



## **VIA ELECTRONIC MAIL –**

April 28, 2022

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

**Subject: Dry Gas Release Assessment  
SGV Federal Dry Gas Release  
South Grand Valley  
Garfield County, Colorado**

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), has completed supplemental soil screening and soil sampling associated with the South Grand Valley (SGV) Federal Pipeline Release (Site). The initial Site characterization investigation and confirmation soil samples were collected in December 2021 pursuant condition of approvals (COA) listed in the Colorado Oil and Gas Conservation Commission (COGCC) Site Investigation and Remediation Workplan (Initial) Form 27 Document Number 402915028 . The Site is located in Caerus' SGV area of operation in Garfield County, Colorado (Figure 1).

## **SOIL SAMPLING ACTIVITIES – SGV FEDERAL DRY GAS RELEASE**

On April 7 and April 8, 2022, WSP personnel visited the site to perform supplemental Site assessment activities and collected additional confirmation samples from, and around the base of the excavation associated with the November 18, 2021 dry gas release within the right-of-way (ROW) of the SGV Federal pipeline. With the assistance of Western Slope Field Services, Inc. (WCO), soil was removed from an area of approximately two feet to either side of the SGV Federal pipeline via Hydro-Vac to a total depth ranging from 8.5 feet to 11 feet below ground surface (bgs) for a length of approximately 120 feet. After the area of soil beneath the SGV Federal Pipeline was removed, a WSP geologist collected soils samples from the open excavation. Soil samples were collected at the base of the excavation, at each exposed edge at the northern and southern ends of the excavation, as well as from the middle of the excavation near the original point of release. A total of eleven samples were collected Hydro-Vac excavation; three base samples (20220407 – SGV FEDERAL (Base-N) @ 8.5', 20220408 – SGV FEDERAL (Base-M) @ 11', and 20220408 – SGV FEDERAL (Base-S) @ 8.5'), three west wall samples (20220407 – SGV FEDERAL (W-Wall-N) @ 8', 20220408 – SGV FEDERAL (W-Wall-M) @ 10.5', and 20220408 – SGV FEDERAL (W-Wall-S) @ 8'), three east wall samples (20220407 – SGV FEDERAL (E-Wall-N) @ 8', 20220408 – SGV FEDERAL (E-Wall-M) @ 10.5', and 20220408 – SGV FEDERAL (E-Wall-S) @ 8'), one north wall sample (20220407 – SGV FEDERAL (N-Wall-N) @ 8'), and one south wall sample (20220408 – SGV FEDERAL (S-Wall-S) @ 8').

All Hydro-Vac activities, soil sampling, and screening activities were conducted by a WSP geologist who screened each sample using a photo-ionization detector (PID) to monitor for the presence or absence of volatile organic compounds. All soil samples were submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis of a reduced analytical suite previously approved by the Director which included sodium adsorption ratio (SAR), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, and 2-methylnaphthalene. The approved analyte list was evaluated under the COGCC Table 915-1 Residential Soil Screening Level Concentrations (RSSLC) milligrams per kilogram

WSP USA  
820 MEGAN AVENUE, UNIT B  
RIFLE CO 81650

Tel.: 970-285-9985  
wsp.com



(mg/kg). The soil screening results are summarized in the enclosed Table 1. A photolog of the investigative soil sampling and field screened areas associated with the SGV Federal Release is included in Enclosure A. Figure 2 illustrates the ROW excavation extent, Hydro-Vac excavation extents, and confirmation soil sample locations.

## ANALYTICAL RESULTS – SGV FEDERAL DRY GAS RELEASE

Laboratory analytical results of the additional confirmation soil samples collected from directly beneath the pipeline indicate compliance with COGCC Table 915-1 cleanup concentration standards with the exception of SAR in samples 20220408-SGV FEDERAL (BASE-M) @ 11', 20220408-SGV FEDERAL (W-WALL-M) @ 10.5', and 20220408-SGV FEDERAL (E-WALL-M) @ 10.5'. SAR exceedances range from 6.20 in soil sample 20220408-SGV FEDERAL (BASE-M) @ 11' to 9.39 in soil sample 20220408-SGV FEDERAL (E-WALL-M) @ 10.5'. All other analytes were either below the laboratory detection limit or within the COGCC Table 915-1 RSSLC. The soil analytical results are summarized in the enclosed Table 1. The laboratory analytical report is provided in Enclosure B.

## CONCLUSIONS – SGV FEDERAL DRY GAS RELEASE

Based on the analytical data provided from the initial assessment sampling, there are remaining COGCC Table 915-1 exceedances of SAR with the recent pipeline dry gas release. These exceedances were present in the area below the low point of the pipeline directly adjacent to the initial point of release and therefore represent the area with highest likelihood of contamination. The only other exceedance was in the northernmost soil boring 20220224-SGV FED (SB-N) @ 10-12'. These exceedances of SAR within the pipeline excavation ROW are within background concentrations documented in background soil samples (20220314-7N-BGW1 @ 2', 20220314-7N-BGW2 @ 1', 20220314-7N-BGW3 @ 8', 20220314-7N-BGW4 @ 4', and 20220314-7N-BGW5 @ 6') located at the adjacent pad, SGV 7N (COGCC Facility ID: 481882). The geographic proximity of the two locations is depicted on the attached Figure 3 along with the associated background sample locations. The background soil analytical results are summarized in the enclosed Table 1 and Figure 4. Although the background soil samples were collected from a geographical distance of 0.61 miles southeast of the site soil samples, the soils at the SGV 7N are representative of the same soil complex (Ildefonso) [Site (Potts-Ildefonso Complex) and SGV 7N location (Ildefonso stony loam)]. Based on the *COGCC GISOnline Soil Survey (NRCS)* website map layer, these two soils are within the same soil complex but different classifications due to the difference of slope angles and aspects which subsequently categorizes them into different zones or "mapped areas". Per the *Soil Survey of Rifle Area, Colorado Parts of Garfield and Mesa Counties* publication included in Enclosure C, the Potts series is consistent of deep, well drained soils, moderately sloping soils on mesas, benches, and sides of valleys. These soils formed in alluvium derived from sandstone, shale, and basalt.

Based on the data provided herein, WSP recommends that Caerus request a "No Further Action" designation under this remediation project (COGCC Remediation Number 21902) for the Site. This recommendation is based on the reasonings stated below.

- No hydrocarbon impacts were observed when completing the field investigation; and
- All inorganic identified exceedances under COGCC Table 915-1 were confirmed to be removed through confirmation soil sample analytical results.

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



Kind regards,

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

Dustin Held  
Sr. Consultant, Environmental Geologist

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

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

Encl.

## FIGURES



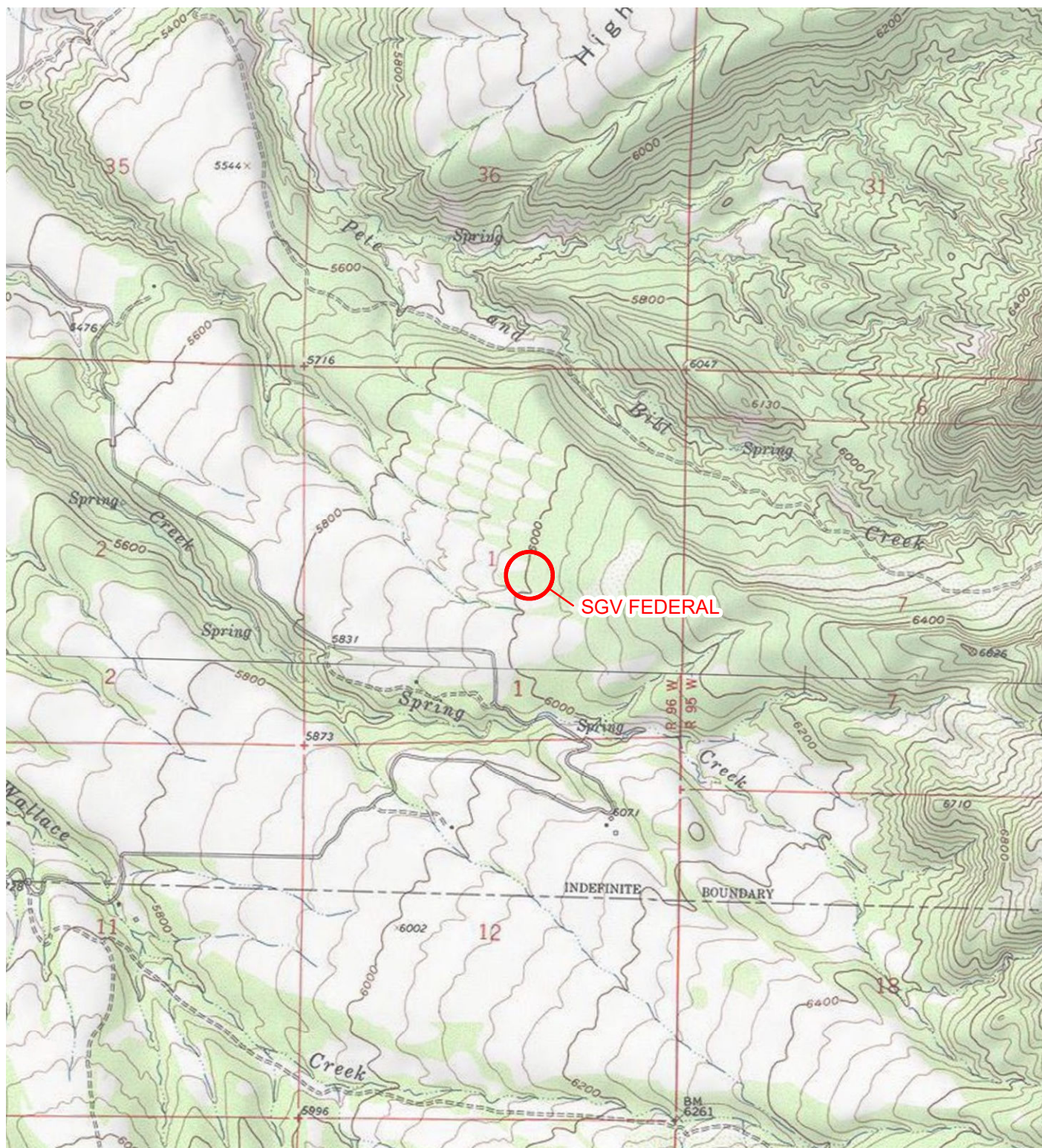
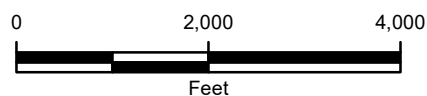


IMAGE COURTESY OF ESRI/USGS

## LEGEND

 SITE LOCATION



**FIGURE 1**  
**SITE LOCATION MAP**  
**SGV FEDERAL**  
**NWSE SEC 1-T8S-R96W**  
**GARFIELD COUNTY, COLORADO**  
**CAERUS OIL AND GAS LLC**





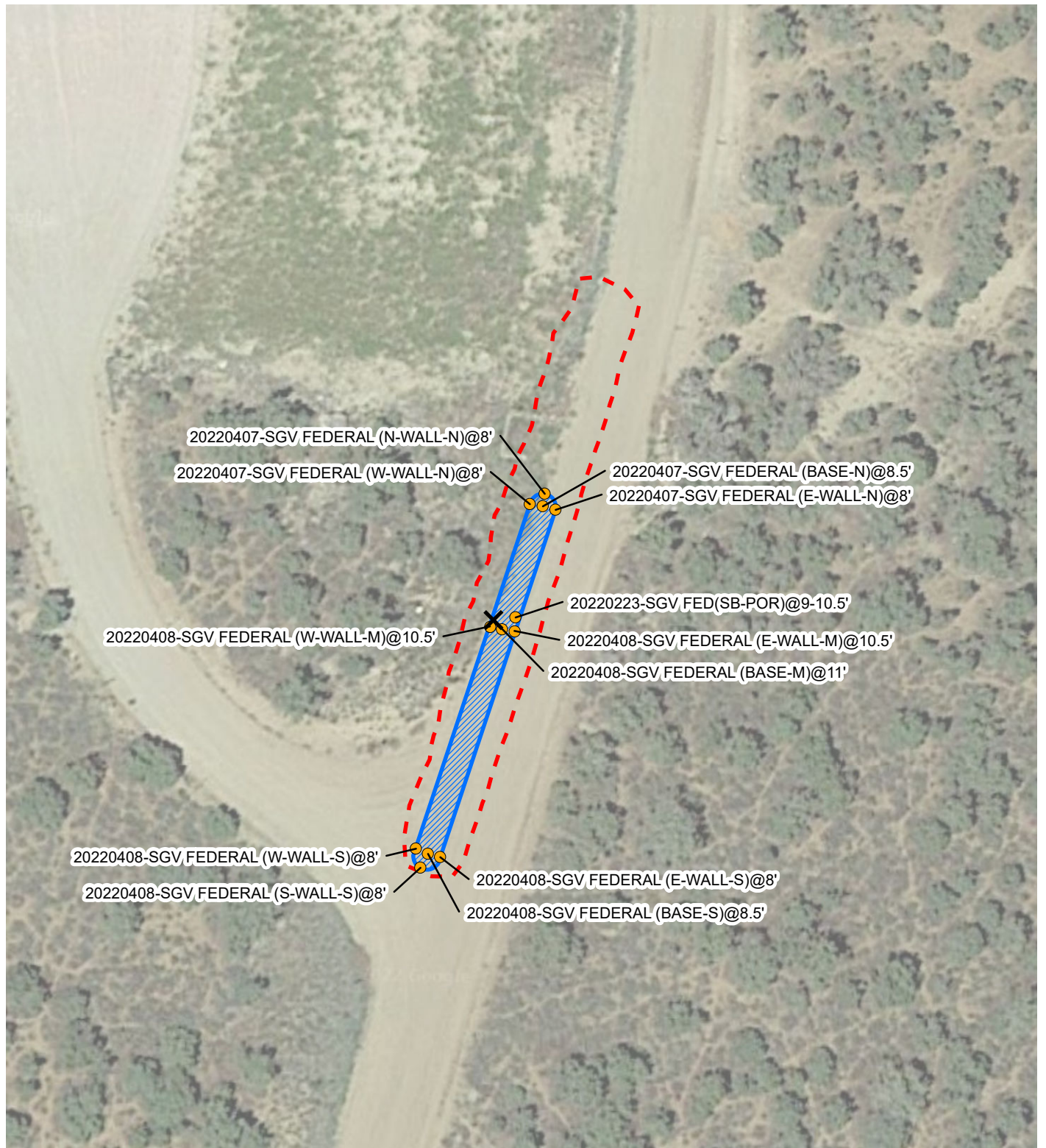


IMAGE COURTESY OF GOOGLE EARTH 2016

## LEGEND

✕ RELEASE LOCATION

● SOIL SAMPLE

EXCAVATION EXTENT (01/04/2022)

HYDROVAC EXTENT (04/08/2022)

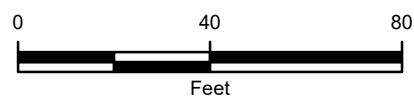


FIGURE 2  
SITE MAP  
SGV FEDERAL  
NWSE SEC 1-T8S-R96W  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

wsp



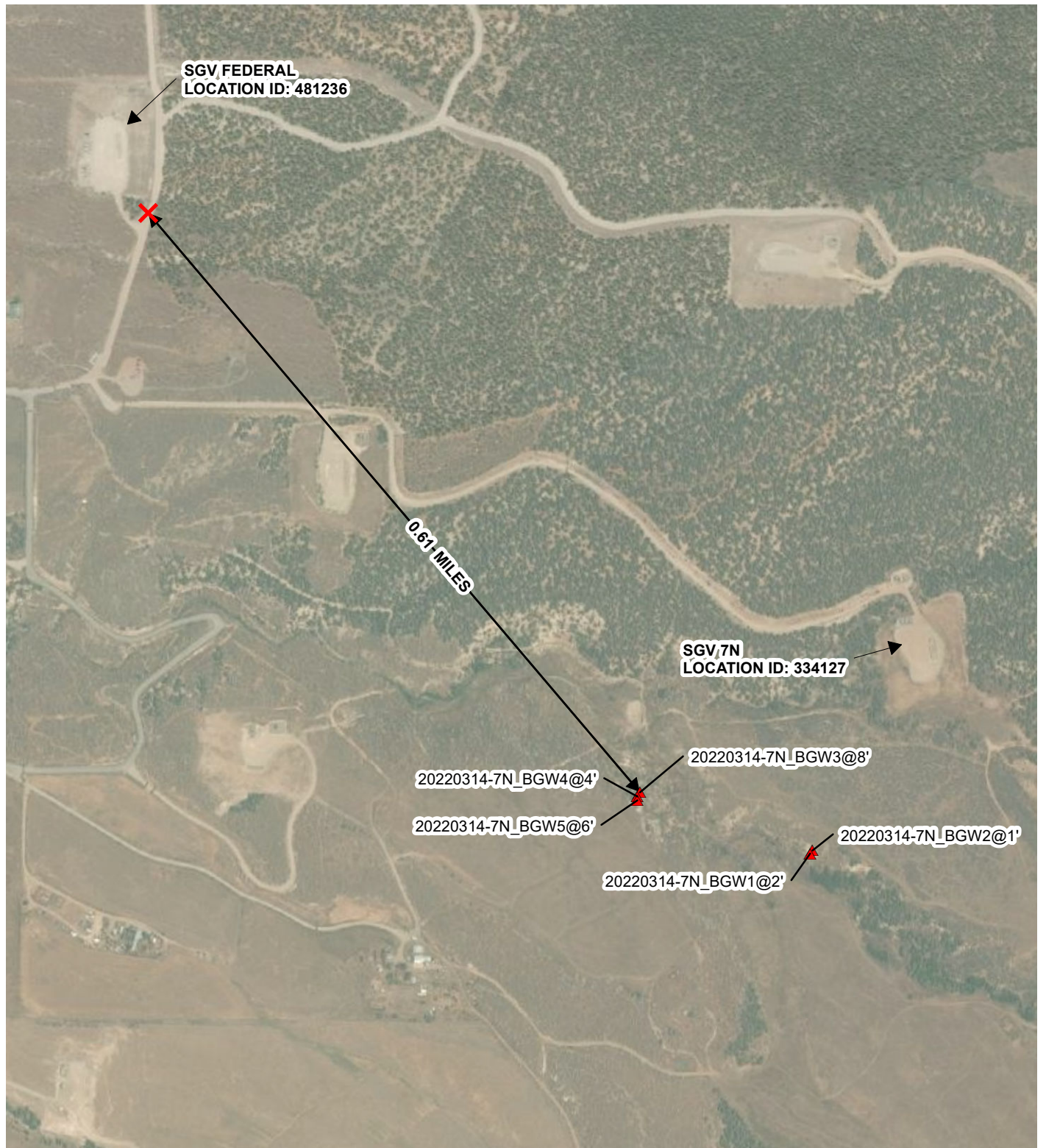
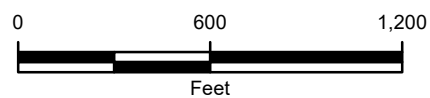


IMAGE COURTESY OF ESRI (MAXAR 8/10/2021)

## LEGEND

- X RELEASE LOCATION
- ▲ BACKGROUND SOIL SAMPLE



**FIGURE 3**  
**GEOGRAPHIC PROXIMITY MAP**  
 SGV FEDERAL  
 NWSE SEC 1-T8S-R96W  
 GARFIELD COUNTY, COLORADO  
 CAERUS OIL AND GAS LLC





SOIL SAMPLE ID  
SAMPLE DATE  
SAR: SODIUM ADSORPTION RATIO (UNITLESS)  
pH: SCIENTIFIC UNITS  
**BOLD INDICATES RESULT EXCEEDS  
THE APPLICABLE STANDARD**

SGV FEDERAL  
LOCATION ID: 481236

SGV 7N  
LOCATION ID: 334127

0.61 MILES

20220314-7N\_BGW4@4'  
3/14/2022  
SAR: 0.914  
pH: **8.31**

20220314-7N\_BGW5@6'  
3/14/2022  
SAR: 0.596  
pH: **8.67**

20220314-7N\_BGW3@8'  
3/14/2022  
SAR: **14.8**  
pH: **8.42**

20220314-7N\_BGW2@1'  
3/14/2022  
SAR: **26.7**  
pH: **8.58**

20220314-7N\_BGW1@2'  
3/14/2022  
SAR: **10.1**  
pH: **9.68**

## LEGEND

- ✗ RELEASE LOCATION
- ▲ BACKGROUND SOIL SAMPLE

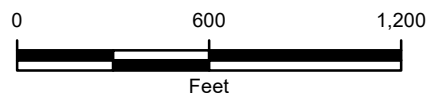


IMAGE COURTESY OF ESRI (MAXAR 8/10/2021)

FIGURE 4  
GEOGRAPHIC PROXIMITY  
BACKGROUND ANALYTICAL MAP  
SGV FEDERAL  
NWSE SEC 1-T8S-R96W  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC



## TABLES

TABLE 1

SOIL ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES						
				20211214-SGVF-(POR)@7'	20211214-SGVF-(POC N1)@7'	20211214-SGVF-(POC M1)@7'	20211214-SGVF-(POC S1)@7'	20220104-SVGF-(POC N2)@7'	20220104-SVGF-(ROC N3)@7'	20220407 - SGV FEDERAL (BASE-N) @ 8.5'
Sample Date				12/14/2021	12/14/2021	12/14/2021	12/14/2021	1/4/2022	1/4/2022	4/7/2022
Sample Depth (feet)				7	7	7	7	7	7	8.5
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	2.92	3.55	3.65	4.02	9.73	7.98	NA
Barium	15,000	82 (M)	mg/kg	601	238	180	279	208	305	NA
Boron	2	2	mg/l	2.04	1.97	1.04	1.66	0.329	0.350	NA
Cadmium	71	0.38 (M)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Copper	3,100	46 (M)	mg/kg	8.56	11.8	10.7	10.7	14.1	16.3	NA
Lead	400	14 (M)	mg/kg	6.53	7.43	7.78	7.45	8.00	11.8	NA
Nickel	1,500	26 (R)	mg/kg	11.3	19.0	12.6	12.4	21.0	21.4	NA
Selenium	390	0.26 (M)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Zinc	23,000	370 (R)	mg/kg	20.4	26.7	29.9	28.1	26.7	41.3	NA
EC	<4	<4	mmhos/cm	3.430	5.200	4.540	5.070	0.548	0.350	NA
pH	6 - 8.3	6 - 8.3	SU	7.83	7.96	7.69	7.70	9.09	8.48	NA
SAR	<6	<6	unitless	26.8	33.8	12.4	26.5	3.08	0.479	3.93
TPH-GRO			mg/kg	2,750	161	2,280	490	0.161	ND	0.112
TPH-DRO			mg/kg	181	383	5,150	1,660	10.2	ND	33.0
TPH-ORO			mg/kg	23.9	109	673	403	ND	ND	17.7
TPH	500	500	mg/kg	2,954.9	653	8,103	2,553	10.361	ND	50.812
Benzene	1.2	0.0026 (M)	mg/kg	8.44	0.0478	0.448	0.236	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	56.7	0.728	14.6	1.24	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	14.7	0.212	4.09	0.494	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	142	5.89	64.8	8.61	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	42.3	2.18	48.3	4.97	0.0246	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	34.1	1.75	33.1	3.73	0.0474	0.00913	ND
Acenaphthene	1,800	5.8 (R)	mg/kg	0.206	0.0180	0.668	ND	ND	ND	NA
Anthracene	360	0.55 (R)	mg/kg	ND	ND	ND	0.114	ND	ND	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	0.00749	ND	ND	ND	ND	ND	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Chrysene	110	9 (R)	mg/kg	0.0138	ND	0.0405	0.00912	ND	ND	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
Fluoranthene	240	8.9 (R)	mg/kg	0.0210	ND	0.0844	0.0171	ND	ND	NA
Fluorene	240	0.54 (R)	mg/kg	0.501	0.0599	1.80	0.276	ND	ND	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	ND	ND	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	6.71	0.480	21.8	3.21	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	15.5	0.527	52.6	8.53	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	2.45	0.0611	16.3	1.70	ND	ND	NA
Pyrene	180	1.3 (R)	mg/kg	0.0135	ND	0.0398	0.0105	ND	ND	NA

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

TABLE 1

SOIL ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES						
				20220407-SGV FEDERAL (W-WALL-N) @ 8'	20220407-SGV FEDERAL (N-WALL-N) @ 8'	20220407-SGV FEDERAL (E-WALL-N) @ 8'	20220408-SGV FEDERAL (BASE-S) @ 8.5'	20220408-SGV FEDERAL (S-WALL-S) @ 8'	20220408-SGV FEDERAL (E-WALL-S) @ 8'	20220408-SGV FEDERAL (W-WALL-S) @ 8'
Sample Date				4/7/2022	4/7/2022	4/7/2022	4/8/2022	4/8/2022	4/8/2022	4/8/2022
Sample Depth (feet)				8	8	8	8.5	8	8	8
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Boron	2	2	mg/l	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA	NA	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA	NA	NA	NA	NA
SAR	<6	<6	unitless	5.44	2.26	2.06	2.76	4.04	1.38	2.64
TPH-GRO			mg/kg	0.184	ND	ND	ND	ND	ND	ND
TPH-DRO			mg/kg	43.6	9.21	4.87	ND	ND	6.19	7.19
TPH-ORO			mg/kg	23.5	11.0	5.16	5.27	5.79	7.42	6.96
TPH	500	500	mg/kg	67.284	20.21	10.03	5.27	5.79	13.61	14.15
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA

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

TABLE 1

SOIL ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES		
				20220408-SGV FEDERAL (BASE-M) @ 11'	20220408-SGV FEDERAL (W-WALL-M) @ 10.5'	20220408-SGV FEDERAL (E-WALL-M) @ 10.5'
Sample Date				4/8/2022	4/8/2022	4/8/2022
Sample Depth (feet)				11	10.5	10.5
Sample Type				Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	NA	NA	NA
Boron	2	2	mg/l	NA	NA	NA
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA
EC	<4	<4	mmhos/cm	NA	NA	NA
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA
SAR	<6	<6	unitless	6.20	7.12	9.39
TPH-GRO			mg/kg	0.413	0.901	0.189
TPH-DRO			mg/kg	9.16	20.4	23.2
TPH-ORO			mg/kg	ND	ND	4.26
TPH	500	500	mg/kg	9.573	21.301	27.649
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	0.00833	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	0.0420	0.0255
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	0.0205	ND	0.0230
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA

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



TABLE 1

SOIL ANALYTICAL RESULTS

SGV FEDERAL DRY GAS RELEASE

GARFIELD COUNTY, COLORADO

CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SOIL SAMPLES						
				20210714-SGV 1F (BGN) @ 6"	20210714-SGV 1F (BGS) @ 6"	20210714-SGV 1F (BGE) @ 6"	20210714-SGV 1F (BGW) @ 6"	20220314-7N-BGW1 @ 2'	20220314-7N-BGW2 @ 1'	20220314-7N-BGW3 @ 8'
Sample Date				7/14/2021	7/14/2021	7/14/2021	7/14/2021	3/14/2022	3/15/2022	3/14/2022
Sample Depth (feet)				0.5	0.5	0.5	0.5	2	1	8
Sample Type				Background	Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	3.67	5.01	5.23	5.03	5.37	4.73	8.02
Barium	15,000	82 (M)	mg/kg	189	196	234	198	NA	NA	NA
Boron	2	2	mg/l	0.485	0.425	0.375	1.04	0.264	0.390	0.111
Cadmium	71	0.38 (M)	mg/kg	0.344	0.350	0.286	0.354	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	13.3	17.3	13.9	14.7	NA	NA	NA
Lead	400	14 (M)	mg/kg	11.2	12.5	7.60	9.93	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	16.0	19.9	15.9	21.4	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	0.833	1.19	3.17	2.02	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	38.7	44.8	30.4	38.5	NA	NA	NA
EC	<4	<4	mmhos/cm	0.401	0.188	0.244	0.548	1.14	5.04	0.731
pH	6 - 8.3	6 - 8.3	SU	7.22	8.37	8.31	8.01	9.68	8.58	8.42
SAR	<6	<6	unitless	0.0665	0.0370	0.0514	0.224	10.1	26.7	14.8
TPH-GRO			mg/kg	NA	NA	NA	NA	NA	NA	NA
TPH-DRO			mg/kg	NA	NA	NA	NA	NA	NA	NA
TPH-ORO			mg/kg	NA	NA	NA	NA	NA	NA	NA
TPH	500	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	ND	0.000470	ND	0.000525	NA	NA	NA
Toluene	490	0.69 (M)	mg/kg	0.0270	0.00213	0.00329	0.00280	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	0.000742	ND	NA	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	0.127	0.00379	0.00577	0.00518	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	0.0292	ND	ND	ND	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Acenaphthene	1,800	5.8 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	0.00327	ND	ND	ND	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA
Pyrene	180	1.3 (R)	mg/kg	ND	ND	ND	ND	NA	NA	NA

NOTES:

**BOLD** - indicates result exceeds the COGCC protection of groundwater soil screening level concentrations

COGCC - Colorado Oil and Gas Conservation Commission

EC- electrical conductivity

mg/l - milligrams per liter

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

SU - standard unit

TPH-ORO - total petroleum hydrocarbons- oil range organics

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

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

NA - analyte not analyzed

ND - analyte not detected

R - risk based

MCL - maximum containment level (M)

POR - point of release

TABLE 1

SOIL ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	BACKGROUND SOIL SAMPLES	
				20220314-7N-BGW4 @ 4'	20220314-7N-BGW5 @ 6'
Sample Date				3/15/2022	3/16/2022
Sample Depth (feet)				4	6
Sample Type				Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	<b>7.76</b>	<b>7.58</b>
Barium	15,000	82 (M)	mg/kg	NA	NA
Boron	2	2	mg/l	0.0960	0.120
Cadmium	71	0.38 (M)	mg/kg	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA
EC	<4	<4	mmhos/cm	0.347	0.182
pH	6 - 8.3	6 - 8.3	SU	<b>8.31</b>	<b>8.67</b>
SAR	<6	<6	unitless	0.914	0.596
TPH-GRO			mg/kg	NA	NA
TPH-DRO			mg/kg	NA	NA
TPH-ORO			mg/kg	NA	NA
TPH	500	500	mg/kg	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	NA	NA
Toluene	490	0.69 (M)	mg/kg	NA	NA
Ethylbenzene	5.8	0.78 (M)	mg/kg	NA	NA
Total Xylenes	58	9.9 (M)	mg/kg	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	NA	NA
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA
Fluorene	240	0.54 (R)	mg/kg	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	NA	NA
2-methylnaphthalene	24	0.019 (R)	mg/kg	NA	NA
Naphthalene	2	0.0038 (R)	mg/kg	NA	NA
Pyrene	180	1.3 (R)	mg/kg	NA	NA

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

TABLE 2

SOIL BORING ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES						
				20220223-SGV FED(SB-POR)@9-10.5'	20220223-SGV FED(SB-POR)@15.5-17.5'	20220223-SGV FED(SB-POR)@25-26.5'	20220224-SGV FED(SB-NE)@3.5-5.5'	20220224-SGV FED(SB-NE)@13.5-15.5'	20220224-SGV FED(SB-NE)@25-26.5'	20220224-SGV FED(SB-SE)@5-7'
Sample Date				2/23/2022	2/23/2022	2/23/2022	2/24/2022	2/24/2022	2/24/2022	2/24/2022
Sample Depth Range (feet)				9-10.5	15.5-17.5	25-26.5	3.5-5.5	13.5-15.5	25-26.5	5-7
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	282	243	188	245	261	259	222
Boron	2	2	mg/l	0.534	ND	ND	0.571	ND	ND	0.912
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	3.550	0.187	0.156	0.965	0.536	0.144	1.520
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA	NA	NA	NA	NA
SAR	<6	<6	unitless	7.45	1.12	0.387	0.615	0.232	0.576	4.16
TPH-GRO			mg/kg	ND	0.535	0.273	0.219	0.161	0.245	ND
TPH-DRO			mg/kg	ND	4.05	5.38	4.12	ND	ND	16.9
TPH-ORO			mg/kg	ND	ND	5.24	5.24	5.79	ND	12.5
TPH	500	500	mg/kg	ND	4.585	10.893	9.579	5.951	0.245	29.4
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	0.00158	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	0.00565	0.0118	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	0.0198	0.0256	0.0604	ND	0.0146	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	0.00925	0.00980	0.0149	ND	0.00633	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	0.00797	0.00675	0.00723	0.0111	ND	ND	ND
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	0.0231	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	0.0501	0.0205	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA

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

TABLE 2

SOIL BORING ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES						
				20220224-SGV FED(SB-SE)@15-16.5'	20220224-SGV FED(SB-SE)@25-26.5'	20220224-SGV FED(SB-N)@10-12'	20220224-SGV FED(SB-N)@15-16'	20220225-SGV FED(SB-N)@25.5-26.25'	20220225-SGV FED(SB-S)@10-11.5'	20220225-SGV FED(SB-S)@15-17'
Sample Date				2/24/2022	2/24/2022	2/24/2022	2/24/2022	2/25/2022	2/25/2022	2/25/2022
Sample Depth Range (feet)				15-16.5	25-26.5	10-12	15-16	25.5-26.25	10-11.5	15-17
Sample Type				Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	<b>215</b>	<b>288</b>	<b>274</b>	<b>279</b>	<b>207</b>	<b>109</b>	<b>188</b>
Boron	2	2	mg/l	0.311	ND	0.983	1.46	ND	0.270	ND
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	0.721	0.172	1.090	2.290	0.250	0.915	0.896
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA	NA	NA	NA	NA
SAR	<6	<6	unitless	2.55	0.697	<b>6.14</b>	4.81	2.41	0.125	2.63
TPH-GRO			mg/kg	ND	0.248	ND	0.153	0.241	ND	ND
TPH-DRO			mg/kg	19.6	ND	ND	ND	7.81	ND	ND
TPH-ORO			mg/kg	6.89	4.96	10.1	ND	6.13	ND	ND
TPH	500	500	mg/kg	26.49	5.208	10.1	0.153	14.181	ND	ND
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	0.0180	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	<b>0.00958</b>	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	0.00660	ND	ND	ND	ND	ND
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA

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

TABLE 2

SOIL BORING ANALYTICAL RESULTS  
SGV FEDERAL DRY GAS RELEASE  
GARFIELD COUNTY, COLORADO  
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLES						
				20220225-SGV FED(SB-S)@25-25.75'	20220225-SGV FED(SB-SW)@3.5-5.5'	20220228-SGV FED(SB-SW)@13.5-14.5'	20220228-SGV FED(SB-SW)@23.5-25'	20220228-SGV FED(SB-NW)@3.5-5.5'	20220228-SGV FED(SB-NW)@13.5-14.5'	20220228-SGV FED(SB-NW)@23.5-25'
Sample Date				2/25/2022	2/25/2022	2/28/2022	2/28/2022	2/28/2022	2/28/2022	2/28/2022
Sample Depth Range (feet)				25-25.75	3.5-5.5	13.5-14.5	23.5-25	3.5-5.5	13.5-14.5	23.5-25
Sample Type				Confirmation	Confirmation	2/28/2022	2/28/2022	2/28/2022	2/28/2022	2/28/2022
Arsenic	0.68	0.29 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	82 (M)	mg/kg	<b>230</b>	<b>224</b>	<b>282</b>	<b>306</b>	<b>230</b>	<b>251</b>	<b>248</b>
Boron	2	2	mg/l	ND	1.45	ND	ND	1.09	ND	0.205
Cadmium	71	0.38 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
EC	<4	<4	mmhos/cm	2.110	0.368	0.482	0.150	0.627	0.217	0.222
pH	6 - 8.3	6 - 8.3	SU	NA	NA	NA	NA	NA	NA	NA
SAR	<6	<6	unitless	1.76	5.26	2.97	0.759	0.518	0.923	0.260
TPH-GRO			mg/kg	0.150	0.162	ND	0.448	0.344	0.195	0.387
TPH-DRO			mg/kg	6.18	ND	26.3	8.20	22.0	ND	4.06
TPH-ORO			mg/kg	8.20	4.08	25.0	25.4	23.2	4.35	6.25
TPH	500	500	mg/kg	14.530	4.242	51.3	34.048	45.544	4.545	10.697
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND	ND	0.00131
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND	0.0194	ND	ND	0.0116
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	0.00683	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	0.00982	ND	0.121	0.0350	0.00785	0.0308
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	<b>0.0172</b>	0.00614	<b>0.0411</b>	<b>0.0432</b>	ND	<b>0.00911</b>
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	<b>0.0112</b>	ND	<b>0.0285</b>	<b>0.126</b>	ND	0.00641
Acenaphthene	1,800	5.8 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	360	0.55 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	ND	<b>0.0206</b>	ND	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	NA	NA	NA	NA	NA	NA	NA

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

## ENCLOSURE A – SOIL SCREENING PHOTOLOG



**PHOTOGRAPHIC LOG**

<b>Caerus Oil and Gas LLC</b>	<b>SGV Federal – Dry Gas Pipeline Release Sampling</b>	<b>31403501.019</b>
-----------------------------------	--	---------------------

<b>Photo No.</b>	<b>Date</b>	
1	April 7, 2022	
SGV Federal – Dry Gas Pipeline excavation overview; View northeast.		

<b>Photo No.</b>	<b>Date</b>	
2	April 7, 2022	
SGV Federal – Dry Gas Pipeline excavation overview; View southeast		

<b>Photo No.</b>	<b>Date</b>	
3	April 7, 2022	
View of north wall and base on the north side of the excavation; View northwest		



**PHOTOGRAPHIC LOG**

<b>Caerus Oil and Gas LLC</b>	<b>SGV Federal – Dry Gas Pipeline Release Sampling</b>	<b>31403501.019</b>
-----------------------------------	--	---------------------

<b>Photo No.</b>	<b>Date</b>	
4	April 7, 2022	
View of west wall on the north side of the excavation; View northwest		

<b>Photo No.</b>	<b>Date</b>	
5	April 7, 2022	
View of the east wall on the north side of the excavation; View east		

<b>Photo No.</b>	<b>Date</b>	
6	April 8, 2022	
View of the base in the middle of the excavation; View west		



PHOTOGRAPHIC LOG		
Caerus Oil and Gas LLC	SGV Federal – Dry Gas Pipeline Release Sampling	31403501.019

Photo No.	Date	
7	April 8, 2022	
View of the east wall in the middle of the excavation; View southeast		

Photo No.	Date	
8	April 8, 2022	
View of west wall in the middle of the excavation; View west		

Photo No.	Date	
9	April 8, 2022	
View of the base on the south side of the excavation; View northeast		




**PHOTOGRAPHIC LOG**

<b>Caerus Oil and Gas LLC</b>	<b>SGV Federal – Dry Gas Pipeline Release Sampling</b>	<b>31403501.019</b>
-----------------------------------	--	---------------------

<b>Photo No.</b>	<b>Date</b>	
10	April 8, 2022	
View of the east wall on the south side of the excavation; View east		

<b>Photo No.</b>	<b>Date</b>	
11	April 8, 2022	
View of the west wall on the south side of the excavation; View west		

<b>Photo No.</b>	<b>Date</b>	
12	April 8, 2022	
View of the south wall on the south side of the excavation; View southwest		

## ENCLOSURE B – LABORATORY ANALYTICAL RESULTS

**Caerus Oil and Gas**

Sample Delivery Group: L1443286  
Samples Received: 12/16/2021  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Kelly Mercer  
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](http://www.pacenational.com)

# TABLE OF CONTENTS

<b>Cp: Cover Page</b>	<b>1</b>
<b>Tc: Table of Contents</b>	<b>2</b>
<b>Ss: Sample Summary</b>	<b>3</b>
<b>Cn: Case Narrative</b>	<b>5</b>
<b>Sr: Sample Results</b>	<b>6</b>
20211214-SGVF-(POR)@7' L1443286-01	6
20211214-SGV F-(POC N1)@7' L1443286-02	8
20211214-SGV F-(POC M1)@7' L1443286-03	10
20211214-SGV F-(POC S1)@7' L1443286-04	12
<b>Qc: Quality Control Summary</b>	<b>14</b>
Wet Chemistry by Method 7199	14
Wet Chemistry by Method 9045D	15
Wet Chemistry by Method 9050AMod	17
Metals (ICP) by Method 6010B	18
Metals (ICP) by Method 6010B-NE493 Ch 2	19
Metals (ICPMS) by Method 6020	20
Volatile Organic Compounds (GC) by Method 8015D/GRO	21
Volatile Organic Compounds (GC/MS) by Method 8260B	23
Semi-Volatile Organic Compounds (GC) by Method 8015M	25
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	26
<b>Gl: Glossary of Terms</b>	<b>29</b>
<b>Al: Accreditations &amp; Locations</b>	<b>30</b>
<b>Sc: Sample Chain of Custody</b>	<b>31</b>





# SAMPLE SUMMARY

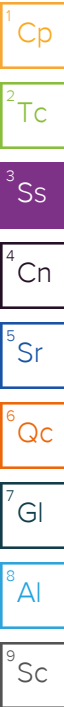
20211214-SGVF-(POR)@7' L1443286-01 Solid

Collected by  
K. Moreland

Collected date/time  
12/14/21 14:00

Received date/time  
12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1791873	1	12/22/21 19:17	12/22/21 19:17	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1793093	1	12/21/21 10:16	12/23/21 16:21	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1791954	1	12/20/21 10:00	12/20/21 11:23	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791834	1	12/19/21 02:43	12/19/21 07:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1792189	1	12/20/21 17:22	12/22/21 09:35	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1791870	1	12/20/21 06:27	12/21/21 14:41	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1792191	5	12/20/21 17:45	12/20/21 21:18	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1792448	1000	12/17/21 16:48	12/20/21 20:51	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1791551	20	12/17/21 16:48	12/18/21 04:12	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1793599	100	12/17/21 16:48	12/23/21 03:06	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794016	1	12/24/21 04:33	12/24/21 20:17	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	1	12/24/21 02:44	12/24/21 16:45	ADF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	10	12/24/21 02:44	12/27/21 11:28	AMG	Mt. Juliet, TN



20211214-SGV F-(POC N1)@7' L1443286-02 Solid

Collected by  
K. Moreland

Collected date/time  
12/14/21 14:20

Received date/time  
12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1791873	1	12/22/21 19:20	12/22/21 19:20	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1793093	1	12/21/21 10:16	12/23/21 16:26	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1791948	1	12/20/21 11:00	12/20/21 12:35	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791834	1	12/19/21 02:43	12/19/21 07:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1792189	1	12/20/21 17:22	12/22/21 09:38	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1791870	1	12/20/21 06:27	12/21/21 14:44	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1792191	5	12/20/21 17:45	12/20/21 21:22	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1791624	100	12/17/21 16:48	12/18/21 19:03	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1791551	8	12/17/21 16:48	12/18/21 04:31	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1793599	8	12/17/21 16:48	12/23/21 03:25	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794016	5	12/24/21 04:33	12/26/21 17:27	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	1	12/24/21 02:44	12/24/21 13:24	ADF	Mt. Juliet, TN

20211214-SGV F-(POC M1)@7' L1443286-03 Solid

Collected by  
K. Moreland

Collected date/time  
12/14/21 14:10

Received date/time  
12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1791873	1	12/22/21 19:23	12/22/21 19:23	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1793093	1	12/21/21 10:16	12/23/21 16:36	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1791948	1	12/20/21 11:00	12/20/21 12:35	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791834	1	12/19/21 02:43	12/19/21 07:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1792189	1	12/20/21 17:22	12/22/21 09:41	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1791870	1	12/20/21 06:27	12/21/21 14:47	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1792191	5	12/20/21 17:45	12/20/21 21:25	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1791624	250	12/17/21 16:48	12/18/21 19:27	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1791551	20	12/17/21 16:48	12/18/21 04:50	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794016	100	12/24/21 04:33	12/26/21 17:40	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	1	12/24/21 02:44	12/24/21 14:24	ADF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	10	12/24/21 02:44	12/27/21 11:11	AMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	50	12/24/21 02:44	12/27/21 15:15	AMG	Mt. Juliet, TN

# SAMPLE SUMMARY

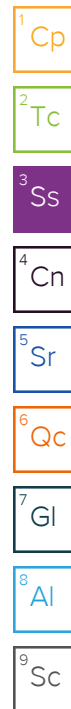
20211214-SGV F-(POC S1)@7' L1443286-04 Solid

Collected by  
K. Moreland

Collected date/time  
12/14/21 12:50

Received date/time  
12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1791873	1	12/22/21 19:25	12/22/21 19:25	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1793093	1	12/21/21 10:16	12/23/21 16:42	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1791948	1	12/20/21 11:00	12/20/21 12:35	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791834	1	12/19/21 02:43	12/19/21 07:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1792189	1	12/20/21 17:22	12/22/21 09:44	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1791870	1	12/20/21 06:27	12/21/21 14:55	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1792191	5	12/20/21 17:45	12/20/21 21:28	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1791624	200	12/17/21 16:48	12/18/21 19:50	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1791551	20	12/17/21 16:48	12/18/21 05:09	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1793599	20	12/17/21 16:48	12/23/21 03:45	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794016	20	12/24/21 04:33	12/24/21 22:01	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	1	12/24/21 02:44	12/24/21 17:05	ADF	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794001	10	12/24/21 02:44	12/27/21 11:46	AMG	Mt. Juliet, TN



# CASE NARRATIVE

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



Kelly Mercer  
Project Manager





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	26.8		1	12/22/2021 19:17	WG1791873

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/23/2021 16:21	<a href="#">WG1793093</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.83	<a href="#">T8</a>	1	12/20/2021 11:23	<a href="#">WG1791954</a>

## Sample Narrative:

L1443286-01 WG1791954: 7.83 at 17.4C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	3430		10.0	1	12/19/2021 07:12	<a href="#">WG1791834</a>

## Sample Narrative:

L1443286-01 WG1791834: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	601		0.500	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Cadmium	ND		0.500	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Copper	8.56		2.00	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Lead	6.53		0.500	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Nickel	11.3		2.00	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Selenium	ND		2.00	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Silver	ND		1.00	1	12/22/2021 09:35	<a href="#">WG1792189</a>
Zinc	20.4		5.00	1	12/22/2021 09:35	<a href="#">WG1792189</a>

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

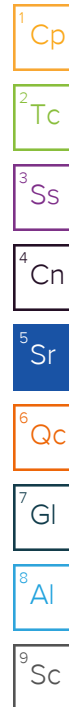
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	2.04		0.200	1	12/21/2021 14:41	<a href="#">WG1791870</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.92		1.00	5	12/20/2021 21:18	<a href="#">WG1792191</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2750		100	1000	12/20/2021 20:51	<a href="#">WG1792448</a>
(S) a,a,a-Trifluorotoluene(FID)	90.5		77.0-120		12/20/2021 20:51	<a href="#">WG1792448</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	8.44		0.0200	20	12/18/2021 04:12	<a href="#">WG1791551</a>
Toluene	56.7		0.500	100	12/23/2021 03:06	<a href="#">WG1793599</a>
Ethylbenzene	14.7		0.0500	20	12/18/2021 04:12	<a href="#">WG1791551</a>
Xylenes, Total	142		0.650	100	12/23/2021 03:06	<a href="#">WG1793599</a>
1,2,4-Trimethylbenzene	42.3		0.100	20	12/18/2021 04:12	<a href="#">WG1791551</a>
1,3,5-Trimethylbenzene	34.1		0.100	20	12/18/2021 04:12	<a href="#">WG1791551</a>
(S) Toluene-d8	98.3		75.0-131		12/18/2021 04:12	<a href="#">WG1791551</a>
(S) Toluene-d8	96.3		75.0-131		12/23/2021 03:06	<a href="#">WG1793599</a>
(S) 4-Bromofluorobenzene	115		67.0-138		12/18/2021 04:12	<a href="#">WG1791551</a>
(S) 4-Bromofluorobenzene	105		67.0-138		12/23/2021 03:06	<a href="#">WG1793599</a>
(S) 1,2-Dichloroethane-d4	98.3		70.0-130		12/18/2021 04:12	<a href="#">WG1791551</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		12/23/2021 03:06	<a href="#">WG1793599</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	181		4.00	1	12/24/2021 20:17	<a href="#">WG1794016</a>
C28-C36 Motor Oil Range	23.9		4.00	1	12/24/2021 20:17	<a href="#">WG1794016</a>
(S) o-Terphenyl	76.2		18.0-148		12/24/2021 20:17	<a href="#">WG1794016</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Acenaphthene	0.206		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Acenaphthylene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Benzo(a)anthracene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Benzo(a)pyrene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Benzo(b)fluoranthene	0.00749		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Benzo(g,h,i)perylene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Benzo(k)fluoranthene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Chrysene	0.0138		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Dibenz(a,h)anthracene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Fluoranthene	0.0210		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Fluorene	0.501		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Naphthalene	2.45		0.0200	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Phenanthrene	0.357		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
Pyrene	0.0135		0.00600	1	12/24/2021 16:45	<a href="#">WG1794001</a>
1-Methylnaphthalene	6.71		0.200	10	12/27/2021 11:28	<a href="#">WG1794001</a>
2-Methylnaphthalene	15.5		0.200	10	12/27/2021 11:28	<a href="#">WG1794001</a>
2-Chloronaphthalene	ND		0.0200	1	12/24/2021 16:45	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	60.8		23.0-120		12/24/2021 16:45	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	74.5		23.0-120		12/27/2021 11:28	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	1870	<a href="#">J1</a>	14.0-149		12/24/2021 16:45	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	2220	<a href="#">J1</a>	14.0-149		12/27/2021 11:28	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	81.0		34.0-125		12/24/2021 16:45	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	57.1		34.0-125		12/27/2021 11:28	<a href="#">WG1794001</a>

## Sample Narrative:

L1443286-01 WG1794001: Surrogate failure due to matrix interference

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	33.8		1	12/22/2021 19:20	WG1791873

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/23/2021 16:26	<a href="#">WG1793093</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.96	<a href="#">T8</a>	1	12/20/2021 12:35	<a href="#">WG1791948</a>

## Sample Narrative:

L1443286-02 WG1791948: 7.96 at 18.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	5200		10.0	1	12/19/2021 07:12	<a href="#">WG1791834</a>

## Sample Narrative:

L1443286-02 WG1791834: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	238		0.500	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Cadmium	ND		0.500	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Copper	11.8		2.00	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Lead	7.43		0.500	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Nickel	19.0		2.00	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Selenium	ND		2.00	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Silver	ND		1.00	1	12/22/2021 09:38	<a href="#">WG1792189</a>
Zinc	26.7		5.00	1	12/22/2021 09:38	<a href="#">WG1792189</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.97		0.200	1	12/21/2021 14:44	<a href="#">WG1791870</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.55		1.00	5	12/20/2021 21:22	<a href="#">WG1792191</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	161		10.0	100	12/18/2021 19:03	<a href="#">WG1791624</a>
(S) a,a,a-Trifluorotoluene(FID)	93.2		77.0-120		12/18/2021 19:03	<a href="#">WG1791624</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0478		0.00800	8	12/23/2021 03:25	<a href="#">WG1793599</a>
Toluene	0.728		0.0400	8	12/23/2021 03:25	<a href="#">WG1793599</a>
Ethylbenzene	0.212		0.0200	8	12/18/2021 04:31	<a href="#">WG1791551</a>
Xylenes, Total	5.89		0.0520	8	12/18/2021 04:31	<a href="#">WG1791551</a>
1,2,4-Trimethylbenzene	2.18		0.0400	8	12/18/2021 04:31	<a href="#">WG1791551</a>
1,3,5-Trimethylbenzene	1.75		0.0400	8	12/18/2021 04:31	<a href="#">WG1791551</a>
(S) Toluene-d8	95.4		75.0-131		12/18/2021 04:31	<a href="#">WG1791551</a>
(S) Toluene-d8	94.8		75.0-131		12/23/2021 03:25	<a href="#">WG1793599</a>
(S) 4-Bromofluorobenzene	111		67.0-138		12/18/2021 04:31	<a href="#">WG1791551</a>
(S) 4-Bromofluorobenzene	115		67.0-138		12/23/2021 03:25	<a href="#">WG1793599</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		12/18/2021 04:31	<a href="#">WG1791551</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		12/23/2021 03:25	<a href="#">WG1793599</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	383		20.0	5	12/26/2021 17:27	<a href="#">WG1794016</a>
C28-C36 Motor Oil Range	109		20.0	5	12/26/2021 17:27	<a href="#">WG1794016</a>
(S) o-Terphenyl	59.0		18.0-148		12/26/2021 17:27	<a href="#">WG1794016</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Acenaphthene	0.0180		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Acenaphthylene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Benzo(a)anthracene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Benzo(a)pyrene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Benzo(b)fluoranthene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Benzo(g,h,i)perylene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Benzo(k)fluoranthene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Chrysene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Dibenz(a,h)anthracene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Fluoranthene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Fluorene	0.0599		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Naphthalene	0.0611		0.0200	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Phenanthrene	0.0518		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
Pyrene	ND		0.00600	1	12/24/2021 13:24	<a href="#">WG1794001</a>
1-Methylnaphthalene	0.480	<a href="#">V</a>	0.0200	1	12/24/2021 13:24	<a href="#">WG1794001</a>
2-Methylnaphthalene	0.527	<a href="#">J3 V</a>	0.0200	1	12/24/2021 13:24	<a href="#">WG1794001</a>
2-Chloronaphthalene	ND		0.0200	1	12/24/2021 13:24	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	77.5		23.0-120		12/24/2021 13:24	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	427	<a href="#">J1</a>	14.0-149		12/24/2021 13:24	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	73.7		34.0-125		12/24/2021 13:24	<a href="#">WG1794001</a>

## Sample Narrative:

L1443286-02 WG1794001: Surrogate failure due to matrix interference

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	12.4		1	12/22/2021 19:23	WG1791873

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/23/2021 16:36	<a href="#">WG1793093</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.69	<a href="#">T8</a>	1	12/20/2021 12:35	<a href="#">WG1791948</a>

## Sample Narrative:

L1443286-03 WG1791948: 7.69 at 19.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	4540		10.0	1	12/19/2021 07:12	<a href="#">WG1791834</a>

## Sample Narrative:

L1443286-03 WG1791834: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	180		0.500	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Cadmium	ND		0.500	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Copper	10.7		2.00	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Lead	7.78		0.500	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Nickel	12.6		2.00	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Selenium	ND		2.00	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Silver	ND		1.00	1	12/22/2021 09:41	<a href="#">WG1792189</a>
Zinc	29.9		5.00	1	12/22/2021 09:41	<a href="#">WG1792189</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.04		0.200	1	12/21/2021 14:47	<a href="#">WG1791870</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.65		1.00	5	12/20/2021 21:25	<a href="#">WG1792191</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2280		25.0	250	12/18/2021 19:27	<a href="#">WG1791624</a>
(S) a,a,a-Trifluorotoluene(FID)	91.4		77.0-120		12/18/2021 19:27	<a href="#">WG1791624</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.448		0.0200	20	12/18/2021 04:50	<a href="#">WG1791551</a>
Toluene	14.6		0.100	20	12/18/2021 04:50	<a href="#">WG1791551</a>
Ethylbenzene	4.09		0.0500	20	12/18/2021 04:50	<a href="#">WG1791551</a>
Xylenes, Total	64.8		0.130	20	12/18/2021 04:50	<a href="#">WG1791551</a>
1,2,4-Trimethylbenzene	48.3		0.100	20	12/18/2021 04:50	<a href="#">WG1791551</a>
1,3,5-Trimethylbenzene	33.1		0.100	20	12/18/2021 04:50	<a href="#">WG1791551</a>
(S) Toluene-d8	100		75.0-131		12/18/2021 04:50	<a href="#">WG1791551</a>
(S) 4-Bromofluorobenzene	133		67.0-138		12/18/2021 04:50	<a href="#">WG1791551</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		12/18/2021 04:50	<a href="#">WG1791551</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	5150		400	100	12/26/2021 17:40	<a href="#">WG1794016</a>
C28-C36 Motor Oil Range	673		400	100	12/26/2021 17:40	<a href="#">WG1794016</a>
(S) o-Terphenyl	0.000	<a href="#">J7</a>	18.0-148		12/26/2021 17:40	<a href="#">WG1794016</a>

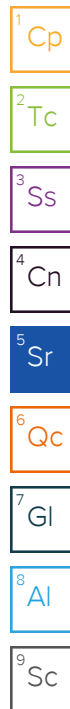
## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Acenaphthene	0.668		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Acenaphthylene	ND		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Benzo(a)anthracene	ND		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Benzo(a)pyrene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Benzo(b)fluoranthene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Benzo(g,h,i)perylene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Benzo(k)fluoranthene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Chrysene	0.0405		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Dibenz(a,h)anthracene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Fluoranthene	0.0844		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Fluorene	1.80		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Indeno(1,2,3-cd)pyrene	ND		0.0600	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Naphthalene	16.3		0.200	10	12/27/2021 11:11	<a href="#">WG1794001</a>
Phenanthrene	0.972		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
Pyrene	0.0398		0.00600	1	12/24/2021 14:24	<a href="#">WG1794001</a>
1-Methylnaphthalene	21.8		0.200	10	12/27/2021 11:11	<a href="#">WG1794001</a>
2-Methylnaphthalene	52.6		1.00	50	12/27/2021 15:15	<a href="#">WG1794001</a>
2-Chloronaphthalene	ND		0.0200	1	12/24/2021 14:24	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	84.1	<a href="#">J7</a>	23.0-120		12/27/2021 15:15	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	70.3		23.0-120		12/24/2021 14:24	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	88.7		23.0-120		12/27/2021 11:11	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	0.000	<a href="#">J2</a>	14.0-149		12/24/2021 14:24	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	8920	<a href="#">J7</a>	14.0-149		12/27/2021 15:15	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	9250	<a href="#">J1</a>	14.0-149		12/27/2021 11:11	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	58.9	<a href="#">J7</a>	34.0-125		12/27/2021 15:15	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	208	<a href="#">J1</a>	34.0-125		12/24/2021 14:24	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	57.9		34.0-125		12/27/2021 11:11	<a href="#">WG1794001</a>

## Sample Narrative:

L1443286-03 WG1794001: Surrogate failure due to matrix interference

L1443286-03 WG1794001: IS/SURR failed on lower dilution.



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	26.5		1	12/22/2021 19:25	WG1791873

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	12/23/2021 16:42	<a href="#">WG1793093</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.70	<a href="#">T8</a>	1	12/20/2021 12:35	<a href="#">WG1791948</a>

## Sample Narrative:

L1443286-04 WG1791948: 7.7 at 19.2C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	5070		10.0	1	12/19/2021 07:12	<a href="#">WG1791834</a>

## Sample Narrative:

L1443286-04 WG1791834: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	279		0.500	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Cadmium	ND		0.500	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Copper	10.7		2.00	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Lead	7.45		0.500	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Nickel	12.4		2.00	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Selenium	ND		2.00	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Silver	ND		1.00	1	12/22/2021 09:44	<a href="#">WG1792189</a>
Zinc	28.1		5.00	1	12/22/2021 09:44	<a href="#">WG1792189</a>

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

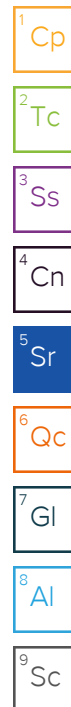
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.66		0.200	1	12/21/2021 14:55	<a href="#">WG1791870</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.02		1.00	5	12/20/2021 21:28	<a href="#">WG1792191</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	490		20.0	200	12/18/2021 19:50	<a href="#">WG1791624</a>
(S) a,a,a-Trifluorotoluene(FID)	88.6		77.0-120		12/18/2021 19:50	<a href="#">WG1791624</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.236		0.0200	20	12/23/2021 03:45	<a href="#">WG1793599</a>
Toluene	1.24		0.100	20	12/18/2021 05:09	<a href="#">WG1791551</a>
Ethylbenzene	0.494		0.0500	20	12/18/2021 05:09	<a href="#">WG1791551</a>
Xylenes, Total	8.61		0.130	20	12/18/2021 05:09	<a href="#">WG1791551</a>
1,2,4-Trimethylbenzene	4.97		0.100	20	12/18/2021 05:09	<a href="#">WG1791551</a>
1,3,5-Trimethylbenzene	3.73		0.100	20	12/18/2021 05:09	<a href="#">WG1791551</a>
(S) Toluene-d8	95.4		75.0-131		12/18/2021 05:09	<a href="#">WG1791551</a>
(S) Toluene-d8	95.6		75.0-131		12/23/2021 03:45	<a href="#">WG1793599</a>
(S) 4-Bromofluorobenzene	105		67.0-138		12/18/2021 05:09	<a href="#">WG1791551</a>
(S) 4-Bromofluorobenzene	113		67.0-138		12/23/2021 03:45	<a href="#">WG1793599</a>
(S) 1,2-Dichloroethane-d4	97.2		70.0-130		12/18/2021 05:09	<a href="#">WG1791551</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		12/23/2021 03:45	<a href="#">WG1793599</a>

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

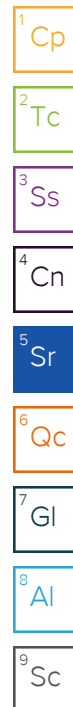
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	1660		80.0	20	12/24/2021 22:01	<a href="#">WG1794016</a>
C28-C36 Motor Oil Range	403		80.0	20	12/24/2021 22:01	<a href="#">WG1794016</a>
(S) o-Terphenyl	0.000	<a href="#">J7</a>	18.0-148		12/24/2021 22:01	<a href="#">WG1794016</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Acenaphthene	0.114		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Acenaphthylene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Benzo(a)anthracene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Benzo(a)pyrene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Benzo(b)fluoranthene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Benzo(g,h,i)perylene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Benzo(k)fluoranthene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Chrysene	0.00912		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Dibenz(a,h)anthracene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Fluoranthene	0.0171		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Fluorene	0.276		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Naphthalene	1.70		0.0200	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Phenanthrene	0.219		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
Pyrene	0.0105		0.00600	1	12/24/2021 17:05	<a href="#">WG1794001</a>
1-Methylnaphthalene	3.21		0.0200	1	12/24/2021 17:05	<a href="#">WG1794001</a>
2-Methylnaphthalene	8.53		0.200	10	12/27/2021 11:46	<a href="#">WG1794001</a>
2-Chloronaphthalene	ND		0.0200	1	12/24/2021 17:05	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	93.3		23.0-120		12/27/2021 11:46	<a href="#">WG1794001</a>
(S) p-Terphenyl-d14	75.5		23.0-120		12/24/2021 17:05	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	932	<a href="#">J1</a>	14.0-149		12/24/2021 17:05	<a href="#">WG1794001</a>
(S) Nitrobenzene-d5	1260	<a href="#">J1</a>	14.0-149		12/27/2021 11:46	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	71.7		34.0-125		12/27/2021 11:46	<a href="#">WG1794001</a>
(S) 2-Fluorobiphenyl	87.6		34.0-125		12/24/2021 17:05	<a href="#">WG1794001</a>

## Sample Narrative:

L1443286-04 WG1794001: Surrogate failure due to matrix interference





Method Blank (MB)

(MB) R3744531-1 12/23/21 14:56

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

L1443286-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1443286-02 12/23/21 16:26 • (DUP) R3744531-4 12/23/21 16:31

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

Laboratory Control Sample (LCS)

(LCS) R3744531-2 12/23/21 15:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.6	106	80.0-120	

L1443338-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443338-01 12/23/21 17:02 • (MS) R3744531-5 12/23/21 17:08 • (MSD) R3744531-6 12/23/21 17:13

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	20.3	23.2	97.0	112	1	75.0-125			13.5	20

L1443338-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1443338-01 12/23/21 17:02 • (MS) R3744531-7 12/23/21 17:18

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	833	ND	888	107	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1443137-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1443137-01 12/20/21 12:35 • (DUP) R3742691-2 12/20/21 12:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.83	7.78	1	0.641		1

Sample Narrative:

OS: 7.83 at 19.1C

DUP: 7.78 at 18.6C



L1443142-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1443142-06 12/20/21 12:35 • (DUP) R3742691-3 12/20/21 12:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.32	8.37	1	0.599		1

Sample Narrative:

OS: 8.32 at 18.9C

DUP: 8.37 at 18.9C

Laboratory Control Sample (LCS)

(LCS) R3742691-1 12/20/21 12:35

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 18.6C

L1443291-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1443291-02 12/20/21 11:23 • (DUP) R3742656-3 12/20/21 11:23

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.46	7.51	1	0.668		1

Sample Narrative:

OS: 7.46 at 17.5C

DUP: 7.51 at 17.5C

Laboratory Control Sample (LCS)

(LCS) R3742656-1 12/20/21 11:23

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

Sample Narrative:

LCS: 10 at 17.3C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3742328-1 12/19/21 07:12

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

Sample Narrative:

BLANK: at 25C

L1442533-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1442533-02 12/19/21 07:12 • (DUP) R3742328-3 12/19/21 07:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1010	1030	1	1.96		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1444048-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1444048-01 12/19/21 07:12 • (DUP) R3742328-4 12/19/21 07:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4100	3990	1	2.72		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3742328-2 12/19/21 07:12

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	265	98.8	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3743968-1 12/22/21 09:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3743968-2 12/22/21 09:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	93.8	93.8	80.0-120	
Cadmium	100	86.6	86.6	80.0-120	
Copper	100	92.4	92.4	80.0-120	
Lead	100	89.8	89.8	80.0-120	
Nickel	100	90.2	90.2	80.0-120	
Selenium	100	89.2	89.2	80.0-120	
Silver	20.0	17.0	85.2	80.0-120	
Zinc	100	87.2	87.2	80.0-120	

L1442533-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1442533-03 12/22/21 09:06 • (MS) R3743968-5 12/22/21 09:14 • (MSD) R3743968-6 12/22/21 09:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	350	435	415	84.6	64.6	1	75.0-125		J6	4.70	20
Cadmium	100	ND	105	104	104	104	1	75.0-125			0.620	20
Copper	100	12.4	117	117	105	104	1	75.0-125			0.334	20
Lead	100	5.53	114	116	109	110	1	75.0-125			1.18	20
Nickel	100	13.1	119	120	106	106	1	75.0-125			0.198	20
Selenium	100	ND	101	99.6	101	99.6	1	75.0-125			1.04	20
Silver	20.0	ND	20.9	20.9	104	105	1	75.0-125			0.387	20
Zinc	100	22.2	119	117	96.4	94.5	1	75.0-125			1.59	20

Method Blank (MB)

(MB) R3743438-1 12/21/21 13:23

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

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

(LCS) R3743438-2 12/21/21 13:25 • (LCSD) R3743438-3 12/21/21 13:28

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.960	0.960	96.0	96.0	80.0-120			0.0286	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3742910-1 12/20/21 20:30

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

Laboratory Control Sample (LCS)

(LCS) R3742910-2 12/20/21 20:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	84.7	84.7	80.0-120	

L1442533-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1442533-03 12/20/21 20:37 • (MS) R3742910-5 12/20/21 20:47 • (MSD) R3742910-6 12/20/21 20:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	1.96	100	98.7	98.1	96.8	5	75.0-125			1.34	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3742784-3 12/18/21 11:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0280	⬇	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	95.0			77.0-120

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

(LCS) R3742784-1 12/18/21 10:41 • (LCSD) R3742784-2 12/18/21 11:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.17	4.66	75.8	84.7	72.0-127			11.1	20
(S) a,a,a-Trifluorotoluene(FID)				95.7	95.9	77.0-120				

L1443156-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443156-04 12/18/21 14:01 • (MS) R3742784-4 12/18/21 20:13 • (MSD) R3742784-5 12/18/21 20:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	92.4	125	146	179	22.7	58.4	25	10.0-151			20.3	28
(S) a,a,a-Trifluorotoluene(FID)					100	102		77.0-120				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3743151-2 12/20/21 18:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.583	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	98.7			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3743151-1 12/20/21 16:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.11	92.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			104	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3743754-3 12/17/21 22:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000775	⬇	0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	98.8			75.0-131
(S) 4-Bromofluorobenzene	97.4			67.0-138
(S) 1,2-Dichloroethane-d4	100			70.0-130

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

(LCS) R3743754-1 12/17/21 21:22 • (LCSD) R3743754-2 12/17/21 21:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.131	0.126	105	101	70.0-123			3.89	20
Ethylbenzene	0.125	0.126	0.129	101	103	74.0-126			2.35	20
Toluene	0.125	0.116	0.121	92.8	96.8	75.0-121			4.22	20
1,2,4-Trimethylbenzene	0.125	0.129	0.130	103	104	70.0-126			0.772	20
1,3,5-Trimethylbenzene	0.125	0.127	0.130	102	104	73.0-127			2.33	20
Xylenes, Total	0.375	0.389	0.388	104	103	72.0-127			0.257	20
(S) Toluene-d8				93.0	95.4	75.0-131				
(S) 4-Bromofluorobenzene				106	102	67.0-138				
(S) 1,2-Dichloroethane-d4				109	104	70.0-130				

L1443286-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443286-04 12/18/21 05:09 • (MS) R3743754-4 12/18/21 05:28 • (MSD) R3743754-5 12/18/21 05:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	2.48	0.0346	2.10	2.08	83.3	82.5	20	10.0-149			0.957	37
Ethylbenzene	2.48	0.494	2.86	2.85	95.4	95.0	20	10.0-160			0.350	38
Toluene	2.48	1.24	3.73	3.89	100	107	20	10.0-156			4.20	38
1,2,4-Trimethylbenzene	2.48	4.97	7.85	7.97	116	121	20	10.0-160			1.52	36
1,3,5-Trimethylbenzene	2.48	3.73	6.33	6.47	105	110	20	10.0-160			2.19	38
Xylenes, Total	7.43	8.61	17.6	18.6	121	134	20	10.0-160			5.52	38
(S) Toluene-d8					96.9	97.8		75.0-131				
(S) 4-Bromofluorobenzene					106	106		67.0-138				
(S) 1,2-Dichloroethane-d4					99.6	97.4		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3744125-3 12/22/21 21:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	92.5			75.0-131
(S) 4-Bromofluorobenzene	109			67.0-138
(S) 1,2-Dichloroethane-d4	99.3			70.0-130

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

(LCS) R3744125-1 12/22/21 20:26 • (LCSD) R3744125-2 12/22/21 20:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.118	0.134	94.4	107	70.0-123			12.7	20
Toluene	0.125	0.105	0.123	84.0	98.4	75.0-121			15.8	20
Xylenes, Total	0.375	0.366	0.393	97.6	105	72.0-127			7.11	20
(S) Toluene-d8				91.9	95.4	75.0-131				
(S) 4-Bromofluorobenzene				113	106	67.0-138				
(S) 1,2-Dichloroethane-d4				105	101	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3744797-1 12/24/21 19:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	86.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3744797-2 12/24/21 20:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	51.2	102	50.0-150	
(S) o-Terphenyl			120	18.0-148	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3744842-2 12/24/21 10:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	92.3			14.0-149
(S) 2-Fluorobiphenyl	94.5			34.0-125
(S) p-Terphenyl-d14	106			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3744842-1 12/24/21 09:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0620	77.5	50.0-126	
Acenaphthene	0.0800	0.0663	82.9	50.0-120	
Acenaphthylene	0.0800	0.0652	81.5	50.0-120	
Benzo(a)anthracene	0.0800	0.0617	77.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0664	83.0	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0686	85.8	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0661	82.6	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0662	82.8	49.0-125	
Chrysene	0.0800	0.0655	81.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0646	80.7	47.0-125	
Fluoranthene	0.0800	0.0655	81.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R37444842-1 12/24/21 09:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0651	81.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0681	85.1	46.0-125	
Naphthalene	0.0800	0.0657	82.1	50.0-120	
Phenanthrene	0.0800	0.0659	82.4	47.0-120	
Pyrene	0.0800	0.0705	88.1	43.0-123	
1-Methylnaphthalene	0.0800	0.0647	80.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0684	85.5	50.0-120	
2-Chloronaphthalene	0.0800	0.0676	84.5	50.0-120	
(S) Nitrobenzene-d5			88.8	14.0-149	
(S) 2-Fluorobiphenyl			92.0	34.0-125	
(S) p-Terphenyl-d14			98.0	23.0-120	

L1443286-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443286-02 12/24/21 13:24 • (MS) R37444842-3 12/24/21 13:44 • (MSD) R37444842-4 12/24/21 14:04

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0772	ND	0.0531	0.0540	68.8	70.3	1	10.0-145			1.68	30
Acenaphthene	0.0772	0.0180	0.0692	0.0747	60.1	67.6	1	14.0-127			7.64	27
Acenaphthylene	0.0772	ND	0.0555	0.0585	71.9	76.2	1	21.0-124			5.26	25
Benzo(a)anthracene	0.0772	ND	0.0583	0.0611	75.5	79.6	1	10.0-139			4.69	30
Benzo(a)pyrene	0.0772	ND	0.0578	0.0598	74.9	77.9	1	10.0-141			3.40	31
Benzo(b)fluoranthene	0.0772	ND	0.0519	0.0538	67.2	70.1	1	10.0-140			3.60	36
Benzo(g,h,i)perylene	0.0772	ND	0.0472	0.0481	61.1	62.6	1	10.0-140			1.89	33
Benzo(k)fluoranthene	0.0772	ND	0.0506	0.0518	65.5	67.4	1	10.0-137			2.34	31
Chrysene	0.0772	ND	0.0573	0.0588	74.2	76.6	1	10.0-145			2.58	30
Dibenz(a,h)anthracene	0.0772	ND	0.0501	0.0512	64.9	66.7	1	10.0-132			2.17	31
Fluoranthene	0.0772	ND	0.0618	0.0646	75.3	79.3	1	10.0-153			4.43	33
Fluorene	0.0772	0.0599	0.109	0.123	63.6	82.2	1	11.0-130			12.1	29
Indeno(1,2,3-cd)pyrene	0.0772	ND	0.0549	0.0567	71.1	73.8	1	10.0-137			3.23	32
Naphthalene	0.0772	0.0611	0.0814	0.0971	26.3	46.9	1	10.0-135			17.6	27
Phenanthrene	0.0772	0.0518	0.104	0.117	67.6	84.9	1	10.0-144			11.8	31
Pyrene	0.0772	ND	0.0570	0.0587	67.2	69.7	1	10.0-148			2.94	35
1-Methylnaphthalene	0.0772	0.480	0.512	0.606	41.5	164	1	10.0-142		V	16.8	28
2-Methylnaphthalene	0.0772	0.527	0.462	0.642	0.000	150	1	10.0-137	V	J3 V	32.6	28
2-Chloronaphthalene	0.0772	ND	0.0492	0.0505	63.7	65.8	1	29.0-120			2.61	24
(S) Nitrobenzene-d5					394	484		14.0-149	J1	J1		
(S) 2-Fluorobiphenyl					70.8	72.8		34.0-125				
(S) p-Terphenyl-d14					75.0	75.8		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1443286-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443286-02 12/24/21 13:24 • (MS) R3744842-3 12/24/21 13:44 • (MSD) R3744842-4 12/24/21 14:04

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%

Sample Narrative:  
OS: Surrogate failure due to matrix interference

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

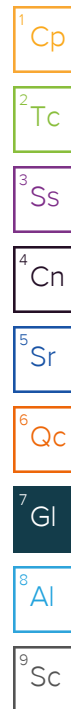
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

## Abbreviations and Definitions

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

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

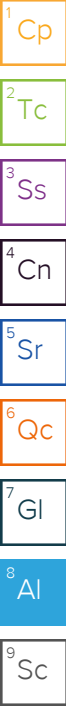
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.





Condition:  
NCF / OK

**Caerus Oil and Gas**

Sample Delivery Group: L1449255  
Samples Received: 01/10/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



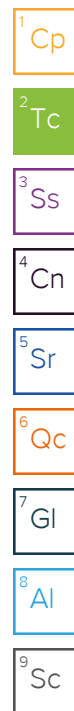
Chris Ward  
Project Manager

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](http://www.pacenational.com)

# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20220104-SGV F-(POC N2) @ 7' L1449255-01	5
20220104-SGV F-(ROC N3) @ 7' L1449255-02	7
Qc: Quality Control Summary	9
Wet Chemistry by Method 7199	9
Wet Chemistry by Method 9045D	10
Wet Chemistry by Method 9050AMod	11
Metals (ICP) by Method 6010B	12
Metals (ICP) by Method 6010B-NE493 Ch 2	13
Metals (ICPMS) by Method 6020	14
Volatile Organic Compounds (GC) by Method 8015D/GRO	15
Volatile Organic Compounds (GC/MS) by Method 8260B	16
Semi-Volatile Organic Compounds (GC) by Method 8015M	18
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	19
Gl: Glossary of Terms	21
Al: Accreditations & Locations	22
Sc: Sample Chain of Custody	23



# SAMPLE SUMMARY

20220104-SGV F-(POC N2) @ 7' L1449255-01 Solid

Collected by  
K. Moreland

Collected date/time  
01/04/22 09:40

Received date/time  
01/10/22 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1800786	1	01/22/22 16:02	01/22/22 16:02	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1801351	1	01/12/22 19:00	01/13/22 18:38	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1800822	1	01/12/22 15:46	01/13/22 09:26	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1803033	1	01/16/22 00:59	01/16/22 04:09	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801505	1	01/13/22 14:42	01/19/22 23:52	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1802148	1	01/15/22 07:18	01/19/22 20:57	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1801662	5	01/14/22 11:05	01/17/22 17:05	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1800674	1	01/11/22 11:41	01/11/22 23:56	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1800722	1	01/11/22 11:41	01/12/22 03:51	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1800734	1	01/12/22 04:11	01/12/22 16:24	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1801096	1	01/12/22 16:12	01/12/22 22:06	JNJ	Mt. Juliet, TN

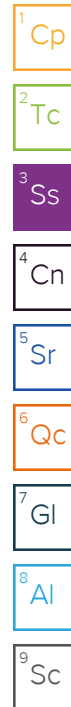
20220104-SGV F-(ROC N3) @ 7' L1449255-02 Solid

Collected by  
K. Moreland

Collected date/time  
01/04/22 09:45

Received date/time  
01/10/22 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1800786	1	01/22/22 16:05	01/22/22 16:05	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1801351	1	01/12/22 19:00	01/13/22 19:24	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1800822	1	01/12/22 15:46	01/13/22 09:26	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1803033	1	01/16/22 00:59	01/16/22 04:09	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801505	1	01/13/22 14:42	01/19/22 23:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1802148	1	01/15/22 07:18	01/19/22 20:59	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1801662	5	01/14/22 11:05	01/17/22 17:08	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1800674	1	01/11/22 11:41	01/12/22 00:30	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1800722	1	01/11/22 11:41	01/12/22 04:11	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1800734	1	01/12/22 04:11	01/12/22 16:10	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1801096	1	01/12/22 16:12	01/12/22 22:26	JNJ	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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.08		1	01/22/2022 16:02	WG1800786

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/13/2022 18:38	<a href="#">WG1801351</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.09	<a href="#">T8</a>	1	01/13/2022 09:26	<a href="#">WG1800822</a>

## Sample Narrative:

L1449255-01 WG1800822: 9.09 at 20.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	548		10.0	1	01/16/2022 04:09	<a href="#">WG1803033</a>

## Sample Narrative:

L1449255-01 WG1803033: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	208		0.500	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Cadmium	ND		0.500	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Copper	14.1		2.00	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Lead	8.00		0.500	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Nickel	21.0		2.00	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Selenium	ND		2.00	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Silver	ND		1.00	1	01/19/2022 23:52	<a href="#">WG1801505</a>
Zinc	26.7		5.00	1	01/19/2022 23:52	<a href="#">WG1801505</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.329		0.200	1	01/19/2022 20:57	<a href="#">WG1802148</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.73		1.00	5	01/17/2022 17:05	<a href="#">WG1801662</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.161		0.100	1	01/11/2022 23:56	<a href="#">WG1800674</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		01/11/2022 23:56	<a href="#">WG1800674</a>

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

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	01/12/2022 03:51	<a href="#">WG1800722</a>
Toluene	ND		0.00500	1	01/12/2022 03:51	<a href="#">WG1800722</a>
Ethylbenzene	ND		0.00250	1	01/12/2022 03:51	<a href="#">WG1800722</a>
Xylenes, Total	ND		0.00650	1	01/12/2022 03:51	<a href="#">WG1800722</a>
1,2,4-Trimethylbenzene	0.0246		0.00500	1	01/12/2022 03:51	<a href="#">WG1800722</a>
1,3,5-Trimethylbenzene	0.0474		0.00500	1	01/12/2022 03:51	<a href="#">WG1800722</a>
(S) Toluene-d8	108		75.0-131		01/12/2022 03:51	<a href="#">WG1800722</a>
(S) 4-Bromofluorobenzene	113		67.0-138		01/12/2022 03:51	<a href="#">WG1800722</a>
(S) 1,2-Dichloroethane-d4	95.0		70.0-130		01/12/2022 03:51	<a href="#">WG1800722</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	10.2		4.00	1	01/12/2022 16:24	<a href="#">WG1800734</a>
C28-C36 Motor Oil Range	ND		4.00	1	01/12/2022 16:24	<a href="#">WG1800734</a>
(S) o-Terphenyl	65.8		18.0-148		01/12/2022 16:24	<a href="#">WG1800734</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Acenaphthene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Acenaphthylene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Benzo(a)anthracene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Benzo(a)pyrene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Benzo(b)fluoranthene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Benzo(g,h,i)perylene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Benzo(k)fluoranthene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Chrysene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Dibenz(a,h)anthracene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Fluoranthene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Fluorene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Naphthalene	ND		0.0200	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Phenanthrene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
Pyrene	ND		0.00600	1	01/12/2022 22:06	<a href="#">WG1801096</a>
1-Methylnaphthalene	ND		0.0200	1	01/12/2022 22:06	<a href="#">WG1801096</a>
2-Methylnaphthalene	ND		0.0200	1	01/12/2022 22:06	<a href="#">WG1801096</a>
2-Chloronaphthalene	ND		0.0200	1	01/12/2022 22:06	<a href="#">WG1801096</a>
(S) p-Terphenyl-d14	91.0		23.0-120		01/12/2022 22:06	<a href="#">WG1801096</a>
(S) Nitrobenzene-d5	77.2		14.0-149		01/12/2022 22:06	<a href="#">WG1801096</a>
(S) 2-Fluorobiphenyl	88.4		34.0-125		01/12/2022 22:06	<a href="#">WG1801096</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.479		1	01/22/2022 16:05	WG1800786

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/13/2022 19:24	<a href="#">WG1801351</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.48	<a href="#">T8</a>	1	01/13/2022 09:26	<a href="#">WG1800822</a>

## Sample Narrative:

L1449255-02 WG1800822: 8.48 at 22.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	350		10.0	1	01/16/2022 04:09	<a href="#">WG1803033</a>

## Sample Narrative:

L1449255-02 WG1803033: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	305		0.500	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Cadmium	ND		0.500	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Copper	16.3		2.00	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Lead	11.8		0.500	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Nickel	21.4		2.00	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Selenium	ND		2.00	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Silver	ND		1.00	1	01/19/2022 23:55	<a href="#">WG1801505</a>
Zinc	41.3		5.00	1	01/19/2022 23:55	<a href="#">WG1801505</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.350		0.200	1	01/19/2022 20:59	<a href="#">WG1802148</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.98		1.00	5	01/17/2022 17:08	<a href="#">WG1801662</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	01/12/2022 00:30	<a href="#">WG1800674</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		01/12/2022 00:30	<a href="#">WG1800674</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	01/12/2022 04:11	<a href="#">WG1800722</a>
Toluene	ND		0.00500	1	01/12/2022 04:11	<a href="#">WG1800722</a>
Ethylbenzene	ND		0.00250	1	01/12/2022 04:11	<a href="#">WG1800722</a>
Xylenes, Total	ND		0.00650	1	01/12/2022 04:11	<a href="#">WG1800722</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	01/12/2022 04:11	<a href="#">WG1800722</a>
1,3,5-Trimethylbenzene	0.00913		0.00500	1	01/12/2022 04:11	<a href="#">WG1800722</a>
(S) Toluene-d8	108		75.0-131		01/12/2022 04:11	<a href="#">WG1800722</a>
(S) 4-Bromofluorobenzene	105		67.0-138		01/12/2022 04:11	<a href="#">WG1800722</a>
(S) 1,2-Dichloroethane-d4	96.2		70.0-130		01/12/2022 04:11	<a href="#">WG1800722</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	01/12/2022 16:10	<a href="#">WG1800734</a>
C28-C36 Motor Oil Range	ND		4.00	1	01/12/2022 16:10	<a href="#">WG1800734</a>
(S) o-Terphenyl	57.0		18.0-148		01/12/2022 16:10	<a href="#">WG1800734</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Acenaphthene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Acenaphthylene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Benzo(a)anthracene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Benzo(a)pyrene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Benzo(b)fluoranthene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Benzo(g,h,i)perylene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Benzo(k)fluoranthene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Chrysene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Dibenz(a,h)anthracene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Fluoranthene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Fluorene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Naphthalene	ND		0.0200	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Phenanthrene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
Pyrene	ND		0.00600	1	01/12/2022 22:26	<a href="#">WG1801096</a>
1-Methylnaphthalene	ND		0.0200	1	01/12/2022 22:26	<a href="#">WG1801096</a>
2-Methylnaphthalene	ND		0.0200	1	01/12/2022 22:26	<a href="#">WG1801096</a>
2-Chloronaphthalene	ND		0.0200	1	01/12/2022 22:26	<a href="#">WG1801096</a>
(S) p-Terphenyl-d14	76.5		23.0-120		01/12/2022 22:26	<a href="#">WG1801096</a>
(S) Nitrobenzene-d5	69.1		14.0-149		01/12/2022 22:26	<a href="#">WG1801096</a>
(S) 2-Fluorobiphenyl	76.6		34.0-125		01/12/2022 22:26	<a href="#">WG1801096</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3752893-1 01/13/22 17:48

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	1.13		0.255	1.00

L1449255-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1449255-01 01/13/22 18:38 • (DUP) R3752893-3 01/13/22 18:43

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

Laboratory Control Sample (LCS)

(LCS) R3752893-2 01/13/22 18:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	11.9	119	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1449255-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1449255-01 01/13/22 09:26 • (DUP) R3749589-2 01/13/22 09:26

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	9.09	9.09	1	0.000		1

Sample Narrative:

OS: 9.09 at 20.7C

DUP: 9.09 at 20.1C

L1449809-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1449809-07 01/13/22 09:26 • (DUP) R3749589-3 01/13/22 09:26

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.57	8.62	1	0.582		1

Sample Narrative:

OS: 8.57 at 19.5C

DUP: 8.62 at 19.4C

Laboratory Control Sample (LCS)

(LCS) R3749589-1 01/13/22 09:26

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

Sample Narrative:

LCS: 10 at 19C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3750339-1 01/16/22 04:09

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

Sample Narrative:

BLANK: at 25C

L1450729-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1450729-01 01/16/22 04:09 • (DUP) R3750339-3 01/16/22 04:09

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2600	2600	1	0.116		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1451283-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1451283-03 01/16/22 04:09 • (DUP) R3750339-4 01/16/22 04:09

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	7950	7730	1	2.81		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3750339-2 01/16/22 04:09

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	272	102	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3751631-1 01/19/22 22:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3751631-2 01/19/22 22:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	112	112	80.0-120	
Cadmium	100	107	107	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	113	113	80.0-120	
Nickel	100	112	112	80.0-120	
Selenium	100	105	105	80.0-120	
Silver	20.0	21.6	108	80.0-120	
Zinc	100	101	101	80.0-120	

L1449041-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449041-01 01/19/22 22:41 • (MS) R3751631-5 01/19/22 22:49 • (MSD) R3751631-6 01/19/22 22:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	99.7	14.6	113	104	98.1	89.2	1	75.0-125			8.20	20
Cadmium	99.7	ND	102	102	102	102	1	75.0-125			0.718	20
Copper	99.7	10.7	108	106	97.3	95.4	1	75.0-125			1.81	20
Lead	99.7	6.73	115	106	109	99.5	1	75.0-125			8.21	20
Nickel	99.7	7.46	116	110	108	102	1	75.0-125			5.41	20
Selenium	99.7	ND	101	98.0	101	98.0	1	75.0-125			2.67	20
Silver	20.0	ND	21.3	21.1	106	105	1	75.0-125			0.971	20
Zinc	99.7	21.6	107	101	85.5	79.2	1	75.0-125			6.07	20

Method Blank (MB)

(MB) R3751637-1 01/19/22 20:49

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	0.0202	⬇	0.0167	0.200

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

(LCS) R3751637-2 01/19/22 20:51 • (LCSD) R3751637-3 01/19/22 20:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.982	0.984	98.2	98.4	80.0-120			0.222	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3750706-1 01/17/22 16:42

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

Laboratory Control Sample (LCS)

(LCS) R3750706-2 01/17/22 16:45

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	106	106	80.0-120	

L1449544-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449544-02 01/17/22 16:48 • (MS) R3750706-5 01/17/22 16:58 • (MSD) R3750706-6 01/17/22 17:01

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	3.76	96.2	95.9	92.4	92.1	5	75.0-125			0.358	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3749166-2 01/11/22 19:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3749166-1 01/11/22 18:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.87	88.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			98.0	77.0-120	

L1449055-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449055-01 01/11/22 20:37 • (MS) R3749166-3 01/12/22 00:51 • (MSD) R3749166-4 01/12/22 01:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	9.65	13.8	11.4	75.5	31.8	1	10.0-151	E	E	19.0	28
(S) a,a,a-Trifluorotoluene(FID)					81.4	90.0		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3749148-3 01/11/22 23:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	105			75.0-131
(S) 4-Bromofluorobenzene	101			67.0-138
(S) 1,2-Dichloroethane-d4	99.7			70.0-130

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

(LCS) R3749148-1 01/11/22 22:19 • (LCSD) R3749148-2 01/11/22 22:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.131	0.131	105	105	70.0-123			0.000	20
Ethylbenzene	0.125	0.118	0.123	94.4	98.4	74.0-126			4.15	20
Toluene	0.125	0.123	0.128	98.4	102	75.0-121			3.98	20
1,2,4-Trimethylbenzene	0.125	0.119	0.124	95.2	99.2	70.0-126			4.12	20
1,3,5-Trimethylbenzene	0.125	0.122	0.129	97.6	103	73.0-127			5.58	20
Xylenes, Total	0.375	0.357	0.370	95.2	98.7	72.0-127			3.58	20
(S) Toluene-d8				101	102	75.0-131				
(S) 4-Bromofluorobenzene				97.1	97.2	67.0-138				
(S) 1,2-Dichloroethane-d4				101	104	70.0-130				

L1449182-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449182-02 01/12/22 07:28 • (MS) R3749148-4 01/12/22 07:47 • (MSD) R3749148-5 01/12/22 08:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.922	ND	0.600	0.623	80.0	83.1	8	10.0-149			3.76	37
Ethylbenzene	0.922	2.00	2.72	2.65	96.0	86.7	8	10.0-160			2.61	38
Toluene	0.922	ND	0.640	0.681	83.0	88.5	8	10.0-156			6.21	38
1,2,4-Trimethylbenzene	0.922	ND	0.636	0.618	84.8	82.4	8	10.0-160			2.87	36
1,3,5-Trimethylbenzene	0.922	ND	0.645	0.588	86.0	78.4	8	10.0-160			9.25	38
Xylenes, Total	2.76	0.167	2.09	2.23	85.5	91.7	8	10.0-160			6.48	38
(S) Toluene-d8					115	112		75.0-131				
(S) 4-Bromofluorobenzene					112	115		67.0-138				
(S) 1,2-Dichloroethane-d4					98.8	90.9		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1449182-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449182-02 01/12/22 07:28 • (MS) R3749148-4 01/12/22 07:47 • (MSD) R3749148-5 01/12/22 08:06

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3749304-1 01/12/22 10:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	62.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3749304-2 01/12/22 11:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	36.1	72.2	50.0-150	
(S) o-Terphenyl			80.6	18.0-148	

L1449179-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449179-04 01/12/22 14:26 • (MS) R3749304-3 01/12/22 14:40 • (MSD) R3749304-4 01/12/22 14:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.5	ND	31.8	36.1	65.6	73.8	1	50.0-150			12.7	20
(S) o-Terphenyl					67.8	77.8		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3749693-2 01/12/22 21:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	98.3			14.0-149
(S) 2-Fluorobiphenyl	111			34.0-125
(S) p-Terphenyl-d14	119			23.0-120

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3749693-1 01/12/22 21:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0802	100	50.0-126	
Acenaphthene	0.0800	0.0803	100	50.0-120	
Acenaphthylene	0.0800	0.0831	104	50.0-120	
Benzo(a)anthracene	0.0800	0.0796	99.5	45.0-120	
Benzo(a)pyrene	0.0800	0.0671	83.9	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0719	89.9	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0713	89.1	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0738	92.3	49.0-125	
Chrysene	0.0800	0.0797	99.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0681	85.1	47.0-125	
Fluoranthene	0.0800	0.0833	104	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3749693-1 01/12/22 21:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0806	101	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0760	95.0	46.0-125	
Naphthalene	0.0800	0.0750	93.8	50.0-120	
Phenanthrene	0.0800	0.0807	101	47.0-120	
Pyrene	0.0800	0.0837	105	43.0-123	
1-Methylnaphthalene	0.0800	0.0774	96.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0791	98.9	50.0-120	
2-Chloronaphthalene	0.0800	0.0795	99.4	50.0-120	
(S) Nitrobenzene-d5			101	14.0-149	
(S) 2-Fluorobiphenyl			111	34.0-125	
(S) p-Terphenyl-d14			109	23.0-120	

L1449525-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1449525-03 01/13/22 01:23 • (MS) R3749693-3 01/13/22 01:43 • (MSD) R3749693-4 01/13/22 02:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0792	ND	0.0650	0.0696	82.1	87.9	1	10.0-145			6.84	30
Acenaphthene	0.0792	ND	0.0665	0.0715	84.0	90.3	1	14.0-127			7.25	27
Acenaphthylene	0.0792	ND	0.0664	0.0715	83.8	90.3	1	21.0-124			7.40	25
Benzo(a)anthracene	0.0792	ND	0.0675	0.0702	80.8	84.2	1	10.0-139			3.92	30
Benzo(a)pyrene	0.0792	ND	0.0723	0.0718	86.4	85.7	1	10.0-141			0.694	31
Benzo(b)fluoranthene	0.0792	0.00658	0.0679	0.0694	77.4	79.3	1	10.0-140			2.18	36
Benzo(g,h,i)perylene	0.0792	ND	0.0666	0.0665	76.7	76.6	1	10.0-140			0.150	33
Benzo(k)fluoranthene	0.0792	ND	0.0619	0.0639	75.4	77.9	1	10.0-137			3.18	31
Chrysene	0.0792	ND	0.0735	0.0743	86.1	87.1	1	10.0-145			1.08	30
Dibenz(a,h)anthracene	0.0792	ND	0.0560	0.0590	70.7	74.5	1	10.0-132			5.22	31
Fluoranthene	0.0792	0.00769	0.0800	0.0799	91.3	91.2	1	10.0-153			0.125	33
Fluorene	0.0792	ND	0.0662	0.0708	83.6	89.4	1	11.0-130			6.72	29
Indeno(1,2,3-cd)pyrene	0.0792	ND	0.0659	0.0687	77.1	80.6	1	10.0-137			4.16	32
Naphthalene	0.0792	ND	0.0689	0.0701	80.5	82.1	1	10.0-135			1.73	27
Phenanthrene	0.0792	ND	0.0786	0.0788	93.0	93.3	1	10.0-144			0.254	31
Pyrene	0.0792	0.00785	0.0790	0.0783	89.8	89.0	1	10.0-148			0.890	35
1-Methylnaphthalene	0.0792	ND	0.0719	0.0738	83.0	85.4	1	10.0-142			2.61	28
2-Methylnaphthalene	0.0792	ND	0.0756	0.0761	86.4	87.0	1	10.0-137			0.659	28
2-Chloronaphthalene	0.0792	ND	0.0656	0.0720	82.8	90.9	1	29.0-120			9.30	24
(S) Nitrobenzene-d5					79.1	84.0		14.0-149				
(S) 2-Fluorobiphenyl					94.4	102		34.0-125				
(S) p-Terphenyl-d14					90.6	97.8		23.0-120				

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

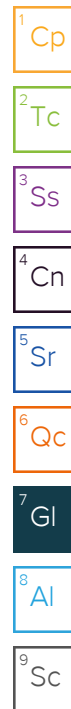
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

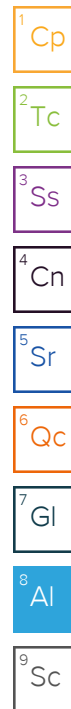
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.





Condition:  
NCF / OK

## Caerus Oil and Gas

Sample Delivery Group: L1465654  
Samples Received: 02/26/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
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.

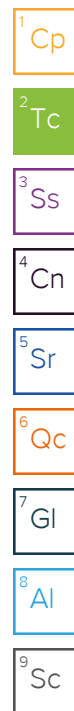


## Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20220223-SGV FED(SB-POR)@9-10.5' L1465654-01	5
20220223-SGV FED(SB-POR)@15.5-17.5' L1465654-03	7
20220223-SGV FED(SB-POR)@25-26.5' L1465654-04	9
Qc: Quality Control Summary	11
Wet Chemistry by Method 9050AMod	11
Metals (ICP) by Method 6010B	12
Metals (ICP) by Method 6010B-NE493 Ch 2	13
Volatile Organic Compounds (GC) by Method 8015D/GRO	14
Volatile Organic Compounds (GC/MS) by Method 8260B	15
Semi-Volatile Organic Compounds (GC) by Method 8015M	17
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	19
Gl: Glossary of Terms	20
Al: Accreditations & Locations	21
Sc: Sample Chain of Custody	22



# SAMPLE SUMMARY

## 20220223-SGV FED(SB-POR)@9-10.5' L1465654-01 Solid

Collected by Kevin Fletcher  
Collected date/time 02/23/22 09:25  
Received date/time 02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824994	1	03/04/22 13:02	03/04/22 13:02	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825852	1	03/02/22 02:49	03/02/22 09:07	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 03:25	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:20	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 08:23	02/28/22 22:32	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1824970	1	02/28/22 08:23	02/28/22 21:28	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 19:27	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 09:35	AMG	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

## 20220223-SGV FED(SB-POR)@15.5-17.5' L1465654-03 Solid

Collected by Kevin Fletcher  
Collected date/time 02/23/22 10:10  
Received date/time 02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824994	1	03/04/22 13:05	03/04/22 13:05	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825852	1	03/02/22 02:49	03/02/22 09:07	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 03:33	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:23	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 08:23	02/28/22 22:54	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825072	1	02/28/22 08:23	03/01/22 01:30	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 13:49	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 09:53	AMG	Mt. Juliet, TN

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## 20220223-SGV FED(SB-POR)@25-26.5' L1465654-04 Solid

Collected by Kevin Fletcher  
Collected date/time 02/23/22 14:55  
Received date/time 02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824994	1	03/04/22 13:08	03/04/22 13:08	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825852	1	03/02/22 02:49	03/02/22 09:07	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 03:36	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:26	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 08:23	02/28/22 23:16	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825072	1	02/28/22 08:23	03/01/22 01:49	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 11:33	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 10:10	AMG	Mt. Juliet, TN

# CASE NARRATIVE

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



Chris Ward  
Project Manager





Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.45		1	03/04/2022 13:02	WG1824994

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3550		10.0	1	03/02/2022 09:07	<a href="#">WG1825852</a>

Sample Narrative:  
L1465654-01 WG1825852: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	282		0.500	1	03/04/2022 03:25	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.534		0.200	1	03/04/2022 14:20	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	02/28/2022 22:32	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		02/28/2022 22:32	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	02/28/2022 21:28	<a href="#">WG1824970</a>
Toluene	ND		0.00500	1	02/28/2022 21:28	<a href="#">WG1824970</a>
Ethylbenzene	ND		0.00250	1	02/28/2022 21:28	<a href="#">WG1824970</a>
Xylenes, Total	ND		0.00650	1	02/28/2022 21:28	<a href="#">WG1824970</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	02/28/2022 21:28	<a href="#">WG1824970</a>
1,3,5-Trimethylbenzene	0.00797		0.00500	1	02/28/2022 21:28	<a href="#">WG1824970</a>
(S) Toluene-d8	104		75.0-131		02/28/2022 21:28	<a href="#">WG1824970</a>
(S) 4-Bromofluorobenzene	90.8		67.0-138		02/28/2022 21:28	<a href="#">WG1824970</a>
(S) 1,2-Dichloroethane-d4	112		70.0-130		02/28/2022 21:28	<a href="#">WG1824970</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 19:27	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 19:27	<a href="#">WG1826915</a>
(S) o-Terphenyl	70.9		18.0-148		03/04/2022 19:27	<a href="#">WG1826915</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/07/2022 09:35	<a href="#">WG1828170</a>
1-Methylnaphthalene	0.0231		0.0200	1	03/07/2022 09:35	<a href="#">WG1828170</a>
2-Methylnaphthalene	0.0501		0.0200	1	03/07/2022 09:35	<a href="#">WG1828170</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 09:35	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	98.6		23.0-120		03/07/2022 09:35	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	85.0		14.0-149		03/07/2022 09:35	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	86.0		34.0-125		03/07/2022 09:35	<a href="#">WG1828170</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.12		1	03/04/2022 13:05	WG1824994

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	187		10.0	1	03/02/2022 09:07	<a href="#">WG1825852</a>

## Sample Narrative:

L1465654-03 WG1825852: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	243		0.500	1	03/04/2022 03:33	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 14:23	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.535		0.100	1	02/28/2022 22:54	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		02/28/2022 22:54	<a href="#">WG1825064</a>

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

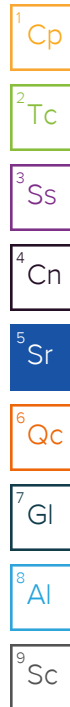
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 01:30	<a href="#">WG1825072</a>
Toluene	ND		0.00500	1	03/01/2022 01:30	<a href="#">WG1825072</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 01:30	<a href="#">WG1825072</a>
Xylenes, Total	0.0198		0.00650	1	03/01/2022 01:30	<a href="#">WG1825072</a>
1,2,4-Trimethylbenzene	0.00925		0.00500	1	03/01/2022 01:30	<a href="#">WG1825072</a>
1,3,5-Trimethylbenzene	0.00675		0.00500	1	03/01/2022 01:30	<a href="#">WG1825072</a>
(S) Toluene-d8	108		75.0-131		03/01/2022 01:30	<a href="#">WG1825072</a>
(S) 4-Bromofluorobenzene	96.1		67.0-138		03/01/2022 01:30	<a href="#">WG1825072</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/01/2022 01:30	<a href="#">WG1825072</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.05		4.00	1	03/04/2022 13:49	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 13:49	<a href="#">WG1826930</a>
(S) o-Terphenyl	63.0		18.0-148		03/04/2022 13:49	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/07/2022 09:53	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 09:53	<a href="#">WG1828170</a>
2-Methylnaphthalene	0.0205		0.0200	1	03/07/2022 09:53	<a href="#">WG1828170</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 09:53	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	94.5		23.0-120		03/07/2022 09:53	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	84.9		14.0-149		03/07/2022 09:53	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	83.8		34.0-125		03/07/2022 09:53	<a href="#">WG1828170</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.387		1	03/04/2022 13:08	WG1824994

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	156		10.0	1	03/02/2022 09:07	<a href="#">WG1825852</a>

## Sample Narrative:

L1465654-04 WG1825852: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	188		0.500	1	03/04/2022 03:36	<a href="#">WG1825824</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 14:26	<a href="#">WG1825224</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.273		0.100	1	02/28/2022 23:16	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		02/28/2022 23:16	<a href="#">WG1825064</a>

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

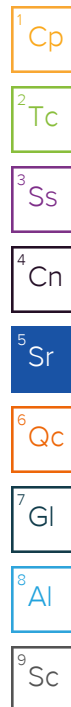
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	ND		0.00100	1	03/01/2022 01:49	<a href="#">WG1825072</a>
Toluene	0.00565		0.00500	1	03/01/2022 01:49	<a href="#">WG1825072</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 01:49	<a href="#">WG1825072</a>
Xylenes, Total	0.0256		0.00650	1	03/01/2022 01:49	<a href="#">WG1825072</a>
1,2,4-Trimethylbenzene	0.00980		0.00500	1	03/01/2022 01:49	<a href="#">WG1825072</a>
1,3,5-Trimethylbenzene	0.00723		0.00500	1	03/01/2022 01:49	<a href="#">WG1825072</a>
(S) Toluene-d8	108		75.0-131		03/01/2022 01:49	<a href="#">WG1825072</a>
(S) 4-Bromofluorobenzene	93.5		67.0-138		03/01/2022 01:49	<a href="#">WG1825072</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		03/01/2022 01:49	<a href="#">WG1825072</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	5.38		4.00	1	03/04/2022 11:33	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	5.24		4.00	1	03/04/2022 11:33	<a href="#">WG1826930</a>
(S) o-Terphenyl	71.4		18.0-148		03/04/2022 11:33	<a href="#">WG1826930</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Fluorene	ND		0.00600	1	03/07/2022 10:10	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 10:10	<a href="#">WG1828170</a>
2-Methylnaphthalene	ND		0.0200	1	03/07/2022 10:10	<a href="#">WG1828170</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 10:10	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	97.8		23.0-120		03/07/2022 10:10	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	83.7		14.0-149		03/07/2022 10:10	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	86.1		34.0-125		03/07/2022 10:10	<a href="#">WG1828170</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3765366-1 03/02/22 09:07

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

Sample Narrative:  
BLANK: at 25C

L1465650-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465650-01 03/02/22 09:07 • (DUP) R3765366-3 03/02/22 09:07

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	12000	12700	1	5.76		20

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

L1465650-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1465650-21 03/02/22 09:07 • (DUP) R3765366-4 03/02/22 09:07

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	7530	7460	1	0.934		20

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

Laboratory Control Sample (LCS)

(LCS) R3765366-2 03/02/22 09:07

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	266	99.4	85.0-115	

Sample Narrative:  
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3766294-1 03/04/22 03:01

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

Laboratory Control Sample (LCS)

(LCS) R3766294-2 03/04/22 03:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	95.3	95.3	80.0-120	

L1465665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465665-01 03/04/22 03:06 • (MS) R3766294-5 03/04/22 03:14 • (MSD) R3766294-6 03/04/22 03:17

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	163	281	269	119	107	1	75.0-125			4.35	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3766596-1 03/04/22 14:13

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

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

(LCS) R3766596-2 03/04/22 14:15 • (LCSD) R3766596-3 03/04/22 14:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.05	106	105	80.0-120			0.506	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3764901-2 02/28/22 20:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3764901-1 02/28/22 19:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.29	78.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			97.1	77.0-120	

L1465654-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465654-01 02/28/22 22:32 • (MS) R3764901-3 03/01/22 04:40 • (MSD) R3764901-4 03/01/22 05:39

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	2.97	3.82	52.7	68.2	1	10.0-151			25.0	28
(S) a,a,a-Trifluorotoluene(FID)					97.2	97.6		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3764769-3 02/28/22 13:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	102			75.0-131
(S) 4-Bromofluorobenzene	89.8			67.0-138
(S) 1,2-Dichloroethane-d4	105			70.0-130

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

(LCS) R3764769-1 02/28/22 11:57 • (LCSD) R3764769-2 02/28/22 12:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.118	0.108	94.4	86.4	70.0-123			8.85	20
Toluene	0.125	0.115	0.107	92.0	85.6	75.0-121			7.21	20
Ethylbenzene	0.125	0.130	0.120	104	96.0	74.0-126			8.00	20
Xylenes, Total	0.375	0.389	0.356	104	94.9	72.0-127			8.86	20
1,2,4-Trimethylbenzene	0.125	0.128	0.119	102	95.2	70.0-126			7.29	20
1,3,5-Trimethylbenzene	0.125	0.123	0.112	98.4	89.6	73.0-127			9.36	20
(S) Toluene-d8				95.1	95.1	75.0-131				
(S) 4-Bromofluorobenzene				99.7	96.2	67.0-138				
(S) 1,2-Dichloroethane-d4				120	117	70.0-130				

L1465654-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465654-01 02/28/22 21:28 • (MS) R3764769-4 02/28/22 21:47 • (MSD) R3764769-5 02/28/22 22:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.120	0.116	96.0	92.8	1	10.0-149			3.39	37
Toluene	0.125	ND	0.121	0.121	96.8	96.8	1	10.0-156			0.000	38
Ethylbenzene	0.125	ND	0.134	0.129	107	103	1	10.0-160			3.80	38
Xylenes, Total	0.375	ND	0.395	0.395	105	105	1	10.0-160			0.000	38
1,2,4-Trimethylbenzene	0.125	ND	0.140	0.148	110	116	1	10.0-160			5.56	36
1,3,5-Trimethylbenzene	0.125	0.00797	0.149	0.162	113	123	1	10.0-160			8.36	38
(S) Toluene-d8					99.4	98.8		75.0-131				
(S) 4-Bromofluorobenzene					94.4	89.3		67.0-138				
(S) 1,2-Dichloroethane-d4					115	114		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3764849-3 02/28/22 20:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	107			75.0-131
(S) 4-Bromofluorobenzene	95.4			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3764849-1 02/28/22 19:23 • (LCSD) R3764849-2 02/28/22 19:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.114	0.117	91.2	93.6	70.0-123			2.60	20
Toluene	0.125	0.101	0.104	80.8	83.2	75.0-121			2.93	20
Ethylbenzene	0.125	0.103	0.106	82.4	84.8	74.0-126			2.87	20
Xylenes, Total	0.375	0.304	0.316	81.1	84.3	72.0-127			3.87	20
1,2,4-Trimethylbenzene	0.125	0.105	0.107	84.0	85.6	70.0-126			1.89	20
1,3,5-Trimethylbenzene	0.125	0.107	0.109	85.6	87.2	73.0-127			1.85	20
(S) Toluene-d8				99.1	98.8	75.0-131				
(S) 4-Bromofluorobenzene				98.6	100	67.0-138				
(S) 1,2-Dichloroethane-d4				110	111	70.0-130				

L1465787-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465787-11 03/01/22 02:46 • (MS) R3764849-4 03/01/22 03:43 • (MSD) R3764849-5 03/01/22 04:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.127	0.142	102	114	1	10.0-149			11.2	37
Toluene	0.125	ND	0.134	0.134	107	107	1	10.0-156			0.000	38
Ethylbenzene	0.125	ND	0.130	0.135	104	108	1	10.0-160			3.77	38
Xylenes, Total	0.375	ND	0.377	0.393	101	105	1	10.0-160			4.16	38
1,2,4-Trimethylbenzene	0.125	ND	0.216	0.150	173	120	1	10.0-160	J5	J3	36.1	36
1,3,5-Trimethylbenzene	0.125	ND	0.168	0.148	134	118	1	10.0-160			12.7	38
(S) Toluene-d8					107	99.3		75.0-131				
(S) 4-Bromofluorobenzene					95.1	99.1		67.0-138				
(S) 1,2-Dichloroethane-d4					97.2	108		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766723-1 03/04/22 15:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.604	⬇	0.274	4.00
(S) o-Terphenyl	71.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3766723-2 03/04/22 15:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.7	79.4	50.0-150	
(S) o-Terphenyl			97.0	18.0-148	

L1465255-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465255-05 03/05/22 10:31 • (MS) R3766725-1 03/05/22 10:44 • (MSD) R3766725-2 03/05/22 10:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.7	1040	692	852	0.000	0.000	5	50.0-150	⬇	J3 ⬇	20.7	20
(S) o-Terphenyl					76.1	78.9		18.0-148				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3766716-1 03/04/22 11:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	62.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3766716-2 03/04/22 11:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	38.6	77.2	50.0-150	
(S) o-Terphenyl			84.7	18.0-148	

L1465680-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465680-07 03/04/22 15:05 • (MS) R3766716-3 03/04/22 15:21 • (MSD) R3766716-4 03/04/22 15:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.9	ND	37.3	34.9	70.9	66.1	1	50.0-150			6.65	20
(S) o-Terphenyl					78.7	70.0		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767072-2 03/07/22 09:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	114			23.0-120
(S) Nitrobenzene-d5	96.5			14.0-149
(S) 2-Fluorobiphenyl	97.6			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3767072-1 03/07/22 09:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0715	89.4	49.0-120	
1-Methylnaphthalene	0.0800	0.0713	89.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0683	85.4	50.0-120	
Naphthalene	0.0800	0.0705	88.1	50.0-120	
(S) p-Terphenyl-d14			111	23.0-120	
(S) Nitrobenzene-d5			99.3	14.0-149	
(S) 2-Fluorobiphenyl			97.7	34.0-125	

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

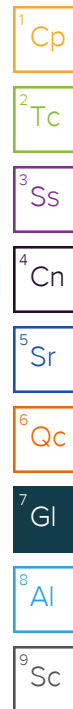
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

### Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

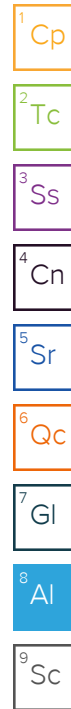
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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 and Gas**

Sample Delivery Group: L1465680  
Samples Received: 02/26/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
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](http://www.pacenational.com)

# TABLE OF CONTENTS

<b>Cp: Cover Page</b>	<b>1</b>
<b>Tc: Table of Contents</b>	<b>2</b>
<b>Ss: Sample Summary</b>	<b>3</b>
<b>Cn: Case Narrative</b>	<b>5</b>
<b>Sr: Sample Results</b>	<b>6</b>
20220224-SGV FED(SB-NE)@3.5-5.5' L1465680-01	6
20220224-SGV FED(SB-NE)@13.5-15.5' L1465680-02	8
20220224-SGV FED(SB-NE)@25-26.5' L1465680-03	10
20220224-SGV FED(SB-SE)@5-7' L1465680-04	12
20220224-SGV FED(SB-SE)@15-16.5' L1465680-05	14
20220224-SGV FED(SB-SE)@25-26' L1465680-06	16
20220224-SGV FED(SB-N)@10-12' L1465680-07	18
20220224-SGV FED(SB-N)@15-16' L1465680-08	20
<b>Qc: Quality Control Summary</b>	<b>22</b>
Wet Chemistry by Method 9050AMod	22
Metals (ICP) by Method 6010B	23
Metals (ICP) by Method 6010B-NE493 Ch 2	25
Volatile Organic Compounds (GC) by Method 8015D/GRO	26
Volatile Organic Compounds (GC/MS) by Method 8260B	27
Semi-Volatile Organic Compounds (GC) by Method 8015M	29
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	31
<b>Gl: Glossary of Terms</b>	<b>34</b>
<b>Al: Accreditations &amp; Locations</b>	<b>35</b>
<b>Sc: Sample Chain of Custody</b>	<b>36</b>

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



# SAMPLE SUMMARY

## 20220224-SGV FED(SB-NE)@3.5-5.5' L1465680-01 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 08:00

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:17	03/04/22 17:17	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825837	1	03/02/22 08:04	03/03/22 11:32	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:48	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 01:26	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 05:07	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 12:48	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:17	LEA	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

## 20220224-SGV FED(SB-NE)@13.5-15.5' L1465680-02 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 08:50

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:20	03/04/22 17:20	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 03:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:50	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 01:47	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 05:26	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 13:04	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:37	LEA	Mt. Juliet, TN

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## 20220224-SGV FED(SB-NE)@25-26.5' L1465680-03 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 13:10

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:23	03/04/22 17:23	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 03:57	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:53	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 02:09	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 06:11	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 13:19	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 10:27	AMG	Mt. Juliet, TN

## 20220224-SGV FED(SB-SE)@5-7' L1465680-04 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 13:45

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:26	03/04/22 17:26	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 04:06	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:56	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 02:31	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 06:30	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 13:34	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:57	LEA	Mt. Juliet, TN

# SAMPLE SUMMARY

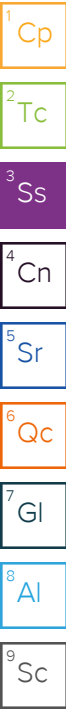
## 20220224-SGV FED(SB-SE)@15-16.5' L1465680-05 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 14:25

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:29	03/04/22 17:29	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 04:08	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:58	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 02:52	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825079	1	02/28/22 14:39	03/01/22 00:53	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 14:35	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 15:17	LEA	Mt. Juliet, TN



## 20220224-SGV FED(SB-SE)@25-26' L1465680-06 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 15:40

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:31	03/04/22 17:31	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 04:11	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 15:01	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 03:14	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825079	1	02/28/22 14:39	03/01/22 01:12	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 14:50	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826937	1	03/04/22 05:17	03/04/22 11:04	LEA	Mt. Juliet, TN

## 20220224-SGV FED(SB-N)@10-12' L1465680-07 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 16:15

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:34	03/04/22 17:34	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 04:14	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 15:04	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 03:36	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825079	1	02/28/22 14:39	03/01/22 01:30	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 15:05	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826937	1	03/04/22 05:17	03/04/22 11:21	LEA	Mt. Juliet, TN

## 20220224-SGV FED(SB-N)@15-16' L1465680-08 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/24/22 16:40

Received date/time  
02/26/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1824998	1	03/04/22 17:37	03/04/22 17:37	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1825824	1	03/02/22 10:03	03/04/22 04:17	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 15:07	KMG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 03:57	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825079	1	02/28/22 14:39	03/01/22 01:49	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1828156	1	03/07/22 06:06	03/07/22 14:37	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826937	1	03/04/22 05:17	03/04/22 11:39	LEA	Mt. Juliet, TN

# CASE NARRATIVE

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



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.615		1	03/04/2022 17:17	WG1824998

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	965		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

Sample Narrative:  
L1465680-01 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	245	<a href="#">Q1</a>	0.500	1	03/03/2022 11:32	<a href="#">WG1825837</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.571		0.200	1	03/04/2022 14:48	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.219		0.100	1	03/01/2022 01:26	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		03/01/2022 01:26	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00158		0.00100	1	03/01/2022 05:07	<a href="#">WG1825054</a>
Toluene	0.0118		0.00500	1	03/01/2022 05:07	<a href="#">WG1825054</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 05:07	<a href="#">WG1825054</a>
Xylenes, Total	0.0604		0.00650	1	03/01/2022 05:07	<a href="#">WG1825054</a>
1,2,4-Trimethylbenzene	0.0149		0.00500	1	03/01/2022 05:07	<a href="#">WG1825054</a>
1,3,5-Trimethylbenzene	0.0111		0.00500	1	03/01/2022 05:07	<a href="#">WG1825054</a>
(S) Toluene-d8	99.9		75.0-131		03/01/2022 05:07	<a href="#">WG1825054</a>
(S) 4-Bromofluorobenzene	90.2		67.0-138		03/01/2022 05:07	<a href="#">WG1825054</a>
(S) 1,2-Dichloroethane-d4	99.3		70.0-130		03/01/2022 05:07	<a href="#">WG1825054</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.12		4.00	1	03/04/2022 12:48	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	5.24		4.00	1	03/04/2022 12:48	<a href="#">WG1826930</a>
(S) o-Terphenyl	69.7		18.0-148		03/04/2022 12:48	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 14:17	<a href="#">WG1826933</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:17	<a href="#">WG1826933</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:17	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 14:17	<a href="#">WG1826933</a>
(S) p-Terphenyl-d14	111		23.0-120		03/04/2022 14:17	<a href="#">WG1826933</a>
(S) Nitrobenzene-d5	79.3		14.0-149		03/04/2022 14:17	<a href="#">WG1826933</a>
(S) 2-Fluorobiphenyl	88.8		34.0-125		03/04/2022 14:17	<a href="#">WG1826933</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.232		1	03/04/2022 17:20	WG1824998

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	536		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

Sample Narrative:  
L1465680-02 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	261		0.500	1	03/04/2022 03:55	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 14:50	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.161		0.100	1	03/01/2022 01:47	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/01/2022 01:47	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 05:26	<a href="#">WG1825054</a>
Toluene	ND		0.00500	1	03/01/2022 05:26	<a href="#">WG1825054</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 05:26	<a href="#">WG1825054</a>
Xylenes, Total	ND		0.00650	1	03/01/2022 05:26	<a href="#">WG1825054</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 05:26	<a href="#">WG1825054</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 05:26	<a href="#">WG1825054</a>
(S) Toluene-d8	102		75.0-131		03/01/2022 05:26	<a href="#">WG1825054</a>
(S) 4-Bromofluorobenzene	88.9		67.0-138		03/01/2022 05:26	<a href="#">WG1825054</a>
(S) 1,2-Dichloroethane-d4	96.3		70.0-130		03/01/2022 05:26	<a href="#">WG1825054</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 13:04	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	5.79		4.00	1	03/04/2022 13:04	<a href="#">WG1826930</a>
(S) o-Terphenyl	73.5		18.0-148		03/04/2022 13:04	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 14:37	<a href="#">WG1826933</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:37	<a href="#">WG1826933</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:37	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 14:37	<a href="#">WG1826933</a>
(S) p-Terphenyl-d14	107		23.0-120		03/04/2022 14:37	<a href="#">WG1826933</a>
(S) Nitrobenzene-d5	76.3		14.0-149		03/04/2022 14:37	<a href="#">WG1826933</a>
(S) 2-Fluorobiphenyl	84.6		34.0-125		03/04/2022 14:37	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.576		1	03/04/2022 17:23	WG1824998

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	144		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

Sample Narrative:  
L1465680-03 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	259		0.500	1	03/04/2022 03:57	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 14:53	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.245		0.100	1	03/01/2022 02:09	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/01/2022 02:09	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 06:11	<a href="#">WG1825054</a>
Toluene	ND		0.00500	1	03/01/2022 06:11	<a href="#">WG1825054</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 06:11	<a href="#">WG1825054</a>
Xylenes, Total	0.0146		0.00650	1	03/01/2022 06:11	<a href="#">WG1825054</a>
1,2,4-Trimethylbenzene	0.00633		0.00500	1	03/01/2022 06:11	<a href="#">WG1825054</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 06:11	<a href="#">WG1825054</a>
(S) Toluene-d8	104		75.0-131		03/01/2022 06:11	<a href="#">WG1825054</a>
(S) 4-Bromofluorobenzene	94.2		67.0-138		03/01/2022 06:11	<a href="#">WG1825054</a>
(S) 1,2-Dichloroethane-d4	98.6		70.0-130		03/01/2022 06:11	<a href="#">WG1825054</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 13:19	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 13:19	<a href="#">WG1826930</a>
(S) o-Terphenyl	41.1		18.0-148		03/04/2022 13:19	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/07/2022 10:27	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 10:27	<a href="#">WG1828170</a>
2-Methylnaphthalene	ND		0.0200	1	03/07/2022 10:27	<a href="#">WG1828170</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 10:27	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	102		23.0-120		03/07/2022 10:27	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	89.8		14.0-149		03/07/2022 10:27	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	91.1		34.0-125		03/07/2022 10:27	<a href="#">WG1828170</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.16		1	03/04/2022 17:26	WG1824998

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1520		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

## Sample Narrative:

L1465680-04 WG1825853: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	222		0.500	1	03/04/2022 04:06	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.912		0.200	1	03/04/2022 14:56	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/01/2022 02:31	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		03/01/2022 02:31	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 06:30	<a href="#">WG1825054</a>
Toluene	ND		0.00500	1	03/01/2022 06:30	<a href="#">WG1825054</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 06:30	<a href="#">WG1825054</a>
Xylenes, Total	ND		0.00650	1	03/01/2022 06:30	<a href="#">WG1825054</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 06:30	<a href="#">WG1825054</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 06:30	<a href="#">WG1825054</a>
(S) Toluene-d8	101		75.0-131		03/01/2022 06:30	<a href="#">WG1825054</a>
(S) 4-Bromofluorobenzene	90.1		67.0-138		03/01/2022 06:30	<a href="#">WG1825054</a>
(S) 1,2-Dichloroethane-d4	96.8		70.0-130		03/01/2022 06:30	<a href="#">WG1825054</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	16.9		4.00	1	03/04/2022 13:34	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	12.5		4.00	1	03/04/2022 13:34	<a href="#">WG1826930</a>
(S) o-Terphenyl	65.0		18.0-148		03/04/2022 13:34	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 14:57	<a href="#">WG1826933</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:57	<a href="#">WG1826933</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:57	<a href="#">WG1826933</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 14:57	<a href="#">WG1826933</a>
(S) p-Terphenyl-d14	99.0		23.0-120		03/04/2022 14:57	<a href="#">WG1826933</a>
(S) Nitrobenzene-d5	71.0		14.0-149		03/04/2022 14:57	<a href="#">WG1826933</a>
(S) 2-Fluorobiphenyl	78.8		34.0-125		03/04/2022 14:57	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.55		1	03/04/2022 17:29	WG1824998

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	721		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

Sample Narrative:  
L1465680-05 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	215		0.500	1	03/04/2022 04:08	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.311		0.200	1	03/04/2022 14:58	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/01/2022 02:52	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		03/01/2022 02:52	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 00:53	<a href="#">WG1825079</a>
Toluene	ND		0.00500	1	03/01/2022 00:53	<a href="#">WG1825079</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 00:53	<a href="#">WG1825079</a>
Xylenes, Total	ND		0.00650	1	03/01/2022 00:53	<a href="#">WG1825079</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 00:53	<a href="#">WG1825079</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 00:53	<a href="#">WG1825079</a>
(S) Toluene-d8	113		75.0-131		03/01/2022 00:53	<a href="#">WG1825079</a>
(S) 4-Bromofluorobenzene	101		67.0-138		03/01/2022 00:53	<a href="#">WG1825079</a>
(S) 1,2-Dichloroethane-d4	94.3		70.0-130		03/01/2022 00:53	<a href="#">WG1825079</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	19.6		4.00	1	03/04/2022 14:35	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	6.89		4.00	1	03/04/2022 14:35	<a href="#">WG1826930</a>
(S) o-Terphenyl	61.0		18.0-148		03/04/2022 14:35	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 15:17	<a href="#">WG1826933</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 15:17	<a href="#">WG1826933</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 15:17	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 15:17	<a href="#">WG1826933</a>
(S) p-Terphenyl-d14	89.5		23.0-120		03/04/2022 15:17	<a href="#">WG1826933</a>
(S) Nitrobenzene-d5	64.7		14.0-149		03/04/2022 15:17	<a href="#">WG1826933</a>
(S) 2-Fluorobiphenyl	71.1		34.0-125		03/04/2022 15:17	<a href="#">WG1826933</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.697		1	03/04/2022 17:31	WG1824998

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	172		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

## Sample Narrative:

L1465680-06 WG1825853: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	288		0.500	1	03/04/2022 04:11	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 15:01	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.248		0.100	1	03/01/2022 03:14	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/01/2022 03:14	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 01:12	<a href="#">WG1825079</a>
Toluene	ND		0.00500	1	03/01/2022 01:12	<a href="#">WG1825079</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 01:12	<a href="#">WG1825079</a>
Xylenes, Total	0.0180		0.00650	1	03/01/2022 01:12	<a href="#">WG1825079</a>
1,2,4-Trimethylbenzene	0.00958		0.00500	1	03/01/2022 01:12	<a href="#">WG1825079</a>
1,3,5-Trimethylbenzene	0.00660		0.00500	1	03/01/2022 01:12	<a href="#">WG1825079</a>
(S) Toluene-d8	110		75.0-131		03/01/2022 01:12	<a href="#">WG1825079</a>
(S) 4-Bromofluorobenzene	99.1		67.0-138		03/01/2022 01:12	<a href="#">WG1825079</a>
(S) 1,2-Dichloroethane-d4	96.8		70.0-130		03/01/2022 01:12	<a href="#">WG1825079</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 14:50	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	4.96		4.00	1	03/04/2022 14:50	<a href="#">WG1826930</a>
(S) o-Terphenyl	67.2		18.0-148		03/04/2022 14:50	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 11:04	<a href="#">WG1826937</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:04	<a href="#">WG1826937</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:04	<a href="#">WG1826937</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 11:04	<a href="#">WG1826937</a>
(S) p-Terphenyl-d14	89.7		23.0-120		03/04/2022 11:04	<a href="#">WG1826937</a>
(S) Nitrobenzene-d5	71.1		14.0-149		03/04/2022 11:04	<a href="#">WG1826937</a>
(S) 2-Fluorobiphenyl	82.1		34.0-125		03/04/2022 11:04	<a href="#">WG1826937</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.14		1	03/04/2022 17:34	WG1824998

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1090		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

## Sample Narrative:

L1465680-07 WG1825853: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	274		0.500	1	03/04/2022 04:14	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.983		0.200	1	03/04/2022 15:04	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/01/2022 03:36	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/01/2022 03:36	<a href="#">WG1825064</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 01:30	<a href="#">WG1825079</a>
Toluene	ND		0.00500	1	03/01/2022 01:30	<a href="#">WG1825079</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 01:30	<a href="#">WG1825079</a>
Xylenes, Total	ND		0.00650	1	03/01/2022 01:30	<a href="#">WG1825079</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 01:30	<a href="#">WG1825079</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 01:30	<a href="#">WG1825079</a>
(S) Toluene-d8	110		75.0-131		03/01/2022 01:30	<a href="#">WG1825079</a>
(S) 4-Bromofluorobenzene	100		67.0-138		03/01/2022 01:30	<a href="#">WG1825079</a>
(S) 1,2-Dichloroethane-d4	94.6		70.0-130		03/01/2022 01:30	<a href="#">WG1825079</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 15:05	<a href="#">WG1826930</a>
C28-C36 Motor Oil Range	10.1		4.00	1	03/04/2022 15:05	<a href="#">WG1826930</a>
(S) o-Terphenyl	68.6		18.0-148		03/04/2022 15:05	<a href="#">WG1826930</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 11:21	<a href="#">WG1826937</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:21	<a href="#">WG1826937</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:21	<a href="#">WG1826937</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 11:21	<a href="#">WG1826937</a>
(S) p-Terphenyl-d14	88.6		23.0-120		03/04/2022 11:21	<a href="#">WG1826937</a>
(S) Nitrobenzene-d5	70.6		14.0-149		03/04/2022 11:21	<a href="#">WG1826937</a>
(S) 2-Fluorobiphenyl	79.1		34.0-125		03/04/2022 11:21	<a href="#">WG1826937</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.81		1	03/04/2022 17:37	WG1824998

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2290		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

Sample Narrative:

L1465680-08 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	279		0.500	1	03/04/2022 04:17	<a href="#">WG1825824</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.46		0.200	1	03/04/2022 15:07	<a href="#">WG1825224</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.153		0.100	1	03/01/2022 03:57	<a href="#">WG1825064</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/01/2022 03:57	<a href="#">WG1825064</a>

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

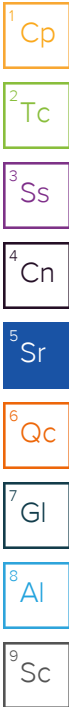
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/01/2022 01:49	<a href="#">WG1825079</a>
Toluene	ND		0.00500	1	03/01/2022 01:49	<a href="#">WG1825079</a>
Ethylbenzene	ND		0.00250	1	03/01/2022 01:49	<a href="#">WG1825079</a>
Xylenes, Total	ND		0.00650	1	03/01/2022 01:49	<a href="#">WG1825079</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 01:49	<a href="#">WG1825079</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 01:49	<a href="#">WG1825079</a>
(S) Toluene-d8	110		75.0-131		03/01/2022 01:49	<a href="#">WG1825079</a>
(S) 4-Bromofluorobenzene	99.9		67.0-138		03/01/2022 01:49	<a href="#">WG1825079</a>
(S) 1,2-Dichloroethane-d4	95.9		70.0-130		03/01/2022 01:49	<a href="#">WG1825079</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/07/2022 14:37	<a href="#">WG1828156</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/07/2022 14:37	<a href="#">WG1828156</a>
(S) o-Terphenyl	33.9		18.0-148		03/07/2022 14:37	<a href="#">WG1828156</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 11:39	<a href="#">WG1826937</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:39	<a href="#">WG1826937</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 11:39	<a href="#">WG1826937</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 11:39	<a href="#">WG1826937</a>
(S) p-Terphenyl-d14	87.3		23.0-120		03/04/2022 11:39	<a href="#">WG1826937</a>
(S) Nitrobenzene-d5	73.6		14.0-149		03/04/2022 11:39	<a href="#">WG1826937</a>
(S) 2-Fluorobiphenyl	85.7		34.0-125		03/04/2022 11:39	<a href="#">WG1826937</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3766759-1 03/06/22 06:43

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

Sample Narrative:  
BLANK: at 25C

L1465655-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1465655-05 03/06/22 06:43 • (DUP) R3766759-3 03/06/22 06:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	52000	56200	1	7.76		20

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

L1465680-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465680-01 03/06/22 06:43 • (DUP) R3766759-4 03/06/22 06:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	965	958	1	0.728		20

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

Laboratory Control Sample (LCS)

(LCS) R3766759-2 03/06/22 06:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	271	101	85.0-115	

Sample Narrative:  
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766294-1 03/04/22 03:01

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

Laboratory Control Sample (LCS)

(LCS) R3766294-2 03/04/22 03:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	95.3	95.3	80.0-120	

L1465665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465665-01 03/04/22 03:06 • (MS) R3766294-5 03/04/22 03:14 • (MSD) R3766294-6 03/04/22 03:17

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	163	281	269	119	107	1	75.0-125			4.35	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3766227-1 03/03/22 11:27

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

Laboratory Control Sample (LCS)

(LCS) R3766227-2 03/03/22 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	102	102	80.0-120	

L1465680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465680-01 03/03/22 11:32 • (MS) R3766227-5 03/03/22 11:40 • (MSD) R3766227-6 03/03/22 11:43

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	245	343	326	97.4	81.1	1	75.0-125			4.90	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766596-1 03/04/22 14:13

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

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

(LCS) R3766596-2 03/04/22 14:15 • (LCSD) R3766596-3 03/04/22 14:18

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Hot Water Sol. Boron	1.00	1.06	1.05	106	105	80.0-120			0.506	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3764901-2 02/28/22 20:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3764901-1 02/28/22 19:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.29	78.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			97.1	77.0-120	

L1465654-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465654-01 02/28/22 22:32 • (MS) R3764901-3 03/01/22 04:40 • (MSD) R3764901-4 03/01/22 05:39

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	2.97	3.82	52.7	68.2	1	10.0-151			25.0	28
(S) a,a,a-Trifluorotoluene(FID)					97.2	97.6		77.0-120				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3765131-2 03/01/22 00:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	102			75.0-131
(S) 4-Bromofluorobenzene	92.1			67.0-138
(S) 1,2-Dichloroethane-d4	111			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3765131-1 02/28/22 23:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.109	87.2	70.0-123	
Toluene	0.125	0.105	84.0	75.0-121	
Ethylbenzene	0.125	0.115	92.0	74.0-126	
Xylenes, Total	0.375	0.362	96.5	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.124	99.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.117	93.6	73.0-127	
(S) Toluene-d8			95.2	75.0-131	
(S) 4-Bromofluorobenzene			98.4	67.0-138	
(S) 1,2-Dichloroethane-d4			120	70.0-130	

L1465680-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465680-04 03/01/22 06:30 • (MS) R3765131-3 03/01/22 07:08 • (MSD) R3765131-4 03/01/22 07:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.110	0.115	88.0	92.0	1	10.0-149			4.44	37
Toluene	0.125	ND	0.110	0.118	88.0	94.4	1	10.0-156			7.02	38
Ethylbenzene	0.125	ND	0.122	0.128	97.6	102	1	10.0-160			4.80	38
Xylenes, Total	0.375	ND	0.354	0.381	94.4	102	1	10.0-160			7.35	38
1,2,4-Trimethylbenzene	0.125	ND	0.114	0.124	91.2	99.2	1	10.0-160			8.40	36
1,3,5-Trimethylbenzene	0.125	ND	0.118	0.125	94.4	100	1	10.0-160			5.76	38
(S) Toluene-d8					101	102		75.0-131				
(S) 4-Bromofluorobenzene					91.8	94.4		67.0-138				
(S) 1,2-Dichloroethane-d4					104	100		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3764784-3 02/28/22 18:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	110			75.0-131
(S) 4-Bromofluorobenzene	103			67.0-138
(S) 1,2-Dichloroethane-d4	97.0			70.0-130

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

(LCS) R3764784-1 02/28/22 17:02 • (LCSD) R3764784-2 02/28/22 17:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.117	0.115	93.6	92.0	70.0-123			1.72	20
Toluene	0.125	0.125	0.127	100	102	75.0-121			1.59	20
Ethylbenzene	0.125	0.128	0.132	102	106	74.0-126			3.08	20
Xylenes, Total	0.375	0.406	0.401	108	107	72.0-127			1.24	20
1,2,4-Trimethylbenzene	0.125	0.110	0.107	88.0	85.6	70.0-126			2.76	20
1,3,5-Trimethylbenzene	0.125	0.117	0.112	93.6	89.6	73.0-127			4.37	20
(S) Toluene-d8				107	107	75.0-131				
(S) 4-Bromofluorobenzene				101	102	67.0-138				
(S) 1,2-Dichloroethane-d4				93.2	93.1	70.0-130				

L1465680-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465680-08 03/01/22 01:49 • (MS) R3764784-4 03/01/22 02:08 • (MSD) R3764784-5 03/01/22 02:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.132	0.132	106	106	1	10.0-149			0.000	37
Toluene	0.125	ND	0.141	0.141	113	113	1	10.0-156			0.000	38
Ethylbenzene	0.125	ND	0.143	0.149	114	119	1	10.0-160			4.11	38
Xylenes, Total	0.375	ND	0.450	0.454	120	121	1	10.0-160			0.885	38
1,2,4-Trimethylbenzene	0.125	ND	0.121	0.126	96.8	101	1	10.0-160			4.05	36
1,3,5-Trimethylbenzene	0.125	ND	0.130	0.133	104	106	1	10.0-160			2.28	38
(S) Toluene-d8					108	107		75.0-131				
(S) 4-Bromofluorobenzene					100	101		67.0-138				
(S) 1,2-Dichloroethane-d4					95.6	99.0		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766716-1 03/04/22 11:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	62.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3766716-2 03/04/22 11:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	38.6	77.2	50.0-150	
(S) o-Terphenyl			84.7	18.0-148	

L1465680-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465680-07 03/04/22 15:05 • (MS) R3766716-3 03/04/22 15:21 • (MSD) R3766716-4 03/04/22 15:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.9	ND	37.3	34.9	70.9	66.1	1	50.0-150			6.65	20
(S) o-Terphenyl					78.7	70.0		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767197-1 03/07/22 12:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	51.8			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3767197-2 03/07/22 12:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	28.8	57.6	50.0-150	
(S) o-Terphenyl			61.9	18.0-148	

L1465691-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465691-06 03/07/22 12:53 • (MS) R3767197-3 03/07/22 13:06 • (MSD) R3767197-4 03/07/22 13:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.7	ND	23.5	23.8	44.2	45.4	1	50.0-150	J6	J6	1.27	20
(S) o-Terphenyl					54.2	57.2		18.0-148				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3766406-2 03/04/22 09:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	96.5			23.0-120
(S) Nitrobenzene-d5	74.3			14.0-149
(S) 2-Fluorobiphenyl	83.9			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3766406-1 03/04/22 09:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0613	76.6	49.0-120	
1-Methylnaphthalene	0.0800	0.0614	76.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0639	79.9	50.0-120	
Naphthalene	0.0800	0.0587	73.4	50.0-120	
(S) p-Terphenyl-d14			90.2	23.0-120	
(S) Nitrobenzene-d5			76.3	14.0-149	
(S) 2-Fluorobiphenyl			84.8	34.0-125	

L1465665-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465665-04 03/04/22 14:46 • (MS) R3766406-3 03/04/22 15:04 • (MSD) R3766406-4 03/04/22 15:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	ND	0.0559	0.0495	69.9	61.9	1	11.0-130			12.1	29
1-Methylnaphthalene	0.0800	ND	0.0567	0.0558	70.9	69.8	1	10.0-142			1.60	28
2-Methylnaphthalene	0.0800	ND	0.0588	0.0614	73.5	76.8	1	10.0-137			4.33	28
Naphthalene	0.0800	ND	0.0537	0.0508	67.1	63.5	1	10.0-135			5.55	27
(S) p-Terphenyl-d14					83.8	62.5		23.0-120				
(S) Nitrobenzene-d5					70.5	64.7		14.0-149				
(S) 2-Fluorobiphenyl					79.3	70.5		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766581-2 03/04/22 10:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	90.3			23.0-120
(S) Nitrobenzene-d5	67.3			14.0-149
(S) 2-Fluorobiphenyl	82.1			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3766581-1 03/04/22 10:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0702	87.8	49.0-120	
1-Methylnaphthalene	0.0800	0.0641	80.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0663	82.9	50.0-120	
Naphthalene	0.0800	0.0646	80.7	50.0-120	
(S) p-Terphenyl-d14			95.2	23.0-120	
(S) Nitrobenzene-d5			79.5	14.0-149	
(S) 2-Fluorobiphenyl			87.4	34.0-125	

L1465840-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465840-01 03/04/22 14:00 • (MS) R3766581-3 03/04/22 14:18 • (MSD) R3766581-4 03/04/22 14:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	ND	0.0525	0.0553	65.6	69.1	1	11.0-130			5.19	29
1-Methylnaphthalene	0.0800	ND	0.0516	0.0529	64.5	66.1	1	10.0-142			2.49	28
2-Methylnaphthalene	0.0800	ND	0.0537	0.0567	67.1	70.9	1	10.0-137			5.43	28
Naphthalene	0.0800	ND	0.0523	0.0572	65.4	71.5	1	10.0-135			8.95	27
(S) p-Terphenyl-d14					83.0	81.3		23.0-120				
(S) Nitrobenzene-d5					71.6	70.7		14.0-149				
(S) 2-Fluorobiphenyl					81.9	81.9		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767072-2 03/07/22 09:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	114			23.0-120
(S) Nitrobenzene-d5	96.5			14.0-149
(S) 2-Fluorobiphenyl	97.6			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3767072-1 03/07/22 09:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0715	89.4	49.0-120	
1-Methylnaphthalene	0.0800	0.0713	89.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0683	85.4	50.0-120	
Naphthalene	0.0800	0.0705	88.1	50.0-120	
(S) p-Terphenyl-d14			111	23.0-120	
(S) Nitrobenzene-d5			99.3	14.0-149	
(S) 2-Fluorobiphenyl			97.7	34.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

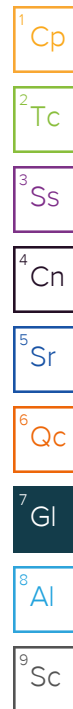
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

### Abbreviations and Definitions

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

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.



# 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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.



Hold:	Condition NCF / O
-------	----------------------



## Caerus Oil and Gas

Sample Delivery Group: L1466765  
Samples Received: 03/02/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
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](http://www.pacenational.com)

# TABLE OF CONTENTS

<b>Cp: Cover Page</b>	<b>1</b>
<b>Tc: Table of Contents</b>	<b>2</b>
<b>Ss: Sample Summary</b>	<b>3</b>
<b>Cn: Case Narrative</b>	<b>5</b>
<b>Sr: Sample Results</b>	<b>6</b>
20220225-SGV FED (SB-N)@25.5-26.25' L1466765-01	6
20220225-SGV FED (SB-S)@10-11.5' L1466765-02	8
20220225-SGV FED (SB-S)@15-17' L1466765-03	10
20220225-SGV FED (SB-S)@25-25.75' L1466765-04	12
20220225-SGV FED (SB-SW)@3.5-5.5' L1466765-05	14
<b>Qc: Quality Control Summary</b>	<b>16</b>
Wet Chemistry by Method 9050AMod	16
Metals (ICP) by Method 6010B	18
Metals (ICP) by Method 6010B-NE493 Ch 2	19
Volatile Organic Compounds (GC) by Method 8015D/GRO	20
Volatile Organic Compounds (GC/MS) by Method 8260B	21
Semi-Volatile Organic Compounds (GC) by Method 8015M	22
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	23
<b>Gl: Glossary of Terms</b>	<b>24</b>
<b>Al: Accreditations &amp; Locations</b>	<b>25</b>
<b>Sc: Sample Chain of Custody</b>	<b>26</b>

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



# SAMPLE SUMMARY

## 20220225-SGV FED (SB-N)@25.5-26.25' L1466765-01 Solid

Collected by Kevin Fletcher  
Collected date/time 02/25/22 11:05  
Received date/time 03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1826651	1	03/08/22 16:09	03/08/22 16:09	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 09:45	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:08	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 10:00	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 20:07	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 19:40	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826891	1	03/04/22 10:44	03/04/22 18:42	LEA	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

## 20220225-SGV FED (SB-S)@10-11.5' L1466765-02 Solid

Collected by Kevin Fletcher  
Collected date/time 02/25/22 12:05  
Received date/time 03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1826651	1	03/08/22 16:12	03/08/22 16:12	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1825853	1	03/06/22 03:39	03/06/22 06:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 09:53	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:11	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 10:22	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 20:29	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 19:54	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826891	1	03/04/22 10:44	03/04/22 18:59	LEA	Mt. Juliet, TN

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## 20220225-SGV FED (SB-S)@15-17' L1466765-03 Solid

Collected by Kevin Fletcher  
Collected date/time 02/25/22 12:35  
Received date/time 03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1826651	1	03/08/22 16:15	03/08/22 16:15	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 09:56	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:14	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 10:43	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 20:50	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 20:08	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826891	1	03/04/22 10:44	03/04/22 19:16	LEA	Mt. Juliet, TN

## 20220225-SGV FED (SB-S)@25-25.75' L1466765-04 Solid

Collected by Kevin Fletcher  
Collected date/time 02/25/22 13:25  
Received date/time 03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1826651	1	03/08/22 16:18	03/08/22 16:18	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 09:59	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:17	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 11:05	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 21:11	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 20:21	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826891	1	03/04/22 10:44	03/04/22 19:34	LEA	Mt. Juliet, TN

# SAMPLE SUMMARY

20220225-SGV FED (SB-SW)@3.5-5.5' L1466765-05 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/25/22 14:50

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1826651	1	03/08/22 16:21	03/08/22 16:21	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:01	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:20	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 11:27	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 21:32	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826915	1	03/04/22 05:06	03/04/22 20:35	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826891	1	03/04/22 10:44	03/04/22 19:51	LEA	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

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



Chris Ward  
Project Manager

## Report Revision History

---

Level II Report - Version 1: 03/09/22 12:34

## Project Narrative

---

Rerun to correct collection date



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.41		1	03/08/2022 16:09	WG1826651

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	250		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466765-01 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	207		0.500	1	03/04/2022 09:45	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:08	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.241		0.100	1	03/03/2022 10:00	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/03/2022 10:00	<a href="#">WG1826525</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 20:07	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 20:07	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 20:07	<a href="#">WG1826344</a>
Xylenes, Total	ND		0.00650	1	03/02/2022 20:07	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:07	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:07	<a href="#">WG1826344</a>
(S) Toluene-d8	95.5		75.0-131		03/02/2022 20:07	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	97.4		67.0-138		03/02/2022 20:07	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	107		70.0-130		03/02/2022 20:07	<a href="#">WG1826344</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	7.81		4.00	1	03/04/2022 19:40	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	6.13		4.00	1	03/04/2022 19:40	<a href="#">WG1826915</a>
(S) o-Terphenyl	66.5		18.0-148		03/04/2022 19:40	<a href="#">WG1826915</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 18:42	<a href="#">WG1826891</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 18:42	<a href="#">WG1826891</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 18:42	<a href="#">WG1826891</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 18:42	<a href="#">WG1826891</a>
(S) p-Terphenyl-d14	79.5		23.0-120		03/04/2022 18:42	<a href="#">WG1826891</a>
(S) Nitrobenzene-d5	77.4		14.0-149		03/04/2022 18:42	<a href="#">WG1826891</a>
(S) 2-Fluorobiphenyl	74.0		34.0-125		03/04/2022 18:42	<a href="#">WG1826891</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.125		1	03/08/2022 16:12	WG1826651

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	915		10.0	1	03/06/2022 06:43	<a href="#">WG1825853</a>

## Sample Narrative:

L1466765-02 WG1825853: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	109		0.500	1	03/04/2022 09:53	<a href="#">WG1826519</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.270		0.200	1	03/08/2022 17:11	<a href="#">WG1826654</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/03/2022 10:22	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	110		77.0-120		03/03/2022 10:22	<a href="#">WG1826525</a>

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

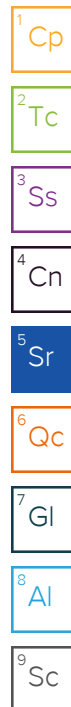
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 20:29	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 20:29	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 20:29	<a href="#">WG1826344</a>
Xylenes, Total	ND		0.00650	1	03/02/2022 20:29	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:29	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:29	<a href="#">WG1826344</a>
(S) Toluene-d8	95.2		75.0-131		03/02/2022 20:29	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	99.1		67.0-138		03/02/2022 20:29	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	108		70.0-130		03/02/2022 20:29	<a href="#">WG1826344</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 19:54	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 19:54	<a href="#">WG1826915</a>
(S) o-Terphenyl	64.4		18.0-148		03/04/2022 19:54	<a href="#">WG1826915</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 18:59	<a href="#">WG1826891</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 18:59	<a href="#">WG1826891</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 18:59	<a href="#">WG1826891</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 18:59	<a href="#">WG1826891</a>
(S) p-Terphenyl-d14	83.7		23.0-120		03/04/2022 18:59	<a href="#">WG1826891</a>
(S) Nitrobenzene-d5	82.3		14.0-149		03/04/2022 18:59	<a href="#">WG1826891</a>
(S) 2-Fluorobiphenyl	80.1		34.0-125		03/04/2022 18:59	<a href="#">WG1826891</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	03/08/2022 16:15	WG1826651

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	896		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466765-03 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	mg/kg		mg/kg			
Barium	188		0.500	1	03/04/2022 09:56	<a href="#">WG1826519</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:14	<a href="#">WG1826654</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	03/03/2022 10:43	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	110		77.0-120		03/03/2022 10:43	<a href="#">WG1826525</a>

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

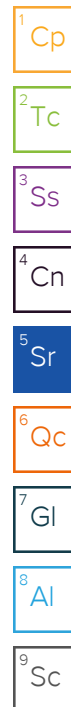
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	mg/kg		mg/kg			
Benzene	ND		0.00100	1	03/02/2022 20:50	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 20:50	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 20:50	<a href="#">WG1826344</a>
Xylenes, Total	ND		0.00650	1	03/02/2022 20:50	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:50	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 20:50	<a href="#">WG1826344</a>
(S) Toluene-d8	97.7		75.0-131		03/02/2022 20:50	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	99.7		67.0-138		03/02/2022 20:50	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	114		70.0-130		03/02/2022 20:50	<a href="#">WG1826344</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 20:08	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 20:08	<a href="#">WG1826915</a>
(S) o-Terphenyl	62.5		18.0-148		03/04/2022 20:08	<a href="#">WG1826915</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluorene	mg/kg		mg/kg			
Fluorene	ND		0.00600	1	03/04/2022 19:16	<a href="#">WG1826891</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 19:16	<a href="#">WG1826891</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 19:16	<a href="#">WG1826891</a>





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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 19:16	<a href="#">WG1826891</a>
(S) p-Terphenyl-d14	78.2		23.0-120		03/04/2022 19:16	<a href="#">WG1826891</a>
(S) Nitrobenzene-d5	71.9		14.0-149		03/04/2022 19:16	<a href="#">WG1826891</a>
(S) 2-Fluorobiphenyl	70.6		34.0-125		03/04/2022 19:16	<a href="#">WG1826891</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.76		1	03/08/2022 16:18	WG1826651

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2110		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466765-04 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	230		0.500	1	03/04/2022 09:59	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:17	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.150		0.100	1	03/03/2022 11:05	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/03/2022 11:05	<a href="#">WG1826525</a>

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

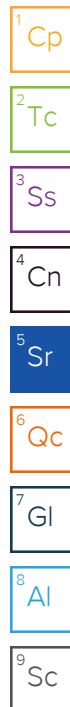
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 21:11	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 21:11	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 21:11	<a href="#">WG1826344</a>
Xylenes, Total	ND		0.00650	1	03/02/2022 21:11	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/02/2022 21:11	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 21:11	<a href="#">WG1826344</a>
(S) Toluene-d8	98.3		75.0-131		03/02/2022 21:11	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	98.8		67.0-138		03/02/2022 21:11	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	110		70.0-130		03/02/2022 21:11	<a href="#">WG1826344</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.18		4.00	1	03/04/2022 20:21	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	8.20		4.00	1	03/04/2022 20:21	<a href="#">WG1826915</a>
(S) o-Terphenyl	74.5		18.0-148		03/04/2022 20:21	<a href="#">WG1826915</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 19:34	<a href="#">WG1826891</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 19:34	<a href="#">WG1826891</a>
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 19:34	<a href="#">WG1826891</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 19:34	<a href="#">WG1826891</a>
(S) p-Terphenyl-d14	79.9		23.0-120		03/04/2022 19:34	<a href="#">WG1826891</a>
(S) Nitrobenzene-d5	77.6		14.0-149		03/04/2022 19:34	<a href="#">WG1826891</a>
(S) 2-Fluorobiphenyl	76.1		34.0-125		03/04/2022 19:34	<a href="#">WG1826891</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.26		1	03/08/2022 16:21	WG1826651

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	368		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466765-05 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	224		0.500	1	03/04/2022 10:01	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.45		0.200	1	03/08/2022 17:20	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.162		0.100	1	03/03/2022 11:27	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		03/03/2022 11:27	<a href="#">WG1826525</a>

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

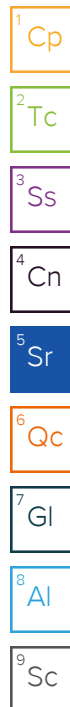
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 21:32	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 21:32	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 21:32	<a href="#">WG1826344</a>
Xylenes, Total	0.00982		0.00650	1	03/02/2022 21:32	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	0.0172		0.00500	1	03/02/2022 21:32	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	0.0112		0.00500	1	03/02/2022 21:32	<a href="#">WG1826344</a>
(S) Toluene-d8	100		75.0-131		03/02/2022 21:32	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	97.8		67.0-138		03/02/2022 21:32	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		03/02/2022 21:32	<a href="#">WG1826344</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/04/2022 20:35	<a href="#">WG1826915</a>
C28-C36 Motor Oil Range	4.08	<a href="#">B</a>	4.00	1	03/04/2022 20:35	<a href="#">WG1826915</a>
(S) o-Terphenyl	66.5		18.0-148		03/04/2022 20:35	<a href="#">WG1826915</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/04/2022 19:51	<a href="#">WG1826891</a>
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 19:51	<a href="#">WG1826891</a>
2-Methylnaphthalene	0.0206		0.0200	1	03/04/2022 19:51	<a href="#">WG1826891</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/04/2022 19:51	<a href="#">WG1826891</a>
(S) p-Terphenyl-d14	88.1		23.0-120		03/04/2022 19:51	<a href="#">WG1826891</a>
(S) Nitrobenzene-d5	78.4		14.0-149		03/04/2022 19:51	<a href="#">WG1826891</a>
(S) 2-Fluorobiphenyl	77.3		34.0-125		03/04/2022 19:51	<a href="#">WG1826891</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766759-1 03/06/22 06:43

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

Sample Narrative:

BLANK: at 25C

L1465655-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1465655-05 03/06/22 06:43 • (DUP) R3766759-3 03/06/22 06:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	52000	56200	1	7.76		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1465680-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465680-01 03/06/22 06:43 • (DUP) R3766759-4 03/06/22 06:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	965	958	1	0.728		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3766759-2 03/06/22 06:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	271	101	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767363-1 03/08/22 09:20

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

Sample Narrative:  
BLANK: at 25C

L1466765-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1466765-01 03/08/22 09:20 • (DUP) R3767363-3 03/08/22 09:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	250	243	1	2.72		20

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

L1468238-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1468238-01 03/08/22 09:20 • (DUP) R3767363-4 03/08/22 09:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	424	438	1	3.25		20

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

Laboratory Control Sample (LCS)

(LCS) R3767363-2 03/08/22 09:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	273	102	85.0-115	

Sample Narrative:  
LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766593-1 03/04/22 09:22

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

Laboratory Control Sample (LCS)

(LCS) R3766593-2 03/04/22 09:25

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Barium	100	96.9	96.9	80.0-120	

L1466807-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466807-01 03/04/22 09:27 • (MS) R3766593-5 03/04/22 09:35 • (MSD) R3766593-6 03/04/22 09:37

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Barium	100	104	183	206	78.4	102	1	75.0-125			12.1	20

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3767692-1 03/08/22 17:00

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

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

(LCS) R3767692-2 03/08/22 17:03 • (LCSD) R3767692-3 03/08/22 17:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.05	1.06	105	106	80.0-120			0.501	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3766031-2 03/03/22 08:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3766031-1 03/03/22 07:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.48	81.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.1	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3765888-3 03/02/22 15:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	89.6			75.0-131
(S) 4-Bromofluorobenzene	98.6			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3765888-1 03/02/22 13:59 • (LCSD) R3765888-2 03/02/22 14:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.115	0.115	92.0	92.0	70.0-123			0.000	20
Toluene	0.125	0.110	0.107	88.0	85.6	75.0-121			2.76	20
Ethylbenzene	0.125	0.112	0.109	89.6	87.2	74.0-126			2.71	20
Xylenes, Total	0.375	0.361	0.348	96.3	92.8	72.0-127			3.67	20
1,2,4-Trimethylbenzene	0.125	0.122	0.123	97.6	98.4	70.0-126			0.816	20
1,3,5-Trimethylbenzene	0.125	0.121	0.122	96.8	97.6	73.0-127			0.823	20
(S) Toluene-d8				94.2	93.6	75.0-131				
(S) 4-Bromofluorobenzene				101	98.2	67.0-138				
(S) 1,2-Dichloroethane-d4				114	109	70.0-130				

L1466405-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466405-02 03/02/22 19:46 • (MS) R3765888-4 03/02/22 23:41 • (MSD) R3765888-5 03/03/22 00:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.144	ND	0.124	0.0367	99.2	29.4	1	10.0-149		J3	109	37
Toluene	0.144	ND	0.118	0.0395	94.4	31.6	1	10.0-156		J3	99.7	38
Ethylbenzene	0.144	ND	0.120	0.0331	96.0	26.5	1	10.0-160		J3	114	38
Xylenes, Total	0.432	ND	0.391	0.121	104	32.3	1	10.0-160		J3	105	38
1,2,4-Trimethylbenzene	0.144	ND	0.166	0.0539	133	43.1	1	10.0-160		J3	102	36
1,3,5-Trimethylbenzene	0.144	ND	0.131	0.0409	105	32.7	1	10.0-160		J3	105	38
(S) Toluene-d8					98.8	101		75.0-131				
(S) 4-Bromofluorobenzene					105	105		67.0-138				
(S) 1,2-Dichloroethane-d4					102	105		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3766723-1 03/04/22 15:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.604	⬇	0.274	4.00
(S) o-Terphenyl	71.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3766723-2 03/04/22 15:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.7	79.4	50.0-150	
(S) o-Terphenyl			97.0	18.0-148	

L1465255-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465255-05 03/05/22 10:31 • (MS) R3766725-1 03/05/22 10:44 • (MSD) R3766725-2 03/05/22 10:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.7	1040	692	852	0.000	0.000	5	50.0-150	⬇	J3 ⬇	20.7	20
(S) o-Terphenyl					76.1	78.9		18.0-148				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3766618-2 03/04/22 17:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	90.6			23.0-120
(S) Nitrobenzene-d5	80.5			14.0-149
(S) 2-Fluorobiphenyl	79.1			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3766618-1 03/04/22 17:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0562	70.3	49.0-120	
1-Methylnaphthalene	0.0800	0.0570	71.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0587	73.4	50.0-120	
Naphthalene	0.0800	0.0582	72.8	50.0-120	
(S) p-Terphenyl-d14			86.6	23.0-120	
(S) Nitrobenzene-d5			80.7	14.0-149	
(S) 2-Fluorobiphenyl			78.9	34.0-125	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

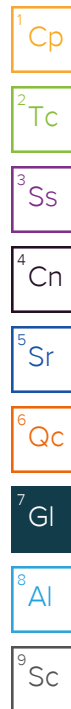
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

### Abbreviations and Definitions

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

### Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

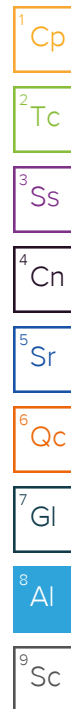
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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 and Gas

Sample Delivery Group: L1466777  
Samples Received: 03/02/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
Report To: Jake Janicek  
143 Diamond Avenue  
Parachute, CO 81635

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

Entire Report Reviewed By:



Chris Ward  
Project Manager

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

## Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
20220228-SGV FED(SB-SW)@13.5-14.5' L1466777-01	6
20220228-SGV FED(SB-SW)@23.5-25' L1466777-02	8
20220228-SGV FED(SB-NW)@3.5-5.5' L1466777-03	10
20220228-SGV FED(SB-NW)@13.5-14.5' L1466777-04	12
20220228-SGV FED(SB-NW)@23.5-25' L1466777-05	14
Qc: Quality Control Summary	16
Wet Chemistry by Method 9050AMod	16
Metals (ICP) by Method 6010B	17
Metals (ICP) by Method 6010B-NE493 Ch 2	18
Volatile Organic Compounds (GC) by Method 8015D/GRO	19
Volatile Organic Compounds (GC/MS) by Method 8260B	20
Semi-Volatile Organic Compounds (GC) by Method 8015M	22
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	23
Gl: Glossary of Terms	25
Al: Accreditations & Locations	26
Sc: Sample Chain of Custody	27



# SAMPLE SUMMARY

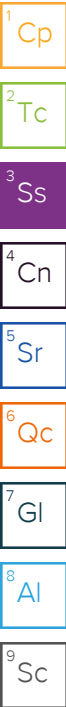
## 20220228-SGV FED(SB-SW)@13.5-14.5' L1466777-01 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/28/22 08:30

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1831083	1	03/13/22 12:05	03/13/22 12:05	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:04	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:22	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 11:48	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 21:53	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1829131	1	03/09/22 07:58	03/09/22 11:24	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 11:37	AMG	Mt. Juliet, TN



## 20220228-SGV FED(SB-SW)@23.5-25' L1466777-02 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/28/22 10:00

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1831083	1	03/13/22 12:08	03/13/22 12:08	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:07	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:25	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 12:10	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 22:15	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1829131	1	03/09/22 07:58	03/09/22 12:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 11:55	AMG	Mt. Juliet, TN

## 20220228-SGV FED(SB-NW)@3.5-5.5' L1466777-03 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/28/22 10:55

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1831083	1	03/13/22 12:11	03/13/22 12:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:10	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:34	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 12:31	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 22:36	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1829131	1	03/09/22 07:58	03/09/22 12:32	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1828170	1	03/07/22 04:09	03/07/22 12:12	AMG	Mt. Juliet, TN

## 20220228-SGV FED(SB-NW)@13.5-14.5' L1466777-04 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/28/22 11:50

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1831083	1	03/13/22 12:14	03/13/22 12:14	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:12	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:36	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 12:53	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826344	1	03/02/22 16:35	03/02/22 22:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1829131	1	03/09/22 07:58	03/09/22 11:44	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1829102	1	03/09/22 08:54	03/09/22 13:50	AMG	Mt. Juliet, TN

# SAMPLE SUMMARY

20220228-SGV FED(SB-NW)@23.5-25' L1466777-05 Solid

Collected by  
Kevin Fletcher

Collected date/time  
02/28/22 13:05

Received date/time  
03/02/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1831083	1	03/13/22 12:17	03/13/22 12:17	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1828048	1	03/08/22 07:23	03/08/22 09:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1826519	1	03/03/22 10:32	03/04/22 10:15	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1826654	1	03/07/22 14:31	03/08/22 17:39	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1826525	1	03/02/22 16:35	03/03/22 13:15	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1826506	1	03/02/22 16:35	03/03/22 00:58	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1829131	1	03/09/22 07:58	03/09/22 12:14	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1829102	1	03/09/22 08:54	03/09/22 14:10	AMG	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

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



Chris Ward  
Project Manager

## Report Revision History

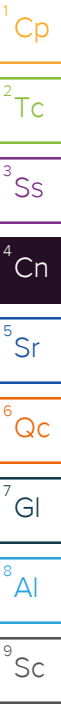
---

Level II Report - Version 1: 03/09/22 17:12

## Project Narrative

---

Updated for missing SAR



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.97		1	03/13/2022 12:05	WG1831083

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	482		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466777-01 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	282		0.500	1	03/04/2022 10:04	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:22	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/03/2022 11:48	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	111		77.0-120		03/03/2022 11:48	<a href="#">WG1826525</a>

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

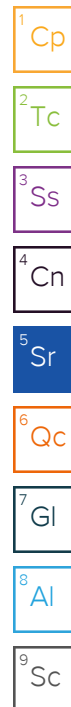
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 21:53	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 21:53	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 21:53	<a href="#">WG1826344</a>
Xylenes, Total	ND		0.00650	1	03/02/2022 21:53	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	0.00614		0.00500	1	03/02/2022 21:53	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 21:53	<a href="#">WG1826344</a>
(S) Toluene-d8	96.1		75.0-131		03/02/2022 21:53	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	99.7		67.0-138		03/02/2022 21:53	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		03/02/2022 21:53	<a href="#">WG1826344</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	26.3		4.00	1	03/09/2022 11:24	<a href="#">WG1829131</a>
C28-C36 Motor Oil Range	25.0		4.00	1	03/09/2022 11:24	<a href="#">WG1829131</a>
(S) o-Terphenyl	64.6		18.0-148		03/09/2022 11:24	<a href="#">WG1829131</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/07/2022 11:37	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 11:37	<a href="#">WG1828170</a>
2-Methylnaphthalene	ND		0.0200	1	03/07/2022 11:37	<a href="#">WG1828170</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 11:37	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	100		23.0-120		03/07/2022 11:37	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	87.8		14.0-149		03/07/2022 11:37	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	88.6		34.0-125		03/07/2022 11:37	<a href="#">WG1828170</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.759		1	03/13/2022 12:08	WG1831083

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	150		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466777-02 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	mg/kg		mg/kg			
Barium	306		0.500	1	03/04/2022 10:07	<a href="#">WG1826519</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:25	<a href="#">WG1826654</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.448		0.100	1	03/03/2022 12:10	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/03/2022 12:10	<a href="#">WG1826525</a>

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

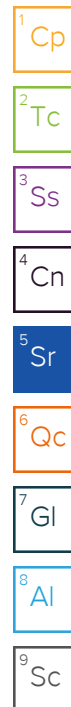
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	mg/kg		mg/kg			
Benzene	ND		0.00100	1	03/02/2022 22:15	<a href="#">WG1826344</a>
Toluene	0.0194		0.00500	1	03/02/2022 22:15	<a href="#">WG1826344</a>
Ethylbenzene	0.00683		0.00250	1	03/02/2022 22:15	<a href="#">WG1826344</a>
Xylenes, Total	0.121		0.00650	1	03/02/2022 22:15	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	0.0411		0.00500	1	03/02/2022 22:15	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	0.0285		0.00500	1	03/02/2022 22:15	<a href="#">WG1826344</a>
(S) Toluene-d8	96.7		75.0-131		03/02/2022 22:15	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	96.1		67.0-138		03/02/2022 22:15	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/02/2022 22:15	<a href="#">WG1826344</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	mg/kg		mg/kg			
C10-C28 Diesel Range	8.20		4.00	1	03/09/2022 12:18	<a href="#">WG1829131</a>
C28-C36 Motor Oil Range	25.4		4.00	1	03/09/2022 12:18	<a href="#">WG1829131</a>
(S) o-Terphenyl	79.8		18.0-148		03/09/2022 12:18	<a href="#">WG1829131</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluorene	mg/kg		mg/kg			
Fluorene	ND		0.00600	1	03/07/2022 11:55	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 11:55	<a href="#">WG1828170</a>
2-Methylnaphthalene	ND		0.0200	1	03/07/2022 11:55	<a href="#">WG1828170</a>





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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 11:55	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	94.3		23.0-120		03/07/2022 11:55	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	81.7		14.0-149		03/07/2022 11:55	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	83.6		34.0-125		03/07/2022 11:55	<a href="#">WG1828170</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.518		1	03/13/2022 12:11	WG1831083

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	627		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466777-03 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	mg/kg		mg/kg			
Barium	230		0.500	1	03/04/2022 10:10	<a href="#">WG1826519</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l			
Hot Water Sol. Boron	1.09		0.200	1	03/08/2022 17:34	<a href="#">WG1826654</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.344		0.100	1	03/03/2022 12:31	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	107		77.0-120		03/03/2022 12:31	<a href="#">WG1826525</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	mg/kg		mg/kg			
Benzene	ND		0.00100	1	03/02/2022 22:36	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 22:36	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 22:36	<a href="#">WG1826344</a>
Xylenes, Total	0.0350		0.00650	1	03/02/2022 22:36	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	0.0432		0.00500	1	03/02/2022 22:36	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	0.126		0.00500	1	03/02/2022 22:36	<a href="#">WG1826344</a>
(S) Toluene-d8	96.8		75.0-131		03/02/2022 22:36	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	97.4		67.0-138		03/02/2022 22:36	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	105		70.0-130		03/02/2022 22:36	<a href="#">WG1826344</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	mg/kg		mg/kg			
C10-C28 Diesel Range	22.0		4.00	1	03/09/2022 12:32	<a href="#">WG1829131</a>
C28-C36 Motor Oil Range	23.2		4.00	1	03/09/2022 12:32	<a href="#">WG1829131</a>
(S) o-Terphenyl	76.6		18.0-148		03/09/2022 12:32	<a href="#">WG1829131</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Fluorene	mg/kg		mg/kg			
Fluorene	ND		0.00600	1	03/07/2022 12:12	<a href="#">WG1828170</a>
1-Methylnaphthalene	ND		0.0200	1	03/07/2022 12:12	<a href="#">WG1828170</a>
2-Methylnaphthalene	ND		0.0200	1	03/07/2022 12:12	<a href="#">WG1828170</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/07/2022 12:12	<a href="#">WG1828170</a>
(S) p-Terphenyl-d14	87.9		23.0-120		03/07/2022 12:12	<a href="#">WG1828170</a>
(S) Nitrobenzene-d5	80.6		14.0-149		03/07/2022 12:12	<a href="#">WG1828170</a>
(S) 2-Fluorobiphenyl	78.1		34.0-125		03/07/2022 12:12	<a href="#">WG1828170</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.923		1	03/13/2022 12:14	WG1831083

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	217		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466777-04 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	251		0.500	1	03/04/2022 10:12	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/08/2022 17:36	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.195		0.100	1	03/03/2022 12:53	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		03/03/2022 12:53	<a href="#">WG1826525</a>

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

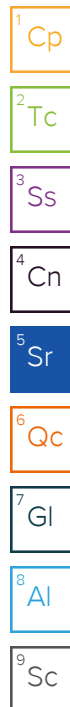
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/02/2022 22:58	<a href="#">WG1826344</a>
Toluene	ND		0.00500	1	03/02/2022 22:58	<a href="#">WG1826344</a>
Ethylbenzene	ND		0.00250	1	03/02/2022 22:58	<a href="#">WG1826344</a>
Xylenes, Total	0.00785		0.00650	1	03/02/2022 22:58	<a href="#">WG1826344</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	03/02/2022 22:58	<a href="#">WG1826344</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	03/02/2022 22:58	<a href="#">WG1826344</a>
(S) Toluene-d8	96.8		75.0-131		03/02/2022 22:58	<a href="#">WG1826344</a>
(S) 4-Bromofluorobenzene	99.9		67.0-138		03/02/2022 22:58	<a href="#">WG1826344</a>
(S) 1,2-Dichloroethane-d4	110		70.0-130		03/02/2022 22:58	<a href="#">WG1826344</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/09/2022 11:44	<a href="#">WG1829131</a>
C28-C36 Motor Oil Range	4.35		4.00	1	03/09/2022 11:44	<a href="#">WG1829131</a>
(S) o-Terphenyl	71.9		18.0-148		03/09/2022 11:44	<a href="#">WG1829131</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/09/2022 13:50	<a href="#">WG1829102</a>
1-Methylnaphthalene	ND		0.0200	1	03/09/2022 13:50	<a href="#">WG1829102</a>
2-Methylnaphthalene	ND		0.0200	1	03/09/2022 13:50	<a href="#">WG1829102</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/09/2022 13:50	<a href="#">WG1829102</a>
(S) p-Terphenyl-d14	105		23.0-120		03/09/2022 13:50	<a href="#">WG1829102</a>
(S) Nitrobenzene-d5	91.8		14.0-149		03/09/2022 13:50	<a href="#">WG1829102</a>
(S) 2-Fluorobiphenyl	91.6		34.0-125		03/09/2022 13:50	<a href="#">WG1829102</a>

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.260		1	03/13/2022 12:17	WG1831083

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	222		10.0	1	03/08/2022 09:20	<a href="#">WG1828048</a>

## Sample Narrative:

L1466777-05 WG1828048: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	248		0.500	1	03/04/2022 10:15	<a href="#">WG1826519</a>

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.205		0.200	1	03/08/2022 17:39	<a href="#">WG1826654</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.387		0.100	1	03/03/2022 13:15	<a href="#">WG1826525</a>
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		03/03/2022 13:15	<a href="#">WG1826525</a>

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

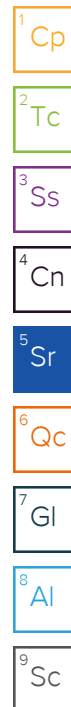
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00131		0.00100	1	03/03/2022 00:58	<a href="#">WG1826506</a>
Toluene	0.0116		0.00500	1	03/03/2022 00:58	<a href="#">WG1826506</a>
Ethylbenzene	ND		0.00250	1	03/03/2022 00:58	<a href="#">WG1826506</a>
Xylenes, Total	0.0308		0.00650	1	03/03/2022 00:58	<a href="#">WG1826506</a>
1,2,4-Trimethylbenzene	0.00911		0.00500	1	03/03/2022 00:58	<a href="#">WG1826506</a>
1,3,5-Trimethylbenzene	0.00641		0.00500	1	03/03/2022 00:58	<a href="#">WG1826506</a>
(S) Toluene-d8	104		75.0-131		03/03/2022 00:58	<a href="#">WG1826506</a>
(S) 4-Bromofluorobenzene	87.7		67.0-138		03/03/2022 00:58	<a href="#">WG1826506</a>
(S) 1,2-Dichloroethane-d4	95.8		70.0-130		03/03/2022 00:58	<a href="#">WG1826506</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.06		4.00	1	03/09/2022 12:14	<a href="#">WG1829131</a>
C28-C36 Motor Oil Range	6.25		4.00	1	03/09/2022 12:14	<a href="#">WG1829131</a>
(S) o-Terphenyl	68.5		18.0-148		03/09/2022 12:14	<a href="#">WG1829131</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Fluorene	ND		0.00600	1	03/09/2022 14:10	<a href="#">WG1829102</a>
1-Methylnaphthalene	ND		0.0200	1	03/09/2022 14:10	<a href="#">WG1829102</a>
2-Methylnaphthalene	ND		0.0200	1	03/09/2022 14:10	<a href="#">WG1829102</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Naphthalene	ND		0.0200	1	03/09/2022 14:10	<a href="#">WG1829102</a>
(S) p-Terphenyl-d14	108		23.0-120		03/09/2022 14:10	<a href="#">WG1829102</a>
(S) Nitrobenzene-d5	89.1		14.0-149		03/09/2022 14:10	<a href="#">WG1829102</a>
(S) 2-Fluorobiphenyl	90.3		34.0-125		03/09/2022 14:10	<a href="#">WG1829102</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767363-1 03/08/22 09:20

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

Sample Narrative:

BLANK: at 25C

L1466765-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1466765-01 03/08/22 09:20 • (DUP) R3767363-3 03/08/22 09:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	250	243	1	2.72		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1468238-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1468238-01 03/08/22 09:20 • (DUP) R3767363-4 03/08/22 09:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	424	438	1	3.25		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3767363-2 03/08/22 09:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	273	102	85.0-115	

Sample Narrative:

LCS: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3766593-1 03/04/22 09:22

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R3766593-2 03/04/22 09:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	96.9	96.9	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1466807-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466807-01 03/04/22 09:27 • (MS) R3766593-5 03/04/22 09:35 • (MSD) R3766593-6 03/04/22 09:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	104	183	206	78.4	102	1	75.0-125			12.1	20

Method Blank (MB)

(MB) R3767692-1 03/08/22 17:00

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

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

(LCS) R3767692-2 03/08/22 17:03 • (LCSD) R3767692-3 03/08/22 17:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.05	1.06	105	106	80.0-120			0.501	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3766031-2 03/03/22 08:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3766031-1 03/03/22 07:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.48	81.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.1	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3765888-3 03/02/22 15:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	89.6			75.0-131
(S) 4-Bromofluorobenzene	98.6			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3765888-1 03/02/22 13:59 • (LCSD) R3765888-2 03/02/22 14:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.115	0.115	92.0	92.0	70.0-123			0.000	20
Toluene	0.125	0.110	0.107	88.0	85.6	75.0-121			2.76	20
Ethylbenzene	0.125	0.112	0.109	89.6	87.2	74.0-126			2.71	20
Xylenes, Total	0.375	0.361	0.348	96.3	92.8	72.0-127			3.67	20
1,2,4-Trimethylbenzene	0.125	0.122	0.123	97.6	98.4	70.0-126			0.816	20
1,3,5-Trimethylbenzene	0.125	0.121	0.122	96.8	97.6	73.0-127			0.823	20
(S) Toluene-d8				94.2	93.6	75.0-131				
(S) 4-Bromofluorobenzene				101	98.2	67.0-138				
(S) 1,2-Dichloroethane-d4				114	109	70.0-130				

L1466405-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466405-02 03/02/22 19:46 • (MS) R3765888-4 03/02/22 23:41 • (MSD) R3765888-5 03/03/22 00:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.144	ND	0.124	0.0367	99.2	29.4	1	10.0-149		J3	109	37
Toluene	0.144	ND	0.118	0.0395	94.4	31.6	1	10.0-156		J3	99.7	38
Ethylbenzene	0.144	ND	0.120	0.0331	96.0	26.5	1	10.0-160		J3	114	38
Xylenes, Total	0.432	ND	0.391	0.121	104	32.3	1	10.0-160		J3	105	38
1,2,4-Trimethylbenzene	0.144	ND	0.166	0.0539	133	43.1	1	10.0-160		J3	102	36
1,3,5-Trimethylbenzene	0.144	ND	0.131	0.0409	105	32.7	1	10.0-160		J3	105	38
(S) Toluene-d8					98.8	101		75.0-131				
(S) 4-Bromofluorobenzene					105	105		67.0-138				
(S) 1,2-Dichloroethane-d4					102	105		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3765760-3 03/03/22 00:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	106			75.0-131
(S) 4-Bromofluorobenzene	88.8			67.0-138
(S) 1,2-Dichloroethane-d4	96.6			70.0-130

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

(LCS) R3765760-1 03/02/22 22:42 • (LCSD) R3765760-2 03/02/22 23:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.120	0.122	96.0	97.6	70.0-123			1.65	20
Toluene	0.125	0.117	0.117	93.6	93.6	75.0-121			0.000	20
Ethylbenzene	0.125	0.109	0.109	87.2	87.2	74.0-126			0.000	20
Xylenes, Total	0.375	0.333	0.334	88.8	89.1	72.0-127			0.300	20
1,2,4-Trimethylbenzene	0.125	0.109	0.109	87.2	87.2	70.0-126			0.000	20
1,3,5-Trimethylbenzene	0.125	0.113	0.115	90.4	92.0	73.0-127			1.75	20
(S) Toluene-d8				99.1	99.8	75.0-131				
(S) 4-Bromofluorobenzene				88.9	90.8	67.0-138				
(S) 1,2-Dichloroethane-d4				104	106	70.0-130				

L1466553-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466553-01 03/03/22 05:31 • (MS) R3765760-4 03/03/22 08:47 • (MSD) R3765760-5 03/03/22 09:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.144	ND	0.134	0.142	97.8	104	1.09	10.0-149			5.80	37
Toluene	0.144	ND	0.145	0.151	106	110	1.09	10.0-156			4.05	38
Ethylbenzene	0.144	ND	0.127	0.136	92.7	99.3	1.09	10.0-160			6.84	38
Xylenes, Total	0.430	ND	0.402	0.420	98.3	103	1.09	10.0-160			4.38	38
1,2,4-Trimethylbenzene	0.144	ND	0.129	0.139	94.2	101	1.09	10.0-160			7.46	36
1,3,5-Trimethylbenzene	0.144	ND	0.138	0.144	101	105	1.09	10.0-160			4.26	38
(S) Toluene-d8					103	103		75.0-131				
(S) 4-Bromofluorobenzene					86.6	88.4		67.0-138				
(S) 1,2-Dichloroethane-d4					90.3	90.6		70.0-130				

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3767972-1 03/09/22 11:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	59.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3767972-2 03/09/22 11:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.6	69.2	50.0-150	
(S) o-Terphenyl			73.3	18.0-148	

L1467125-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1467125-06 03/09/22 12:12 • (MS) R3767972-3 03/09/22 12:25 • (MSD) R3767972-4 03/09/22 12:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.2	ND	22.8	24.1	46.3	48.8	1	50.0-150	J6	J6	5.54	20
(S) o-Terphenyl					46.3	51.4		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3767072-2 03/07/22 09:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	114			23.0-120
(S) Nitrobenzene-d5	96.5			14.0-149
(S) 2-Fluorobiphenyl	97.6			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3767072-1 03/07/22 09:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0715	89.4	49.0-120	
1-Methylnaphthalene	0.0800	0.0713	89.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0683	85.4	50.0-120	
Naphthalene	0.0800	0.0705	88.1	50.0-120	
(S) p-Terphenyl-d14			111	23.0-120	
(S) Nitrobenzene-d5			99.3	14.0-149	
(S) 2-Fluorobiphenyl			97.7	34.0-125	

L1468211-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1468211-02 03/07/22 12:47 • (MS) R3767072-3 03/07/22 13:04 • (MSD) R3767072-4 03/07/22 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	ND	0.0740	0.0713	92.5	89.1	1	11.0-130			3.72	29
1-Methylnaphthalene	0.0800	ND	0.0733	0.0702	91.6	87.8	1	10.0-142			4.32	28
2-Methylnaphthalene	0.0800	ND	0.0710	0.0678	88.8	84.8	1	10.0-137			4.61	28
Naphthalene	0.0800	ND	0.0731	0.0701	91.4	87.6	1	10.0-135			4.19	27
(S) p-Terphenyl-d14					114	112		23.0-120				
(S) Nitrobenzene-d5					104	98.4		14.0-149				
(S) 2-Fluorobiphenyl					102	97.4		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3768002-2 03/09/22 13:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluorene	U		0.00205	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
(S) p-Terphenyl-d14	114			23.0-120
(S) Nitrobenzene-d5	92.8			14.0-149
(S) 2-Fluorobiphenyl	93.9			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3768002-1 03/09/22 13:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0700	87.5	49.0-120	
1-Methylnaphthalene	0.0800	0.0669	83.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0648	81.0	50.0-120	
Naphthalene	0.0800	0.0656	82.0	50.0-120	
(S) p-Terphenyl-d14			103	23.0-120	
(S) Nitrobenzene-d5			89.9	14.0-149	
(S) 2-Fluorobiphenyl			88.1	34.0-125	

L1466397-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1466397-02 03/09/22 15:50 • (MS) R3768002-3 03/09/22 16:10 • (MSD) R3768002-4 03/09/22 16:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0790	ND	0.0562	0.0595	71.3	75.9	1	11.0-130			5.70	29
1-Methylnaphthalene	0.0790	ND	0.0574	0.0608	72.8	77.6	1	10.0-142			5.75	28
2-Methylnaphthalene	0.0790	ND	0.0564	0.0589	71.6	75.1	1	10.0-137			4.34	28
Naphthalene	0.0790	ND	0.0569	0.0603	72.2	76.9	1	10.0-135			5.80	27
(S) p-Terphenyl-d14					92.0	91.9		23.0-120				
(S) Nitrobenzene-d5					89.9	90.3		14.0-149				
(S) 2-Fluorobiphenyl					81.1	83.6		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

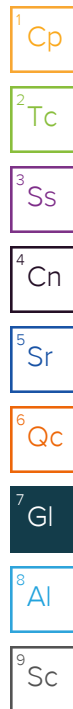
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

## Abbreviations and Definitions

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

## Qualifier Description

J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



# ACCREDITATIONS & LOCATIONS

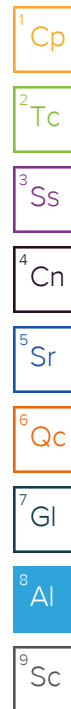
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.



( NCF ) OK

3/-NCF-L1466777 CAERUSPCO

R5

Time estimate: oh

Time spent: oh

## Members

 Hailey Melson (responsible) Chris Ward

Due on 5 March 2022 8:00 AM for target Done

- ☐ Parameter(s) past holding time
- ☐ Temperature not in range
- ☐ Improper container type
- ☐ pH not in range
- ☐ Insufficient sample volume
- ☐ Sample is biphasic
- ☐ Vials received with headspace
- ☒ Broken container
- ☐ Sufficient sample remains
- ☐ If broken container: Insufficient packing material around container
- ☐ If broken container: Insufficient packing material inside cooler
- ☐ If broken container: Improper handling by carrier: \_\_\_\_\_
- ☐ If broken container: Sample was frozen
- ☐ If broken container: Container lid not intact
- ☐ Client informed by Call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: \_\_\_\_\_
- ☐ PM initials: \_\_\_\_\_
- ☐ Client Contact: \_\_\_\_\_

## Comments

Hailey Melson

2 March 2022 2:07 PM

1 jar broken for ID: 20220228-SGVFED(SB-NW)@13.5-14.5. Sample was salvaged into a 4oz jar.

Chris Ward

2 March 2022 2:12 PM

Please proceed with remaining volume

**Caerus Oil and Gas**

Sample Delivery Group: L1472467  
Samples Received: 03/17/2022  
Project Number:  
Description: SGV 7N Backgrounds  
Site: SGV 7N  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



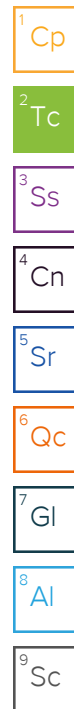
Chris Ward  
Project Manager

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](http://www.pacenational.com)

# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20220314-7N-BGW1@2' L1472467-01	5
20220314-7N-BGW2@1' L1472467-02	6
20220314-7N-BGW3@8' L1472467-03	7
20220314-7N-BGW4@4' L1472467-04	8
20220314-7N-BGW5@6' L1472467-05	9
Qc: Quality Control Summary	10
Wet Chemistry by Method 9045D	10
Wet Chemistry by Method 9050AMod	11
Metals (ICP) by Method 6010B-NE493 Ch 2	12
Metals (ICPMS) by Method 6020	13
Gl: Glossary of Terms	14
Al: Accreditations & Locations	15
Sc: Sample Chain of Custody	16





# SAMPLE SUMMARY

## 20220314-7N-BGW1@2' L1472467-01 Solid

Collected by  
Andrew Smith

Collected date/time  
03/14/22 16:15

Received date/time  
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:45	03/22/22 13:45	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 02:21	03/20/22 08:17	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:26	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834749	5	03/21/22 17:18	03/22/22 15:36	JPD	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

## 20220314-7N-BGW2@1' L1472467-02 Solid

Collected by  
Andrew Smith

Collected date/time  
03/14/22 16:20

Received date/time  
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:48	03/22/22 13:48	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 02:21	03/20/22 08:17	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:29	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834749	5	03/21/22 17:18	03/22/22 15:39	JPD	Mt. Juliet, TN

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

## 20220314-7N-BGW3@8' L1472467-03 Solid

Collected by  
Andrew Smith

Collected date/time  
03/14/22 16:35

Received date/time  
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:51	03/22/22 13:51	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 02:21	03/20/22 08:17	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:32	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834749	5	03/21/22 17:18	03/22/22 15:42	JPD	Mt. Juliet, TN

<sup>9</sup> Sc

## 20220314-7N-BGW4@4' L1472467-04 Solid

Collected by  
Andrew Smith

Collected date/time  
03/14/22 16:40

Received date/time  
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:54	03/22/22 13:54	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 02:21	03/20/22 08:17	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:35	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834749	5	03/21/22 17:18	03/22/22 16:01	JPD	Mt. Juliet, TN

## 20220314-7N-BGW5@6' L1472467-05 Solid

Collected by  
Andrew Smith

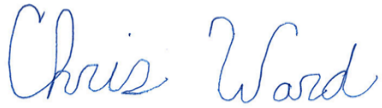
Collected date/time  
03/14/22 16:45

Received date/time  
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:56	03/22/22 13:56	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 02:21	03/20/22 08:17	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:58	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834749	5	03/21/22 17:18	03/22/22 15:20	JPD	Mt. Juliet, TN

# CASE NARRATIVE

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



Chris Ward  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.1		1	03/22/2022 13:45	WG1835063

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.68	T8	1	03/19/2022 09:00	WG1834731

## Sample Narrative:

L1472467-01 WG1834731: 9.68 at 20.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	1140		10.0	1	03/20/2022 08:17	WG1835299

## Sample Narrative:

L1472467-01 WG1835299: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.264		0.0167	0.200	1	03/22/2022 09:26	WG1835066

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg	mg/kg			
Arsenic	5.37		0.100	1.00	5	03/22/2022 15:36	WG1834749

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	26.7		1	03/22/2022 13:48	WG1835063

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	03/19/2022 09:00	WG1834731

## Sample Narrative:

L1472467-02 WG1834731: 8.58 at 19.9C

## Wet Chemistry by Method 9050AMod

	Result	<u>Qualifier</u>	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	umhos/cm		umhos/cm		date / time	
Specific Conductance	5040		10.0	1	03/20/2022 08:17	<a href="#">WG1835299</a>

## Sample Narrative:

L1472467-02 WG1835299: at 25C

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

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l		date / time	
Hot Water Sol. Boron	0.390		0.0167	0.200	1	03/22/2022 09:29	<a href="#">WG1835066</a>

## Metals (ICPMS) by Method 6020

	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.73		0.100	1.00	5	03/22/2022 15:39	WG1834749

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	14.8		1	03/22/2022 13:51	WG1835063

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	<u>T8</u>	1	03/19/2022 09:00	<a href="#">WG1834731</a>

## Sample Narrative:

L1472467-03 WG1834731: 8.42 at 19.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	731		umhos/cm	10.0	1	03/20/2022 08:17
						<a href="#">WG1835299</a>

## Sample Narrative:

L1472467-03 WG1835299: at 25C

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

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.111	J	0.0167	0.200	1	03/22/2022 09:32	WG1835066

## Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	8.02		0.100	1.00	5	03/22/2022 15:42	<a href="#">WG1834749</a>

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

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.914		1	03/22/2022 13:54	WG1835063

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	T8	1	03/19/2022 09:00	WG1834731

## Sample Narrative:

L1472467-04 WG1834731: 8.31 at 20.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	347		10.0	1	03/20/2022 08:17	WG1835299

## Sample Narrative:

L1472467-04 WG1835299: at 25C

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.0960	J	0.0167	0.200	1	03/22/2022 09:35	WG1835066

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg	mg/kg			
Arsenic	7.76		0.100	1.00	5	03/22/2022 16:01	WG1834749

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.596		1	03/22/2022 13:56	WG1835063

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.67	<a href="#">T8</a>	1	03/19/2022 09:00	<a href="#">WG1834731</a>

## Sample Narrative:

L1472467-05 WG1834731: 8.67 at 19.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch	
Specific Conductance	182		umhos/cm	10.0	1	03/20/2022 08:17	<a href="#">WG1835299</a>

## Sample Narrative:

L1472467-05 WG1835299: at 25C

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

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/l		mg/l	mg/l			
Hot Water Sol. Boron	0.120	J	0.0167	0.200	1	03/22/2022 09:58	WG1835066

## Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	7.58		0.100	1.00	5	03/22/2022 15:20	<a href="#">WG1834749</a>

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

L1471150-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1471150-02 03/19/22 09:00 • (DUP) R3771628-2 03/19/22 09:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.69	8.68	1	0.115		1

Sample Narrative:  
OS: 8.69 at 19.8C  
DUP: 8.68 at 19.9C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1472467-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1472467-05 03/19/22 09:00 • (DUP) R3771628-3 03/19/22 09:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.67	8.66	1	0.115		1

Sample Narrative:  
OS: 8.67 at 19.9C  
DUP: 8.66 at 19.9C

Laboratory Control Sample (LCS)

(LCS) R3771628-1 03/19/22 09:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:  
LCS: 9.94 at 19C

Method Blank (MB)

(MB) R3771735-1 03/20/22 08:17

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

Sample Narrative:

BLANK: at 25C

L1472337-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1472337-01 03/20/22 08:17 • (DUP) R3771735-3 03/20/22 08:17

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	334	337	1	0.894		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1472457-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1472457-04 03/20/22 08:17 • (DUP) R3771735-4 03/20/22 08:17

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	516	533	1	3.24		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3771735-2 03/20/22 08:17

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	266	99.1	85.0-115	

Sample Narrative:

LCS: at 25C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3772551-1 03/22/22 08:34

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

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

(LCS) R3772551-2 03/22/22 08:37 • (LCSD) R3772551-3 03/22/22 08:39

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Hot Water Sol. Boron	1.00	1.03	0.995	103	99.5	80.0-120			3.56	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3772713-1 03/22/22 15:13

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

Laboratory Control Sample (LCS)

(LCS) R3772713-2 03/22/22 15:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.3	95.3	80.0-120	

L1472467-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472467-05 03/22/22 15:20 • (MS) R3772713-5 03/22/22 15:29 • (MSD) R3772713-6 03/22/22 15:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	7.58	105	103	97.0	95.2	5	75.0-125			1.74	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

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

## Abbreviations and Definitions

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

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# 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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.




## CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>  
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or  
MTJL Log-in Number Here

A066

**ALL BOLD OUTLINED AREAS are for LAB USE ONLY**

Company: Caerus Oil and Gas LLC		Billing Information:	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins		Email To: Info on file	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address:	
Customer Project Name/Number: SGV 7N Backgrounds		State:      County/City:      Time Zone Collected: CO / Garfield      [ ] PT [X] MT [ ] CT [ ] ET	
Phone:	Site/Facility ID #: SGV 7N	Compliance Monitoring?	
Email:		[ ] Yes      [X] No	
Collected By (print): Andrew Smith	Purchase Order #: Quote #:	DW PWS ID #: DW Location Code:	
Collected By (signature): 	Turnaround Date Required: Standard 5-Day	Immediately Packed on Ice: [X] Yes      [ ] No	
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day	Field Filtered (if applicable): [ ] Yes      [ ] No  Analysis: _____	

Plastic (P) or Glass (G)

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

[illegible]

Container Type: Plastic (P) or Glass (G)

EC, SAR, pH

## Arsenic

Boron (Hot Water Soluble Soil)

1001

## Analyses

**Lab Project Manager:**

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Profile/Line:

Lab Sample Receipt Checklist:		
Custody Seals Present/Intact	Y	N
Custody Signatures Present	Y	N
Collector Signature Present	Y	N
Bottles Intact	Y	N
Correct Bottles	Y	N
Sufficient Volume	Y	N
Samples Received on Ice	Y	N
VOA - Headspace Acceptable	Y	N
USDA Regulated Soils	Y	N
Samples in Holding Time	Y	N
Residual Chlorine Present	Y	N
Cl Strips:		
Sample pH Acceptable	Y	N
pH Strips:		
Sulfide Present	Y	N
Lead Acetate Strips:		

LAB USE ONLY:

Lab Sample # / Comments:

U47246

-01

-0-

— 2 —

— 24 —

FOE

Customer Remarks / Special Conditions / Possible Hazards: Please store all extra material for additional analysis.		Type of Ice Used:    Wet    Blue    Dry    None		SHORT HOLDS PRESENT (<72 hours):    Y    N    N/A		LAB Sample Temperature Info:	
		Packing Material Used:		Lab Tracking #:		Temp Blank Received:    Y    N    NA	
		Radchem sample(s) screened (<500 cpm):    Y    N    NA		Samples received via:		Therm ID#: _____	
				FEDEX    UPS    Client    Courier    Pace Courier		Cooler 1 Temp Upon Receipt: ____ °C	
Relinquished by/Company: (Signature)		Date/Time: 3/16/22 1200	Received by/Company: (Signature)		Date/Time:	Cooler 1 Therm Corr. Factor: ____ °C	
Relinquished by/Company: (Signature)		Date/Time:	Received by/Company: (Signature)		Date/Time:	Cooler 1 Corrected Temp: ____ °C	
Relinquished by/Company: (Signature)		Date/Time:	Received by/Company: (Signature)		Date/Time:	Comments:	
						3.26 or 3.2 A2B	
						Trip Blank Received: Y N NA	
						HCL MeOH TSP Other	
						Non Conformance(s):	
						Page: 1	
						of: 2	

5016 1231 4625

April 21, 2022

## Caerus Oil and Gas

Sample Delivery Group: L1482046  
Samples Received: 04/13/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Entire Report Reviewed By:



Chris Ward  
Project Manager

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

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
20220407-SGV FEDERAL (BASE-N) @ 8.5' L1482046-01	5
20220407-SGV FEDERAL (W-WALL-N) @ 8' L1482046-02	6
20220407-SGV FEDERAL (N-WALL-N) @ 8' L1482046-03	7
20220407-SGV FEDERAL (E-WALL-N) @ 8' L1482046-04	8
Qc: Quality Control Summary	9
Volatile Organic Compounds (GC) by Method 8015D/GRO	9
Volatile Organic Compounds (GC/MS) by Method 8260B	12
Semi-Volatile Organic Compounds (GC) by Method 8015M	13
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	14
Gl: Glossary of Terms	16
Al: Accreditations & Locations	17
Sc: Sample Chain of Custody	18

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



# SAMPLE SUMMARY

## 20220407-SGV FEDERAL (BASE-N) @ 8.5' L1482046-01 Solid

Collected by Kevin Fletcher  
Collected date/time 04/07/22 14:15  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:39	04/19/22 19:39	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848573	1	04/13/22 17:31	04/15/22 07:24	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 01:38	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 07:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850075	1	04/18/22 08:56	04/18/22 15:22	AMG	Mt. Juliet, TN

## 20220407-SGV FEDERAL (W-WALL-N) @ 8' L1482046-02 Solid

Collected by Kevin Fletcher  
Collected date/time 04/07/22 14:18  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:41	04/19/22 19:41	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848850	1	04/13/22 17:31	04/16/22 22:22	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 01:57	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 07:25	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850075	1	04/18/22 08:56	04/18/22 15:39	AMG	Mt. Juliet, TN

## 20220407-SGV FEDERAL (N-WALL-N) @ 8' L1482046-03 Solid

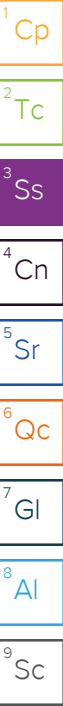
Collected by Kevin Fletcher  
Collected date/time 04/07/22 14:21  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:44	04/19/22 19:44	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848850	1	04/13/22 17:31	04/16/22 22:43	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 02:16	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 07:12	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850075	1	04/18/22 08:56	04/18/22 15:57	AMG	Mt. Juliet, TN

## 20220407-SGV FEDERAL (E-WALL-N) @ 8' L1482046-04 Solid

Collected by Kevin Fletcher  
Collected date/time 04/07/22 14:24  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:47	04/19/22 19:47	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 08:13	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 02:35	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 06:31	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 13:48	AMG	Mt. Juliet, TN



# CASE NARRATIVE

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



Chris Ward  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.93		1	04/19/2022 19:39	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.112		0.100	1	04/15/2022 07:24	<a href="#">WG1848573</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/15/2022 07:24	<a href="#">WG1848573</a>

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

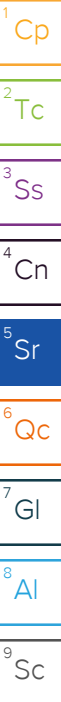
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 01:38	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 01:38	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 01:38	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 01:38	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 01:38	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 01:38	<a href="#">WG1848204</a>
(S) Toluene-d8	97.0		75.0-131		04/14/2022 01:38	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	103		67.0-138		04/14/2022 01:38	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	100		70.0-130		04/14/2022 01:38	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	33.0	<a href="#">J3 J6</a>	4.00	1	04/19/2022 07:39	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	17.7		4.00	1	04/19/2022 07:39	<a href="#">WG1849805</a>
(S) o-Terphenyl	64.4		18.0-148		04/19/2022 07:39	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:22	<a href="#">WG1850075</a>
2-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:22	<a href="#">WG1850075</a>
(S) p-Terphenyl-d14	68.5		23.0-120		04/18/2022 15:22	<a href="#">WG1850075</a>
(S) Nitrobenzene-d5	72.7		14.0-149		04/18/2022 15:22	<a href="#">WG1850075</a>
(S) 2-Fluorobiphenyl	60.2		34.0-125		04/18/2022 15:22	<a href="#">WG1850075</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.44		1	04/19/2022 19:41	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.184		0.100	1	04/16/2022 22:22	<a href="#">WG1848850</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/16/2022 22:22	<a href="#">WG1848850</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 01:57	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 01:57	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 01:57	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 01:57	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 01:57	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 01:57	<a href="#">WG1848204</a>
(S) Toluene-d8	97.4		75.0-131		04/14/2022 01:57	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	104		67.0-138		04/14/2022 01:57	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		04/14/2022 01:57	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	43.6		4.00	1	04/19/2022 07:25	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	23.5		4.00	1	04/19/2022 07:25	<a href="#">WG1849805</a>
(S) o-Terphenyl	52.5		18.0-148		04/19/2022 07:25	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:39	<a href="#">WG1850075</a>
2-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:39	<a href="#">WG1850075</a>
(S) p-Terphenyl-d14	65.5		23.0-120		04/18/2022 15:39	<a href="#">WG1850075</a>
(S) Nitrobenzene-d5	66.8		14.0-149		04/18/2022 15:39	<a href="#">WG1850075</a>
(S) 2-Fluorobiphenyl	56.1		34.0-125		04/18/2022 15:39	<a href="#">WG1850075</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.26		1	04/19/2022 19:44	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/16/2022 22:43	<a href="#">WG1848850</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/16/2022 22:43	<a href="#">WG1848850</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 02:16	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 02:16	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 02:16	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 02:16	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:16	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:16	<a href="#">WG1848204</a>
(S) Toluene-d8	97.4		75.0-131		04/14/2022 02:16	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	103		67.0-138		04/14/2022 02:16	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	100		70.0-130		04/14/2022 02:16	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.21		4.00	1	04/19/2022 07:12	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	11.0		4.00	1	04/19/2022 07:12	<a href="#">WG1849805</a>
(S) o-Terphenyl	60.1		18.0-148		04/19/2022 07:12	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:57	<a href="#">WG1850075</a>
2-Methylnaphthalene	ND		0.0200	1	04/18/2022 15:57	<a href="#">WG1850075</a>
(S) p-Terphenyl-d14	75.0		23.0-120		04/18/2022 15:57	<a href="#">WG1850075</a>
(S) Nitrobenzene-d5	74.4		14.0-149		04/18/2022 15:57	<a href="#">WG1850075</a>
(S) 2-Fluorobiphenyl	64.2		34.0-125		04/18/2022 15:57	<a href="#">WG1850075</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.06		1	04/19/2022 19:47	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/16/2022 08:13	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		04/16/2022 08:13	<a href="#">WG1848961</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 02:35	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 02:35	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 02:35	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 02:35	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:35	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:35	<a href="#">WG1848204</a>
(S) Toluene-d8	98.3		75.0-131		04/14/2022 02:35	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	103		67.0-138		04/14/2022 02:35	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		04/14/2022 02:35	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.87		4.00	1	04/19/2022 06:31	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	5.16	<a href="#">B</a>	4.00	1	04/19/2022 06:31	<a href="#">WG1849805</a>
(S) o-Terphenyl	61.2		18.0-148		04/19/2022 06:31	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 13:48	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 13:48	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	67.4		23.0-120		04/20/2022 13:48	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	72.4		14.0-149		04/20/2022 13:48	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	59.4		34.0-125		04/20/2022 13:48	<a href="#">WG1850875</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3781878-3 04/15/22 00:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3781878-2 04/14/22 23:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.39	79.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3781851-3 04/16/22 15:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3781851-2 04/16/22 14:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.56	101	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3781777-2 04/16/22 03:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3781777-1 04/16/22 02:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.03	91.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.4	77.0-120	

L1481885-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481885-05 04/16/22 06:25 • (MS) R3781777-3 04/16/22 11:05 • (MSD) R3781777-4 04/16/22 11:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	3.75	4.46	66.9	79.8	1	10.0-151			17.3	28
(S) a,a,a-Trifluorotoluene(FID)					99.1	101		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3780783-3 04/13/22 21:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	96.8			75.0-131
(S) 4-Bromofluorobenzene	103			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3780783-1 04/13/22 20:01 • (LCSD) R3780783-2 04/13/22 20:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.113	0.115	90.4	92.0	70.0-123			1.75	20
Toluene	0.125	0.111	0.113	88.8	90.4	75.0-121			1.79	20
Ethylbenzene	0.125	0.104	0.107	83.2	85.6	74.0-126			2.84	20
Xylenes, Total	0.375	0.318	0.328	84.8	87.5	72.0-127			3.10	20
1,2,4-Trimethylbenzene	0.125	0.114	0.117	91.2	93.6	70.0-126			2.60	20
1,3,5-Trimethylbenzene	0.125	0.111	0.113	88.8	90.4	73.0-127			1.79	20
(S) Toluene-d8				96.4	95.0	75.0-131				
(S) 4-Bromofluorobenzene				103	103	67.0-138				
(S) 1,2-Dichloroethane-d4				109	109	70.0-130				

L1481647-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481647-01 04/14/22 04:30 • (MS) R3780783-4 04/14/22 04:49 • (MSD) R3780783-5 04/14/22 05:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.130	ND	0.0892	0.0902	68.6	69.4	1.04	10.0-149			1.11	37
Toluene	0.130	ND	0.0919	0.0902	70.7	69.4	1.04	10.0-156			1.87	38
Ethylbenzene	0.130	ND	0.0853	0.0849	65.6	65.3	1.04	10.0-160			0.470	38
Xylenes, Total	0.390	ND	0.260	0.262	66.7	67.2	1.04	10.0-160			0.766	38
1,2,4-Trimethylbenzene	0.130	ND	0.0956	0.0978	73.5	75.2	1.04	10.0-160			2.28	36
1,3,5-Trimethylbenzene	0.130	ND	0.0924	0.0935	71.1	71.9	1.04	10.0-160			1.18	38
(S) Toluene-d8					97.1	97.2		75.0-131				
(S) 4-Bromofluorobenzene					103	103		67.0-138				
(S) 1,2-Dichloroethane-d4					103	101		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3782525-1 04/19/22 02:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.683	J	0.274	4.00
(S) o-Terphenyl	67.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3782525-2 04/19/22 02:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.1	66.2	50.0-150	
(S) o-Terphenyl			80.0	18.0-148	

L1482046-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1482046-01 04/19/22 07:39 • (MS) R3782525-3 04/19/22 07:52 • (MSD) R3782525-4 04/19/22 08:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.7	33.0	36.7	54.3	7.44	42.8	1	50.0-150	J6	J3 J6	38.7	20
(S) o-Terphenyl					58.8	61.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3782481-1 04/18/22 13:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) p-Terphenyl-d14	84.3			23.0-120
(S) Nitrobenzene-d5	77.7			14.0-149
(S) 2-Fluorobiphenyl	70.4			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3782481-2 04/18/22 13:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0628	78.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0599	74.9	50.0-120	
(S) p-Terphenyl-d14			86.2	23.0-120	
(S) Nitrobenzene-d5			82.3	14.0-149	
(S) 2-Fluorobiphenyl			74.7	34.0-125	

L1481938-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481938-01 04/18/22 13:55 • (MS) R3782481-3 04/18/22 14:12 • (MSD) R3782481-4 04/18/22 14:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1-Methylnaphthalene	0.0796	ND	0.0544	0.0562	68.3	70.6	1	10.0-142			3.25	28
2-Methylnaphthalene	0.0796	ND	0.0524	0.0553	65.8	69.5	1	10.0-137			5.39	28
(S) p-Terphenyl-d14					65.1	69.0		23.0-120				
(S) Nitrobenzene-d5					70.5	69.9		14.0-149				
(S) 2-Fluorobiphenyl					60.8	60.7		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3783130-2 04/20/22 10:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) p-Terphenyl-d14	86.7			23.0-120
(S) Nitrobenzene-d5	75.2			14.0-149
(S) 2-Fluorobiphenyl	73.1			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3783130-1 04/20/22 10:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0542	67.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0518	64.8	50.0-120	
(S) p-Terphenyl-d14			84.5	23.0-120	
(S) Nitrobenzene-d5			82.5	14.0-149	
(S) 2-Fluorobiphenyl			74.6	34.0-125	

L1483242-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1483242-01 04/20/22 10:50 • (MS) R3783130-3 04/20/22 11:10 • (MSD) R3783130-4 04/20/22 11:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1-Methylnaphthalene	0.0800	ND	0.0497	0.0492	62.1	61.5	1	10.0-142			1.01	28
2-Methylnaphthalene	0.0800	ND	0.0466	0.0468	58.3	58.5	1	10.0-137			0.428	28
(S) p-Terphenyl-d14					57.9	65.5		23.0-120				
(S) Nitrobenzene-d5					86.8	77.2		14.0-149				
(S) 2-Fluorobiphenyl					51.0	54.2		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

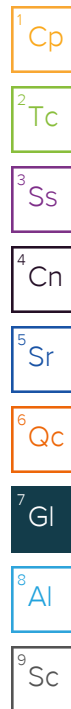
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

### Abbreviations and Definitions

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

### Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



# 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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.




Hold:	Condition NCF / 6
-------	----------------------

## Caerus Oil and Gas

Sample Delivery Group: L1482056  
Samples Received: 04/13/2022  
Project Number: SGV F  
Description: SGV Federal Dry Gas Release  
Site: SGV F  
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.

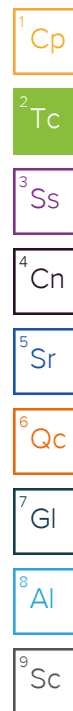
### Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)



# TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
20220408-SGV FEDERAL (BASE-S) @ 8.5' L1482056-01	6
20220408-SGV FEDERAL (S-WALL-S) @ 8' L1482056-02	7
20220408-SGV FEDERAL (E-WALL-S) @ 8' L1482056-03	8
20220408-SGV FEDERAL (W-WALL-S) @ 8' L1482056-04	9
20220408-SGV FEDERAL (BASE-M) @ 11' L1482056-05	10
20220408-SGV FEDERAL (W-WALL-M) @ 10.5' L1482056-06	11
20220408-SGV FEDERAL (E-WALL-M) @ 10.5' L1482056-07	12
Qc: Quality Control Summary	13
Volatile Organic Compounds (GC) by Method 8015D/GRO	13
Volatile Organic Compounds (GC/MS) by Method 8260B	15
Semi-Volatile Organic Compounds (GC) by Method 8015M	17
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	18
Gl: Glossary of Terms	19
Al: Accreditations & Locations	20
Sc: Sample Chain of Custody	21





# SAMPLE SUMMARY

## 20220408-SGV FEDERAL (BASE-S) @ 8.5' L1482056-01 Solid

Collected by Kevin Fletcher  
Collected date/time 04/08/22 11:05  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:50	04/19/22 19:50	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848573	1	04/13/22 17:31	04/15/22 07:45	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 02:54	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 06:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 14:08	AMG	Mt. Juliet, TN

## 20220408-SGV FEDERAL (S-WALL-S) @ 8' L1482056-02 Solid

Collected by Kevin Fletcher  
Collected date/time 04/08/22 11:07  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:52	04/19/22 19:52	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 08:35	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 03:13	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 06:05	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 14:28	AMG	Mt. Juliet, TN

## 20220408-SGV FEDERAL (E-WALL-S) @ 8' L1482056-03 Solid

Collected by Kevin Fletcher  
Collected date/time 04/08/22 11:09  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 19:55	04/19/22 19:55	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 08:56	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 03:32	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 06:45	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 14:48	AMG	Mt. Juliet, TN

## 20220408-SGV FEDERAL (W-WALL-S) @ 8' L1482056-04 Solid

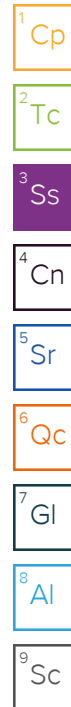
Collected by Kevin Fletcher  
Collected date/time 04/08/22 11:11  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 20:03	04/19/22 20:03	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 09:18	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 03:52	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 06:58	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 15:08	AMG	Mt. Juliet, TN

## 20220408-SGV FEDERAL (BASE-M) @ 11' L1482056-05 Solid

Collected by Kevin Fletcher  
Collected date/time 04/08/22 14:55  
Received date/time 04/13/22 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850049	1	04/19/22 20:06	04/19/22 20:06	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 09:39	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848204	1	04/13/22 17:31	04/14/22 04:11	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 05:38	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 15:28	AMG	Mt. Juliet, TN



# SAMPLE SUMMARY

20220408-SGV FEDERAL (W-WALL-M) @ 10.5' L1482056-06 Solid				Collected by Kevin Fletcher	Collected date/time 04/08/22 14:57	Received date/time 04/13/22 09:45	1 Cp
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	2 Tc
Calculated Results	WG1850049	1	04/19/22 20:09	04/19/22 20:09	ZSA	Mt. Juliet, TN	3 Ss
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 10:01	JAH	Mt. Juliet, TN	4 Cn
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848223	1	04/13/22 17:31	04/14/22 05:05	DWR	Mt. Juliet, TN	5 Sr
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 05:51	JAS	Mt. Juliet, TN	6 Qc
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 15:47	AMG	Mt. Juliet, TN	7 Gl
20220408-SGV FEDERAL (E-WALL-M) @ 10.5' L1482056-07 Solid				Collected by Kevin Fletcher	Collected date/time 04/08/22 15:00	Received date/time 04/13/22 09:45	8 Al
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	9 Sc
Calculated Results	WG1850049	1	04/19/22 20:11	04/19/22 20:11	ZSA	Mt. Juliet, TN	
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1848961	1	04/13/22 17:31	04/16/22 10:22	JAH	Mt. Juliet, TN	
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1848223	1	04/13/22 17:31	04/14/22 05:25	DWR	Mt. Juliet, TN	
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1849805	1	04/18/22 06:37	04/19/22 05:24	JAS	Mt. Juliet, TN	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1850875	1	04/19/22 16:54	04/20/22 16:07	AMG	Mt. Juliet, TN	

# CASE NARRATIVE

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



Chris Ward  
Project Manager

## Report Revision History

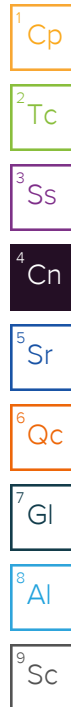
---

Level II Report - Version 1: 04/21/22 09:58

## Project Narrative

---

Rerun to correct sample ID



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.76		1	04/19/2022 19:50	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/15/2022 07:45	<a href="#">WG1848573</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/15/2022 07:45	<a href="#">WG1848573</a>

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

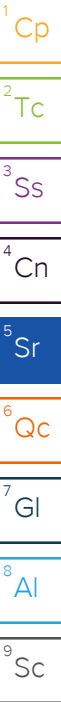
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 02:54	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 02:54	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 02:54	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 02:54	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:54	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 02:54	<a href="#">WG1848204</a>
(S) Toluene-d8	96.6		75.0-131		04/14/2022 02:54	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	104		67.0-138		04/14/2022 02:54	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		04/14/2022 02:54	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	04/19/2022 06:18	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	5.27	<a href="#">B</a>	4.00	1	04/19/2022 06:18	<a href="#">WG1849805</a>
(S) o-Terphenyl	58.2		18.0-148		04/19/2022 06:18	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:08	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:08	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	82.6		23.0-120		04/20/2022 14:08	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	71.5		14.0-149		04/20/2022 14:08	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	68.1		34.0-125		04/20/2022 14:08	<a href="#">WG1850875</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.04		1	04/19/2022 19:52	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/16/2022 08:35	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	111		77.0-120		04/16/2022 08:35	<a href="#">WG1848961</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 03:13	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 03:13	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 03:13	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 03:13	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:13	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:13	<a href="#">WG1848204</a>
(S) Toluene-d8	94.0		75.0-131		04/14/2022 03:13	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	109		67.0-138		04/14/2022 03:13	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		04/14/2022 03:13	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	04/19/2022 06:05	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	5.79	<a href="#">B</a>	4.00	1	04/19/2022 06:05	<a href="#">WG1849805</a>
(S) o-Terphenyl	60.2		18.0-148		04/19/2022 06:05	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:28	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:28	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	74.4		23.0-120		04/20/2022 14:28	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	63.8		14.0-149		04/20/2022 14:28	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	62.9		34.0-125		04/20/2022 14:28	<a href="#">WG1850875</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.38		1	04/19/2022 19:55	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/16/2022 08:56	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	110		77.0-120		04/16/2022 08:56	<a href="#">WG1848961</a>

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

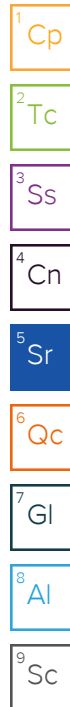
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 03:32	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 03:32	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 03:32	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 03:32	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:32	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:32	<a href="#">WG1848204</a>
(S) Toluene-d8	96.7		75.0-131		04/14/2022 03:32	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	104		67.0-138		04/14/2022 03:32	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		04/14/2022 03:32	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.19		4.00	1	04/19/2022 06:45	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	7.42		4.00	1	04/19/2022 06:45	<a href="#">WG1849805</a>
(S) o-Terphenyl	62.0		18.0-148		04/19/2022 06:45	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:48	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 14:48	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	75.3		23.0-120		04/20/2022 14:48	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	61.4		14.0-149		04/20/2022 14:48	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	53.6		34.0-125		04/20/2022 14:48	<a href="#">WG1850875</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.64		1	04/19/2022 20:03	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/16/2022 09:18	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/16/2022 09:18	<a href="#">WG1848961</a>

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

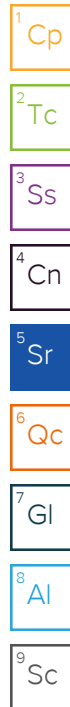
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 03:52	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 03:52	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 03:52	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 03:52	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:52	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/14/2022 03:52	<a href="#">WG1848204</a>
(S) Toluene-d8	95.5		75.0-131		04/14/2022 03:52	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	103		67.0-138		04/14/2022 03:52	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	104		70.0-130		04/14/2022 03:52	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	7.19		4.00	1	04/19/2022 06:58	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	6.96		4.00	1	04/19/2022 06:58	<a href="#">WG1849805</a>
(S) o-Terphenyl	59.7		18.0-148		04/19/2022 06:58	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 15:08	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 15:08	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	64.7		23.0-120		04/20/2022 15:08	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	49.6		14.0-149		04/20/2022 15:08	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	49.7		34.0-125		04/20/2022 15:08	<a href="#">WG1850875</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.20		1	04/19/2022 20:06	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.413		0.100	1	04/16/2022 09:39	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		04/16/2022 09:39	<a href="#">WG1848961</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 04:11	<a href="#">WG1848204</a>
Toluene	ND		0.00500	1	04/14/2022 04:11	<a href="#">WG1848204</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 04:11	<a href="#">WG1848204</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 04:11	<a href="#">WG1848204</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 04:11	<a href="#">WG1848204</a>
1,3,5-Trimethylbenzene	0.0148		0.00500	1	04/14/2022 04:11	<a href="#">WG1848204</a>
(S) Toluene-d8	97.8		75.0-131		04/14/2022 04:11	<a href="#">WG1848204</a>
(S) 4-Bromofluorobenzene	103		67.0-138		04/14/2022 04:11	<a href="#">WG1848204</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		04/14/2022 04:11	<a href="#">WG1848204</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.16		4.00	1	04/19/2022 05:38	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	ND		4.00	1	04/19/2022 05:38	<a href="#">WG1849805</a>
(S) o-Terphenyl	52.8		18.0-148		04/19/2022 05:38	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	0.0205		0.0200	1	04/20/2022 15:28	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 15:28	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	58.5		23.0-120		04/20/2022 15:28	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	61.9		14.0-149		04/20/2022 15:28	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	55.2		34.0-125		04/20/2022 15:28	<a href="#">WG1850875</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.12		1	04/19/2022 20:09	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.901		0.100	1	04/16/2022 10:01	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		04/16/2022 10:01	<a href="#">WG1848961</a>

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

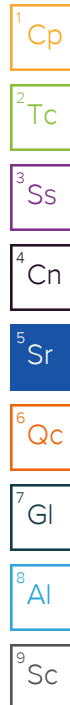
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 05:05	<a href="#">WG1848223</a>
Toluene	ND		0.00500	1	04/14/2022 05:05	<a href="#">WG1848223</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 05:05	<a href="#">WG1848223</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 05:05	<a href="#">WG1848223</a>
1,2,4-Trimethylbenzene	0.00833		0.00500	1	04/14/2022 05:05	<a href="#">WG1848223</a>
1,3,5-Trimethylbenzene	0.0420		0.00500	1	04/14/2022 05:05	<a href="#">WG1848223</a>
(S) Toluene-d8	97.8		75.0-131		04/14/2022 05:05	<a href="#">WG1848223</a>
(S) 4-Bromofluorobenzene	96.3		67.0-138		04/14/2022 05:05	<a href="#">WG1848223</a>
(S) 1,2-Dichloroethane-d4	98.0		70.0-130		04/14/2022 05:05	<a href="#">WG1848223</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	20.4		4.00	1	04/19/2022 05:51	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	ND		4.00	1	04/19/2022 05:51	<a href="#">WG1849805</a>
(S) o-Terphenyl	52.8		18.0-148		04/19/2022 05:51	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	ND		0.0200	1	04/20/2022 15:47	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 15:47	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	73.0		23.0-120		04/20/2022 15:47	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	64.3		14.0-149		04/20/2022 15:47	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	56.3		34.0-125		04/20/2022 15:47	<a href="#">WG1850875</a>



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.39		1	04/19/2022 20:11	WG1850049

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.189		0.100	1	04/16/2022 10:22	<a href="#">WG1848961</a>
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		04/16/2022 10:22	<a href="#">WG1848961</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/14/2022 05:25	<a href="#">WG1848223</a>
Toluene	ND		0.00500	1	04/14/2022 05:25	<a href="#">WG1848223</a>
Ethylbenzene	ND		0.00250	1	04/14/2022 05:25	<a href="#">WG1848223</a>
Xylenes, Total	ND		0.00650	1	04/14/2022 05:25	<a href="#">WG1848223</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/14/2022 05:25	<a href="#">WG1848223</a>
1,3,5-Trimethylbenzene	0.0255		0.00500	1	04/14/2022 05:25	<a href="#">WG1848223</a>
(S) Toluene-d8	95.8		75.0-131		04/14/2022 05:25	<a href="#">WG1848223</a>
(S) 4-Bromofluorobenzene	96.4		67.0-138		04/14/2022 05:25	<a href="#">WG1848223</a>
(S) 1,2-Dichloroethane-d4	98.3		70.0-130		04/14/2022 05:25	<a href="#">WG1848223</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	23.2		4.00	1	04/19/2022 05:24	<a href="#">WG1849805</a>
C28-C36 Motor Oil Range	4.26	<a href="#">B</a>	4.00	1	04/19/2022 05:24	<a href="#">WG1849805</a>
(S) o-Terphenyl	58.0		18.0-148		04/19/2022 05:24	<a href="#">WG1849805</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	0.0230		0.0200	1	04/20/2022 16:07	<a href="#">WG1850875</a>
2-Methylnaphthalene	ND		0.0200	1	04/20/2022 16:07	<a href="#">WG1850875</a>
(S) p-Terphenyl-d14	84.0		23.0-120		04/20/2022 16:07	<a href="#">WG1850875</a>
(S) Nitrobenzene-d5	86.6		14.0-149		04/20/2022 16:07	<a href="#">WG1850875</a>
(S) 2-Fluorobiphenyl	60.6		34.0-125		04/20/2022 16:07	<a href="#">WG1850875</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3781878-3 04/15/22 00:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3781878-2 04/14/22 23:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.39	79.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3781777-2 04/16/22 03:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	110			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3781777-1 04/16/22 02:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.03	91.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.4	77.0-120	

L1481885-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481885-05 04/16/22 06:25 • (MS) R3781777-3 04/16/22 11:05 • (MSD) R3781777-4 04/16/22 11:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	3.75	4.46	66.9	79.8	1	10.0-151			17.3	28
(S) a,a,a-Trifluorotoluene(FID)					99.1	101		77.0-120				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3780783-3 04/13/22 21:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	96.8			75.0-131
(S) 4-Bromofluorobenzene	103			67.0-138
(S) 1,2-Dichloroethane-d4	104			70.0-130

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

(LCS) R3780783-1 04/13/22 20:01 • (LCSD) R3780783-2 04/13/22 20:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.113	0.115	90.4	92.0	70.0-123			1.75	20
Toluene	0.125	0.111	0.113	88.8	90.4	75.0-121			1.79	20
Ethylbenzene	0.125	0.104	0.107	83.2	85.6	74.0-126			2.84	20
Xylenes, Total	0.375	0.318	0.328	84.8	87.5	72.0-127			3.10	20
1,2,4-Trimethylbenzene	0.125	0.114	0.117	91.2	93.6	70.0-126			2.60	20
1,3,5-Trimethylbenzene	0.125	0.111	0.113	88.8	90.4	73.0-127			1.79	20
(S) Toluene-d8				96.4	95.0	75.0-131				
(S) 4-Bromofluorobenzene				103	103	67.0-138				
(S) 1,2-Dichloroethane-d4				109	109	70.0-130				

L1481647-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481647-01 04/14/22 04:30 • (MS) R3780783-4 04/14/22 04:49 • (MSD) R3780783-5 04/14/22 05:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.130	ND	0.0892	0.0902	68.6	69.4	1.04	10.0-149			1.11	37
Toluene	0.130	ND	0.0919	0.0902	70.7	69.4	1.04	10.0-156			1.87	38
Ethylbenzene	0.130	ND	0.0853	0.0849	65.6	65.3	1.04	10.0-160			0.470	38
Xylenes, Total	0.390	ND	0.260	0.262	66.7	67.2	1.04	10.0-160			0.766	38
1,2,4-Trimethylbenzene	0.130	ND	0.0956	0.0978	73.5	75.2	1.04	10.0-160			2.28	36
1,3,5-Trimethylbenzene	0.130	ND	0.0924	0.0935	71.1	71.9	1.04	10.0-160			1.18	38
(S) Toluene-d8					97.1	97.2		75.0-131				
(S) 4-Bromofluorobenzene					103	103		67.0-138				
(S) 1,2-Dichloroethane-d4					103	101		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3782098-3 04/13/22 22:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	97.4			75.0-131
(S) 4-Bromofluorobenzene	96.3			67.0-138
(S) 1,2-Dichloroethane-d4	101			70.0-130

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

(LCS) R3782098-1 04/13/22 21:18 • (LCSD) R3782098-2 04/13/22 21:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.114	0.110	91.2	88.0	70.0-123			3.57	20
Toluene	0.125	0.107	0.100	85.6	80.0	75.0-121			6.76	20
Ethylbenzene	0.125	0.102	0.101	81.6	80.8	74.0-126			0.985	20
Xylenes, Total	0.375	0.297	0.284	79.2	75.7	72.0-127			4.48	20
1,2,4-Trimethylbenzene	0.125	0.111	0.108	88.8	86.4	70.0-126			2.74	20
1,3,5-Trimethylbenzene	0.125	0.109	0.107	87.2	85.6	73.0-127			1.85	20
(S) Toluene-d8				94.8	95.0	75.0-131				
(S) 4-Bromofluorobenzene				96.8	97.8	67.0-138				
(S) 1,2-Dichloroethane-d4				103	107	70.0-130				

L1481541-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1481541-03 04/14/22 05:44 • (MS) R3782098-4 04/14/22 06:04 • (MSD) R3782098-5 04/14/22 06:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	4.51	1.49	4.38	4.40	80.3	80.8	40	10.0-149			0.456	37
Toluene	4.51	ND	3.17	3.34	88.1	92.8	40	10.0-156			5.22	38
Ethylbenzene	4.51	3.83	5.67	5.58	51.1	48.6	40	10.0-160			1.60	38
Xylenes, Total	13.5	2.91	10.9	11.3	74.0	77.7	40	10.0-160			3.60	38
1,2,4-Trimethylbenzene	4.51	5.72	7.06	7.06	37.2	37.2	40	10.0-160			0.000	36
1,3,5-Trimethylbenzene	4.51	2.06	4.76	4.84	75.0	77.2	40	10.0-160			1.67	38
(S) Toluene-d8					95.9	95.1		75.0-131				
(S) 4-Bromofluorobenzene					97.6	97.8		67.0-138				
(S) 1,2-Dichloroethane-d4					106	104		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3782525-1 04/19/22 02:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.683	J	0.274	4.00
(S) o-Terphenyl	67.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3782525-2 04/19/22 02:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.1	66.2	50.0-150	
(S) o-Terphenyl			80.0	18.0-148	

L1482046-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1482046-01 04/19/22 07:39 • (MS) R3782525-3 04/19/22 07:52 • (MSD) R3782525-4 04/19/22 08:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.7	33.0	36.7	54.3	7.44	42.8	1	50.0-150	J6	J3 J6	38.7	20
(S) o-Terphenyl					58.8	61.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3783130-2 04/20/22 10:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) p-Terphenyl-d14	86.7			23.0-120
(S) Nitrobenzene-d5	75.2			14.0-149
(S) 2-Fluorobiphenyl	73.1			34.0-125

Laboratory Control Sample (LCS)

(LCS) R3783130-1 04/20/22 10:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0542	67.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0518	64.8	50.0-120	
(S) p-Terphenyl-d14			84.5	23.0-120	
(S) Nitrobenzene-d5			82.5	14.0-149	
(S) 2-Fluorobiphenyl			74.6	34.0-125	

L1483242-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1483242-01 04/20/22 10:50 • (MS) R3783130-3 04/20/22 11:10 • (MSD) R3783130-4 04/20/22 11:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1-Methylnaphthalene	0.0800	ND	0.0497	0.0492	62.1	61.5	1	10.0-142			1.01	28
2-Methylnaphthalene	0.0800	ND	0.0466	0.0468	58.3	58.5	1	10.0-137			0.428	28
(S) p-Terphenyl-d14					57.9	65.5		23.0-120				
(S) Nitrobenzene-d5					86.8	77.2		14.0-149				
(S) 2-Fluorobiphenyl					51.0	54.2		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

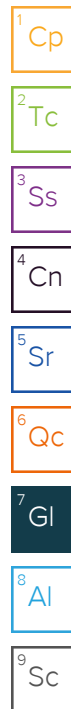
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

### Abbreviations and Definitions

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

### Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



# ACCREDITATIONS & LOCATIONS

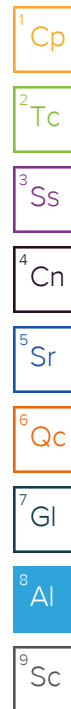
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.



Condition  
NCF / O

## ENCLOSURE C – MAP UNIT DESCRIPTIONS

## Rifle Area, Colorado, Parts of Garfield and Mesa Counties

### 34—Ildefonso stony loam, 25 to 45 percent slopes

#### Map Unit Setting

*National map unit symbol:* jny0

*Elevation:* 5,000 to 6,500 feet

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Ildefonso and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Ildefonso

##### Setting

*Landform:* Breaks, valley sides, alluvial fans

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex, linear

*Parent material:* Mixed alluvium derived from basalt

##### Typical profile

*H1 - 0 to 8 inches:* stony loam

*H2 - 8 to 60 inches:* very stony loam

##### Properties and qualities

*Slope:* 25 to 45 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.60 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 35 percent

*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7e

*Hydrologic Soil Group:* A

*Ecological site:* R034BY330UT - Upland Stony Loam (Pinyon-Utah Juniper)

*Hydric soil rating:* No

### **Minor Components**

#### **Potts**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Ascalon**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Rifle Area, Colorado, Parts of Garfield and Mesa Counties

Survey Area Data: Version 14, Sep 2, 2021

## Rifle Area, Colorado, Parts of Garfield and Mesa Counties

### 58—Potts-Ildefonso complex, 12 to 25 percent slopes

#### Map Unit Setting

*National map unit symbol:* jnyv

*Elevation:* 5,000 to 6,500 feet

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Potts and similar soils:* 60 percent

*Ildefonso and similar soils:* 30 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Potts

##### Setting

*Landform:* Mesas, alluvial fans, valley sides

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex, linear

*Parent material:* Alluvium derived from basalt and/or alluvium derived from sandstone and shale

##### Typical profile

*H1 - 0 to 4 inches:* loam

*H2 - 4 to 28 inches:* clay loam

*H3 - 28 to 60 inches:* loam

##### Properties and qualities

*Slope:* 12 to 25 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* High (about 10.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* C

*Ecological site:* R048AY306UT - Upland Loam (Wyoming Big Sagebrush)

*Hydric soil rating:* No

## Description of Ildefonso

### Setting

*Landform:* Alluvial fans, valley sides, mesas

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Alluvium derived from basalt and/or alluvium  
derived from sandstone and shale

### Typical profile

*H1 - 0 to 8 inches:* stony loam

*H2 - 8 to 60 inches:* very stony loam

### Properties and qualities

*Slope:* 12 to 25 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.60 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 35 percent

*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0  
mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* A

*Ecological site:* R034BY330UT - Upland Stony Loam (Pinyon-Utah  
Juniper)

*Hydric soil rating:* No

## Data Source Information

Soil Survey Area: Rifle Area, Colorado, Parts of Garfield and Mesa Counties

Survey Area Data: Version 14, Sep 2, 2021