TECHNICAL MEMORANDUM

DATE February 21, 2020 **Project No.** 19125681

TO April Stegall, Reclamation Agent
Wexpro Company

CC Adam Plonsky, Jeremy Yeglin

FROM Matthew Somogyi **EMAIL Matthew_Somogyi@golder.com**

DOMINION ENERGY WEXPRO, EXPLORATION AND PRODUCTION PIT DELINEATION – FIELD INVESTIGATION SUMMARY FOR THE HW STEWART 1 PAD, COGCC PIT ID 100667 (PIT 2), POWDER WASH GAS FIELD, MOFFAT COUNTY, COLORADO

On behalf of Wexpro Company (Wexpro), d/b/a Dominion Energy Wexpro, Golder Associates Inc. (Golder) performed an environmental investigation of potential salt and petroleum impacts at eighteen (18) former exploration and production (E&P) pits in the Powder Wash Gas Field in Moffat County, Colorado. The investigation was performed between October 16, 2019 and November 21, 2019. This memorandum summarizes the subsurface investigation performed at the HW Stewart 1 (HWS1) pad. The HWS1 pad includes two former E&P pits. This memo summarizes the field activities and results for the Colorado Oil and Gas Conservation Commission (COGCC) Pit ID 100667 (Pit 2) investigation. Separate reports are being submitted for each pit that was investigated.

Pit 2 is located at Pad HWS1 at the approximate latitude/longitude coordinates 40.951546700/-108.322650947. The subsurface investigation at Pit 2 was performed on October 16, 2019 and November 21, 2019. Drilling was performed by Henderson Drilling Inc. of Casper, WY operating a Geoprobe 7822 direct-push drill rig. The Geoprobe advanced 2-inch PVC sample liners to collect continuous core in 5-foot increments. A Golder geologist and technician were present to oversee the drilling activities and perform field screening and soil sample collection. Field screening included photoionization detector (PID) and electrical conductivity (EC) measurements conducted at regular 2-foot intervals. The PID and EC meters were calibrated daily prior to the start of work. Decontamination of downhole tooling was performed between boreholes by rinsing with fresh water and brushing off debris from the core barrel to remove soil and/or contamination from tooling in direct contact with subsurface materials. Investigation derived waste (IDW) included soil not retained for laboratory analysis and decontamination fluids. All IDW was contained as drilling progressed and managed by Wexpro for disposal in accordance with applicable regulations.

Seven boreholes were completed at Pit 2 to attempt to delineate the horizontal and vertical extents of soil impacts from historical operations. One borehole was completed at the assumed center of the pit to the depth of refusal at 13.5 feet (ft) below ground surface (bgs). One offset borehole was completed approximately 3 ft away due to the shallow refusal in the original center borehole, and the offset borehole was completed to 30 ft bgs to the maximum length of available drill tooling. Four perimeter boreholes were completed approximately 20 ft away, generally north, south, east, and west, from the center borehole to attempt to define the horizontal extents of soil impacts.

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An additional (seventh) borehole was completed subsequent to the other boreholes with the goal of further delineating vertical soil impacts near the center of the pit. Due to snow cover and possible poor satellite coverage, the initial center borehole could not be located. As a result, the seventh borehole missed the center of the pit, and instead serves as additional delineation along the perimeter of the pit. The location of each borehole was logged in the field with a handheld GPS with approximately +/- 1 meter (m) lateral accuracy and +/- 2 m vertical accuracy. Upon completion, each borehole was backfilled with dry bentonite chips to the existing grade. Borehole depths ranged from 7.5 ft to 30 ft below ground surface (bgs). Visual and olfactory evidence of potential impacts included black coloration and strong hydrocarbon-like odor. Representative photos of lithologies and/or impacts encountered at Pit 2 are provided as Attachment 1.

Soil samples collected from Pit 2 were assigned unique sample identifiers “P2-BX-Xft,” where “P2” represents the pit number, “BX” represents the borehole number, and “Xft” represents the sample depth. Soil samples were collected directly from the retrieved core with freshly gloved hands and/or a clean stainless-steel scoop, placed in laboratory-provided containers, and immediately stored on ice. A total of seven samples were collected for laboratory analysis based on field screening results: one sample from each perimeter borehole and three samples representing the center of the pit. Soil samples collected from Pit 2 were submitted to Pace National Center for Testing and Innovation (Pace Analytical), a State of Colorado certified environmental laboratory located in Mt. Juliet, TN (certification number TN100003) for laboratory analysis of total petroleum hydrocarbons – diesel range organics, total petroleum hydrocarbons – gasoline range organics, benzene, toluene, ethylbenzene, xylene, electrical conductivity, sodium absorption ratio, chloride, and sulfate. Additionally, the sample with the highest field PID or EC reading from all boreholes completed at Pit 2 was analyzed for all constituents identified on the COGCC Table 910-1 list for soil samples. No groundwater was encountered during this investigation. As such, no groundwater sampling or analysis was performed. Laboratory results compared to applicable COGCC Table 910-1 Concentration Levels are presented in Table 1, and the complete analytical report is provided as Attachment 2.

Sample results from the first offset center borehole spanning 24-25 ft exceeded the COGCC Table 910-1 Concentration Levels for benzene, diesel range organics, total petroleum hydrocarbons – gasoline range organics, and xylenes. Based on analytical results, horizontal impacted soil delineation of Pit 2 is considered complete. Vertical impacted soil delineation is considered incomplete because soil impacts were encountered at the maximum depth of investigation in the center borehole and bedrock was not recovered to confirm the bottom of soil impacts.

Matthew Somogyi
Senior Hydrogeologist

Jeremy Yeglin, P.E.
Associate, Senior Consultant

MS/JY/dls

Attachments

Table 1 –Pit 2 Analytical Results Summary
Figure 1 –Pit 2 Borehole Locations
Attachment 1 – Representative Pit 2 Photos
Attachment 2 – Analytical Laboratory Report

Table

Table 1 - Analytical Results Summary
Pad HW Stewart 1
Pit 2
COGCC ID 100667

Pit Number			P2	P2	P2	P2	P2	P2	P2
Sample Name			P2-B1-10-12'	P2-B2-10-12'	P2-B3-10-12'	P2-B4-6-7.5'	P2-B5-10-12'	P2-B5-24-26'	P2- B5 OFFSET 2-30-32FT
Sample Date			16 Oct 2019	16 Oct 2019	16 Oct 2019	16 Oct 2019	16 Oct 2019	16 Oct 2019	21 Nov 2019
Sample Time			15:10	15:45	16:24	16:40	13:50	18:00	11:00
Analyte	Units	Table 910-1 Concentration Levels							
Acenaphthene	mg/kg	1,000	NA	NA	NA	NA	< 0.00600	0.0146	NA
Anthracene	mg/kg	1,000	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Arsenic	mg/kg	0.36	NA	NA	NA	NA	< 2.00	< 2	NA
Barium	mg/kg	15,000	NA	NA	NA	NA	137	143	NA
Benzene	mg/kg	0.17	< 0.001	< 0.001	< 0.001	< 0.001	0.000788	**6.52**	< 0.00100
Benzo[a]anthracene	mg/kg	0.22	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Benzo[a]pyrene	mg/kg	0.022	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Benzo[b]fluoranthene	mg/kg	0.22	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Benzo[k]fluoranthene	mg/kg	2.2	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Cadmium	mg/kg	70	NA	NA	NA	NA	< 0.500	< 0.5	NA
Chloride	mg/kg	-	140	125	177	55.4	NA	NA	NA
Chromium (III)	mg/kg	120,000	NA	NA	NA	NA	21.3	17.8	NA
Chrysene	mg/kg	22	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Copper	mg/kg	3,100	NA	NA	NA	NA	14.7	9.99	NA
Dibenz[a,h]anthracene	mg/kg	0.022	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Diesel Fuels, Total (DRO)	mg/kg	500	< 4	< 4	< 4	< 4	< 4.00	**1100**	< 4.00
Ethylbenzene	mg/kg	100	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.00115	59.7	< 0.00250
Fluoranthene	mg/kg	1,000	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Fluorene	mg/kg	1,000	NA	NA	NA	NA	< 0.00600	0.0446	NA
Hexavalent Chromium	mg/kg	23	NA	NA	NA	NA	< 2.00	< 2	NA
Indeno[1,2,3-cd]pyrene	mg/kg	0.22	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Lead	mg/kg	400	NA	NA	NA	NA	10.2	7.74	NA
Mercury	mg/kg	23	NA	NA	NA	NA	0.0502	< 0.03	NA
Naphthalene	mg/kg	23	NA	NA	NA	NA	< 0.0200	4.18	NA
Nickel	mg/kg	1,600	NA	NA	NA	NA	14.3	8.68	NA
pH	SU	6-9	NA	NA	NA	NA	8.25	8.58	NA
Pyrene	mg/kg	1,000	NA	NA	NA	NA	< 0.00600	< 0.006	NA
Selenium	mg/kg	390	NA	NA	NA	NA	< 2.00	< 2	NA
Silver	mg/kg	390	NA	NA	NA	NA	< 1.00	< 1	NA
Sodium Adsorption Ratio	-	<12	3.92	3.4	6.3	2.24	1.77	5.63	0.934
Specific Conductance	umhos/cm	<4,000 or 2x background	701	853	517	394	1200	258	671
Sulfate	mg/kg	-	253	621	101	73.1	NA	NA	NA
Toluene	mg/kg	85	< 0.005	< 0.005	< 0.005	< 0.005	< 0.00500	57	< 0.00500
TPH as Gasoline (GRO)	mg/kg	500	< 0.1	0.253	< 0.1	< 0.1	< 0.100	**7950**	0.468
Xylenes, Total	mg/kg	175	< 0.0065	< 0.0065	< 0.0065	< 0.0065	< 0.00150	**289**	< 0.00650
Zinc	mg/kg	23,000	NA	NA	NA	NA	51.8	30.5	NA

Notes:
Gray shading means a non-detect result is reported at a laboratory reporting limit that exceeds the COGCC Table 910-1 level
Orange shading means the laboratory result exceeds the COGCC Table 910-1 level
"NA" means not analyzed
Sample Time in Mountain Time

Figure

LEGEND

▲ NO ANALYTICAL SAMPLE

ANALYTICAL SAMPLE

- EXCEEDANCE OF COGCC TABLE 910-1 CONCENTRATION LEVEL
- NO EXCEEDANCE OF COGCC TABLE 910-1 CONCENTRATION LEVEL

Feet
0 30 60 120

REFERENCE(S)

1. GPS POINT DATA COLLECTED BY GAI IN OCTOBER AND NOVEMBER OF 2019.
2. AERIAL IMAGERY: ESRI BASEMAP SERVICE, DIGITAL GLOBE, VIVID IMAGERY CAPTURED ON 5/26/2013.

CLIENT
DOMINION ENERGY WEXPRO

PROJECT
EXPLORATION AND PRODUCTION
PIT DELINEATION PROJECT
CRAIG, CO

TITLE
BOREHOLE LOCATIONS FOR:
PAD NAME: HW STEWART 1
PIT NUMBER: 2
COGCC ID: 100667

CONSULTANT
GOLDER

YYYY-MM-DD	2020-02-18
DESIGNED	RHG
PREPARED	RHG
REVIEWED	TLH
APPROVED	MKS

PROJECT NO. 19125681

FIGURE 1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

25mm
0

ATTACHMENT 1

Representative Pit 2 Photos

Photograph 1: Typical lithology observed at the HW Stewart 1 pad, Pit 2, COGCC ID 100667. Note the black staining present at approximately 6-10 ft (top core, right of the photo frame) at the center borehole.

ATTACHMENT 2

Analytical Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 31, 2020

Golder & Associates - CO

Sample Delivery Group:	L1151992
Samples Received:	10/19/2019
Project Number:	19125681
Description:	Wexpro - Craig Pits Delin. Short 910-1 List

Report To: Matt Somogyi
7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Entire Report Reviewed By:

Christl M Wagner
Project Manager

TABLE OF CONTENTS

P2-B1-10-12' L1151992-06 Solid

Collected by: Tricia Hall | Collected date/time: 10/16/19 15:10 | Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1366144	1	10/25/19 14:07	10/25/19 14:07	TRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368293	1	10/23/19 18:30	10/23/19 22:24	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1368242	1	10/24/19 09:00	10/24/19 12:22	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1368340	1	10/24/19 23:40	10/26/19 09:08	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1370276	1	10/22/19 09:37	10/27/19 14:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1370304	1	10/22/19 09:37	10/30/19 10:20	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1368551	1	10/24/19 10:00	10/25/19 00:22	KME	Mt. Juliet, TN

P2-B2-10-12' L1151992-07 Solid

Collected by: Tricia Hall | Collected date/time: 10/16/19 15:45 | Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1366144	1	10/25/19 14:10	10/25/19 14:10	TRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368293	1	10/23/19 18:30	10/23/19 22:24	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1368242	1	10/24/19 09:00	10/24/19 12:39	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1368340	1	10/24/19 23:40	10/26/19 09:11	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1371118	1	10/22/19 09:37	10/29/19 12:59	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1370304	1	10/22/19 09:37	10/30/19 10:41	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1368551	1	10/24/19 10:00	10/24/19 23:03	KME	Mt. Juliet, TN

P2-B3-10-12' L1151992-08 Solid

Collected by: Tricia Hall | Collected date/time: 10/16/19 16:24 | Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1366144	1	10/25/19 14:13	10/25/19 14:13	TRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368293	1	10/23/19 18:30	10/23/19 22:24	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1368242	1	10/24/19 09:00	10/24/19 12:55	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1368340	1	10/24/19 23:40	10/26/19 09:13	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1370276	1	10/22/19 09:37	10/27/19 14:41	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1370304	1	10/22/19 09:37	10/30/19 11:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1368551	1	10/24/19 10:00	10/24/19 23:16	KME	Mt. Juliet, TN

P2-B4-6-7.5' L1151992-09 Solid

Collected by: Tricia Hall | Collected date/time: 10/16/19 16:40 | Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1366144	1	10/25/19 14:15	10/25/19 14:15	TRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368293	1	10/23/19 18:30	10/23/19 22:24	AKA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1368242	1	10/24/19 09:00	10/24/19 13:12	LDC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1368340	1	10/24/19 23:40	10/26/19 09:16	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1370276	1	10/22/19 09:37	10/27/19 15:01	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1370304	1	10/22/19 09:37	10/30/19 11:22	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1368551	1	10/24/19 10:00	10/24/19 23:29	KME	Mt. Juliet, TN

P2-B5-24-26' L1151992-10 Solid

Collected by: Tricia Hall | Collected date/time: 10/16/19 18:00 | Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1366144	1	10/25/19 14:18	10/25/19 14:18	TRB	Mt. Juliet, TN
Calculated Results	WG1368340	1	10/24/19 23:40	10/25/19 21:13	JDG	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1366657	1	10/21/19 13:23	10/21/19 20:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1366714	1	10/21/19 13:29	10/21/19 15:32	ANP	Mt. Juliet, TN

P2-B5-24-26' L1151992-10 Solid

Collected by: Tricia Hall
Collected date/time: 10/16/19 18:00
Received date/time: 10/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9050AMod	WG1368293	1	10/23/19 18:30	10/23/19 22:24	AKA	Mt. Juliet, TN
Mercury by Method 7471A	WG1368330	1	10/23/19 16:46	10/24/19 13:23	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1368340	1	10/24/19 23:40	10/25/19 21:13	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015	WG1371118	5000	10/22/19 09:37	10/29/19 13:23	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8021	WG1370276	500	10/22/19 09:37	10/27/19 15:21	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1368551	5	10/24/19 10:00	10/25/19 01:07	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1368456	1	10/23/19 23:09	10/24/19 12:50	SNR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1368456	20	10/23/19 23:09	10/25/19 08:16	SNR	Mt. Juliet, TN

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.

Christl M Wagner
Project Manager

Report Revision History

Version 1: 10/31/19 16:06
Version 2: 12/06/19 16:32
Version 3: 12/19/19 14:17
Version 4: 12/19/19 15:01
Version 5: 01/16/20 11:23
Version 6: 01/16/20 12:42
Version 7: 01/16/20 14:44
Version 8: 01/17/20 08:07
Version 9: 01/17/20 09:41
Version 10: 01/17/20 10:00
Version 11: 01/24/20 08:32
Version 12: 01/31/20 10:57

Project Narrative

Arsenic run by 6010 instead of 6020 due to laboratory error. Arsenic captured to its MDL for the lower detection limit - CMW 1/15/20

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.92		1	10/25/2019 14:07	WG1366144

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	701		10.0	1	10/23/2019 22:24	WG1368293

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	140		10.0	1	10/24/2019 12:22	WG1368242
Sulfate	253		50.0	1	10/24/2019 12:22	WG1368242

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Calcium	4770		100	1	10/26/2019 09:08	WG1368340
Magnesium	2380		100	1	10/26/2019 09:08	WG1368340
Sodium	284	B	100	1	10/26/2019 09:08	WG1368340

Volatile Organic Compounds (GC) by Method 8015/8015D/8021/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/27/2019 14:00	WG1370276
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*77.0-120*		*10/27/2019 14:00*	WG1370276

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	10/30/2019 10:20	WG1370304
Toluene	ND		0.00500	1	10/30/2019 10:20	WG1370304
Ethylbenzene	ND		0.00250	1	10/30/2019 10:20	WG1370304
Total Xylenes	ND		0.00650	1	10/30/2019 10:20	WG1370304
(S) Toluene-d8	*104*		*75.0-131*		*10/30/2019 10:20*	WG1370304
(S) 4-Bromofluorobenzene	*95.4*		*67.0-138*		*10/30/2019 10:20*	WG1370304
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*10/30/2019 10:20*	WG1370304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	10/25/2019 00:22	WG1368551
(S) o-Terphenyl	*77.1*		*18.0-148*		*10/25/2019 00:22*	WG1368551

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.40		1	10/25/2019 14:10	WG1366144

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	853		10.0	1	10/23/2019 22:24	WG1368293

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	125		10.0	1	10/24/2019 12:39	WG1368242
Sulfate	621		50.0	1	10/24/2019 12:39	WG1368242

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Calcium	6260		100	1	10/26/2019 09:11	WG1368340
Magnesium	2570		100	1	10/26/2019 09:11	WG1368340
Sodium	252	B	100	1	10/26/2019 09:11	WG1368340

Volatile Organic Compounds (GC) by Method 8015/8015D/8021/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.253		0.100	1	10/29/2019 12:59	WG1371118
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*10/29/2019 12:59*	WG1371118

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	10/30/2019 10:41	WG1370304
Toluene	ND		0.00500	1	10/30/2019 10:41	WG1370304
Ethylbenzene	ND		0.00250	1	10/30/2019 10:41	WG1370304
Total Xylenes	ND		0.00650	1	10/30/2019 10:41	WG1370304
(S) Toluene-d8	*104*		*75.0-131*		*10/30/2019 10:41*	WG1370304
(S) 4-Bromofluorobenzene	*97.1*		*67.0-138*		*10/30/2019 10:41*	WG1370304
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*10/30/2019 10:41*	WG1370304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	10/24/2019 23:03	WG1368551
(S) o-Terphenyl	*77.4*		*18.0-148*		*10/24/2019 23:03*	WG1368551

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.30		1	10/25/2019 14:13	WG1366144

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	517		10.0	1	10/23/2019 22:24	WG1368293

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	177		10.0	1	10/24/2019 12:55	WG1368242
Sulfate	101		50.0	1	10/24/2019 12:55	WG1368242

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Calcium	7760		100	1	10/26/2019 09:13	WG1368340
Magnesium	3160		100	1	10/26/2019 09:13	WG1368340
Sodium	362	B	100	1	10/26/2019 09:13	WG1368340

Volatile Organic Compounds (GC) by Method 8015/8015D/8021/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/27/2019 14:41	WG1370276
(S) a,a,a-Trifluorotoluene(FID)	*97.6*		*77.0-120*		*10/27/2019 14:41*	WG1370276

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	10/30/2019 11:02	WG1370304
Toluene	ND		0.00500	1	10/30/2019 11:02	WG1370304
Ethylbenzene	ND		0.00250	1	10/30/2019 11:02	WG1370304
Total Xylenes	ND		0.00650	1	10/30/2019 11:02	WG1370304
(S) Toluene-d8	*103*		*75.0-131*		*10/30/2019 11:02*	WG1370304
(S) 4-Bromofluorobenzene	*94.3*		*67.0-138*		*10/30/2019 11:02*	WG1370304
(S) 1,2-Dichloroethane-d4	*109*		*70.0-130*		*10/30/2019 11:02*	WG1370304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	10/24/2019 23:16	WG1368551
(S) o-Terphenyl	*72.0*		*18.0-148*		*10/24/2019 23:16*	WG1368551

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.24		1	10/25/2019 14:15	WG1366144

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	394		10.0	1	10/23/2019 22:24	WG1368293

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	55.4		10.0	1	10/24/2019 13:12	WG1368242
Sulfate	73.1		50.0	1	10/24/2019 13:12	WG1368242

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Calcium	13700		100	1	10/26/2019 09:16	WG1368340
Magnesium	4600		100	1	10/26/2019 09:16	WG1368340
Sodium	271	B	100	1	10/26/2019 09:16	WG1368340

Volatile Organic Compounds (GC) by Method 8015/8015D/8021/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/27/2019 15:01	WG1370276
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*77.0-120*		*10/27/2019 15:01*	WG1370276

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	10/30/2019 11:22	WG1370304
Toluene	ND		0.00500	1	10/30/2019 11:22	WG1370304
Ethylbenzene	ND		0.00250	1	10/30/2019 11:22	WG1370304
Total Xylenes	ND		0.00650	1	10/30/2019 11:22	WG1370304
(S) Toluene-d8	*105*		*75.0-131*		*10/30/2019 11:22*	WG1370304
(S) 4-Bromofluorobenzene	*98.3*		*67.0-138*		*10/30/2019 11:22*	WG1370304
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*10/30/2019 11:22*	WG1370304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	10/24/2019 23:29	WG1368551
(S) o-Terphenyl	*61.2*		*18.0-148*		*10/24/2019 23:29*	WG1368551

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.63		1	10/25/2019 14:18	WG1366144

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	17.8		1.00	1	10/25/2019 21:13	WG1368340

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6 O1	2.00	1	10/21/2019 20:27	WG1366657

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	10/21/2019 15:32	WG1366714

Sample Narrative:

L1151992-10 WG1366714: 8.58 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	258		10.0	1	10/23/2019 22:24	WG1368293

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	10/24/2019 13:23	WG1368330

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.31	Z1	0.460	1	10/25/2019 21:13	WG1368340
Barium	143		0.500	1	10/25/2019 21:13	WG1368340
Boron	ND		10.0	1	10/25/2019 21:13	WG1368340
Cadmium	ND		0.500	1	10/25/2019 21:13	WG1368340
Chromium	17.8		1.00	1	10/25/2019 21:13	WG1368340
Copper	9.99		2.00	1	10/25/2019 21:13	WG1368340
Lead	7.74		0.500	1	10/25/2019 21:13	WG1368340
Nickel	8.68		2.00	1	10/25/2019 21:13	WG1368340
Selenium	ND		2.00	1	10/25/2019 21:13	WG1368340
Silver	ND		1.00	1	10/25/2019 21:13	WG1368340
Zinc	30.5		5.00	1	10/25/2019 21:13	WG1368340

Sample Narrative:

L1151992-10 WG1368340: Arsenic captured to MDL for the lower detection limit - CMW 1/15/20

Volatile Organic Compounds (GC) by Method 8015/8015D/8021/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	6.52		0.250	500	10/27/2019 15:21	WG1370276
Toluene	57.0		2.50	500	10/27/2019 15:21	WG1370276
Ethylbenzene	59.7		0.250	500	10/27/2019 15:21	WG1370276
Total Xylene	289		0.750	500	10/27/2019 15:21	WG1370276
TPH (GC/FID) Low Fraction	7950		500	5000	10/29/2019 13:23	WG1371118
(S) a,a,a-Trifluorotoluene(FID)	*96.3*		*77.0-120*		*10/27/2019 15:21*	WG1370276
(S) a,a,a-Trifluorotoluene(FID)	*96.5*		*77.0-120*		*10/29/2019 13:23*	WG1371118
(S) a,a,a-Trifluorotoluene(PID)	*91.9*		*72.0-128*		*10/27/2019 15:21*	WG1370276
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2	*72.0-128*		*10/29/2019 13:23*	WG1371118

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1100		20.0	5	10/25/2019 01:07	WG1368551
(S) o-Terphenyl	*82.4*		*18.0-148*		*10/25/2019 01:07*	WG1368551

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Acenaphthene	0.0146		0.00600	1	10/24/2019 12:50	WG1368456
Acenaphthylene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Benzo(a)anthracene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Benzo(a)pyrene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Benzo(b)fluoranthene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Benzo(g,h,i)perylene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Benzo(k)fluoranthene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Chrysene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Dibenz(a,h)anthracene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Fluoranthene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Fluorene	0.0446		0.00600	1	10/24/2019 12:50	WG1368456
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	10/24/2019 12:50	WG1368456
Naphthalene	4.18		0.400	20	10/25/2019 08:16	WG1368456
Phenanthrene	0.0139		0.00600	1	10/24/2019 12:50	WG1368456
Pyrene	ND		0.00600	1	10/24/2019 12:50	WG1368456
1-Methylnaphthalene	2.77		0.400	20	10/25/2019 08:16	WG1368456
2-Methylnaphthalene	4.31		0.400	20	10/25/2019 08:16	WG1368456
2-Chloronaphthalene	ND		0.0200	1	10/24/2019 12:50	WG1368456
(S) p-Terphenyl-d14	*108*		*23.0-120*		*10/24/2019 12:50*	WG1368456
(S) p-Terphenyl-d14	*101*	J7	*23.0-120*		*10/25/2019 08:16*	WG1368456
(S) Nitrobenzene-d5	*664*	J1	*14.0-149*		*10/24/2019 12:50*	WG1368456
(S) Nitrobenzene-d5	*1180*	J7	*14.0-149*		*10/25/2019 08:16*	WG1368456
(S) 2-Fluorobiphenyl	*113*	J7	*34.0-125*		*10/25/2019 08:16*	WG1368456
(S) 2-Fluorobiphenyl	*125*		*34.0-125*		*10/24/2019 12:50*	WG1368456

Sample Narrative:

L1151992-10 WG1368456: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R3463406-1 10/21/19 20:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1151992-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-05 10/21/19 20:26 • (DUP) R3463406-3 10/21/19 20:26

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

Laboratory Control Sample (LCS)

(LCS) R3463406-2 10/21/19 20:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	24.8	103	80.0-120	

L1151992-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151992-10 10/21/19 20:27 • (MS) R3463406-4 10/21/19 20:27 • (MSD) R3463406-5 10/21/19 20:28

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	10.8	11.7	54.2	58.5	1	75.0-125	J6	J6	7.67	20

L1151992-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1151992-10 10/21/19 20:27 • (MS) R3463406-6 10/21/19 20:29

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	653	ND	580	88.8	50	75.0-125	

L1151992-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-05 10/21/19 15:32 • (DUP) R3463290-2 10/21/19 15:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.25	8.22	1	0.364		1

Sample Narrative:

OS: 8.25 at 21.5C

DUP: 8.22 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R3463290-1 10/21/19 15:32

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

Sample Narrative:

LCS: 9.99 at 19.6C

Method Blank (MB)

(MB) R3464299-1 10/23/19 22:24

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

L1151992-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-05 10/23/19 22:24 • (DUP) R3464299-3 10/23/19 22:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1200	1180	1	1.01		20

L1151992-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-14 10/23/19 22:24 • (DUP) R3464299-4 10/23/19 22:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	232	231	1	0.648		20

Laboratory Control Sample (LCS)

(LCS) R3464299-2 10/23/19 22:24

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	umhos/cm	umhos/cm	%	%	
Specific Conductance	393	392	99.7	85.0-115	

Method Blank (MB)

(MB) R3464622-1 10/24/19 10:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	4.54	J	0.795	10.0
Sulfate	U		0.570	50.0

L1151992-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-04 10/24/19 11:50 • (DUP) R3464622-3 10/24/19 12:06

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	66.2	92.8	1	33.4	J3	15

L1152986-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1152986-12 10/24/19 18:47 • (DUP) R3464622-6 10/24/19 19:03

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	4.43	1	0.000		15
Sulfate	ND	42.7	1	0.000		15

L1151992-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1151992-04 10/24/19 19:19 • (DUP) R3464622-7 10/24/19 19:36

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	1240	1120	5	10.2		15

Laboratory Control Sample (LCS)

(LCS) R3464622-2 10/24/19 10:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	197	98.7	80.0-120	
Sulfate	200	191	95.3	80.0-120	

L1151992-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151992-12 10/24/19 14:17 • (MS) R3464622-4 10/24/19 14:34 • (MSD) R3464622-5 10/24/19 14:57

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 %
Chloride	500	325	823	864	99.6	108	1	80.0-120			4.87	15
Sulfate	500	1080	1880	2130	158	208	1	80.0-120	E J5	E J5	12.5	15

Method Blank (MB)

(MB) R3464663-1 10/24/19 12:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0300

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

(LCS) R3464663-2 10/24/19 12:23 • (LCSD) R3464663-3 10/24/19 12:25

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 %
Mercury	0.500	0.532	0.520	106	104	80.0-120			2.22	20

L1151920-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151920-01 10/24/19 12:27 • (MS) R3464663-4 10/24/19 12:30 • (MSD) R3464663-5 10/24/19 12:32

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.542	0.00814	0.450	0.419	81.5	75.8	1	75.0-125			7.15	20

Method Blank (MB)

(MB) R3465303-1 10/26/19 08:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	0.460
Barium	U		0.170	0.500
Boron	U		1.26	10.0
Cadmium	U		0.0700	0.500
Calcium	11.3	J	4.63	100
Chromium	U		0.140	1.00
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Magnesium	5.01	J	1.11	100
Nickel	U		0.490	2.00
Selenium	U		0.620	2.00
Silver	U		0.120	1.00
Sodium	45.9	J	9.85	100
Zinc	0.597	J	0.590	5.00

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

(LCS) R3465303-2 10/26/19 08:24 • (LCSD) R3465303-3 10/26/19 08:27

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 %
Arsenic	100	95.9	94.1	95.9	94.1	80.0-120			1.90	20
Barium	100	103	101	103	101	80.0-120			1.78	20
Boron	100	99.4	96.2	99.4	96.2	80.0-120			3.34	20
Cadmium	100	95.9	94.1	95.9	94.1	80.0-120			1.91	20
Calcium	1000	999	981	99.9	98.1	80.0-120			1.80	20
Chromium	100	101	98.5	101	98.5	80.0-120			2.13	20
Copper	100	97.6	95.8	97.6	95.8	80.0-120			1.86	20
Lead	100	98.3	97.0	98.3	97.0	80.0-120			1.38	20
Magnesium	1000	1030	1010	103	101	80.0-120			1.58	20
Nickel	100	99.6	98.0	99.6	98.0	80.0-120			1.62	20
Selenium	100	96.1	95.3	96.1	95.3	80.0-120			0.806	20
Silver	20.0	17.9	17.4	89.3	87.1	80.0-120			2.59	20
Sodium	1000	1030	1010	103	101	80.0-120			2.19	20
Zinc	100	98.7	96.5	98.7	96.5	80.0-120			2.31	20

L1151948-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151948-02 10/26/19 08:30 • (MS) R3465303-6 10/26/19 08:37 • (MSD) R3465303-7 10/26/19 08:40

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	2.58	92.1	93.4	89.5	90.9	1	75.0-125			1.44	20
Barium	100	184	307	252	124	68.1	1	75.0-125		J6	19.9	20
Boron	100	9.92	101	101	90.8	91.0	1	75.0-125			0.237	20
Cadmium	100	0.214	89.9	91.5	89.7	91.3	1	75.0-125			1.73	20
Calcium	1000	32500	27900	30700	0.000	0.000	1	75.0-125	V	V	9.55	20
Chromium	100	20.3	110	108	90.1	87.8	1	75.0-125			2.11	20
Copper	100	20.6	114	114	93.7	93.2	1	75.0-125			0.516	20
Lead	100	7.55	102	102	94.7	94.7	1	75.0-125			0.00518	20
Magnesium	1000	7720	8550	8070	82.8	35.1	1	75.0-125		V	5.74	20
Nickel	100	17.8	115	113	96.8	95.4	1	75.0-125			1.27	20
Selenium	100	U	90.0	91.1	90.0	91.1	1	75.0-125			1.20	20
Silver	20.0	U	16.6	16.8	82.8	83.9	1	75.0-125			1.33	20
Sodium	1000	859	1850	1780	99.3	91.9	1	75.0-125			4.07	20
Zinc	100	63.7	149	131	85.7	67.6	1	75.0-125		J6	13.0	20

Method Blank (MB)

(MB) R3466819-2 10/29/19 11:46

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)	*94.8*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*72.0-128*

Laboratory Control Sample (LCS)

(LCS) R3466819-1 10/29/19 10:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.35	79.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*0.000*	*72.0-128*	J2

Method Blank (MB)

(MB) R3465996-5 10/27/19 09:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000131	J	0.000120	0.000500
Toluene	0.000338	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0331	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(PID)	*95.3*			*72.0-128*
(S) a,a,a-Trifluorotoluene(FID)	*98.8*			*77.0-120*

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

(LCS) R3465996-1 10/27/19 06:57 • (LCSD) R3465996-2 10/27/19 07:18

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	0.0500	0.0595	0.0583	119	117	76.0-121			2.04	20
Toluene	0.0500	0.0538	0.0525	108	105	80.0-120			2.45	20
Ethylbenzene	0.0500	0.0551	0.0540	110	108	80.0-124			2.02	20
Total Xylene	0.150	0.154	0.149	103	99.3	37.0-160			3.30	20
(S) a,a,a-Trifluorotoluene(PID)				*105*	*105*	*72.0-128*				
(S) a,a,a-Trifluorotoluene(FID)				*98.1*	*98.4*	*77.0-120*				

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

(LCS) R3465996-3 10/27/19 07:38 • (LCSD) R3465996-4 10/27/19 07:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.52	4.60	100	83.6	72.0-127			18.2	20
(S) a,a,a-Trifluorotoluene(PID)				*118*	*119*	*72.0-128*				
(S) a,a,a-Trifluorotoluene(FID)				*105*	*108*	*77.0-120*				

Method Blank (MB)

(MB) R3466681-2 10/30/19 03:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*96.3*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3466681-1 10/30/19 01:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.128	102	70.0-123	
Ethylbenzene	0.125	0.124	99.2	74.0-126	
Toluene	0.125	0.111	88.8	75.0-121	
Xylenes, Total	0.375	0.314	83.7	72.0-127	
(S) Toluene-d8			*104*	*75.0-131*	
(S) 4-Bromofluorobenzene			*97.9*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*112*	*70.0-130*	

Method Blank (MB)

(MB) R3464842-1 10/24/19 16:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*74.9*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3464842-2 10/24/19 16:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	33.2	66.4	50.0-150	
(S) o-Terphenyl			*92.9*	*18.0-148*	

L1151992-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1151992-14 10/25/19 01:20 • (MS) R3464842-3 10/25/19 01:33 • (MSD) R3464842-4 10/25/19 01:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	48.3	781	689	679	0.000	0.000	5	50.0-150	V	V	1.46	20
(S) o-Terphenyl					*107*	*115*		*18.0-148*				

Method Blank (MB)

(MB) R3465093-1 10/24/19 12:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	*112*			*14.0-149*
(S) 2-Fluorobiphenyl	*119*			*34.0-125*
(S) p-Terphenyl-d14	*122*	J1		*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3465093-2 10/24/19 13:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0902	113	50.0-126	
Acenaphthene	0.0800	0.0873	109	50.0-120	
Acenaphthylene	0.0800	0.0926	116	50.0-120	
Benzo(a)anthracene	0.0800	0.0951	119	45.0-120	
Benzo(a)pyrene	0.0800	0.0839	105	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0907	113	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0940	117	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0868	109	49.0-125	
Chrysene	0.0800	0.0878	110	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0945	118	47.0-125	
Fluoranthene	0.0800	0.0891	111	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3465093-2 10/24/19 13:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0918	115	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0944	118	46.0-125	
Naphthalene	0.0800	0.0819	102	50.0-120	
Phenanthrene	0.0800	0.0921	115	47.0-120	
Pyrene	0.0800	0.0882	110	43.0-123	
1-Methylnaphthalene	0.0800	0.0858	107	51.0-121	
2-Methylnaphthalene	0.0800	0.0829	104	50.0-120	
2-Chloronaphthalene	0.0800	0.0838	105	50.0-120	
(S) Nitrobenzene-d5			*103*	*14.0-149*	
(S) 2-Fluorobiphenyl			*108*	*34.0-125*	
(S) p-Terphenyl-d14			*107*	*23.0-120*	

L1152334-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1152334-01 10/24/19 18:19 • (MS) R3465093-3 10/24/19 18:40 • (MSD) R3465093-4 10/24/19 19:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0809	0.0958	101	120	1	10.0-145			16.9	30
Acenaphthene	0.0800	ND	0.0869	0.0961	109	120	1	14.0-127			10.1	27
Acenaphthylene	0.0800	ND	0.0898	0.0997	112	125	1	21.0-124		J5	10.4	25
Benzo(a)anthracene	0.0800	0.00602	0.0941	0.100	110	117	1	10.0-139			6.08	30
Benzo(a)pyrene	0.0800	0.0118	0.0905	0.0972	98.4	107	1	10.0-141			7.14	31
Benzo(b)fluoranthene	0.0800	0.0198	0.0999	0.107	100	109	1	10.0-140			6.86	36
Benzo(g,h,i)perylene	0.0800	0.0181	0.109	0.121	114	129	1	10.0-140			10.4	33
Benzo(k)fluoranthene	0.0800	0.00628	0.0826	0.0892	95.4	104	1	10.0-137			7.68	31
Chrysene	0.0800	0.00928	0.0893	0.0943	100	106	1	10.0-145			5.45	30
Dibenz(a,h)anthracene	0.0800	ND	0.0860	0.0933	108	117	1	10.0-132			8.14	31
Fluoranthene	0.0800	ND	0.0849	0.112	106	140	1	10.0-153			27.5	33
Fluorene	0.0800	ND	0.0914	0.0938	114	117	1	11.0-130			2.59	29
Indeno(1,2,3-cd)pyrene	0.0800	0.0120	0.0963	0.106	105	117	1	10.0-137			9.59	32
Naphthalene	0.0800	ND	0.0788	0.0802	98.5	100	1	10.0-135			1.76	27
Phenanthrene	0.0800	ND	0.0826	0.105	103	131	1	10.0-144			23.9	31
Pyrene	0.0800	0.00632	0.0967	0.101	113	118	1	10.0-148			4.35	35
1-Methylnaphthalene	0.0800	ND	0.0835	0.0837	104	105	1	10.0-142			0.239	28
2-Methylnaphthalene	0.0800	ND	0.0821	0.0959	103	120	1	10.0-137			15.5	28
2-Chloronaphthalene	0.0800	ND	0.0939	0.0939	117	117	1	29.0-120			0.000	24
(S) Nitrobenzene-d5					*109*	*93.4*		*14.0-149*				
(S) 2-Fluorobiphenyl					*128*	*102*		*34.0-125*	J1			
(S) p-Terphenyl-d14					*107*	*104*		*23.0-120*				

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

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

Qualifier	Description
B	The same analyte is found in the associated blank.
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.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

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.
V	The sample concentration is too high to evaluate accurate spike recoveries.
Z1	The identification of the analyte is acceptable; the reported value is an estimate.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

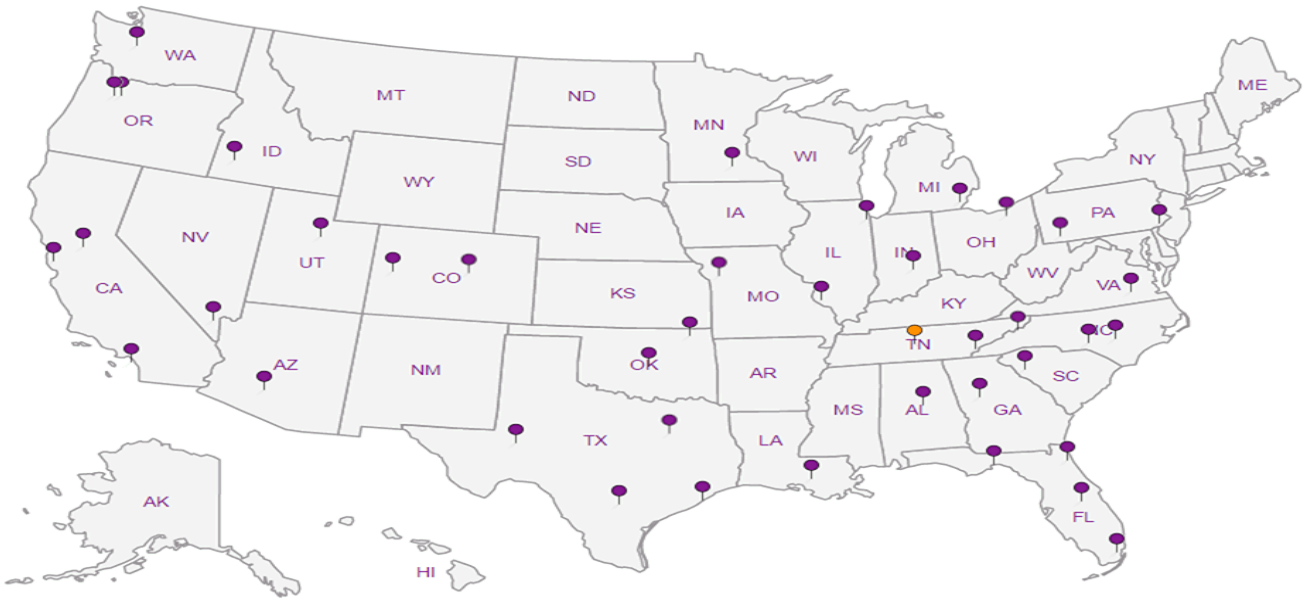
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Golder & Associates - CO	Billing Information:	Pres Chk	Analysis / Container / Preservative	Chain of Custody Page 2 of 2
7245 W Alaska Drive, Ste 200 Lakewood, CO 80226	Accounts Payable 7245 W Alaska Drive, Ste 200 Lakewood, CO 80226			Pace Analytical® National Center for Testing & Innovation 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859
Report to: **Matt Somogyi**	Email To: **matthew_somogyi@golder.com**			
Project Description: **Wexpro - Craig Pits Delin. Short**	City/State Collected: Craig, CO	Please Circle: PT (MT) CT ET		SDG # 1151992
Phone: **800-235-7784** Fax: **303-985-2080**	Client Project # **19125681**	Lab Project # **GOLDCO-00062103**		Table #
Collected by (print): Tricia Hall	Site/Facility ID #	P.O. #		Acctnum: **GOLDCO** Template: **T157215** Prelogin: **P735037** PM: **288 - Daphne Richards** PB: BF 10/8/19 Shipped Via: **FedEX Saver**
Collected by (signature): T Hall Immediately Packed on Ice N___ Y X	*Rush?* (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day	Quote # Date Results Needed: Standard		

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE,SPCON,SO4 8ozClr-NoPres	DRO 8ozClr-NoPres	GRO, V8260BTEX 8ozClr-NoPres	SAR (Ca, Mg, Na) 8ozClr-NoPres	Full Table 910 (16oz)					Remarks	Sample # (lab only)
P2-B5 ~~FT~~ -24-26 FT	G	SS	24-26	10/16/19	1800	2	X	X	X	X	✓					~~Hold~~ ~~Analysis pending confirmation~~	10
P2-B5 ~~FT~~ 29-30 FT	G	SS	29-30	10/16/19	1810	1	X	X	X	X						On Hold	
P1-B5 ~~FT~~ 20 FT	G	SS	20	10/17/19	0900	1	X	X	X	X							11
P1-B6 ~~FT~~ 15 FT	G	SS	15	10/17/19	0945	1	X	X	X	X						On Hold	
P1-B6 ~~FT~~ 12-14 FT	G	SS	12-14	10/17/19	1000	1	X	X	X	X						On Hold	
P3-B1 ~~FT~~ 16-18 FT	G	SS	16-18 FT	10/17/19	1115	1	X	X	X	X							12
P3-B2 ~~FT~~ ~~8~~ 8-8.5 FT	G	SS	8-8.5	10/17/19	1142	1	X	X	X	X							13
P3-B3 ~~FT~~ 16-18 FT	G	SS	16-18	10/17/19	1240	2	X	X	X	X	X						14
P3-B4 ~~FT~~ ~~28~~ 28-30 FT	G	SS	28-30	10/17/19	1350	1	X	X	X	X							15
P3-B5 ~~FT~~ 18-20 FT	G	SS	18-20	10/17/19	1500	1	X	X	X	X							16

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

Remarks:

pH ______ Temp ______

Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ________

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Tricia Hall	10/17/19	1515			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.2 IO=1.2 °C A2 Bottles Received: 24	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 10/19/19 Time: 8:45	Hold: Condition: NCF / (OK)

Golder & Associates - CO

7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Billing Information:
Accounts Payable
7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Pres Chk

Report to: Matt Somogyi

Email To: matthew_somogyi@golder.com

Project Description: Wexpro - Craig Pits Delin. Short

City/State Collected: Craig, CO

Please Circle: PT (MT) CT ET

Phone: 800-235-7784
Fax: 303-985-2080

Client Project # 19125681

Lab Project # GOLDCO-00062103

Collected by (print): Tricia Hall

Site/Facility ID #

P.O. #

Collected by (signature): Tricia Hall

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: Standard

Chain of Custody Page 2 of 2

Pace Analytical® National Center for Testing & Innovation

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

SDG # 1151992

F135

Acctnum: GOLDCO

Template: T157215

Prelogin: P735037

PM: 288 - Daphne Richards

PB: BF 10/19/19

Shipped Via: FedEX Saver

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE,SPCON,SO4 8ozClr-NoPres	DRO 8ozClr-NoPres	GRO, V8260BTEX 8ozClr-NoPres	SAR (Ca, Mg, Na) 8ozClr-NoPres	Full Table 910 (16 oz clear-x2)				Remarks	Sample # (lab only)
P1-B1-FT ~~6.0 FT~~ 6-8 FT	G	SS	~~6.0~~ 6-8	10/16/19	1100	1	X	X	X	X						-01
P1-B2-FT-16-17.5 FT	G	SS	16-17.5	10/16/19	1140	1	X	X	X	X						02
P1-B3-FT-4-6 FT	G	SS	4-6	10/16/19	1240	1	X	X	X	X						03
P1-B4-FT-2-4 FT	G	SS	2-4	10/16/19	1325	1	X	X	X	X						04
P1-B5-FT-10-12 FT	G	SS	10-12	10/16/19	1350	2	X	X	X	X	X					05
P2-B1-FT-10-12 FT	G	SS	10-12	10/16/19	1510	1	X	X	X	X						06
P2-B2-FT-10-12 FT	G	SS	10-12	10/16/19	1545	1	X	X	X	X						07
P2-B3-FT-10-12 FT	G	SS	10-12	10/16/19	1624	1	X	X	X	X						08
P2-B4-FT-6-7.5 FT	G	SS	6-7.5	10/16/19	1640	1	X	X	X	X						09
P2-B5-FT-12-13.5 FT	G	SS	12-13.5	10/16/19	1710	2	X	X	X	X	X				on Hold	

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 1203 5789 2748

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by: (Signature) Tricia Hall	10/17/19	1515	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.2 °C Bottles Received: 24
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Hailey MM	Date: 10/19/19 Time: 8:45

If preservation required by Login: Date/Time

10-0126

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 20, 2020

Golder & Associates - CO

Sample Delivery Group:	L1164432
Samples Received:	11/23/2019
Project Number:	19125681
Description:	Wexpro - Craig Pits Delin. Short 910-1 List

Report To: Matt Somogyi
7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Entire Report Reviewed By:

Christl M Wagner
Project Manager

TABLE OF CONTENTS

P2- B5 OFFSET 2-30-32FT L1164432-12 Solid

Collected by: Tricia Hall
Collected date/time: 11/21/19 11:00
Received date/time: 11/23/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1386728	1	12/02/19 15:03	12/02/19 15:03	EL	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1389429	1	12/01/19 13:00	12/01/19 15:45	BAM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1389430	1.333333	12/01/19 17:40	12/02/19 01:03	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1386876	1	11/26/19 15:59	12/02/19 23:12	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1390223	1	11/26/19 09:44	12/03/19 15:38	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1388595	1	11/26/19 09:44	11/28/19 23:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1387427	1	11/26/19 17:01	11/29/19 18:17	FM	Mt. Juliet, TN

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.

Christl M Wagner
Project Manager

Report Revision History

Version 1: 12/09/19 11:33
Version 2: 01/16/20 11:23
Version 3: 01/16/20 13:21
Version 4: 01/17/20 09:55
Version 5: 01/17/20 14:40
Version 6: 01/20/20 15:26

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.934		1	12/02/2019 15:03	WG1386728

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	671		10.0	1	12/01/2019 15:45	WG1389429

Wet Chemistry by Method 9056A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chloride	35.0	B	13.3	1.333333	12/02/2019 01:03	WG1389430
Sulfate	140		66.7	1.333333	12/02/2019 01:03	WG1389430

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Calcium	14500		100	1	12/02/2019 23:12	WG1386876
Magnesium	4700		100	1	12/02/2019 23:12	WG1386876
Sodium	246	B	100	1	12/02/2019 23:12	WG1386876

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.468	B	0.100	1	12/03/2019 15:38	WG1390223
(S) a,a,a-Trifluorotoluene(FID)	*102*		*77.0-120*		*12/03/2019 15:38*	WG1390223

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	11/28/2019 23:27	WG1388595
Toluene	ND		0.00500	1	11/28/2019 23:27	WG1388595
Ethylbenzene	ND		0.00250	1	11/28/2019 23:27	WG1388595
Total Xylenes	ND		0.00650	1	11/28/2019 23:27	WG1388595
(S) Toluene-d8	*100*		*75.0-131*		*11/28/2019 23:27*	WG1388595
(S) 4-Bromofluorobenzene	*85.5*		*67.0-138*		*11/28/2019 23:27*	WG1388595
(S) 1,2-Dichloroethane-d4	*102*		*70.0-130*		*11/28/2019 23:27*	WG1388595

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	11/29/2019 18:17	WG1387427
(S) o-Terphenyl	*72.3*		*18.0-148*		*11/29/2019 18:17*	WG1387427

Method Blank (MB)

(MB) R3477833-1 12/01/19 15:45

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

L1164116-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1164116-05 12/01/19 15:45 • (DUP) R3477833-3 12/01/19 15:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	378	377	1	0.265		20

L1164432-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1164432-14 12/01/19 15:45 • (DUP) R3477833-4 12/01/19 15:45

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	408	410	1	0.489		20

Laboratory Control Sample (LCS)

(LCS) R3477833-2 12/01/19 15:45

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	475	525	111	85.0-115	

Method Blank (MB)

(MB) R3477936-1 12/01/19 19:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	4.47	J	0.795	10.0
Sulfate	U		0.570	50.0

L1164432-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1164432-06 12/01/19 22:04 • (DUP) R3477936-3 12/01/19 22:19

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	5.02	1	0.000		15
Sulfate	ND	4.72	1	0.000		15

L1165003-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1165003-01 12/02/19 03:47 • (DUP) R3477936-6 12/02/19 04:02

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	40.6	33.9	1	18.0	J P1	15

Laboratory Control Sample (LCS)

(LCS) R3477936-2 12/01/19 19:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	220	110	80.0-120	
Sulfate	200	208	104	80.0-120	

L1164432-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1164432-09 12/01/19 23:48 • (MS) R3477936-4 12/02/19 00:03 • (MSD) R3477936-5 12/02/19 00:18

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 %
Chloride	500	43.0	552	558	102	103	1	80.0-120			1.22	15

Method Blank (MB)

(MB) R3478334-1 12/02/19 22:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Calcium	U		4.63	100
Magnesium	U		1.11	100
Sodium	40.7	J	9.85	100

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

(LCS) R3478334-2 12/02/19 22:05 • (LCSD) R3478334-3 12/02/19 22:08

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 %
Calcium	1000	1020	991	102	99.1	80.0-120			2.47	20
Magnesium	1000	1040	1020	104	102	80.0-120			2.36	20
Sodium	1000	1040	1010	104	101	80.0-120			2.61	20

L1164432-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1164432-03 12/02/19 22:11 • (MS) R3478334-6 12/02/19 22:18 • (MSD) R3478334-7 12/02/19 22:20

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 %
Calcium	1000	12800	11600	19900	0.000	718	1	75.0-125	V	J3 V	53.0	20
Magnesium	1000	3260	4110	5580	85.2	232	1	75.0-125		J3 J5	30.3	20
Sodium	1000	143	1130	1120	99.1	97.7	1	75.0-125			1.19	20

Method Blank (MB)

(MB) R3479355-3 12/03/19 11:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0557	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*102*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3479355-2 12/03/19 10:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.33	96.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*104*	*77.0-120*	

Method Blank (MB)

(MB) R3478439-2 11/28/19 18:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*101*			*75.0-131*
(S) 4-Bromofluorobenzene	*88.4*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*99.7*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3478439-1 11/28/19 17:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.134	107	70.0-123	
Ethylbenzene	0.125	0.146	117	74.0-126	
Toluene	0.125	0.108	86.4	75.0-121	
Xylenes, Total	0.375	0.475	127	72.0-127	
(S) Toluene-d8			*102*	*75.0-131*	
(S) 4-Bromofluorobenzene			*103*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*98.0*	*70.0-130*	

Method Blank (MB)

(MB) R3476698-1 11/26/19 21:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*80.0*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3476698-2 11/26/19 21:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	44.3	88.6	50.0-150	
(S) o-Terphenyl			*83.0*	*18.0-148*	

L1164481-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1164481-03 11/27/19 12:09 • (MS) R3476698-3 11/27/19 12:23 • (MSD) R3476698-4 11/27/19 12:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	50.3	16.1	43.3	43.5	54.1	55.4	1	50.0-150			0.461	20
(S) o-Terphenyl					*67.5*	*68.6*		*18.0-148*				

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

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
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.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

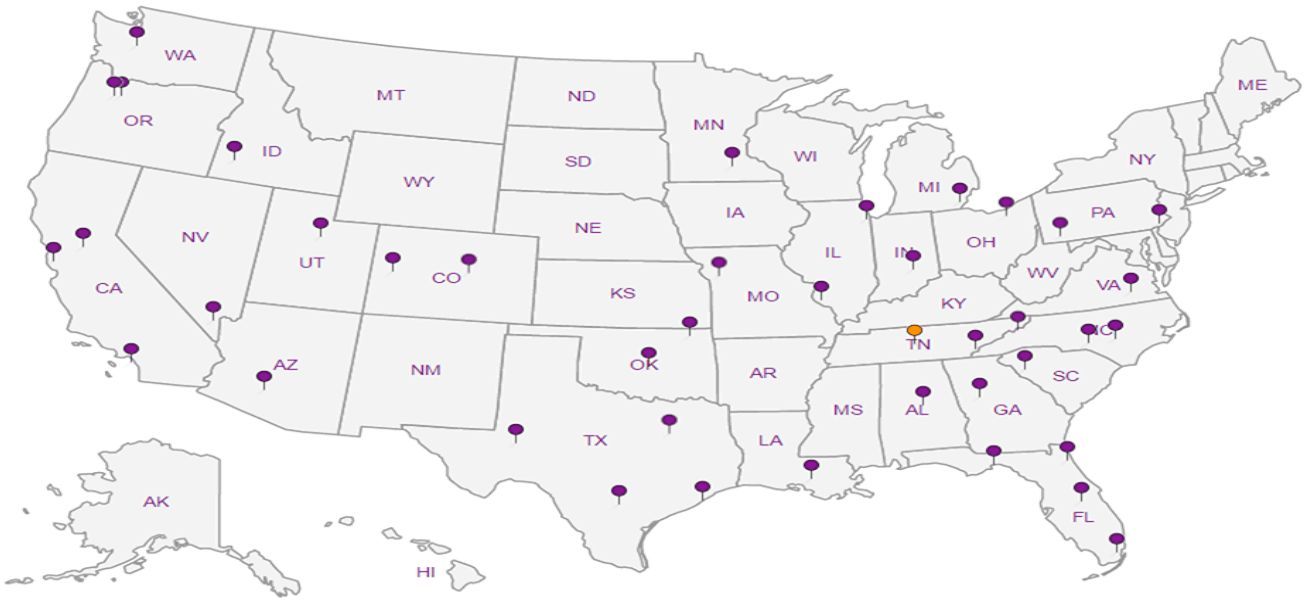
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Golder & Associates - CO

7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Billing Information:
Accounts Payable
7245 W Alaska Drive, Ste 200
Lakewood, CO 80226

Report to: Matt Somogyi

Email To: matthew_somogyi@golder.com

Project Description: Wexpro - Craig Pits Delin. Short

City/State Collected: Craig, CO

Please Circle: PT MT CT ET

Phone: 800-235-7784
Fax: 303-985-2080

Client Project # 19125681

Lab Project # GOLDCO-00062103

Collected by (print): Tricia Hall

Site/Facility ID #

P.O. #

Collected by (signature): Tricia Hall

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE,SPCON,SO4 8ozClr-NoPres	DRO 8ozClr-NoPres	GRO, V8260BTEX 8ozClr-NoPres	SAR (Ca, Mg, Na) 8ozClr-NoPres	Remarks	Sample # (lab only)
P8-B2-~~FT~~ stepout2-02ft	G	SS	0-2	11/20/19	0920	1	Y	Y	X	Y		-01
P8-B3-~~FT~~ stepout1-4ft	G	SS	4	11/20/19	1015	1	Y	Y	X	Y		-02
P8-B4-~~FT~~ stepout2-2ft	G	SS	2	11/20/19	1130	1	Y	Y	Y	Y		-03
P4-B1-~~FT~~ 4 ft	G	SS	4	11/20/19	1320	1	X	X	X	X		-04
P4-B2-~~FT~~ 4 ft	G	SS	4	11/20/19	1345	1	X	X	X	X		-05
P4-B3-~~FT~~ 2 ft	G	SS	2	11/20/19	1415	1	Y	Y	Y	Y		-06
P4-B4-~~FT~~ 4 ft	G	SS	4	11/20/19	1425	1	Y	Y	Y	Y		-07
P5-B1-~~FT~~ 20ft	G	SS	20	11/20/19	1550	1	Y	Y	Y	Y		-08
P5-B2-~~FT~~ 8 ft	G	SS	8	11/20/19	1600	1	Y	X	X	X		-09
P5-B3-~~FT~~ 8ft	G	SS	6-8	11/20/19	1630	1	Y	Y	X	Y		-10

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 474433304085

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Tricia Hall	11/21/19	1630	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.2+.2=1.4 °C Bottles Received: 14

Date: 11-23-19 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page 1 of 2

Pace Analytical®
National Center for Testing & Innovation

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

SDG # L1164432

T: H223

Acctnum: GOLDCO

Template: T157215

Prelogin: P735037

PM: 288 - Daphne Richards

PB: BF 10/9/19

Shipped Via: FedEX Saver

Golder & Associates

7245 W. Alaska Dr. Suite 200
Lakewood, CO 80226

Billing Information:

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace Analytical®
National Center for Testing & Innovation

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

Report to: **Matt Somogyi**

Email To: **Matthew_Somogyi@golder.com**

Project Description: **Wexpro - Craig Pits Delin.**

City/State Collected: Craig, CO

Phone: **303-980-0540**
Fax: **303-9985-2080**

Client Project # **19125681**

Lab Project #

L# 1164432

Collected by (print): Tricia Hall

Site/Facility ID #

P.O. #

Table #

Acctnum: **GOLDCO**

Collected by (signature): Tricia Hall

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed

Template:

Prelogin:

TSR: **Daphne Richards**

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride, SPcon, SC4	DRO	GRO	SAR	Remarks	Sample # (lab only)
P5-B4 ft step#1-9ft	G	SS	9	11/21/2019	0840	1	X	X	X	X		-11
P2-B5 ft offset 2-30-32ft	G	SS	30-32	11/21/2019	1100	1	X	X	X	X		-12
P3-B3 ft step#2-25-30ftG		SS	25-30	11/21/2019	1430	1	X	X	X	X		-13
P3-B4 ft step#1-8ft	G	SS	8	11/21/2019	1610	1	X	X	X	X		-14
P -B ft				/ /2019								
P -B ft				/ /2019								
P -B ft				/ /2019								
P -B ft				/ /2019								
P -B ft				/ /2019								
P -B ft				/ /2019								

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # 479488304055

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

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Tricia Hall	11/21/19	1630	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 1.2+2=1.4 °C Bottles Received: 14

Date: 11-23-19 Time: 0960

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK