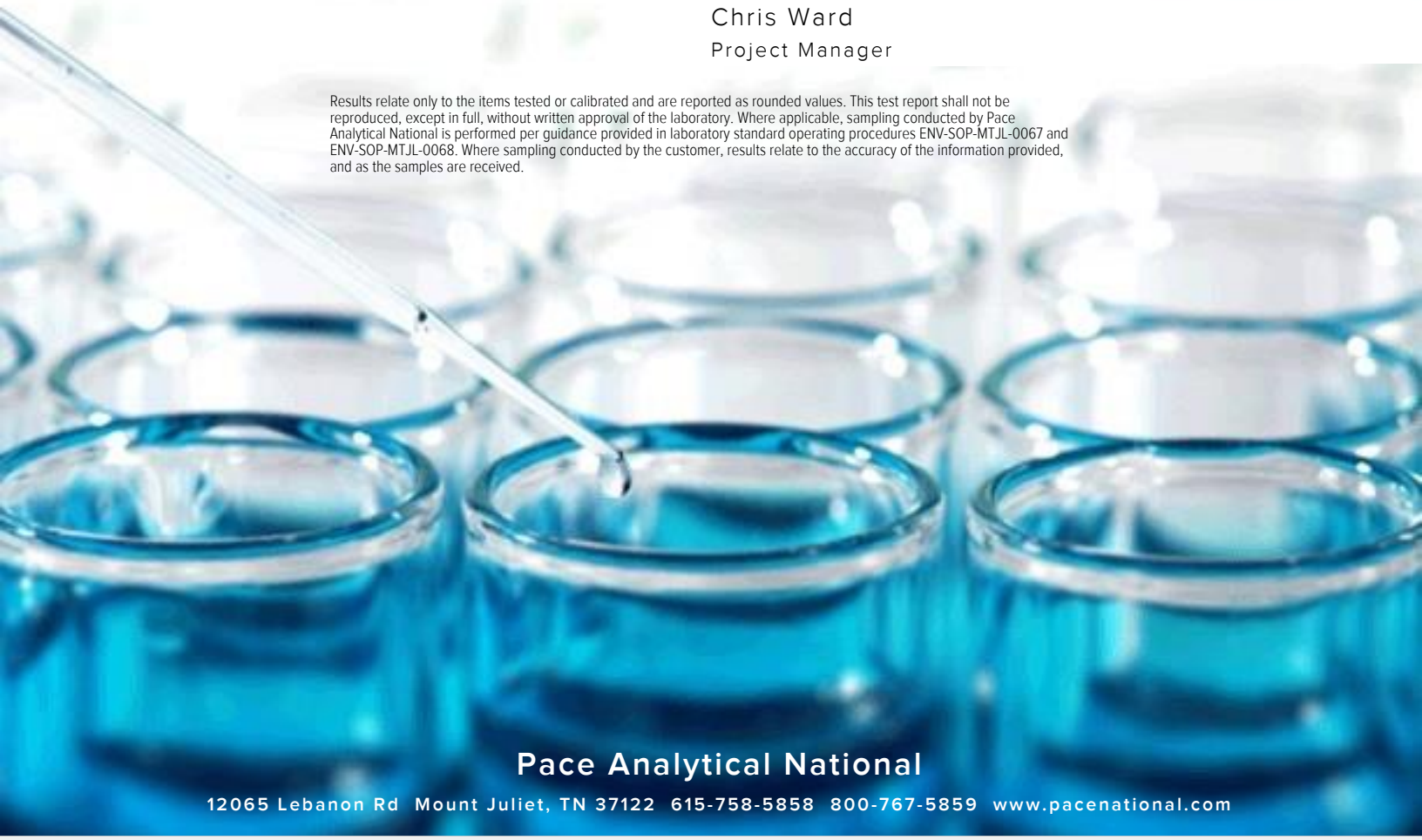
March 15, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1470571
Samples Received:	03/11/2022
Project Number:	17E
Description:	J17E Dumpine
Site:	17E
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward
Project Manager



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

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SAMPLE SUMMARY

20220304-J17E(SB02-TB) L1470571-01 GW

Collected by: Dustin Heid
Collected date/time: 03/04/22 11:20
Received date/time: 03/11/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1831446	1	03/12/22 23:51	03/12/22 23:51	JAH	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

Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1470571-01	20220304-J17E(SB02-TB)	8260B

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	03/12/2022 23:51	WG1831446
Toluene	U		0.000278	0.00100	1	03/12/2022 23:51	WG1831446
Ethylbenzene	U		0.000137	0.00100	1	03/12/2022 23:51	WG1831446
Total Xylenes	U		0.000174	0.00300	1	03/12/2022 23:51	WG1831446
(S) Toluene-d8	*110*			*80.0-120*		*03/12/2022 23:51*	WG1831446
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*03/12/2022 23:51*	WG1831446
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*03/12/2022 23:51*	WG1831446

Method Blank (MB)

(MB) R3769520-2 03/12/22 23:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*100*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3769520-1 03/12/22 22:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00522	104	70.0-123	
Toluene	0.00500	0.00547	109	79.0-120	
Ethylbenzene	0.00500	0.00547	109	79.0-123	
Xylenes, Total	0.0150	0.0165	110	79.0-123	
(S) Toluene-d8			*109*	*80.0-120*	
(S) 4-Bromofluorobenzene			*101*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*113*	*70.0-130*	

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.
(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.
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.
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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

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

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**

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

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

Project Description: **J17E Dumpine**

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

Phone:
Fax:

Client Project # **17E**

Lab Project # **17E**

Collected by (print): DUSTIN HEAD

Site/Facility ID # **17E**

P.O. # **17E**

Collected by (signature): DH

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	chloride, sulfate, TDS	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	naphthalene
20220304-J17E(SB02-TB)	Grab	GW		3/4/22	1120	3	X				

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

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

L # 1470571

F020

Template:
Prelogin:
TSR:
PB:
Shipped Via:

Remarks | Sample # (lab only)

1

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
DH	3/10/22	1400	
	3/10/22	1600	
			Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: DRAFT °C Bottles Received: 3
0.5±0=0.5

Date: 3/11/22 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

April 04, 2022

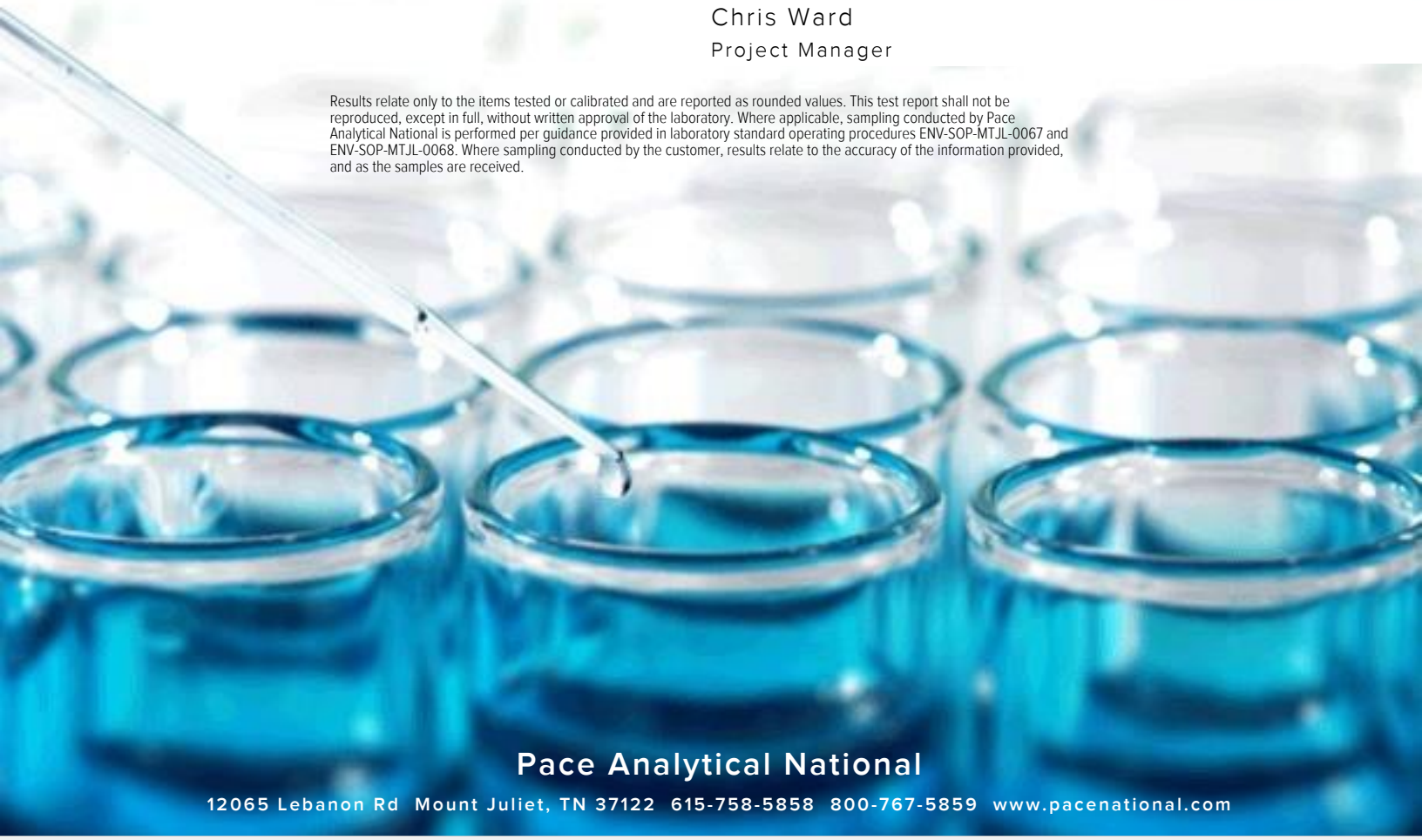
Caerus Oil and Gas

Sample Delivery Group:	L1475794
Samples Received:	03/26/2022
Project Number:	J17E
Description:	J17E Dumpline Release
Site:	J17E
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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Sc: Sample Chain of Custody 9

SAMPLE SUMMARY

20220325-J17E(SB02-TB) L1475794-01 GW

Collected by: Kevin Fletcher
Collected date/time: 03/25/22 11:15
Received date/time: 03/26/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1841642	1	04/01/22 18:20	04/01/22 18:20	DWR	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

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.00610		0.0000941	0.00100	1	04/01/2022 18:20	WG1841642
Toluene	0.00240		0.000278	0.00100	1	04/01/2022 18:20	WG1841642
Ethylbenzene	U		0.000137	0.00100	1	04/01/2022 18:20	WG1841642
Total Xylenes	0.000897	J	0.000174	0.00300	1	04/01/2022 18:20	WG1841642
(S) Toluene-d8	*103*			*80.0-120*		*04/01/2022 18:20*	WG1841642
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*04/01/2022 18:20*	WG1841642
(S) 1,2-Dichloroethane-d4	*106*			*70.0-130*		*04/01/2022 18:20*	WG1841642

Method Blank (MB)

(MB) R3776951-3 04/01/22 18:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*107*			*70.0-130*

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

(LCS) R3776951-1 04/01/22 16:59 • (LCSD) R3776951-2 04/01/22 17:19

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 %
Benzene	0.00500	0.00475	0.00460	95.0	92.0	70.0-123			3.21	20
Toluene	0.00500	0.00449	0.00440	89.8	88.0	79.0-120			2.02	20
Ethylbenzene	0.00500	0.00474	0.00479	94.8	95.8	79.0-123			1.05	20
Xylenes, Total	0.0150	0.0146	0.0143	97.3	95.3	79.0-123			2.08	20
(S) Toluene-d8				*101*	*101*	*80.0-120*				
(S) 4-Bromofluorobenzene				*105*	*107*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*108*	*109*	*70.0-130*				

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.
(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.
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.

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**

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

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

Project Description: **J17E Dumpine**

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

Phone:
Fax:

Client Project # **17E**

Lab Project # **17E**

Collected by (print): Kevin Fletcher

Site/Facility ID # **17E**

P.O. # **17E**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: **Standard TAT**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	chloride, sulfate, TDS	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	naphthalene										Remarks	Sample # (lab only)
20220325-J17E(5802-TB)	Grab	GW		3/25/22	1115	3	X															-01

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

L # 1475794
G008

Ta

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

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # 5433 8386 0580

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/25/22	1325	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/25/22	1700	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: DRAFT 2.7+0=2.7 Bottles Received: 3

Date: 3/26/22 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

February 18, 2022

Jake Janicek
Caerus Oil and Gas LLC
120 North Railroad Ave.
Parachute, CO 81635

RE: J17E

Dear Jake:

Enclosed are the results of the sample submitted to our laboratory on February 11, 2022. For your reference, these analyses have been assigned our service request number P2200608.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:58 pm, Feb 18, 2022

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Caerus Oil and Gas LLC
Project: J17E

Service Request No: P2200608

CASE NARRATIVE

The sample was received intact under chain of custody on February 11, 2022 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Total Petroleum Hydrocarbons as Gasoline Analysis

The sample was analyzed for total petroleum hydrocarbons (TPH) as gasoline per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID). This procedure is described in laboratory SOP VOA-TPHG_TO3. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP accreditation.

Volatile Organic Compound Analysis

The sample was also analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

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www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Caerus Oil and Gas LLC
Service Request: P2200608
Project ID: J17E

Date Received: 2/11/2022
Time Received: 09:42

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - TPHG Bag	TO-15 Modified - VOC Bags
20220209-J17E (STACK)	P2200608-001	Air	2/9/2022	10:48	X	X

ALS Laboratory Group

CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

COC number (for client tracking): P2200608

Page 1 of 1

CLIENT CONTACT AND REPORTING INFORMATION	INVOICE ADDRESS (if other than client address)
Company Name: Caerus Oil and Gas LLC	Company Name: Same
Project Manager: Jake Janicek	Contact Name: Same
Address: 143 Diamond Avenue	Address: Same
Parachute, CO 81635	
Phone: 970-285-9606	**PROJECT INFORMATION**
Email 1: bmiddleton@caerusoilandgas.com	Project ID: J17E
Email 2: jjanicek@caerusoilandgas.com	Site: J17E
	PO No:
☑ Regular (default) 5 Day Standard TAT	ALS Quote No:
☐ Express (Pls specify date required __SAME DAY_____) (express fee will apply)	

ALS ID #	SAMPLE IDENTIFICATION (this description will appear on report)	MATRIX (a)	SAMPLING AND CONTAINER INFO Date	Time	Tot Bottles	REMARKS	ANALYSIS REQUIRED (one cooler must be listed to attract auto prices) CROSS THE REQUESTED ANALYSIS TVPH	BTEX
	20220209-J17E (STACK)	Air	2/9/2022	1048	1		x	x

5 of 12

CLIENT SIGNATURES

Client's Signature:

Client's Date and Time of Completion: 2/9/22 1204

For lab use only

Cooler Security Seal	Sample Temp	No of Cooler Received	Received by (lab)	Date and Time
☐ sealed	☐ chilled deg 'C	carton / cooler box		2-11-22 0942
☐ broken	☐ ambient	Courier Name	Committed by	Date and Time
☐ not available				

Note: (a) **DW** (Drinking water), **SW** (Surface water), **GW** (Ground water), **WW** (Waste water), **S** (Soil), **SL** (Sludge), **SE** (Sediment), **OS** (Other solid material)

ALS Environmental
Sample Acceptance Check Form

Client: Caerus Oil and Gas LLC Work order: P2200608

Project: J17E

Sample(s) received on: 2/11/22 Date opened: 2/11/22 by: KYLE.WOODIN

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2200608-001.01	1.0 L Tedlar Bag					

Explain any discrepancies: (include lab sample ID numbers): Sample is low volume.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**
Client Project ID: **J17E** ALS Project ID: P2200608

Total Petroleum Hydrocarbons (TPH) as Gasoline

Test Code: EPA TO-3 Modified
Instrument ID: HP 5890 II/GC21/FID Date(s) Collected: 2/9/22
Analyst: Gilbert Gutierrez Date Received: 2/11/22
Sampling Media: 1.0 L Tedlar Bag(s) Date Analyzed: 2/11/22
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
20220209-J17E (STACK)	P2200608-001	1.0	**3,800**	18	**1,100**	5.1	
Method Blank	P220211-MB	1.0	ND	18	ND	5.1	

Parts Per Million results are based on a Molecular Weight of 86.18.
ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2200608
Client Project ID: **J17E** ALS Sample ID: P220211-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP 5890 II/GC21/FID Date Received: NA
Analyst: Gilbert Gutierrez Date Analyzed: 2/11/22
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

Compound	Spike Amount LCS / DLCS mg/m³	Result LCS mg/m³	Result DLCS mg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
TPH as Gasoline	7,190	7,820	7,460	**109**	**104**	89-124	5	14	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **20220209-J17E (STACK)**
Client Project ID: **J17E**

ALS Project ID: P2200608
ALS Sample ID: P2200608-001

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Simon Cao
Sample Type: 1.0 L Tedlar Bag
Test Notes:

Date Collected: 2/9/22
Date Received: 2/11/22
Date Analyzed: 2/11/22
Volume(s) Analyzed: 0.0010 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**17,000**	500	**5,400**	160	
108-88-3	Toluene	**17,000**	520	**4,600**	140	
100-41-4	Ethylbenzene	**630**	520	**150**	120	
179601-23-1	m,p-Xylenes	**2,800**	1,100	**650**	250	
95-47-6	o-Xylene	ND	520	ND	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**

Client Sample ID: **Method Blank**
Client Project ID: **J17E**

ALS Project ID: P2200608
ALS Sample ID: P220210-MB

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Simon Cao
Sample Type: 1.0 L Tedlar Bag
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 2/10/22
Volume(s) Analyzed: 1.00 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	ND	0.50	ND	0.16	
108-88-3	Toluene	ND	0.52	ND	0.14	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
95-47-6	o-Xylene	ND	0.52	ND	0.12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Caerus Oil and Gas LLC**
Client Project ID: **J17E** ALS Project ID: P2200608

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 2/9/22
Analyst: Simon Cao Date(s) Received: 2/11/22
Sample Type: 1.0 L Tedlar Bag(s) Date(s) Analyzed: 2/10 - 2/11/22
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P220210-MB	**99**	**104**	**108**	70-130	
Lab Control Sample	P220210-LCS	**96**	**101**	**105**	70-130	
Duplicate Lab Control Sample	P220210-DLCS	**96**	**102**	**107**	70-130	
20220209-J17E (STACK)	P2200608-001	**98**	**96**	**100**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2200608
Client Project ID: **J17E** ALS Sample ID: P220210-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 2/10/22
Sample Type: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
71-43-2	Benzene	208	182	182	**88**	**88**	72-113	0	25	
108-88-3	Toluene	206	187	186	**91**	**90**	70-118	1	25	
100-41-4	Ethylbenzene	206	195	192	**95**	**93**	71-123	2	25	
179601-23-1	m,p-Xylenes	416	397	389	**95**	**94**	67-127	1	25	
95-47-6	o-Xylene	208	198	196	**95**	**94**	69-124	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

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www.alsglobal.com

LABORATORY REPORT

March 23, 2022

Jake Janicek
Caerus Oil and Gas LLC
120 North Railroad Ave.
Parachute, CO 81635

RE: J17E

Dear Jake:

Enclosed are the results of the sample submitted to our laboratory on March 18, 2022. For your reference, these analyses have been assigned our service request number P2201202.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

11:51 pm, Mar 23, 2022

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

Client: Caerus Oil and Gas LLC
Project: J17E

Service Request No: P2201202

CASE NARRATIVE

The sample was received intact under chain of custody on March 18, 2022 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Total Petroleum Hydrocarbons as Gasoline Analysis

The sample was analyzed for total petroleum hydrocarbons (TPH) as gasoline per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID). This procedure is described in laboratory SOP VOA-TPHG_TO3. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP accreditation.

Volatile Organic Compound Analysis

The sample was also analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Caerus Oil and Gas LLC
Service Request: P2201202
Project ID: J17E

Date Received: 3/18/2022
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - TPHG Bag	TO-15 Modified - VOC Bags
20220317-J17E(SVE01)	P2201202-001	Air	3/17/2022	11:35	X	X

ALS Laboratory Group

CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

P2201202 COC number (for client tracking)

Page 1 of 1

CLIENT/CONTACT AND REPORTING INFORMATION	INVOICE ADDRESS (if different than reporting address)	ANALYSIS REQUIRED (all fields must be completed or attach additional pages)
Company Name: Caerus Oil and Gas LLC	Company Name: Same	
Project Manager: Jake Janicek	Contact Name: Same	
Address: 143 Diamond Avenue	Address: Same	
Parachute, CO 81635		
Phone: 970-285-9606	**PROJECT INFORMATION**	
Email 1: bmiddleton@caerusoilandgas.com	Project ID: J17E	
Email 2: jjanicek@caerusoilandgas.com	Site: J17E	
	PO No:	
☑ Regular (default) 5 Day Standard TAT	ALS Quote No:	
☐ Express (Pls specify date required __SAME DAY_____) (express fee will apply)		

ALS ID #	SAMPLE IDENTIFICATION (This description will appear on report)	MATRIX (a)	SAMPLING INFORMATION Date	Time	# of Bottles	REMARKS	TVPH	BTEX
	20220317-J17E(SVE01)	Air	3/17/2022	1135	2		x	x

CROSS THE REQUESTED ANALYSIS

5 of 12

CLIENT SIGNATURE

Client's Signature:

Client's Date and Time of Completion: 3/17/22 1155

For lab use only

Cooler Security Seal	Sample Temp	No of Cooler Received	Received by (lab)	Date and Time
☐ sealed	☐ chilled deg 'C	carton / cooler box		3-18-22 1500
☐ broken	☐ ambient	Courier Name	Committed by	Date and Time
☐ not available				

Note: (a) **DW** (Drinking water), **SW** (Surface water), **GW** (Ground water), **WW** (Waste water), **S** (Soil), **SL** (Sludge), **SE** (Sediment), **OS** (Other solid material)

ALS Environmental
Sample Acceptance Check Form

Client: Caerus Oil and Gas LLC Work order: P2201202

Project: J17E

Sample(s) received on: 3/18/22 Date opened: 3/18/22 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☒	☐
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2201202-001.01	1 L Zefon Bag					
P2201202-001.02	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**
Client Project ID: **J17E** ALS Project ID: P2201202

Total Petroleum Hydrocarbons (TPH) as Gasoline

Test Code: EPA TO-3 Modified
Instrument ID: HP 5890 II/GC21/FID Date(s) Collected: 3/17/22
Analyst: Gilbert Gutierrez Date Received: 3/18/22
Sampling Media: 1 L Zefon Bag(s) Date Analyzed: 3/18/22
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result mg/m³	MRL mg/m³	Result ppmV	MRL ppmV	Data Qualifier
20220317-J17E(SVE01)	P2201202-001	0.10	**12,000**	180	**3,500**	51	
Method Blank	P220318-MB	1.0	ND	18	ND	5.1	

Parts Per Million results are based on a Molecular Weight of 86.18.
ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201202
Client Project ID: **J17E** ALS Sample ID: P220318-DLCS

Test Code: EPA TO-3 Modified Date Collected: NA
Instrument ID: HP 5890 II/GC21/FID Date Received: NA
Analyst: Gilbert Gutierrez Date Analyzed: 3/18/22
Sampling Media: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

Compound	Spike Amount LCS / DLCS mg/m³	Result LCS mg/m³	Result DLCS mg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
TPH as Gasoline	7,190	7,570	7,440	**105**	**103**	89-124	2	14	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **20220317-J17E(SVE01)** ALS Project ID: P2201202
Client Project ID: **J17E** ALS Sample ID: P2201202-001

Test Code: EPA TO-15 Modified Date Collected: 3/17/22
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 3/18/22
Analyst: Simon Cao Date Analyzed: 3/18/22
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	**83,000**	1,700	**26,000**	520	
108-88-3	Toluene	**77,000**	1,700	**20,000**	460	
100-41-4	Ethylbenzene	**2,200**	1,700	**500**	400	
179601-23-1	m,p-Xylenes	**13,000**	3,700	**3,100**	840	
95-47-6	o-Xylene	ND	1,700	ND	400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Caerus Oil and Gas LLC**

Client Sample ID: **Method Blank**
Client Project ID: **J17E**

ALS Project ID: P2201202
ALS Sample ID: P220317-MB

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Simon Cao
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/17/22
Volume(s) Analyzed: 1.00 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
71-43-2	Benzene	ND	0.50	ND	0.16	
108-88-3	Toluene	ND	0.52	ND	0.14	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
95-47-6	o-Xylene	ND	0.52	ND	0.12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Caerus Oil and Gas LLC**
Client Project ID: **J17E** ALS Project ID: P2201202

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 3/17/22
Analyst: Simon Cao Date(s) Received: 3/18/22
Sample Type: 1 L Zefon Bag(s) Date(s) Analyzed: 3/17 - 3/18/22
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P220317-MB	**97**	**97**	**103**	70-130	
Lab Control Sample	P220317-LCS	**98**	**92**	**97**	70-130	
Duplicate Lab Control Sample	P220317-DLCS	**100**	**92**	**96**	70-130	
20220317-J17E(SVE01)	P2201202-001	**103**	**89**	**85**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Caerus Oil and Gas LLC**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201202
Client Project ID: **J17E** ALS Sample ID: P220317-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 3/18/22
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
71-43-2	Benzene	208	174	174	**84**	**84**	72-113	0	25	
108-88-3	Toluene	206	157	156	**76**	**76**	70-118	0	25	
100-41-4	Ethylbenzene	206	169	168	**82**	**82**	71-123	0	25	
179601-23-1	m,p-Xylenes	416	326	324	**78**	**78**	67-127	0	25	
95-47-6	o-Xylene	208	166	165	**80**	**79**	69-124	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.