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Report of Work Completed – Remedial Excavation

COGCC Location Name (ID)	M. DUTTON-68 S59W/7 SWSW (334127)
Operator Location Name	SGV 7N
COGCC Facility Name	SGV 7N Dumpline Release
COGCC Spill/Release Point ID	481516
Legal Description	SWSW Section 7, T8S-R95W
Coordinates (Lat/Long)	39.373417 / -108.044531
County	Garfield County, Colorado

Mr. Janicek,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document recent investigation activities associated with the separator dumpline release at the SGV 7N well pad (Location). The Location is 5.2 miles south of Parachute, Colorado, in Garfield County as illustrated in the attached Topographic Location Map. Additional information on the Location and the associated remediation project is provided in the title block above, the attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the remedial investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On January 28, 2022, while unloading a well on the Location, the lease operator observed fluid being conveyed to the surface on the southwest side of the 7-14D separator unit. The fluid appeared to be daylighting where the bypass line transitions from belowground to aboveground. An unknown volume of produced water was released from the “t” joint but the release was confined to the working surface of the pad. The release was reported in a Colorado Oil and Gas Conservation Commission (COGCC) Form 19 (document 402941360).

Methodology

On February 16, 2022, Confluence coordinated and oversaw initial site investigation activities associated with the release at the Location. Using a hydro vacuum truck, the point of release (POR) was located and exposed. The soil surrounding the POR was removed to a depth of approximately 5 feet below ground surface (bgs) and extending radially approximately 4 feet. One sample was collected from the beneath the POR and submitted for analysis of COGCC Table 915-1 soil constituents of concern. Confluence personnel characterized the soil using visual and olfactory observations and field-screened soil samples for volatile organic compounds using a photoionization

detector (PID). Field screening indicated impacts to soil at least 5 feet bgs, with a PID measurement of 1,253 parts per million (ppm).

On February 24, 2022, Confluence returned to the Location to continue remedial investigation activities of identified impacts to soil. Soil was removed from the POR area extending 10 feet bgs as well as horizontally to an area approximately 20 feet by 11 feet. Three samples were collected from various depths within the excavation: 7 feet, 9 feet and 10 feet bgs. PID measurements ranged between 175 ppm at 7 feet bgs and 32.9 ppm at 10 feet bgs. Samples were also collected from each side wall of the excavation. PID measurements indicated impacts on the west sidewall with a value of 2,009 ppm. Three potholes were advanced to the south, east, and west of the POR for horizontal delineation and a sample was collected from the terminus of each pothole. No staining or odor were noted in any of the potholes. Field screening did not indicate impacts to soil, with PID measurements ranging between 0.0 and 0.2 ppm. Due to access issues associated with the placement of the separator, potholes were not completed to the north.

On March 14, 2022, excavation activities continued. Five samples were collected from the excavation area: four from the sidewalls, and one from the base of the excavation. No staining or odor were noted in any of the samples. Five background soil samples were also collected from comparable, nearby, non-impacted native soil to establish background soil conditions including arsenic, pH, electrical conductivity (EC), sodium adsorption ratio (SAR), and boron per Rule 915.e.(2).D.

All soil samples were packed in laboratory provided jars, immediately placed on ice, and shipped for laboratory analysis of CGCC Table 915-1 soil constituents under chain of custody. Sample locations and excavation areas are illustrated in the attached Site Diagrams.

Results

These results summarize observations from onsite investigation efforts and associated laboratory analytical results. For organizational and presentation purposes the results summary is divided between general observations of lithology and hydrogeology for the entire Location and site investigation activities.

Collected spatial data are depicted in the attached Site Diagram. Laboratory analytical reports are attached and summarized in the Laboratory Results Summary Table.

Lithology and Hydrogeology

Lithology at the Location is characterized as clayey sands. Groundwater is expected to flow southwest toward an unnamed tributary of Spring Creek and ultimately to the Colorado River, located 3.1 miles northwest of the Location.

Initial Investigation Results

Laboratory results of the initial spill investigation soil sample collected from the POR at 5 feet bgs are compliant with COGCC Table 915-1 Residential Soil Screening Levels except for total petroleum hydrocarbons (TPH), SAR, pH, and arsenic. TPH was reported at 1,505 milligrams per kilogram (mg/kg). SAR was measured at 65.0. The pH exceedance was reported at 9.29. Arsenic exceeded at the POR with a value of 5.15 mg/kg.



Delineation and Excavation Results

Laboratory results of pothole delineation soil samples are compliant with COGCC Table 915-1 Residential Soil Screening Levels except for pH and arsenic. Exceedances of pH range from 8.33 at the western pothole to 9.10 at the eastern pothole. Arsenic exceedances range from 3.01 mg/kg at the southern pothole to 4.76 mg/kg at the western pothole.

Laboratory results of final excavation soil samples are compliant with COGCC Table 915-1 Residential Soil Screening Levels except for pH and arsenic. Exceedances of pH range from 8.44 at the east sidewall to 8.53 at the excavation base. Arsenic exceedances range from 4.59 mg/kg at the east sidewall to 6.81 mg/kg at the west sidewall.

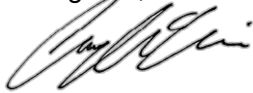
Analysis and Recommendations

Although pH and arsenic values above COGCC Table 915-1 standards remain within the spill investigation and excavation area, background data suggests the exceedances are within naturally occurring levels at the Location. Background samples collected from the Location indicate a pH value of 9.68, and an arsenic concentration of 8.02 mg/kg. Based on Footnote 11 of COGCC Table 915-1, Confluence recommends requesting an alternative allowable concentration for arsenic equivalent to 1.25 times the background concentration, which equals 10.02 mg/kg.

Based on these results and analysis, Confluence recommends that Caerus request closure of COGCC Spill ID 481516 and a no further action (NFA) determination.

Confluence is grateful for the opportunity to support you with this project. If you have any questions about the methods, results or recommendations presented here, please do not hesitate to contact me.

Regards,



Chris McKisson
Senior Project Manager
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Attachments

- Topographic Location Map
- Site Diagram – Background Samples
- Site Diagram – Excavation
- Laboratory Results Summary Table
- Laboratory Analytical Reports



Topographic Location Map

Caerus Oil and Gas LLC

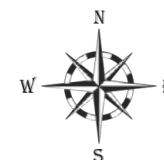
M. DUTTON-68S95W /7SWSW

(SGV-7N)

COGCC Location ID: 334127

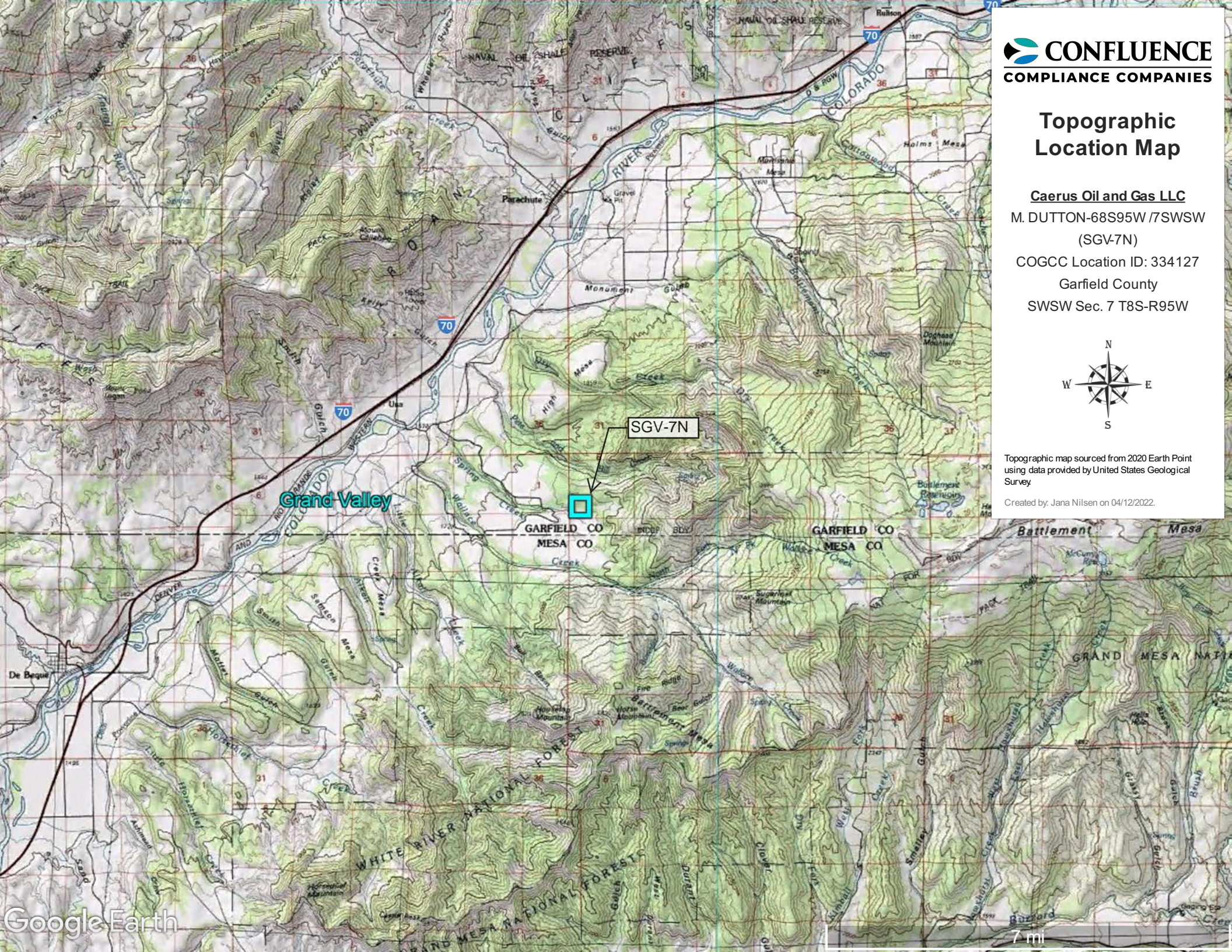
Garfield County

SWSW Sec. 7 T8S-R95W



Topographic map sourced from 2020 Earth Point
using data provided by United States Geological
Survey.

Created by: Jana Nilsen on 04/12/2022.



Site Diagram Excavation

Caerus Oil and Gas LLC

SGV 7N

(M. DUTTON-68S95W /7SWSW)







COGCC Location ID: 334127

Garfield County

SWSW Sec. 7 T8S-R95W

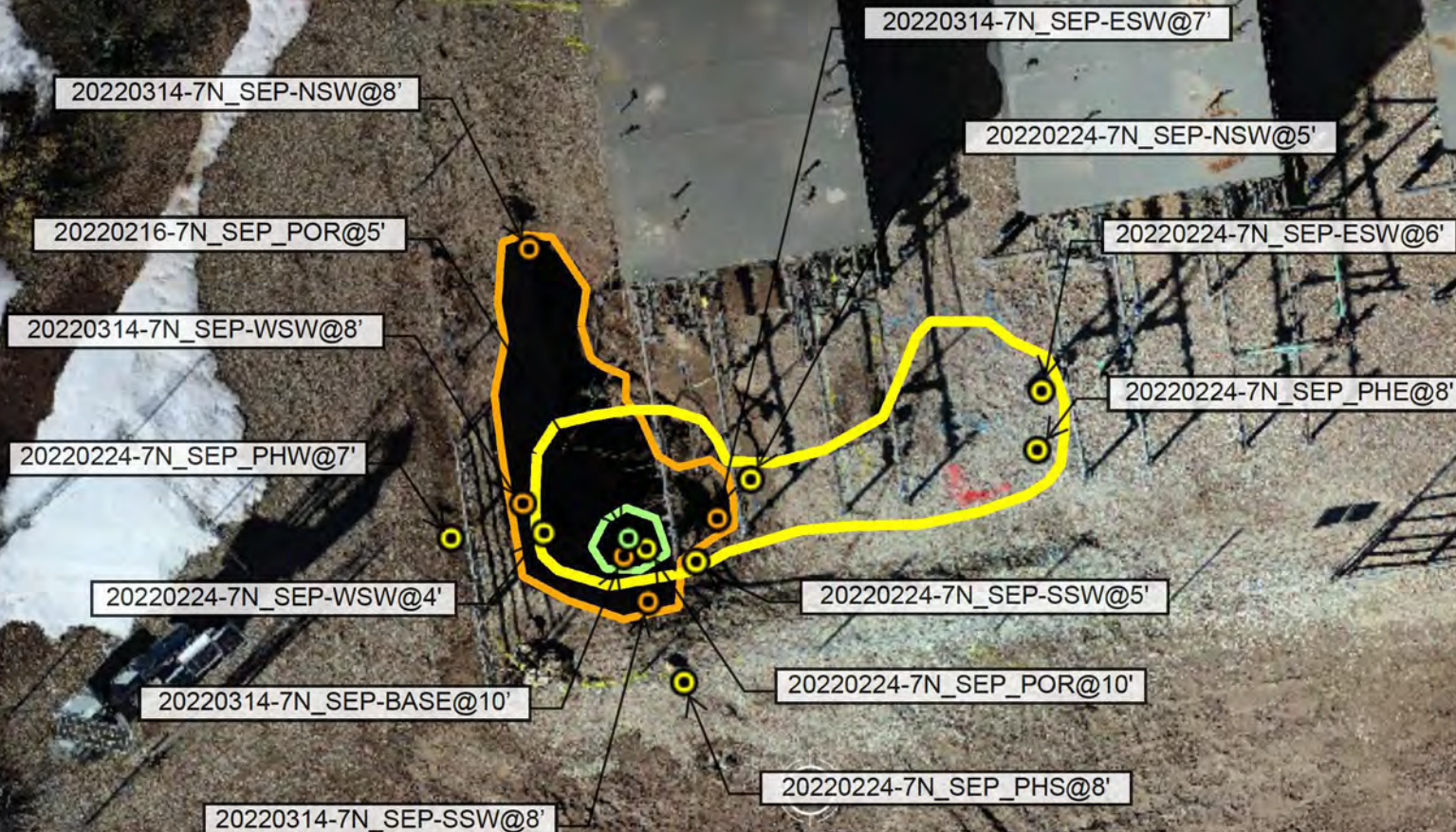


Legend

-  Soil Sample – 02/16/2022
-  Soil Sample – 02/24/2022
-  Soil Sample – 03/14/2022
-  Excavation Extent – 02/16/2022
-  Excavation Extent – 02/24/2022
-  Excavation Extent – 03/14/2022

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Andrew Smith on 03/16/2022.



Soil Screening and Remediation Limits			Organic Compounds (mg/kg [ppm])																			
" or "MCL Based") COGCC Table 915-1 Groundwater Protection -->			500	NA	NA	NA	0.0026	0.69	0.78	9.9	0.0081	0.0087	0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54
COGCC Table 915-1 Residential -->			500	NA	NA	NA	1.2	490	5.8	58	30	27	360	1800	1.1	0.11	1.1	11	110	0.11	240	240
Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (GRO+DRO+ORO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	TPH-ORO (C28-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total (sum of o-, m-, p- isomers)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(A)pyrene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene
2/16/2022	Dumpline	20220216-7N_SEP_POR@5'	1505	1480	25.4	<4.00	0.875	12.6	2.34	26.6	3.74	3.19	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
2/24/2022	Dumpline	20220224-7N_SEP-NSW@5'	125.2	0.207	43.4	81.6	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
2/24/2022	Dumpline	20220224-7N_SEP-POR@10'	ND	<0.100	<4.00	<4.00	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
2/24/2022	Dumpline	20220224-7N_SEP-PH_W@7'	ND	<0.100	<4.00	<4.00	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
2/24/2022	Dumpline	20220224-7N_SEP-PH_E@8'	38.1	<0.100	16.1	22.0	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
2/24/2022	Dumpline	20220224-7N_SEP-PH_S@8'	ND	<0.100	<4.00	<4.00	<0.00100	<0.00500	<0.00250	0.0119	0.00603	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Dumpline	20220314-7N_SEP-ESW@7'	11.4	0.138	<4.00	11.3	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Dumpline	20220314-7N_SEP-NSW@8'	ND	<0.100	<4.00	<4.00	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Dumpline	20220314-7N_SEP-BASE@10'	0.243	0.243	<4.00	<4.00	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Dumpline	20220314-7N_SEP-SSW@8'	1.85	1.85	<4.00	<4.00	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Dumpline	20220314-7N_SEP-WSW@8'	10.52	0.420	4.50	5.60	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	0.00530	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
3/14/2022	Background	20220314-7N-BGW1@2'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW2@1'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW3@8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW4@4'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW5@6'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Soil Screening and Remediation Limits								Soil Suitability for Reclamation				Metals (mg/kg [ppm])									
" or "MCL Based") COGCC Table 915-1 Groundwater Protection -->			0.98	0.006	0.019	0.0038	1.3	4	6	6-8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
COGCC Table 915-1 Residential -->			1.1	18	24	2	180	4	6	6-8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	Indeno(1,2,3,C,D)pyrene	1- Methylinaphthalene	2- Methylinaphthalene	Naphthalene	Pyrene	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	SAR (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Boron - Hot Water Soluble (mg/L)	Arsenic	Barium	Cadmium (mg/kg)	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
2/16/2022	Dumpline	20220216-7N_SEP_POR@5'	<0.00600	0.0364	0.0893	0.0440	<0.00600	0.538	65.0	9.29	<0.200	5.15	213	<0.500	<1.00	18.3	8.26	24.1	<2.00	<1.00	48.1
2/24/2022	Dumpline	20220224-7N_SEP-NSW@5'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.160	0.813	8.93	<0.200	3.45	93.5	<0.500	<1.00	4.47	4.81	5.26	<2.00	<1.00	18.9
2/24/2022	Dumpline	20220224-7N_SEP-POR@10'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.263	2.61	8.87	0.420	3.20	163	<0.500	<1.00	8.81	9.70	12.3	<2.00	<1.00	31.8
2/24/2022	Dumpline	20220224-7N_SEP-PH_W@7'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.280	2.15	8.33	0.245	4.76	168	<0.500	<1.00	11.8	8.85	14.4	<2.00	<1.00	38.1
2/24/2022	Dumpline	20220224-7N_SEP-PH_E@8'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.370	2.72	9.10	0.347	3.01	200	<0.500	<1.00	9.91	6.40	13.1	<2.00	<1.00	33.1
2/24/2022	Dumpline	20220224-7N_SEP-PH_S@8'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.318	2.99	8.94	0.512	3.10	119	<0.500	<1.00	10.8	7.96	12.8	<2.00	<1.00	35.5
3/14/2022	Dumpline	20220314-7N_SEP-ESW@7'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.204	0.329	8.44	0.214	4.59	237	<0.500	<1.00	14.3	9.87	14.7	<2.00	<1.00	46.4
3/14/2022	Dumpline	20220314-7N_SEP-NSW@8'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.391	0.868	8.46	0.201	5.25	194	<0.500	<1.00	11.8	8.59	14.9	<2.00	<1.00	37.3
3/14/2022	Dumpline	20220314-7N_SEP-BASE@10'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.298	1.65	8.53	0.266	4.77	155	<0.500	<1.00	13.1	9.29	17.4	<2.00	<1.00	43.7
3/14/2022	Dumpline	20220314-7N_SEP-SSW@8'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.891	1.51	8.02	0.257	4.87	165	<0.500	<1.00	13.8	9.20	15.8	<2.00	<1.00	45.6
3/14/2022	Dumpline	20220314-7N_SEP-WSW@8'	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	0.742	1.04	8.29	0.660	6.81	161	<0.500	<1.00	10.8	7.19	13.7	<2.00	<1.00	32.4
3/14/2022	Background	20220314-7N-BGW1@2'	NA	NA	NA	NA	NA	1.140	10.1	9.68	0.264	5.37	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW2@1'	NA	NA	NA	NA	NA	5.040	26.7	8.58	0.390	4.73	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW3@8'	NA	NA	NA	NA	NA	0.731	14.8	8.42	0.111	8.02	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW4@4'	NA	NA	NA	NA	NA	0.347	0.914	8.31	0.0960	7.76	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/14/2022	Background	20220314-7N-BGW5@6'	NA	NA	NA	NA	NA	0.182	0.596	8.67	0.120	7.58	NA	NA	NA	NA	NA	NA	NA	NA	NA

Caerus Oil and Gas

Sample Delivery Group: L1463154
Samples Received: 02/18/2022
Project Number:
Description: 7N Separator Release
Site: 7N
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



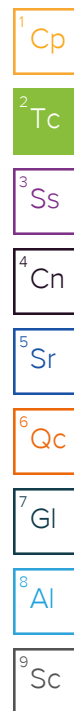
Chris Ward
Project Manager

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

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SAMPLE SUMMARY

20220216-7N_SEP_POR@5' L1463154-01 Solid

Collected by
A. Smith

Collected date/time
02/16/22 11:00

Received date/time
02/18/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1820574	1	02/22/22 12:28	02/22/22 12:28	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1821065	1	02/21/22 02:48	02/28/22 20:45	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1821233	1	02/21/22 13:00	02/21/22 13:00	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1821590	1	02/24/22 10:48	02/24/22 13:42	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1820849	1	02/21/22 09:20	02/24/22 02:23	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1822157	1	02/22/22 20:52	02/23/22 10:19	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1820850	5	02/21/22 09:21	02/22/22 10:11	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1822943	1000	02/18/22 17:44	02/24/22 13:15	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1820650	8	02/18/22 17:44	02/19/22 20:31	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1822582	1	02/24/22 08:50	02/24/22 16:04	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1823295	1	02/24/22 19:02	02/25/22 02:41	AGW	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

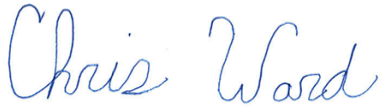
⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

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	65.0		1	02/22/2022 12:28	WG1820574

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/28/2022 20:45	WG1821065

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.29	T8	1	02/21/2022 13:00	WG1821233

Sample Narrative:

L1463154-01 WG1821233: 9.29 at 19.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	538		10.0	1	02/24/2022 13:42	WG1821590

Sample Narrative:

L1463154-01 WG1821590: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	213		0.500	1	02/24/2022 02:23	WG1820849
Cadmium	ND		0.500	1	02/24/2022 02:23	WG1820849
Copper	18.3		2.00	1	02/24/2022 02:23	WG1820849
Lead	8.26		0.500	1	02/24/2022 02:23	WG1820849
Nickel	24.1		2.00	1	02/24/2022 02:23	WG1820849
Selenium	ND		2.00	1	02/24/2022 02:23	WG1820849
Silver	ND		1.00	1	02/24/2022 02:23	WG1820849
Zinc	48.1		5.00	1	02/24/2022 02:23	WG1820849

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	02/23/2022 10:19	WG1822157

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.15		1.00	5	02/22/2022 10:11	WG1820850

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1480		100	1000	02/24/2022 13:15	WG1822943
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	98.4		77.0-120		02/24/2022 13:15	WG1822943

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	0.875		0.00800	8	02/19/2022 20:31	WG1820650
Toluene	12.6	V	0.0400	8	02/19/2022 20:31	WG1820650
Ethylbenzene	2.34	J5	0.0200	8	02/19/2022 20:31	WG1820650
Xylenes, Total	26.6	V	0.0520	8	02/19/2022 20:31	WG1820650
1,2,4-Trimethylbenzene	3.74	J5	0.0400	8	02/19/2022 20:31	WG1820650
1,3,5-Trimethylbenzene	3.19	J5	0.0400	8	02/19/2022 20:31	WG1820650
(S) Toluene-d8	94.6		75.0-131		02/19/2022 20:31	WG1820650
(S) 4-Bromofluorobenzene	95.0		67.0-138		02/19/2022 20:31	WG1820650
(S) 1,2-Dichloroethane-d4	103		70.0-130		02/19/2022 20:31	WG1820650

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	25.4		4.00	1	02/24/2022 16:04	WG1822582
C28-C36 Motor Oil Range	ND		4.00	1	02/24/2022 16:04	WG1822582
(S) o-Terphenyl	68.1		18.0-148		02/24/2022 16:04	WG1822582

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Anthracene	ND	J4	0.00600	1	02/25/2022 02:41	WG1823295
Benzo(a)anthracene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Benzo(b)fluoranthene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Benzo(k)fluoranthene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Benzo(a)pyrene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Chrysene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Dibenz(a,h)anthracene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Fluoranthene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Fluorene	ND		0.00600	1	02/25/2022 02:41	WG1823295
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	02/25/2022 02:41	WG1823295
1-Methylnaphthalene	0.0364	J4	0.0200	1	02/25/2022 02:41	WG1823295
2-Methylnaphthalene	0.0893		0.0200	1	02/25/2022 02:41	WG1823295
Naphthalene	0.0440		0.0200	1	02/25/2022 02:41	WG1823295
Pyrene	ND		0.00600	1	02/25/2022 02:41	WG1823295
(S) p-Terphenyl-d14	59.8		23.0-120		02/25/2022 02:41	WG1823295
(S) Nitrobenzene-d5	123		14.0-149		02/25/2022 02:41	WG1823295
(S) 2-Fluorobiphenyl	55.7		34.0-125		02/25/2022 02:41	WG1823295

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3764942-1 02/28/22 18:04

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1461055-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1461055-07 02/28/22 18:25 • (DUP) R3764942-3 02/28/22 18:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	1.05	1	19.4		20

L1462405-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1462405-05 02/28/22 18:46 • (DUP) R3764942-4 02/28/22 18:51

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	2.48	2.84	1	13.7		20

L1463150-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1463150-04 02/28/22 20:25 • (DUP) R3764942-9 02/28/22 20:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	1.03	1	33.4	P1	20

L1463218-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1463218-01 02/28/22 20:51 • (DUP) R3764942-10 02/28/22 20:56

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

Laboratory Control Sample (LCS)

(LCS) R3764942-2 02/28/22 18:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Hexavalent Chromium	20.0	20.8	104	80.0-120	

L1463150-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463150-01 02/28/22 19:38 • (MS) R3764942-5 02/28/22 19:43 • (MSD) R3764942-6 02/28/22 19:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	19.6	21.4	93.5	102	1	75.0-125			8.42	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1463150-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1463150-05 02/21/22 13:00 • (DUP) R3762166-2 02/21/22 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.08	8.09	1	0.124		1

Sample Narrative:

OS: 8.08 at 19.4C

DUP: 8.09 at 19.5C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1463298-26 Original Sample (OS) • Duplicate (DUP)

(OS) L1463298-26 02/21/22 13:00 • (DUP) R3762166-3 02/21/22 13:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	6.08	6.05	1	0.495		1

Sample Narrative:

OS: 6.08 at 19.1C

DUP: 6.05 at 19.2C

Laboratory Control Sample (LCS)

(LCS) R3762166-1 02/21/22 13:00

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

Sample Narrative:

LCS: 9.98 at 20C

Method Blank (MB)

(MB) R3763448-1 02/24/22 13:42

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

L1463218-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1463218-01 02/24/22 13:42 • (DUP) R3763448-3 02/24/22 13:42

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3730	3500	1	6.36		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1463540-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1463540-01 02/24/22 13:42 • (DUP) R3763448-4 02/24/22 13:42

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	6790	7040	1	3.62		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3763448-2 02/24/22 13:42

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	268	100	85.0-115	

Sample Narrative:

LCS: at 25C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3763253-1 02/24/22 01:46

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

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Laboratory Control Sample (LCS)

(LCS) R3763253-2 02/24/22 01:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	98.8	98.8	80.0-120	
Copper	100	96.9	96.9	80.0-120	
Lead	100	94.3	94.3	80.0-120	
Nickel	100	97.9	97.9	80.0-120	
Selenium	100	95.8	95.8	80.0-120	
Silver	20.0	17.7	88.7	80.0-120	
Zinc	100	97.3	97.3	80.0-120	

L1463150-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463150-04 02/24/22 01:51 • (MS) R3763253-5 02/24/22 01:59 • (MSD) R3763253-6 02/24/22 02:01

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	277	405	352	129	75.2	1	75.0-125	J5		14.1	20
Cadmium	100	ND	93.1	88.1	92.7	87.7	1	75.0-125			5.49	20
Copper	100	17.5	114	105	96.3	87.9	1	75.0-125			7.64	20
Lead	100	14.1	105	99.8	90.9	85.8	1	75.0-125			5.01	20
Nickel	100	23.2	120	111	97.0	88.3	1	75.0-125			7.49	20
Selenium	100	ND	87.9	83.3	87.9	83.3	1	75.0-125			5.43	20
Silver	20.0	ND	16.5	15.8	82.4	79.2	1	75.0-125			3.99	20
Zinc	100	60.4	147	138	86.5	77.6	1	75.0-125			6.22	20

Method Blank (MB)

(MB) R3763024-1 02/23/22 09:30

Analyte	MB Result mg/l	<u>MB Qualifier</u>	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) R3763024-2 02/23/22 09:33 • (LCSD) R3763024-3 02/23/22 09:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.995	0.955	99.5	95.5	80.0-120			4.13	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3762370-1 02/22/22 09:25

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) R3762370-2 02/22/22 09:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	88.5	88.5	80.0-120	

L1463150-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463150-04 02/22/22 09:32 • (MS) R3762370-5 02/22/22 09:41 • (MSD) R3762370-6 02/22/22 09:45

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	4.73	90.7	83.4	86.0	78.7	5	75.0-125			8.39	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3763631-2 02/24/22 06:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	100			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3763631-1 02/24/22 04:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.42	98.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			107	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3763160-3 02/19/22 11:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	112			75.0-131
(S) 4-Bromofluorobenzene	104			67.0-138
(S) 1,2-Dichloroethane-d4	91.2			70.0-130

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

(LCS) R3763160-1 02/19/22 10:08 • (LCSD) R3763160-2 02/19/22 10:27

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	0.116	0.109	92.8	87.2	70.0-123			6.22	20
Ethylbenzene	0.125	0.115	0.109	92.0	87.2	74.0-126			5.36	20
Toluene	0.125	0.116	0.112	92.8	89.6	75.0-121			3.51	20
1,2,4-Trimethylbenzene	0.125	0.119	0.119	95.2	95.2	70.0-126			0.000	20
1,3,5-Trimethylbenzene	0.125	0.120	0.119	96.0	95.2	73.0-127			0.837	20
Xylenes, Total	0.375	0.323	0.311	86.1	82.9	72.0-127			3.79	20
(S) Toluene-d8				100	101	75.0-131				
(S) 4-Bromofluorobenzene				97.8	97.1	67.0-138				
(S) 1,2-Dichloroethane-d4				122	121	70.0-130				

L1463154-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463154-01 02/19/22 20:31 • (MS) R3763160-4 02/19/22 20:50 • (MSD) R3763160-5 02/19/22 21:09

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	1.00	0.875	1.70	1.87	82.5	99.5	8	10.0-149			9.52	37
Ethylbenzene	1.00	2.34	4.33	4.64	199	230	8	10.0-160	J5	J5	6.91	38
Toluene	1.00	12.6	21.9	16.1	930	350	8	10.0-156	E V	V	30.5	38
1,2,4-Trimethylbenzene	1.00	3.74	7.81	8.56	407	482	8	10.0-160	J5	J5	9.16	36
1,3,5-Trimethylbenzene	1.00	3.19	5.77	7.40	258	421	8	10.0-160	J5	J5	24.8	38
Xylenes, Total	3.00	26.6	45.9	43.2	643	553	8	10.0-160	V	V	6.06	38
(S) Toluene-d8					103	69.8		75.0-131		J2		
(S) 4-Bromofluorobenzene					94.4	91.5		67.0-138				
(S) 1,2-Dichloroethane-d4					113	105		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3763551-1 02/24/22 14:17

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	0.361	⬇	0.274	4.00
(S) o-Terphenyl	61.7			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3763551-2 02/24/22 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	40.8	81.6	50.0-150	
(S) o-Terphenyl			93.1	18.0-148	

L1463150-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463150-01 02/24/22 17:25 • (MS) R3763551-3 02/24/22 17:38 • (MSD) R3763551-4 02/24/22 17:52

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 %
C10-C28 Diesel Range	50.0	5.97	41.8	45.6	71.7	79.3	1	50.0-150			8.70	20
(S) o-Terphenyl					71.0	78.1		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) R3763878-2 02/25/22 00:22

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
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(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
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	57.4			14.0-149
(S) 2-Fluorobiphenyl	60.2			34.0-125
(S) p-Terphenyl-d14	66.7			23.0-120

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3763878-1 02/25/22 00:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0377	47.1	50.0-126	J4
Acenaphthene	0.0800	0.0411	51.4	50.0-120	
Benzo(a)anthracene	0.0800	0.0388	48.5	45.0-120	
Benzo(a)pyrene	0.0800	0.0372	46.5	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0449	56.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0442	55.3	49.0-125	
Chrysene	0.0800	0.0455	56.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0389	48.6	47.0-125	
Fluoranthene	0.0800	0.0415	51.9	49.0-129	
Fluorene	0.0800	0.0403	50.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0387	48.4	46.0-125	
Naphthalene	0.0800	0.0405	50.6	50.0-120	
Pyrene	0.0800	0.0447	55.9	43.0-123	
1-Methylnaphthalene	0.0800	0.0402	50.3	51.0-121	J4
2-Methylnaphthalene	0.0800	0.0414	51.8	50.0-120	

Laboratory Control Sample (LCS)

(LCS) R3763878-1 02/25/22 00:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) Nitrobenzene-d5			54.3	14.0-149	
(S) 2-Fluorobiphenyl			55.4	34.0-125	
(S) p-Terphenyl-d14			63.7	23.0-120	

L1463150-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1463150-06 02/25/22 00:40 • (MS) R3763878-3 02/25/22 00:57 • (MSD) R3763878-4 02/25/22 01:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0384	0.0317	48.0	39.6	1	10.0-145			19.1	30
Acenaphthene	0.0800	ND	0.0420	0.0331	52.5	41.4	1	14.0-127			23.7	27
Benzo(a)anthracene	0.0800	ND	0.0394	0.0330	49.3	41.3	1	10.0-139			17.7	30
Benzo(a)pyrene	0.0800	ND	0.0450	0.0381	56.3	47.6	1	10.0-141			16.6	31
Benzo(b)fluoranthene	0.0800	ND	0.0416	0.0340	52.0	42.5	1	10.0-140			20.1	36
Benzo(k)fluoranthene	0.0800	ND	0.0416	0.0353	52.0	44.1	1	10.0-137			16.4	31
Chrysene	0.0800	ND	0.0424	0.0357	53.0	44.6	1	10.0-145			17.2	30
Dibenz(a,h)anthracene	0.0800	ND	0.0379	0.0321	47.4	40.1	1	10.0-132			16.6	31
Fluoranthene	0.0800	ND	0.0414	0.0346	51.8	43.3	1	10.0-153			17.9	33
Fluorene	0.0800	ND	0.0413	0.0327	51.6	40.9	1	11.0-130			23.2	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0381	0.0330	47.6	41.3	1	10.0-137			14.3	32
Naphthalene	0.0800	ND	0.0412	0.0327	51.5	40.9	1	10.0-135			23.0	27
Pyrene	0.0800	ND	0.0432	0.0362	54.0	45.3	1	10.0-148			17.6	35
1-Methylnaphthalene	0.0800	ND	0.0415	0.0325	51.9	40.6	1	10.0-142			24.3	28
2-Methylnaphthalene	0.0800	ND	0.0428	0.0338	53.5	42.3	1	10.0-137			23.5	28
(S) Nitrobenzene-d5					61.6	48.0		14.0-149				
(S) 2-Fluorobiphenyl					59.4	47.4		34.0-125				
(S) p-Terphenyl-d14					63.3	48.6		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

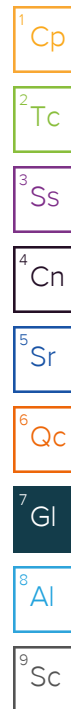
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
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.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

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

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

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



Caerus Oil and Gas

Sample Delivery Group: L1465665
Samples Received: 02/26/2022
Project Number:
Description: SGV 7N Separator Release
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 National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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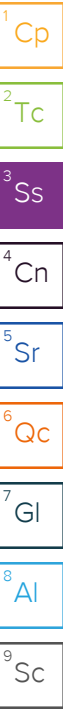
¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

20220224-7N_SEP-POR@10' L1465665-01 Solid

Collected by AS
Collected date/time 02/24/22 09:30
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 16:58	03/04/22 16:58	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1826405	1	03/03/22 02:00	03/03/22 18:13	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1825648	1	03/02/22 07:00	03/02/22 09:00	GI	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 03:06	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:29	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1826572	5	03/03/22 08:44	03/03/22 13:47	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	02/28/22 23:37	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 03:31	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 12:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 13:53	LEA	Mt. Juliet, TN



20220224-7N_SEP-PH_W@7' L1465665-02 Solid

Collected by AS
Collected date/time 02/24/22 09:50
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 17:01	03/04/22 17:01	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1826405	1	03/03/22 02:00	03/03/22 18:23	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1825191	1	03/01/22 13:00	03/01/22 15:00	GI	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 03:46	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:31	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1826572	5	03/03/22 08:44	03/03/22 13:50	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	02/28/22 23:59	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 03:51	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 12:33	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:11	LEA	Mt. Juliet, TN

20220224-7N_SEP-PH_E@8' L1465665-03 Solid

Collected by AS
Collected date/time 02/24/22 10:10
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 17:03	03/04/22 17:03	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1826405	1	03/03/22 02:00	03/03/22 18:29	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1825648	1	03/02/22 07:00	03/02/22 09:00	GI	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 03:49	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:34	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1826572	5	03/03/22 08:44	03/03/22 14:35	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 00:21	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 04:10	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 16:22	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:29	LEA	Mt. Juliet, TN

20220224-7N_SEP-PH_S@8' L1465665-04 Solid

Collected by AS
Collected date/time 02/24/22 10:30
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 17:06	03/04/22 17:06	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1826405	1	03/03/22 02:00	03/03/22 18:34	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1825648	1	03/02/22 07:00	03/02/22 09:00	GI	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 03:52	CCE	Mt. Juliet, TN

SAMPLE SUMMARY

20220224-7N_SEP-PH_S@8' L1465665-04 Solid

Collected by
AS

Collected date/time
02/24/22 10:30

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

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:37	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1826572	5	03/03/22 08:44	03/03/22 13:57	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 00:42	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 04:29	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 14:05	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 14:46	LEA	Mt. Juliet, TN

¹Cp

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³Ss

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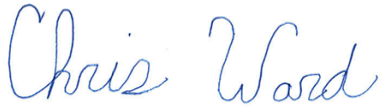
⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

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	2.61		1	03/04/2022 16:58	WG1824998

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/03/2022 18:13	WG1826405

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.87	T8	1	03/02/2022 09:00	WG1825648

Sample Narrative:

L1465665-01 WG1825648: 8.87 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	263		10.0	1	03/06/2022 06:43	WG1825853

Sample Narrative:

L1465665-01 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	163	O1	0.500	1	03/04/2022 03:06	WG1825824
Cadmium	ND		0.500	1	03/04/2022 03:06	WG1825824
Copper	8.81		2.00	1	03/04/2022 03:06	WG1825824
Lead	9.70		0.500	1	03/04/2022 03:06	WG1825824
Nickel	12.3		2.00	1	03/04/2022 03:06	WG1825824
Selenium	ND		2.00	1	03/04/2022 03:06	WG1825824
Silver	ND		1.00	1	03/04/2022 03:06	WG1825824
Zinc	31.8		5.00	1	03/04/2022 03:06	WG1825824

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.420		0.200	1	03/04/2022 14:29	WG1825224

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.20		1.00	5	03/03/2022 13:47	WG1826572

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	02/28/2022 23:37	WG1825064
(S) a,a,a-Trifluorotoluene(FID)	109		77.0-120		02/28/2022 23:37	WG1825064

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	ND		0.00100	1	03/01/2022 03:31	WG1825054
Toluene	ND		0.00500	1	03/01/2022 03:31	WG1825054
Ethylbenzene	ND		0.00250	1	03/01/2022 03:31	WG1825054
Xylenes, Total	ND		0.00650	1	03/01/2022 03:31	WG1825054
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 03:31	WG1825054
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 03:31	WG1825054
(S) Toluene-d8	99.4		75.0-131		03/01/2022 03:31	WG1825054
(S) 4-Bromofluorobenzene	97.3		67.0-138		03/01/2022 03:31	WG1825054
(S) 1,2-Dichloroethane-d4	106		70.0-130		03/01/2022 03:31	WG1825054

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 12:18	WG1826930
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 12:18	WG1826930
(S) o-Terphenyl	48.9		18.0-148		03/04/2022 12:18	WG1826930

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Anthracene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Benzo(a)anthracene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Benzo(b)fluoranthene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Benzo(k)fluoranthene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Benzo(a)pyrene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Chrysene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Dibenz(a,h)anthracene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Fluoranthene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Fluorene	ND		0.00600	1	03/04/2022 13:53	WG1826933
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/04/2022 13:53	WG1826933
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 13:53	WG1826933
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 13:53	WG1826933
Naphthalene	ND		0.0200	1	03/04/2022 13:53	WG1826933
Pyrene	ND		0.00600	1	03/04/2022 13:53	WG1826933
(S) p-Terphenyl-d14	69.1		23.0-120		03/04/2022 13:53	WG1826933
(S) Nitrobenzene-d5	60.1		14.0-149		03/04/2022 13:53	WG1826933
(S) 2-Fluorobiphenyl	68.1		34.0-125		03/04/2022 13:53	WG1826933

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	2.15		1	03/04/2022 17:01	WG1824998

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/03/2022 18:23	WG1826405

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	03/01/2022 15:00	WG1825191

Sample Narrative:

L1465665-02 WG1825191: 8.33 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	280		10.0	1	03/06/2022 06:43	WG1825853

Sample Narrative:

L1465665-02 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	168		0.500	1	03/04/2022 03:46	WG1825824
Cadmium	ND		0.500	1	03/04/2022 03:46	WG1825824
Copper	11.8		2.00	1	03/04/2022 03:46	WG1825824
Lead	8.85		0.500	1	03/04/2022 03:46	WG1825824
Nickel	14.4		2.00	1	03/04/2022 03:46	WG1825824
Selenium	ND		2.00	1	03/04/2022 03:46	WG1825824
Silver	ND		1.00	1	03/04/2022 03:46	WG1825824
Zinc	38.1		5.00	1	03/04/2022 03:46	WG1825824

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.245		0.200	1	03/04/2022 14:31	WG1825224

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.76		1.00	5	03/03/2022 13:50	WG1826572

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	02/28/2022 23:59	WG1825064
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		02/28/2022 23:59	WG1825064

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	ND		0.00100	1	03/01/2022 03:51	WG1825054
Toluene	ND		0.00500	1	03/01/2022 03:51	WG1825054
Ethylbenzene	ND		0.00250	1	03/01/2022 03:51	WG1825054
Xylenes, Total	ND		0.00650	1	03/01/2022 03:51	WG1825054
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 03:51	WG1825054
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 03:51	WG1825054
(S) Toluene-d8	101		75.0-131		03/01/2022 03:51	WG1825054
(S) 4-Bromofluorobenzene	94.1		67.0-138		03/01/2022 03:51	WG1825054
(S) 1,2-Dichloroethane-d4	96.6		70.0-130		03/01/2022 03:51	WG1825054

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 12:33	WG1826930
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 12:33	WG1826930
(S) o-Terphenyl	57.3		18.0-148		03/04/2022 12:33	WG1826930

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Anthracene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Benzo(a)anthracene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Benzo(b)fluoranthene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Benzo(k)fluoranthene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Benzo(a)pyrene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Chrysene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Dibenz(a,h)anthracene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Fluoranthene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Fluorene	ND		0.00600	1	03/04/2022 14:11	WG1826933
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/04/2022 14:11	WG1826933
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:11	WG1826933
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:11	WG1826933
Naphthalene	ND		0.0200	1	03/04/2022 14:11	WG1826933
Pyrene	ND		0.00600	1	03/04/2022 14:11	WG1826933
(S) p-Terphenyl-d14	78.1		23.0-120		03/04/2022 14:11	WG1826933
(S) Nitrobenzene-d5	64.4		14.0-149		03/04/2022 14:11	WG1826933
(S) 2-Fluorobiphenyl	70.5		34.0-125		03/04/2022 14:11	WG1826933

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	2.72		1	03/04/2022 17:03	WG1824998

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/03/2022 18:29	WG1826405

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.10	T8	1	03/02/2022 09:00	WG1825648

Sample Narrative:

L1465665-03 WG1825648: 9.1 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	370		10.0	1	03/06/2022 06:43	WG1825853

Sample Narrative:

L1465665-03 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	200		0.500	1	03/04/2022 03:49	WG1825824
Cadmium	ND		0.500	1	03/04/2022 03:49	WG1825824
Copper	9.91		2.00	1	03/04/2022 03:49	WG1825824
Lead	6.40		0.500	1	03/04/2022 03:49	WG1825824
Nickel	13.1		2.00	1	03/04/2022 03:49	WG1825824
Selenium	ND		2.00	1	03/04/2022 03:49	WG1825824
Silver	ND		1.00	1	03/04/2022 03:49	WG1825824
Zinc	33.1		5.00	1	03/04/2022 03:49	WG1825824

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.347		0.200	1	03/04/2022 14:34	WG1825224

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.01		1.00	5	03/03/2022 14:35	WG1826572

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	03/01/2022 00:21	WG1825064
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		03/01/2022 00:21	WG1825064

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	ND		0.00100	1	03/01/2022 04:10	WG1825054
Toluene	ND		0.00500	1	03/01/2022 04:10	WG1825054
Ethylbenzene	ND		0.00250	1	03/01/2022 04:10	WG1825054
Xylenes, Total	ND		0.00650	1	03/01/2022 04:10	WG1825054
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 04:10	WG1825054
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 04:10	WG1825054
(S) Toluene-d8	102		75.0-131		03/01/2022 04:10	WG1825054
(S) 4-Bromofluorobenzene	92.9		67.0-138		03/01/2022 04:10	WG1825054
(S) 1,2-Dichloroethane-d4	98.8		70.0-130		03/01/2022 04:10	WG1825054

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	16.1		4.00	1	03/04/2022 16:22	WG1826930
C28-C36 Motor Oil Range	22.0		4.00	1	03/04/2022 16:22	WG1826930
(S) o-Terphenyl	60.3		18.0-148		03/04/2022 16:22	WG1826930

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Anthracene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Benzo(a)anthracene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Benzo(b)fluoranthene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Benzo(k)fluoranthene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Benzo(a)pyrene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Chrysene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Dibenz(a,h)anthracene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Fluoranthene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Fluorene	ND		0.00600	1	03/04/2022 14:29	WG1826933
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/04/2022 14:29	WG1826933
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:29	WG1826933
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:29	WG1826933
Naphthalene	ND		0.0200	1	03/04/2022 14:29	WG1826933
Pyrene	ND		0.00600	1	03/04/2022 14:29	WG1826933
(S) p-Terphenyl-d14	74.7		23.0-120		03/04/2022 14:29	WG1826933
(S) Nitrobenzene-d5	64.6		14.0-149		03/04/2022 14:29	WG1826933
(S) 2-Fluorobiphenyl	71.1		34.0-125		03/04/2022 14:29	WG1826933

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	2.99		1	03/04/2022 17:06	WG1824998

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/03/2022 18:34	WG1826405

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.94	T8	1	03/02/2022 09:00	WG1825648

Sample Narrative:

L1465665-04 WG1825648: 8.94 at 20.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	318		10.0	1	03/06/2022 06:43	WG1825853

Sample Narrative:

L1465665-04 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	119		0.500	1	03/04/2022 03:52	WG1825824
Cadmium	ND		0.500	1	03/04/2022 03:52	WG1825824
Copper	10.8		2.00	1	03/04/2022 03:52	WG1825824
Lead	7.96		0.500	1	03/04/2022 03:52	WG1825824
Nickel	12.8		2.00	1	03/04/2022 03:52	WG1825824
Selenium	ND		2.00	1	03/04/2022 03:52	WG1825824
Silver	ND		1.00	1	03/04/2022 03:52	WG1825824
Zinc	35.5		5.00	1	03/04/2022 03:52	WG1825824

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.512		0.200	1	03/04/2022 14:37	WG1825224

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.10		1.00	5	03/03/2022 13:57	WG1826572

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	03/01/2022 00:42	WG1825064
(S) a,a,a-Trifluorotoluene(FID)	111		77.0-120		03/01/2022 00:42	WG1825064

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	ND		0.00100	1	03/01/2022 04:29	WG1825054
Toluene	ND		0.00500	1	03/01/2022 04:29	WG1825054
Ethylbenzene	ND		0.00250	1	03/01/2022 04:29	WG1825054
Xylenes, Total	0.0119		0.00650	1	03/01/2022 04:29	WG1825054
1,2,4-Trimethylbenzene	0.00603		0.00500	1	03/01/2022 04:29	WG1825054
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 04:29	WG1825054
(S) Toluene-d8	102		75.0-131		03/01/2022 04:29	WG1825054
(S) 4-Bromofluorobenzene	92.7		67.0-138		03/01/2022 04:29	WG1825054
(S) 1,2-Dichloroethane-d4	96.4		70.0-130		03/01/2022 04:29	WG1825054

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 14:05	WG1826930
C28-C36 Motor Oil Range	ND		4.00	1	03/04/2022 14:05	WG1826930
(S) o-Terphenyl	67.7		18.0-148		03/04/2022 14:05	WG1826930

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Anthracene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Benzo(a)anthracene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Benzo(b)fluoranthene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Benzo(k)fluoranthene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Benzo(a)pyrene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Chrysene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Dibenz(a,h)anthracene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Fluoranthene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Fluorene	ND		0.00600	1	03/04/2022 14:46	WG1826933
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/04/2022 14:46	WG1826933
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:46	WG1826933
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 14:46	WG1826933
Naphthalene	ND		0.0200	1	03/04/2022 14:46	WG1826933
Pyrene	ND		0.00600	1	03/04/2022 14:46	WG1826933
(S) p-Terphenyl-d14	67.2		23.0-120		03/04/2022 14:46	WG1826933
(S) Nitrobenzene-d5	56.9		14.0-149		03/04/2022 14:46	WG1826933
(S) 2-Fluorobiphenyl	62.2		34.0-125		03/04/2022 14:46	WG1826933

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3766357-1 03/03/22 16:43

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

L1465349-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465349-01 03/03/22 16:55 • (DUP) R3766357-3 03/03/22 17:00

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

L1465665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465665-01 03/03/22 18:13 • (DUP) R3766357-8 03/03/22 18:18

	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) R3766357-2 03/03/22 16:50

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1465422-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465422-07 03/03/22 17:21 • (MS) R3766357-4 03/03/22 17:26 • (MSD) R3766357-5 03/03/22 17:32

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	18.6	20.1	90.5	98.2	1	75.0-125			7.97	20

L1465422-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1465422-07 03/03/22 17:21 • (MS) R3766357-6 03/03/22 17:47

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	674	ND	597	88.6	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1465619-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465619-01 03/01/22 15:00 • (DUP) R3765122-2 03/01/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.98	8.01	1	0.375		1

Sample Narrative:

OS: 7.98 at 19.8C

DUP: 8.01 at 19.8C

L1465665-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1465665-02 03/01/22 15:00 • (DUP) R3765122-3 03/01/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.33	8.35	1	0.240		1

Sample Narrative:

OS: 8.33 at 20.4C

DUP: 8.35 at 20.8C

Laboratory Control Sample (LCS)

(LCS) R3765122-1 03/01/22 15:00

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

Sample Narrative:

LCS: 9.98 at 18C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3765354-1 03/02/22 09:00

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

Sample Narrative:

LCS: 9.96 at 20C

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

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

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
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

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	
Cadmium	100	89.1	89.1	80.0-120	
Copper	100	92.1	92.1	80.0-120	
Lead	100	92.2	92.2	80.0-120	
Nickel	100	91.7	91.7	80.0-120	
Selenium	100	87.7	87.7	80.0-120	
Silver	20.0	17.5	87.7	80.0-120	
Zinc	100	90.0	90.0	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
Cadmium	100	ND	104	107	104	107	1	75.0-125			2.53	20
Copper	100	8.81	115	118	106	109	1	75.0-125			2.89	20
Lead	100	9.70	114	117	104	108	1	75.0-125			2.84	20
Nickel	100	12.3	119	123	107	110	1	75.0-125			2.97	20
Selenium	100	ND	101	105	101	105	1	75.0-125			3.69	20
Silver	20.0	ND	20.7	21.2	104	106	1	75.0-125			2.10	20
Zinc	100	31.8	124	129	92.2	97.0	1	75.0-125			3.81	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3766059-1 03/03/22 12:48

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) R3766059-2 03/03/22 12:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.7	96.7	80.0-120	

L1464757-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1464757-01 03/03/22 12:54 • (MS) R3766059-5 03/03/22 13:05 • (MSD) R3766059-6 03/03/22 13:08

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 %
Arsenic	100	ND	86.7	95.0	85.9	94.2	5	75.0-125			9.14	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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) 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				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

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				

1
Cp

2
Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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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
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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
Acenaphthene	0.0800	0.0625	78.1	50.0-120	
Anthracene	0.0800	0.0563	70.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0569	71.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0628	78.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0592	74.0	49.0-125	
Benzo(a)pyrene	0.0800	0.0534	66.8	42.0-120	
Chrysene	0.0800	0.0624	78.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0609	76.1	47.0-125	
Fluoranthene	0.0800	0.0637	79.6	49.0-129	
Fluorene	0.0800	0.0613	76.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0610	76.3	46.0-125	
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	
Pyrene	0.0800	0.0669	83.6	43.0-123	

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 %	<u>LCS Qualifier</u>
(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 %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0578	0.0520	72.3	65.0	1	14.0-127			10.6	27
Anthracene	0.0800	ND	0.0531	0.0462	66.4	57.8	1	10.0-145			13.9	30
Benzo(a)anthracene	0.0800	ND	0.0503	0.0413	62.9	51.6	1	10.0-139			19.7	30
Benzo(b)fluoranthene	0.0800	ND	0.0534	0.0438	66.8	54.8	1	10.0-140			19.8	36
Benzo(k)fluoranthene	0.0800	ND	0.0515	0.0419	64.4	52.4	1	10.0-137			20.6	31
Benzo(a)pyrene	0.0800	ND	0.0571	0.0465	71.4	58.1	1	10.0-141			20.5	31
Chrysene	0.0800	ND	0.0568	0.0472	71.0	59.0	1	10.0-145			18.5	30
Dibenz(a,h)anthracene	0.0800	ND	0.0525	0.0423	65.6	52.9	1	10.0-132			21.5	31
Fluoranthene	0.0800	ND	0.0573	0.0485	71.6	60.6	1	10.0-153			16.6	33
Fluorene	0.0800	ND	0.0559	0.0495	69.9	61.9	1	11.0-130			12.1	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0553	0.0455	69.1	56.9	1	10.0-137			19.4	32
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
Pyrene	0.0800	ND	0.0632	0.0547	79.0	68.4	1	10.0-148			14.4	35
(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

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

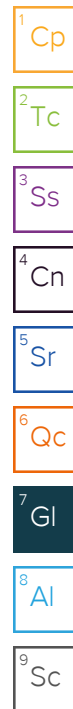
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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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
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

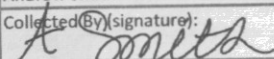
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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



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/hubfs/pas-standard-terms.pdf>
Chain-of-Custody is a **LEGAL DOCUMENT** - Complete all relevant fields

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 Separator Release		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: _____	

* 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]

Customer Remarks / Special Conditions / Possible Hazards:	Type of Ice Used:	Wet	Blue	Dry	None
	Packing Material Used:				
	Radchem sample(s) screened (<500 cpm):	Y	N	NA	

Relinquished by/Company: (Signature)	Date/Time: 02/25/22 1600	Received by/Company: (Signature)
Relinquished by/Company: (Signature)	Date/Time: 2/25/22 1700	Received by/Company: (Signature)
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or
MTJL Log-in Number Here

21465665

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

[illegible]

* 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 _____

[illegible]

LAB USE ONLY:
Lab Sample # / Comments:

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO	Page: _____ of: _____
---------------------------------	--------------------------

1179

Temp: $24 \pm 0.5^\circ \text{C}$

Fenyl 5433 82 SL m72A

Caerus Oil and Gas

Sample Delivery Group: L1465670
Samples Received: 02/26/2022
Project Number:
Description: SGV 7N Separator Release
Site: SGV 7N
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



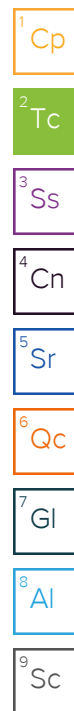
Chris Ward
Project Manager

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

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SAMPLE SUMMARY

20220224-7N_SEP-NSW@5' L1465670-01 Solid

Collected by
AS

Collected date/time
02/24/22 11:10

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 17:09	03/04/22 17:09	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1826405	1	03/03/22 02:00	03/03/22 18:49	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1825648	1	03/02/22 07:00	03/02/22 09:00	GI	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	WG1827333	1	03/04/22 09:20	03/04/22 17:51	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1825224	1	03/02/22 17:32	03/04/22 14:45	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1827336	5	03/04/22 09:22	03/04/22 11:26	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1825064	1	02/28/22 14:39	03/01/22 01:04	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1825054	1	02/28/22 14:39	03/01/22 04:48	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1826930	1	03/04/22 05:00	03/04/22 16:37	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1826933	1	03/04/22 05:08	03/04/22 17:17	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

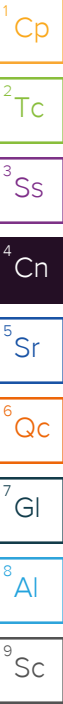
⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.813		1	03/04/2022 17:09	WG1824998

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/03/2022 18:49	WG1826405

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.93	T8	1	03/02/2022 09:00	WG1825648

Sample Narrative:
L1465670-01 WG1825648: 8.93 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	160		10.0	1	03/06/2022 06:43	WG1825853

Sample Narrative:
L1465670-01 WG1825853: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	93.5	J5 O1	0.500	1	03/04/2022 17:51	WG1827333
Cadmium	ND		0.500	1	03/04/2022 17:51	WG1827333
Copper	4.47		2.00	1	03/04/2022 17:51	WG1827333
Lead	4.81		0.500	1	03/04/2022 17:51	WG1827333
Nickel	5.26		2.00	1	03/04/2022 17:51	WG1827333
Selenium	ND		2.00	1	03/04/2022 17:51	WG1827333
Silver	ND		1.00	1	03/04/2022 17:51	WG1827333
Zinc	18.9		5.00	1	03/04/2022 17:51	WG1827333

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	03/04/2022 14:45	WG1825224

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	3.45		1.00	5	03/04/2022 11:26	WG1827336

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.207		0.100	1	03/01/2022 01:04	WG1825064
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/01/2022 01:04	WG1825064

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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 04:48	WG1825054
Toluene	ND		0.00500	1	03/01/2022 04:48	WG1825054
Ethylbenzene	ND		0.00250	1	03/01/2022 04:48	WG1825054
Xylenes, Total	ND		0.00650	1	03/01/2022 04:48	WG1825054
1,2,4-Trimethylbenzene	ND		0.00500	1	03/01/2022 04:48	WG1825054
1,3,5-Trimethylbenzene	ND		0.00500	1	03/01/2022 04:48	WG1825054
(S) Toluene-d8	105		75.0-131		03/01/2022 04:48	WG1825054
(S) 4-Bromofluorobenzene	89.9		67.0-138		03/01/2022 04:48	WG1825054
(S) 1,2-Dichloroethane-d4	97.2		70.0-130		03/01/2022 04:48	WG1825054

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	43.4		4.00	1	03/04/2022 16:37	WG1826930
C28-C36 Motor Oil Range	81.6		4.00	1	03/04/2022 16:37	WG1826930
(S) o-Terphenyl	56.9		18.0-148		03/04/2022 16:37	WG1826930

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Anthracene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Benzo(a)anthracene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Benzo(b)fluoranthene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Benzo(k)fluoranthene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Benzo(a)pyrene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Chrysene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Dibenz(a,h)anthracene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Fluoranthene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Fluorene	ND		0.00600	1	03/04/2022 17:17	WG1826933
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/04/2022 17:17	WG1826933
1-Methylnaphthalene	ND		0.0200	1	03/04/2022 17:17	WG1826933
2-Methylnaphthalene	ND		0.0200	1	03/04/2022 17:17	WG1826933
Naphthalene	ND		0.0200	1	03/04/2022 17:17	WG1826933
Pyrene	ND		0.00600	1	03/04/2022 17:17	WG1826933
(S) p-Terphenyl-d14	118		23.0-120		03/04/2022 17:17	WG1826933
(S) Nitrobenzene-d5	80.7		14.0-149		03/04/2022 17:17	WG1826933
(S) 2-Fluorobiphenyl	93.2		34.0-125		03/04/2022 17:17	WG1826933

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3766357-1 03/03/22 16:43

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

L1465349-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465349-01 03/03/22 16:55 • (DUP) R3766357-3 03/03/22 17:00

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

L1465665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1465665-01 03/03/22 18:13 • (DUP) R3766357-8 03/03/22 18:18

	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) R3766357-2 03/03/22 16:50

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1465422-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465422-07 03/03/22 17:21 • (MS) R3766357-4 03/03/22 17:26 • (MSD) R3766357-5 03/03/22 17:32

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	18.6	20.1	90.5	98.2	1	75.0-125			7.97	20

L1465422-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1465422-07 03/03/22 17:21 • (MS) R3766357-6 03/03/22 17:47

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	674	ND	597	88.6	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3765354-1 03/02/22 09:00

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

Sample Narrative:

LCS: 9.96 at 20C

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

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3766610-1 03/04/22 17:45

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

1
Cp

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Tc

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Ss

4
Cn

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Sr

6
Qc

7
Gl

8
Al

9
Sc

Laboratory Control Sample (LCS)

(LCS) R3766610-2 03/04/22 17:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	102	102	80.0-120	
Cadmium	100	98.7	98.7	80.0-120	
Copper	100	100	100	80.0-120	
Lead	100	94.9	94.9	80.0-120	
Nickel	100	99.3	99.3	80.0-120	
Selenium	100	97.7	97.7	80.0-120	
Silver	20.0	19.0	94.8	80.0-120	
Zinc	100	95.4	95.4	80.0-120	

L1465670-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465670-01 03/04/22 17:51 • (MS) R3766610-5 03/04/22 17:59 • (MSD) R3766610-6 03/04/22 18:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	93.5	234	242	140	149	1	75.0-125	J5	J5	3.61	20
Cadmium	100	ND	104	103	104	103	1	75.0-125			1.08	20
Copper	100	4.47	115	111	110	106	1	75.0-125			3.45	20
Lead	100	4.81	105	104	100	99.1	1	75.0-125			1.18	20
Nickel	100	5.26	111	110	105	105	1	75.0-125			0.235	20
Selenium	100	ND	105	102	104	101	1	75.0-125			2.51	20
Silver	20.0	ND	20.1	19.9	100	99.6	1	75.0-125			0.842	20
Zinc	100	18.9	111	108	92.1	89.4	1	75.0-125			2.47	20

Method Blank (MB)

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

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3766410-1 03/04/22 11:19

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) R3766410-2 03/04/22 11:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	88.6	88.6	80.0-120	

L1465670-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1465670-01 03/04/22 11:26 • (MS) R3766410-5 03/04/22 11:36 • (MSD) R3766410-6 03/04/22 11:39

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	3.45	86.6	81.5	83.1	78.0	5	75.0-125			6.08	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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
Acenaphthene	0.0800	0.0625	78.1	50.0-120	
Anthracene	0.0800	0.0563	70.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0569	71.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0628	78.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0592	74.0	49.0-125	
Benzo(a)pyrene	0.0800	0.0534	66.8	42.0-120	
Chrysene	0.0800	0.0624	78.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0609	76.1	47.0-125	
Fluoranthene	0.0800	0.0637	79.6	49.0-129	
Fluorene	0.0800	0.0613	76.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0610	76.3	46.0-125	
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	
Pyrene	0.0800	0.0669	83.6	43.0-123	

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 %	<u>LCS Qualifier</u>
(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 %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0578	0.0520	72.3	65.0	1	14.0-127			10.6	27
Anthracene	0.0800	ND	0.0531	0.0462	66.4	57.8	1	10.0-145			13.9	30
Benzo(a)anthracene	0.0800	ND	0.0503	0.0413	62.9	51.6	1	10.0-139			19.7	30
Benzo(b)fluoranthene	0.0800	ND	0.0534	0.0438	66.8	54.8	1	10.0-140			19.8	36
Benzo(k)fluoranthene	0.0800	ND	0.0515	0.0419	64.4	52.4	1	10.0-137			20.6	31
Benzo(a)pyrene	0.0800	ND	0.0571	0.0465	71.4	58.1	1	10.0-141			20.5	31
Chrysene	0.0800	ND	0.0568	0.0472	71.0	59.0	1	10.0-145			18.5	30
Dibenz(a,h)anthracene	0.0800	ND	0.0525	0.0423	65.6	52.9	1	10.0-132			21.5	31
Fluoranthene	0.0800	ND	0.0573	0.0485	71.6	60.6	1	10.0-153			16.6	33
Fluorene	0.0800	ND	0.0559	0.0495	69.9	61.9	1	11.0-130			12.1	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0553	0.0455	69.1	56.9	1	10.0-137			19.4	32
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
Pyrene	0.0800	ND	0.0632	0.0547	79.0	68.4	1	10.0-148			14.4	35
(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				

Cp

Tc

Ss

Cn

Sr

Qc

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Al

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

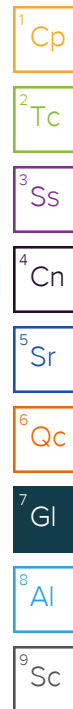
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



Caerus Oil and Gas

Sample Delivery Group: L1472464
Samples Received: 03/17/2022
Project Number:
Description: 7N Separator Release
Site: SGV 7N
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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

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

SAMPLE SUMMARY

20220314-7N_SEP-ESW@7' L1472464-01 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 10:30

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 13:22	03/22/22 13:22	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1835990	1	03/22/22 00:30	03/22/22 19:04	JER	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	WG1834743	1	03/22/22 05:41	03/23/22 10:16	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:08	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834746	5	03/22/22 05:40	03/22/22 18:22	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1834446	1	03/17/22 16:38	03/21/22 01:23	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1835107	1	03/17/22 16:38	03/20/22 12:56	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1835164	1	03/19/22 17:05	03/20/22 22:15	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1835786	1	03/22/22 16:10	03/23/22 03:11	AMG	Mt. Juliet, TN



20220314-7N_SEP-NSW@8' L1472464-02 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 14:20

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 13:25	03/22/22 13:25	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1835990	1	03/22/22 00:30	03/22/22 19:09	JER	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	WG1834743	1	03/22/22 05:41	03/23/22 10:18	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:11	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834746	5	03/22/22 05:40	03/22/22 18:26	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1834446	1	03/17/22 16:38	03/21/22 01:45	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1835107	1	03/17/22 16:38	03/20/22 13:17	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1835164	1	03/19/22 17:05	03/20/22 19:59	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1835786	1	03/22/22 16:10	03/23/22 03:31	AMG	Mt. Juliet, TN

20220314-7N_SEP-BASE@10' L1472464-03 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 15:00

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 13:28	03/22/22 13:28	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1835990	1	03/22/22 00:30	03/22/22 19:15	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834785	1	03/18/22 14:00	03/19/22 14:00	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	WG1834743	1	03/22/22 05:41	03/23/22 10:21	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:14	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834746	5	03/22/22 05:40	03/22/22 18:30	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1834446	1	03/17/22 16:38	03/21/22 02:06	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1835107	1	03/17/22 16:38	03/20/22 13:39	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1835164	1	03/19/22 17:05	03/20/22 20:15	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1835786	1	03/22/22 16:10	03/23/22 03:51	AMG	Mt. Juliet, TN

20220314-7N_SEP-SSE@8' L1472464-04 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 15:15

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 13:31	03/22/22 13:31	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1835990	1	03/22/22 00:30	03/22/22 19:20	JER	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	WG1834743	1	03/22/22 05:41	03/23/22 10:24	KMG	Mt. Juliet, TN

SAMPLE SUMMARY

20220314-7N_SEP-SSE@8' L1472464-04 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 15:15

Received date/time
03/17/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:17	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834746	5	03/22/22 05:40	03/22/22 18:33	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1834446	1	03/17/22 16:38	03/21/22 02:28	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1835107	1	03/17/22 16:38	03/20/22 14:00	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1835164	1	03/19/22 17:05	03/20/22 20:30	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1835786	1	03/22/22 16:10	03/23/22 04:11	AMG	Mt. Juliet, TN

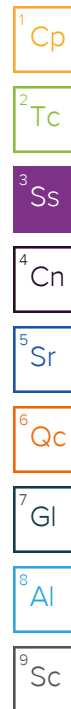
20220314-7N_SEP-WSW@8' L1472464-05 Solid

Collected by
Andrew Smith

Collected date/time
03/14/22 15:25

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 13:39	03/22/22 13:39	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1835990	1	03/22/22 00:30	03/22/22 19:30	JER	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	WG1834743	1	03/22/22 05:41	03/23/22 10:26	KMG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1835066	1	03/20/22 12:40	03/22/22 09:20	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1834746	5	03/22/22 05:40	03/22/22 18:37	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1834446	1	03/17/22 16:38	03/21/22 02:50	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1835107	1	03/17/22 16:38	03/20/22 14:21	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1835164	1	03/19/22 17:05	03/20/22 19:14	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1835786	1	03/22/22 16:10	03/23/22 04:31	AMG	Mt. Juliet, TN

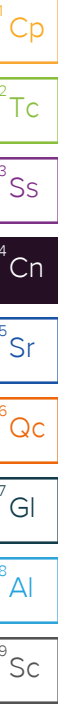


CASE NARRATIVE

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	0.329		1	03/22/2022 13:22	WG1835063

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/22/2022 19:04	WG1835990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.44	T8	1	03/19/2022 09:00	WG1834731

Sample Narrative:

L1472464-01 WG1834731: 8.44 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	204		10.0	1	03/20/2022 08:17	WG1835299

Sample Narrative:

L1472464-01 WG1835299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	237		0.500	1	03/23/2022 10:16	WG1834743
Cadmium	ND		0.500	1	03/23/2022 10:16	WG1834743
Copper	14.3		2.00	1	03/23/2022 10:16	WG1834743
Lead	9.87		0.500	1	03/23/2022 10:16	WG1834743
Nickel	14.7		2.00	1	03/23/2022 10:16	WG1834743
Selenium	ND		2.00	1	03/23/2022 10:16	WG1834743
Silver	ND		1.00	1	03/23/2022 10:16	WG1834743
Zinc	46.4		5.00	1	03/23/2022 10:16	WG1834743

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

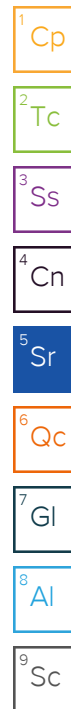
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.214		0.200	1	03/22/2022 09:08	WG1835066

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.59		1.00	5	03/22/2022 18:22	WG1834746

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.138		0.100	1	03/21/2022 01:23	WG1834446
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/21/2022 01:23	WG1834446



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	03/20/2022 12:56	WG1835107
Toluene	ND		0.00500	1	03/20/2022 12:56	WG1835107
Ethylbenzene	ND		0.00250	1	03/20/2022 12:56	WG1835107
Xylenes, Total	ND		0.00650	1	03/20/2022 12:56	WG1835107
1,2,4-Trimethylbenzene	ND		0.00500	1	03/20/2022 12:56	WG1835107
1,3,5-Trimethylbenzene	ND		0.00500	1	03/20/2022 12:56	WG1835107
(S) Toluene-d8	97.5		75.0-131		03/20/2022 12:56	WG1835107
(S) 4-Bromofluorobenzene	99.2		67.0-138		03/20/2022 12:56	WG1835107
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/20/2022 12:56	WG1835107

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	03/20/2022 22:15	WG1835164
C28-C36 Motor Oil Range	11.3		4.00	1	03/20/2022 22:15	WG1835164
(S) o-Terphenyl	55.7		18.0-148		03/20/2022 22:15	WG1835164

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Anthracene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Benzo(a)anthracene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Benzo(b)fluoranthene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Benzo(k)fluoranthene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Benzo(a)pyrene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Chrysene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Dibenz(a,h)anthracene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Fluoranthene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Fluorene	ND		0.00600	1	03/23/2022 03:11	WG1835786
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/23/2022 03:11	WG1835786
1-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:11	WG1835786
2-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:11	WG1835786
Naphthalene	ND		0.0200	1	03/23/2022 03:11	WG1835786
Pyrene	ND		0.00600	1	03/23/2022 03:11	WG1835786
(S) p-Terphenyl-d14	47.2		23.0-120		03/23/2022 03:11	WG1835786
(S) Nitrobenzene-d5	77.5		14.0-149		03/23/2022 03:11	WG1835786
(S) 2-Fluorobiphenyl	45.4		34.0-125		03/23/2022 03:11	WG1835786

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	0.868		1	03/22/2022 13:25	WG1835063

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/22/2022 19:09	WG1835990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.46	T8	1	03/19/2022 09:00	WG1834731

Sample Narrative:

L1472464-02 WG1834731: 8.46 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	391		10.0	1	03/20/2022 08:17	WG1835299

Sample Narrative:

L1472464-02 WG1835299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	194		0.500	1	03/23/2022 10:18	WG1834743
Cadmium	ND		0.500	1	03/23/2022 10:18	WG1834743
Copper	11.8		2.00	1	03/23/2022 10:18	WG1834743
Lead	8.59		0.500	1	03/23/2022 10:18	WG1834743
Nickel	14.9		2.00	1	03/23/2022 10:18	WG1834743
Selenium	ND		2.00	1	03/23/2022 10:18	WG1834743
Silver	ND		1.00	1	03/23/2022 10:18	WG1834743
Zinc	37.3		5.00	1	03/23/2022 10:18	WG1834743

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

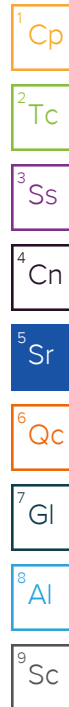
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.201		0.200	1	03/22/2022 09:11	WG1835066

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.25		1.00	5	03/22/2022 18:26	WG1834746

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	03/21/2022 01:45	WG1834446
(S) a,a,a-Trifluorotoluene(FID)	107		77.0-120		03/21/2022 01:45	WG1834446



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	03/20/2022 13:17	WG1835107
Toluene	ND		0.00500	1	03/20/2022 13:17	WG1835107
Ethylbenzene	ND		0.00250	1	03/20/2022 13:17	WG1835107
Xylenes, Total	ND		0.00650	1	03/20/2022 13:17	WG1835107
1,2,4-Trimethylbenzene	ND		0.00500	1	03/20/2022 13:17	WG1835107
1,3,5-Trimethylbenzene	ND		0.00500	1	03/20/2022 13:17	WG1835107
(S) Toluene-d8	98.1		75.0-131		03/20/2022 13:17	WG1835107
(S) 4-Bromofluorobenzene	101		67.0-138		03/20/2022 13:17	WG1835107
(S) 1,2-Dichloroethane-d4	97.1		70.0-130		03/20/2022 13:17	WG1835107

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	03/20/2022 19:59	WG1835164
C28-C36 Motor Oil Range	ND		4.00	1	03/20/2022 19:59	WG1835164
(S) o-Terphenyl	56.6		18.0-148		03/20/2022 19:59	WG1835164

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Anthracene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Benzo(a)anthracene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Benzo(b)fluoranthene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Benzo(k)fluoranthene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Benzo(a)pyrene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Chrysene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Dibenz(a,h)anthracene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Fluoranthene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Fluorene	ND		0.00600	1	03/23/2022 03:31	WG1835786
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/23/2022 03:31	WG1835786
1-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:31	WG1835786
2-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:31	WG1835786
Naphthalene	ND		0.0200	1	03/23/2022 03:31	WG1835786
Pyrene	ND		0.00600	1	03/23/2022 03:31	WG1835786
(S) p-Terphenyl-d14	61.3		23.0-120		03/23/2022 03:31	WG1835786
(S) Nitrobenzene-d5	71.5		14.0-149		03/23/2022 03:31	WG1835786
(S) 2-Fluorobiphenyl	57.9		34.0-125		03/23/2022 03:31	WG1835786

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	1.65		1	03/22/2022 13:28	WG1835063

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/22/2022 19:15	WG1835990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	T8	1	03/19/2022 14:00	WG1834785

Sample Narrative:

L1472464-03 WG1834785: 8.53 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	298		10.0	1	03/20/2022 08:17	WG1835299

Sample Narrative:

L1472464-03 WG1835299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	155		0.500	1	03/23/2022 10:21	WG1834743
Cadmium	ND		0.500	1	03/23/2022 10:21	WG1834743
Copper	13.1		2.00	1	03/23/2022 10:21	WG1834743
Lead	9.29		0.500	1	03/23/2022 10:21	WG1834743
Nickel	17.4		2.00	1	03/23/2022 10:21	WG1834743
Selenium	ND		2.00	1	03/23/2022 10:21	WG1834743
Silver	ND		1.00	1	03/23/2022 10:21	WG1834743
Zinc	43.7		5.00	1	03/23/2022 10:21	WG1834743

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.266		0.200	1	03/22/2022 09:14	WG1835066

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.77		1.00	5	03/22/2022 18:30	WG1834746

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.243		0.100	1	03/21/2022 02:06	WG1834446
(S) a,a,a-Trifluorotoluene(FID)	107		77.0-120		03/21/2022 02:06	WG1834446

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	ND		0.00100	1	03/20/2022 13:39	WG1835107
Toluene	ND		0.00500	1	03/20/2022 13:39	WG1835107
Ethylbenzene	ND		0.00250	1	03/20/2022 13:39	WG1835107
Xylenes, Total	ND		0.00650	1	03/20/2022 13:39	WG1835107
1,2,4-Trimethylbenzene	ND		0.00500	1	03/20/2022 13:39	WG1835107
1,3,5-Trimethylbenzene	ND		0.00500	1	03/20/2022 13:39	WG1835107
(S) Toluene-d8	96.6		75.0-131		03/20/2022 13:39	WG1835107
(S) 4-Bromofluorobenzene	97.5		67.0-138		03/20/2022 13:39	WG1835107
(S) 1,2-Dichloroethane-d4	101		70.0-130		03/20/2022 13:39	WG1835107

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	03/20/2022 20:15	WG1835164
C28-C36 Motor Oil Range	ND		4.00	1	03/20/2022 20:15	WG1835164
(S) o-Terphenyl	59.0		18.0-148		03/20/2022 20:15	WG1835164

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Anthracene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Benzo(a)anthracene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Benzo(b)fluoranthene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Benzo(k)fluoranthene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Benzo(a)pyrene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Chrysene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Dibenz(a,h)anthracene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Fluoranthene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Fluorene	ND		0.00600	1	03/23/2022 03:51	WG1835786
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/23/2022 03:51	WG1835786
1-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:51	WG1835786
2-Methylnaphthalene	ND		0.0200	1	03/23/2022 03:51	WG1835786
Naphthalene	ND		0.0200	1	03/23/2022 03:51	WG1835786
Pyrene	ND		0.00600	1	03/23/2022 03:51	WG1835786
(S) p-Terphenyl-d14	63.0		23.0-120		03/23/2022 03:51	WG1835786
(S) Nitrobenzene-d5	83.4		14.0-149		03/23/2022 03:51	WG1835786
(S) 2-Fluorobiphenyl	56.2		34.0-125		03/23/2022 03:51	WG1835786

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	1.51		1	03/22/2022 13:31	WG1835063

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/22/2022 19:20	WG1835990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.02	T8	1	03/19/2022 09:00	WG1834731

Sample Narrative:

L1472464-04 WG1834731: 8.02 at 19.7C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	891		10.0	1	03/20/2022 08:17	WG1835299

Sample Narrative:

L1472464-04 WG1835299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	165		0.500	1	03/23/2022 10:24	WG1834743
Cadmium	ND		0.500	1	03/23/2022 10:24	WG1834743
Copper	13.8		2.00	1	03/23/2022 10:24	WG1834743
Lead	9.20		0.500	1	03/23/2022 10:24	WG1834743
Nickel	15.8		2.00	1	03/23/2022 10:24	WG1834743
Selenium	ND		2.00	1	03/23/2022 10:24	WG1834743
Silver	ND		1.00	1	03/23/2022 10:24	WG1834743
Zinc	45.6		5.00	1	03/23/2022 10:24	WG1834743

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.257		0.200	1	03/22/2022 09:17	WG1835066

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.87		1.00	5	03/22/2022 18:33	WG1834746

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.85		0.100	1	03/21/2022 02:28	WG1834446
(S) a,a,a-Trifluorotoluene(FID)	87.3		77.0-120		03/21/2022 02:28	WG1834446

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	ND		0.00100	1	03/20/2022 14:00	WG1835107
Toluene	ND		0.00500	1	03/20/2022 14:00	WG1835107
Ethylbenzene	ND		0.00250	1	03/20/2022 14:00	WG1835107
Xylenes, Total	ND		0.00650	1	03/20/2022 14:00	WG1835107
1,2,4-Trimethylbenzene	ND		0.00500	1	03/20/2022 14:00	WG1835107
1,3,5-Trimethylbenzene	ND		0.00500	1	03/20/2022 14:00	WG1835107
(S) Toluene-d8	96.4		75.0-131		03/20/2022 14:00	WG1835107
(S) 4-Bromofluorobenzene	95.4		67.0-138		03/20/2022 14:00	WG1835107
(S) 1,2-Dichloroethane-d4	100		70.0-130		03/20/2022 14:00	WG1835107

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	03/20/2022 20:30	WG1835164
C28-C36 Motor Oil Range	ND		4.00	1	03/20/2022 20:30	WG1835164
(S) o-Terphenyl	79.3		18.0-148		03/20/2022 20:30	WG1835164

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Anthracene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Benzo(a)anthracene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Benzo(b)fluoranthene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Benzo(k)fluoranthene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Benzo(a)pyrene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Chrysene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Dibenz(a,h)anthracene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Fluoranthene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Fluorene	ND		0.00600	1	03/23/2022 04:11	WG1835786
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/23/2022 04:11	WG1835786
1-Methylnaphthalene	ND		0.0200	1	03/23/2022 04:11	WG1835786
2-Methylnaphthalene	ND		0.0200	1	03/23/2022 04:11	WG1835786
Naphthalene	ND		0.0200	1	03/23/2022 04:11	WG1835786
Pyrene	ND		0.00600	1	03/23/2022 04:11	WG1835786
(S) p-Terphenyl-d14	70.0		23.0-120		03/23/2022 04:11	WG1835786
(S) Nitrobenzene-d5	84.8		14.0-149		03/23/2022 04:11	WG1835786
(S) 2-Fluorobiphenyl	72.4		34.0-125		03/23/2022 04:11	WG1835786

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	1.04		1	03/22/2022 13:39	WG1835063

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/22/2022 19:30	WG1835990

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.29	T8	1	03/19/2022 09:00	WG1834731

Sample Narrative:

L1472464-05 WG1834731: 8.29 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	742		10.0	1	03/20/2022 08:17	WG1835299

Sample Narrative:

L1472464-05 WG1835299: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	161		0.500	1	03/23/2022 10:26	WG1834743
Cadmium	ND		0.500	1	03/23/2022 10:26	WG1834743
Copper	10.8		2.00	1	03/23/2022 10:26	WG1834743
Lead	7.19		0.500	1	03/23/2022 10:26	WG1834743
Nickel	13.7		2.00	1	03/23/2022 10:26	WG1834743
Selenium	ND		2.00	1	03/23/2022 10:26	WG1834743
Silver	ND		1.00	1	03/23/2022 10:26	WG1834743
Zinc	32.4		5.00	1	03/23/2022 10:26	WG1834743

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.660		0.200	1	03/22/2022 09:20	WG1835066

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.81		1.00	5	03/22/2022 18:37	WG1834746

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.420		0.100	1	03/21/2022 02:50	WG1834446
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		03/21/2022 02:50	WG1834446

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	ND		0.00100	1	03/20/2022 14:21	WG1835107
Toluene	ND		0.00500	1	03/20/2022 14:21	WG1835107
Ethylbenzene	ND		0.00250	1	03/20/2022 14:21	WG1835107
Xylenes, Total	ND		0.00650	1	03/20/2022 14:21	WG1835107
1,2,4-Trimethylbenzene	ND		0.00500	1	03/20/2022 14:21	WG1835107
1,3,5-Trimethylbenzene	0.00530		0.00500	1	03/20/2022 14:21	WG1835107
(S) Toluene-d8	98.6		75.0-131		03/20/2022 14:21	WG1835107
(S) 4-Bromofluorobenzene	95.3		67.0-138		03/20/2022 14:21	WG1835107
(S) 1,2-Dichloroethane-d4	95.2		70.0-130		03/20/2022 14:21	WG1835107

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	4.50	J3 J6	4.00	1	03/20/2022 19:14	WG1835164
C28-C36 Motor Oil Range	5.60		4.00	1	03/20/2022 19:14	WG1835164
(S) o-Terphenyl	54.3		18.0-148		03/20/2022 19:14	WG1835164

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Anthracene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Benzo(a)anthracene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Benzo(b)fluoranthene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Benzo(k)fluoranthene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Benzo(a)pyrene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Chrysene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Dibenz(a,h)anthracene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Fluoranthene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Fluorene	ND		0.00600	1	03/23/2022 04:31	WG1835786
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/23/2022 04:31	WG1835786
1-Methylnaphthalene	ND		0.0200	1	03/23/2022 04:31	WG1835786
2-Methylnaphthalene	ND		0.0200	1	03/23/2022 04:31	WG1835786
Naphthalene	ND		0.0200	1	03/23/2022 04:31	WG1835786
Pyrene	ND		0.00600	1	03/23/2022 04:31	WG1835786
(S) p-Terphenyl-d14	46.5		23.0-120		03/23/2022 04:31	WG1835786
(S) Nitrobenzene-d5	60.5		14.0-149		03/23/2022 04:31	WG1835786
(S) 2-Fluorobiphenyl	46.9		34.0-125		03/23/2022 04:31	WG1835786

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3772989-1 03/22/22 16:52

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

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1472457-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1472457-02 03/22/22 18:33 • (DUP) R3772989-7 03/22/22 18:38

	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

L1472464-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1472464-04 03/22/22 19:20 • (DUP) R3772989-8 03/22/22 19:25

	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) R3772989-2 03/22/22 17:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.89	98.9	80.0-120	

L1472337-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472337-01 03/22/22 17:31 • (MS) R3772989-3 03/22/22 17:36 • (MSD) R3772989-4 03/22/22 17:41

	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	ND	ND	3.52	4.50	1	75.0-125	J6	J3 J6	24.4	20

Sample Narrative:

OS: Sample is a reducer.

L1472337-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1472337-01 03/22/22 17:31 • (MS) R3772989-5 03/22/22 17:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	661	ND	173	26.1	50	75.0-125	<u>J6</u>

Sample Narrative:

OS: Sample is a reducer.

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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	<u>DUP Qualifier</u>	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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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	<u>DUP Qualifier</u>	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	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 19C

L1471182-48 Original Sample (OS) • Duplicate (DUP)

(OS) L1471182-48 03/19/22 14:00 • (DUP) R3771680-2 03/19/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.79	7.81	1	0.256		1

Sample Narrative:

OS: 7.79 at 20.3C

DUP: 7.81 at 20.3C

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L1472785-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1472785-01 03/19/22 14:00 • (DUP) R3771680-4 03/19/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	6.80	6.80	1	0.000		1

Sample Narrative:

OS: 6.8 at 20.2C

DUP: 6.8 at 20.2C

Laboratory Control Sample (LCS)

(LCS) R3771680-1 03/19/22 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.92	99.2	99.0-101	

Sample Narrative:

LCS: 9.92 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

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3773274-1 03/23/22 09:41

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3773274-2 03/23/22 09:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	97.8	97.8	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	99.9	99.9	80.0-120	
Nickel	100	103	103	80.0-120	
Selenium	100	97.7	97.7	80.0-120	
Silver	20.0	18.6	93.1	80.0-120	
Zinc	100	97.4	97.4	80.0-120	

L1472580-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472580-01 03/23/22 09:46 • (MS) R3773274-5 03/23/22 09:54 • (MSD) R3773274-6 03/23/22 09:57

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 %
Barium	100	7.90	108	106	100	97.7	1	75.0-125			2.39	20
Cadmium	100	ND	101	97.8	101	97.7	1	75.0-125			3.03	20
Copper	100	2.57	106	103	104	101	1	75.0-125			2.67	20
Lead	100	1.23	103	100	101	99.1	1	75.0-125			2.32	20
Nickel	100	2.80	103	102	100	99.3	1	75.0-125			0.896	20
Selenium	100	ND	99.8	97.3	99.8	97.3	1	75.0-125			2.53	20
Silver	20.0	ND	19.1	18.7	95.3	93.6	1	75.0-125			1.82	20
Zinc	100	6.69	100	97.6	93.8	90.9	1	75.0-125			2.86	20

Method Blank (MB)

(MB) R3772551-1 03/22/22 08:34

Analyte	MB Result mg/l	<u>MB Qualifier</u>	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) R3772551-2 03/22/22 08:37 • (LCSD) R3772551-3 03/22/22 08:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.03	0.995	103	99.5	80.0-120			3.56	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3772767-1 03/22/22 17:28

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) R3772767-2 03/22/22 17:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.4	97.4	80.0-120	

L1472580-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472580-01 03/22/22 17:35 • (MS) R3772767-5 03/22/22 17:44 • (MSD) R3772767-6 03/22/22 17:47

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 %
Arsenic	100	1.09	97.1	94.4	96.0	93.3	5	75.0-125			2.83	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3772993-2 03/20/22 21:50

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) R3772993-1 03/20/22 20:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.12	74.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			97.9	77.0-120	

L1472410-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472410-06 03/20/22 22:52 • (MS) R3772993-3 03/21/22 06:09 • (MSD) R3772993-4 03/21/22 06:30

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 %
TPH (GC/FID) Low Fraction	5.50	0.269	3.33	2.76	55.7	45.3	1	10.0-151			18.7	28
(S) a,a,a-Trifluorotoluene(FID)					92.2	96.1		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3772964-3 03/20/22 11:09

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	100			75.0-131
(S) 4-Bromofluorobenzene	94.7			67.0-138
(S) 1,2-Dichloroethane-d4	96.4			70.0-130

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

(LCS) R3772964-1 03/20/22 09:23 • (LCSD) R3772964-2 03/20/22 09:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.113	0.116	90.4	92.8	70.0-123			2.62	20
Toluene	0.125	0.104	0.108	83.2	86.4	75.0-121			3.77	20
Ethylbenzene	0.125	0.106	0.108	84.8	86.4	74.0-126			1.87	20
Xylenes, Total	0.375	0.341	0.345	90.9	92.0	72.0-127			1.17	20
1,2,4-Trimethylbenzene	0.125	0.105	0.103	84.0	82.4	70.0-126			1.92	20
1,3,5-Trimethylbenzene	0.125	0.107	0.110	85.6	88.0	73.0-127			2.76	20
(S) Toluene-d8				94.9	96.9	75.0-131				
(S) 4-Bromofluorobenzene				96.3	99.7	67.0-138				
(S) 1,2-Dichloroethane-d4				108	108	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3771890-1 03/20/22 18:44

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	0.497	J	0.274	4.00
(S) o-Terphenyl	65.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3771890-2 03/20/22 18:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	34.7	69.4	50.0-150	
(S) o-Terphenyl			81.4	18.0-148	

L1472464-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1472464-05 03/20/22 19:14 • (MS) R3771890-3 03/20/22 19:29 • (MSD) R3771890-4 03/20/22 19:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.5	4.50	38.3	26.7	68.3	45.7	1	50.0-150		J3 J6	35.7	20
(S) o-Terphenyl					66.2	54.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3772871-2 03/22/22 23:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	71.7			23.0-120
(S) Nitrobenzene-d5	87.5			14.0-149
(S) 2-Fluorobiphenyl	71.9			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3772871-1 03/22/22 23:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0592	74.0	50.0-120	
Anthracene	0.0800	0.0642	80.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0615	76.9	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0558	69.8	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0590	73.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0567	70.9	42.0-120	
Chrysene	0.0800	0.0623	77.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0553	69.1	47.0-125	
Fluoranthene	0.0800	0.0634	79.3	49.0-129	
Fluorene	0.0800	0.0601	75.1	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0580	72.5	46.0-125	
1-Methylnaphthalene	0.0800	0.0577	72.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0588	73.5	50.0-120	
Naphthalene	0.0800	0.0570	71.3	50.0-120	
Pyrene	0.0800	0.0636	79.5	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3772871-1 03/22/22 23:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			69.2	23.0-120	
(S) Nitrobenzene-d5			88.5	14.0-149	
(S) 2-Fluorobiphenyl			71.0	34.0-125	

L1471516-53 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1471516-53 03/23/22 04:51 • (MS) R3772871-3 03/23/22 05:11 • (MSD) R3772871-4 03/23/22 05:31

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 %
Acenaphthene	0.0800	ND	0.0439	0.0453	51.5	53.2	1	14.0-127			3.14	27
Anthracene	0.0800	ND	0.0459	0.0427	52.3	48.3	1	10.0-145			7.22	30
Benzo(a)anthracene	0.0800	ND	0.0565	0.0457	64.8	51.3	1	10.0-139			21.1	30
Benzo(b)fluoranthene	0.0800	0.00637	0.0624	0.0459	70.0	49.4	1	10.0-140			30.5	36
Benzo(k)fluoranthene	0.0800	ND	0.0500	0.0405	58.9	47.1	1	10.0-137			21.0	31
Benzo(a)pyrene	0.0800	ND	0.0648	0.0495	75.6	56.5	1	10.0-141			26.8	31
Chrysene	0.0800	0.00720	0.0701	0.0553	78.6	60.1	1	10.0-145			23.6	30
Dibenz(a,h)anthracene	0.0800	ND	0.0398	0.0370	49.8	46.3	1	10.0-132			7.29	31
Fluoranthene	0.0800	0.0148	0.0660	0.0577	64.0	53.6	1	10.0-153			13.4	33
Fluorene	0.0800	ND	0.0422	0.0423	48.9	49.0	1	11.0-130			0.237	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0468	0.0398	55.0	46.2	1	10.0-137			16.2	32
1-Methylnaphthalene	0.0800	ND	0.0414	0.0454	51.8	56.8	1	10.0-142			9.22	28
2-Methylnaphthalene	0.0800	ND	0.0445	0.0485	55.6	60.6	1	10.0-137			8.60	28
Naphthalene	0.0800	ND	0.0514	0.0580	53.0	61.3	1	10.0-135			12.1	27
Pyrene	0.0800	0.0135	0.0669	0.0584	66.8	56.1	1	10.0-148			13.6	35
(S) p-Terphenyl-d14					44.7	41.6		23.0-120				
(S) Nitrobenzene-d5					58.3	77.3		14.0-149				
(S) 2-Fluorobiphenyl					49.4	45.1		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

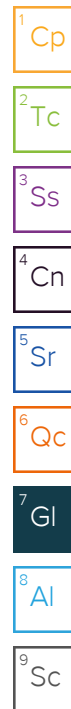
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



PM
PB:

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:



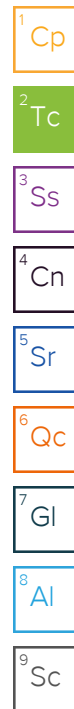
Chris Ward
Project Manager

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

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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
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Wet Chemistry by Method 9050AMod	11
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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

¹ Cp

² Tc

³ Ss

⁴ 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

⁵ Sr

⁶ Qc

⁷ Gl

⁸ 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

⁹ 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

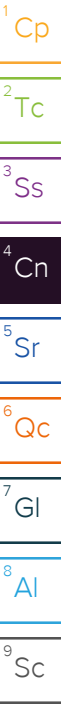
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1835063	1	03/22/22 13:56	03/22/22 13:56	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1834731	1	03/18/22 14:00	03/19/22 09:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1835299	1	03/20/22 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



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	WG1835299

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	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	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	WG1834731

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
						WG1835299

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	WG1834749

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ 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	<u>T8</u>	1	03/19/2022 09:00	WG1834731

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	WG1835299

Sample Narrative:

L1472467-05 WG1835299: at 25C

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

	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
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	WG1834749

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ 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

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

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3772551-1 03/22/22 08:34

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) R3772551-2 03/22/22 08:37 • (LCSD) R3772551-3 03/22/22 08:39

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	1.03	0.995	103	99.5	80.0-120			3.56	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

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.

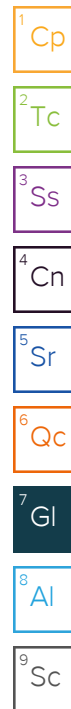
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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




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/hubfs/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 Preservative Type ** 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

Analyses		Lab Profile/Line:	
H	Water Soluble Soil)	Lab Sample Receipt Checklist:	
		Custody Seals Present/Intact	Y N NA
		Custody Signatures Present	Y N NA
		Collector Signature Present	Y N NA
		Bottles Intact	Y N NA
		Correct Bottles	Y N NA
		Sufficient Volume	Y N NA
		Samples Received on Ice	Y N NA
		VOA - Headspace Acceptable	Y N NA
		USDA Regulated Soils	Y N NA
		Samples in Holding Time	Y N NA
		Residual Chlorine Present	Y N NA
		Cl Strips:	
		Sample pH Acceptable	Y N NA
pH Strips:			
Sulfide Present	Y N NA		
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

447246

-01
-02
-03
-04
-05

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:	
						MTJL LAB USE ONLY Table #: Acctnum: Template: Prelogin: PM: PB:	
						Trip Blank Received: Y N NA HCL MeOH TSP Other	
						Non Conformance(s): YES / NO	
						Page: <u>1</u> of: <u>2</u>	

5016 1231 4625