

## 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](mailto:Matthew_Somogyi@golder.com)

### **DOMINION ENERGY WEXPRO, EXPLORATION AND PRODUCTION PIT DELINEATION – FIELD INVESTIGATION SUMMARY FOR THE CARL ALLEN 7 PAD, COGCC PIT ID 100623 (PIT 18), 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 Carl Allen 7 (CA7) pad, Colorado Oil and Gas Conservation Commission (COGCC) Table Pit ID 100623 (Pit 18).

Pit 18 is located at Pad CA7 at the approximate latitude/longitude coordinates 40.969014519 / -108.297613635. The subsurface investigation at Pit 18 was performed on October 25, 2019 and November 15-17, 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.


During investigation at Pit 18, it became apparent that impacts were not limited to soil and that bedrock exhibited evidence of impacts. The drilling equipment used was not appropriate for extensive bedrock investigation, but attempts were made to investigate soil and bedrock impacts as fully as possible. Sixteen boreholes were completed at Pit 18 to attempt to delineate the horizontal and vertical extents of soil and bedrock impacts from historical operations. One borehole was completed at the assumed center of the pit to the depth of refusal of 6 feet (ft) below ground surface (bgs). Four perimeter boreholes were completed approximately 20 feet ft, generally north, south, east, and west, from the center borehole to attempt to define the horizontal extents of soil impacts. One stepout borehole was required to attempt to delineate apparent soil impacts. Ten additional boreholes were

completed to attempt to delineate bedrock impacts. 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 5.0 to 8.0 ft bgs and up to 5.0 ft of bedrock was recovered in Pit 18 boreholes. Visual and olfactory evidence of potential impacts included dark gray, black, green, purple, red, and yellow discoloration, and a strong hydrocarbon-like odor. Representative photos of lithologies and/or impacts encountered at Pit 18 are provided as Attachment 1.

Soil samples collected from Pit 18 were assigned unique sample identifiers "P18-BX-Xft," where "P18" 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 eight samples were collected for laboratory analysis based on field screening results: one sample from each perimeter borehole and one sample representing the center of the pit. Soil samples collected from Pit 18 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 adsorption ratio, chloride, and sulfate. Additionally, the sample with the highest field PID or EC reading from all boreholes completed at Pit 18 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 boreholes near the pit center included exceedances of the COGCC Table 910-1 Concentration Levels for arsenic, benzene, diesel range organics, sodium adsorption ratio, specific conductance, and total petroleum hydrocarbons – gasoline range organics. The analytical results for this pit represent a combination of bedrock and soil samples. Thus, determination of horizontal and vertical delineation of soil impacts is based on both soil analytical results and field measurements/observations. Based on the analytical and field screening results, horizontal impacted soil delineation of Pit 18 is considered complete. Vertical impacted soil delineation is considered complete because soil impacts were observed to extend to the bedrock surface at the center borehole, and bedrock was recovered at 4.5 ft bgs. Investigation of bedrock impacts was conducted within the abilities of the drilling equipment used. However, the horizontal and vertical extent of bedrock impacts remains unresolved.

  
Matthew Somogyi  
Senior Hydrogeologist

  
Jeremy Yeglin, P.E.  
Associate, Senior Consultant

MS/JY/dls

## Attachments

Table 1 –Pit 18 Analytical Results Summary  
Figure 1 –Pit 18 Borehole Locations  
Attachment 1 – Representative Pit 18 Photos  
Attachment 2 – Analytical Laboratory Report

Table

Table 1 - Analytical Results Summary  
Pad Carl Allen 7  
Pit 18  
COGCC ID 100623

| Pit Number                |          |                                  | P18            | P18          | P18                   | P18                      | P18          | P18                    | P18                      | P18                    |
|---------------------------|----------|----------------------------------|----------------|--------------|-----------------------|--------------------------|--------------|------------------------|--------------------------|------------------------|
| Sample Name               |          |                                  | *P18-B1-4-5.5' | *P18-B5-4-6' | P18-B1-STEPOUT2-0-2FT | *P18-B1-STEPOUT 1-5-5.5' | *P18-B2-4-5' | *P18-B2-STEPOUT1-6-8FT | *P18-B3-STEPOUT6-5-5.5FT | *P18-B4-STEPOUT1-4-5FT |
| Sample Date               |          |                                  | 24 Oct 2019    | 25 Oct 2019  | 17 Nov 2019           | 25 Oct 2019              | 24 Oct 2019  | 15 Nov 2019            | 16 Nov 2019              | 16 Nov 2019            |
| Sample Time               |          |                                  | 16:40          | 15:10        | 11:30                 | 16:00                    | 16:30        | 16:30                  | 10:10                    | 11:30                  |
| Analyte                   | Units    | Table 910-1 Concentration Levels |                |              |                       |                          |              |                        |                          |                        |
| Acenaphthene              | mg/kg    | 1,000                            | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Anthracene                | mg/kg    | 1,000                            | 0.00646        | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Arsenic                   | mg/kg    | 0.36                             | 23.1           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Barium                    | mg/kg    | 15,000                           | 182            | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Benzene                   | mg/kg    | 0.17                             | 7.88           | < 0.0400     | NA                    | < 0.0400                 | < 0.0400     | NA                     | NA                       | NA                     |
| Benzo[a]anthracene        | mg/kg    | 0.22                             | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Benzo[a]pyrene            | mg/kg    | 0.022                            | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Benzo[b]fluoranthene      | mg/kg    | 0.22                             | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Benzo[k]fluoranthene      | mg/kg    | 2.2                              | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Cadmium                   | mg/kg    | 70                               | < 0.500        | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Chloride                  | mg/kg    | -                                | 2690           | 1930         | 51                    | 2060                     | 1860         | 122                    | 85.5                     | 214                    |
| Chromium (III)            | mg/kg    | 120,000                          | 24.6           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Chrysene                  | mg/kg    | 22                               | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Copper                    | mg/kg    | 3,100                            | 13.2           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Dibenz[a,h]anthracene     | mg/kg    | 0.022                            | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Diesel Fuels, Total (DRO) | mg/kg    | 500                              | 1570           | 1280         | < 4.00                | 541                      | 721          | < 4.00                 | < 4.00                   | < 4.00                 |
| Ethylbenzene              | mg/kg    | 100                              | 17.9           | 1.36         | NA                    | 0.231                    | 0.903        | NA                     | NA                       | NA                     |
| Fluoranthene              | mg/kg    | 1,000                            | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Fluorene                  | mg/kg    | 1,000                            | 0.0569         | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Hexavalent Chromium       | mg/kg    | 23                               | < 2.00         | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Indeno[1,2,3-cd]pyrene    | mg/kg    | 0.22                             | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Lead                      | mg/kg    | 400                              | 11.9           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Mercury                   | mg/kg    | 23                               | 0.748          | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Naphthalene               | mg/kg    | 23                               | 2.91           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Nickel                    | mg/kg    | 1,600                            | 16.7           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| pH                        | SU       | 6-9                              | 8.36           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Pyrene                    | mg/kg    | 1,000                            | < 0.00600      | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Selenium                  | mg/kg    | 390                              | < 2.00         | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Silver                    | mg/kg    | 390                              | < 1.00         | NA           | NA                    | NA                       | NA           | NA                     | NA                       | NA                     |
| Sodium Adsorption Ratio   | -        | <12                              | 36             | 47.6         | 1.55                  | 15.7                     | 58.8         | 6.15                   | 8.02                     | 6                      |
| Specific Conductance      | umhos/cm | <4,000 or 2x background          | 8310           | 5490         | 282                   | 8030                     | 5960         | 1400                   | 674                      | 1110                   |
| Sulfate                   | mg/kg    | -                                | 152            | 272          | < 50.0                | 645                      | < 50.0       | 15100                  | 1350                     | 2350                   |
| Toluene                   | mg/kg    | 85                               | < 2.50         | 1.14         | NA                    | < 0.200                  | 0.227        | NA                     | NA                       | NA                     |
| TPH as Gasoline (GRO)     | mg/kg    | 500                              | 2980           | 524          | < 0.100               | 195                      | 839          | < 0.100                | < 0.100                  | < 0.100                |
| Xylenes, Total            | mg/kg    | 175                              | 95.2           | 11           | NA                    | 2.11                     | 10           | NA                     | NA                       | NA                     |
| Zinc                      | mg/kg    | 23,000                           | 66.4           | NA           | NA                    | NA                       | NA           | NA                     | NA                       | 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

\* indicates bedrock sample

Sample Time in Mountain Time

Figure

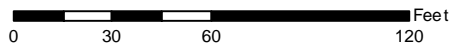


#### LEGEND

▲ NO ANALYTICAL SAMPLE

#### ANALYTICAL SAMPLE

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



#### NOTE(S)

1. THE LOCATION OF ANALYTICAL SAMPLE P18-B4-STEPOUT 1 SHOULD BE CONSIDERED APPROXIMATE.

#### 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: CARL ALLEN 7

PIT NUMBER: 18

COGCC ID: 100623

#### CONSULTANT

YYYY-MM-DD 2020-02-18

DESIGNED RHG

PREPARED RHG

REVIEWED TLH

APPROVED MKS



#### PROJECT NO.

19125681

#### FIGURE

1

**ATTACHMENT 1**

## Representative Pit 18 Photos



**Photograph 1:** Typical lithology observed at perimeter boreholes at the Carl Allen 7 pad, Pit 18, COGCC ID 100623.



**Photograph 2:** Bedrock (siltstone) encountered at the Carl Allen 7 pad, Pit 18, COGCC ID 100623.



**Photograph 2:** Impacted soil observed at the center borehole at the Carl Allen 6 pad, Pit 17, COGCC ID 100688. Note the black staining present at approximately 6 ft bgs, second core from the left.

**ATTACHMENT 2**

## Analytical Laboratory Report

January 17, 2020

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Golder & Associates - CO

Sample Delivery Group: L1154948  
Samples Received: 10/29/2019  
Project Number: 19125681  
Description: Wexpro - Craig Pits Delin. Short 910-1 List

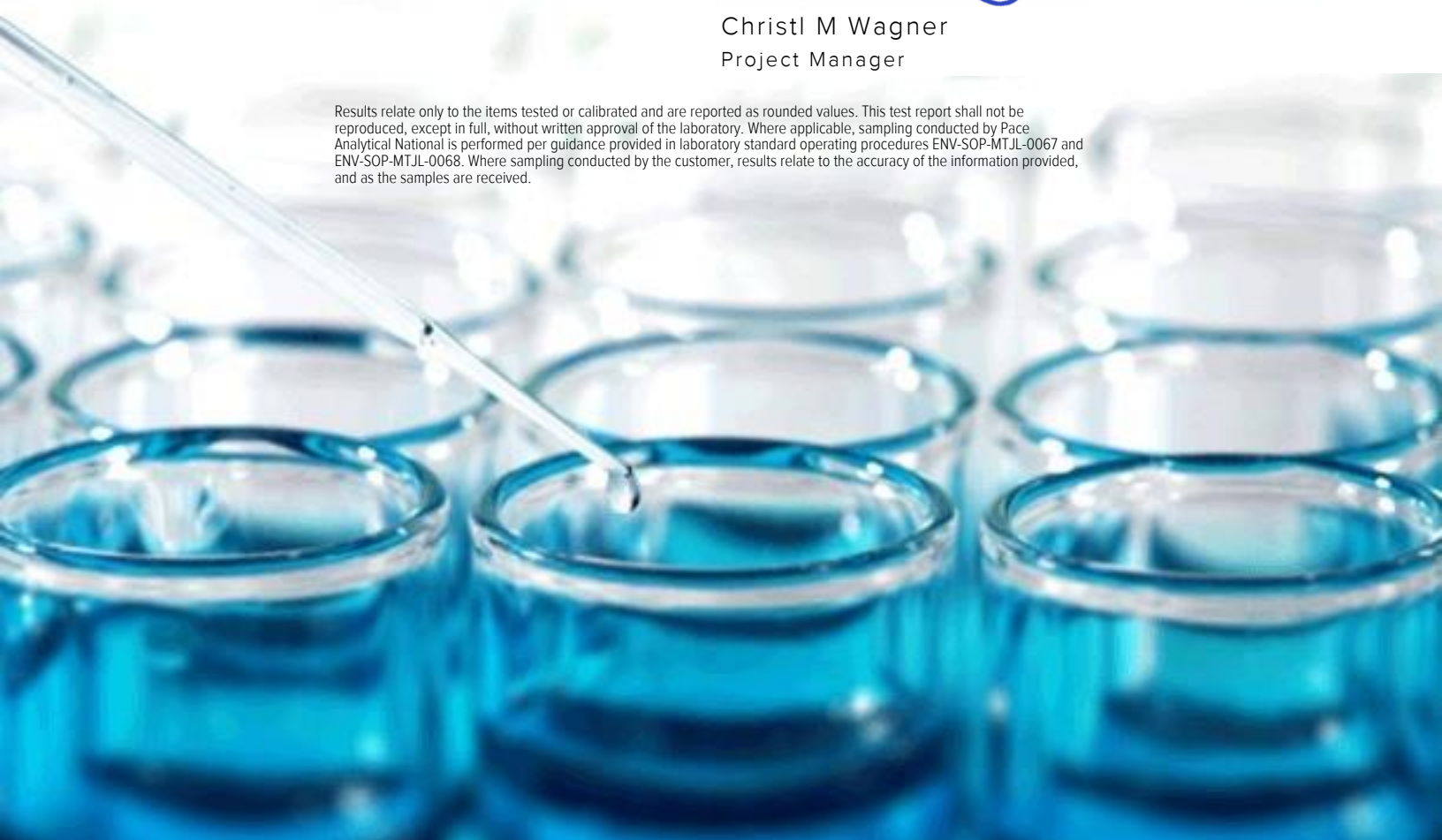
Report To: Matt Somogyi  
7245 W Alaska Drive, Ste 200  
Lakewood, CO 80226

Entire Report Reviewed By:



Christl M Wagner  
Project Manager

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.





|   |    |
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| Sr: Sample Results  | 5  |
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# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## P18-B5-4-6' L1154948-13 Solid

|   |           |          |                       | Collected by       | Collected date/time | Received date/time |
|---|-----------|----------|-----------------------|--------------------|---------------------|--------------------|
|   |           |          |                       |                    | 10/25/19 15:10      | 10/29/19 08:45     |
| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst             | Location           |
| Calculated Results                                  | WG1373644 | 1        | 11/04/19 13:50        | 11/04/19 13:50     | TRB                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9050AMod                    | WG1374038 | 1        | 11/05/19 08:10        | 11/05/19 11:30     | SL                  | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372307 | 1        | 10/31/19 17:45        | 11/01/19 00:56     | LDC                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372307 | 5        | 10/31/19 17:45        | 11/01/19 09:01     | LDC                 | Mt. Juliet, TN     |
| Metals (ICP) by Method 6010B                        | WG1372630 | 1        | 10/31/19 06:36        | 10/31/19 18:47     | JDG                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1375689 | 500      | 10/30/19 09:42        | 11/06/19 04:21     | BMB                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC/MS) by Method 8260B  | WG1375535 | 40       | 10/30/19 09:42        | 11/06/19 06:21     | JSD                 | Mt. Juliet, TN     |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1372986 | 10       | 11/01/19 08:20        | 11/02/19 12:51     | JDG                 | Mt. Juliet, TN     |

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

## P18-B1-STEPOUT 1-5-5.5' L1154948-14 Solid

|   |           |          |                       | Collected by       | Collected date/time | Received date/time |
|---|-----------|----------|-----------------------|--------------------|---------------------|--------------------|
|   |           |          |                       |                    | 10/25/19 16:00      | 10/29/19 08:45     |
| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst             | Location           |
| Calculated Results                                  | WG1373644 | 1        | 11/04/19 13:53        | 11/04/19 13:53     | TRB                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9050AMod                    | WG1374038 | 1        | 11/05/19 08:10        | 11/05/19 11:30     | SL                  | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372307 | 1        | 10/31/19 17:45        | 11/01/19 01:27     | LDC                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372307 | 5        | 10/31/19 17:45        | 11/01/19 01:43     | LDC                 | Mt. Juliet, TN     |
| Metals (ICP) by Method 6010B                        | WG1372630 | 1        | 10/31/19 06:36        | 10/31/19 18:50     | JDG                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1375689 | 500      | 10/30/19 09:42        | 11/06/19 04:42     | BMB                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC/MS) by Method 8260B  | WG1375535 | 40       | 10/30/19 09:42        | 11/06/19 06:41     | JSD                 | Mt. Juliet, TN     |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1372986 | 5        | 11/01/19 08:20        | 11/02/19 00:34     | JDG                 | Mt. Juliet, TN     |

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## P18-B2-4-5' L1154948-15 Solid

|   |           |          |                       | Collected by       | Collected date/time | Received date/time |
|---|-----------|----------|-----------------------|--------------------|---------------------|--------------------|
|   |           |          |                       |                    | 10/24/19 16:30      | 10/29/19 08:45     |
| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst             | Location           |
| Calculated Results                                  | WG1373644 | 1        | 11/04/19 13:56        | 11/04/19 13:56     | TRB                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9050AMod                    | WG1374038 | 1        | 11/05/19 08:10        | 11/05/19 11:30     | SL                  | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372950 | 1        | 11/01/19 00:10        | 11/01/19 06:00     | ELN                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                       | WG1372950 | 5        | 11/01/19 00:10        | 11/01/19 06:43     | ELN                 | Mt. Juliet, TN     |
| Metals (ICP) by Method 6010B                        | WG1372841 | 1        | 10/31/19 10:42        | 11/01/19 15:01     | JDG                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1375515 | 500      | 10/31/19 00:58        | 11/07/19 07:43     | JAH                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC/MS) by Method 8260B  | WG1374491 | 40       | 10/31/19 00:58        | 11/04/19 14:12     | DWR                 | Mt. Juliet, TN     |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1372986 | 5        | 11/01/19 08:20        | 11/02/19 13:04     | JDG                 | Mt. Juliet, TN     |

## P18-B1-4-5.5' L1154948-16 Solid

|   |           |          |                       | Collected by       | Collected date/time | Received date/time |
|---|-----------|----------|-----------------------|--------------------|---------------------|--------------------|
|   |           |          |                       |                    | 10/24/19 16:40      | 10/29/19 08:45     |
| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst             | Location           |
| Calculated Results  | WG1373644 | 1        | 11/04/19 13:58        | 11/04/19 13:58     | TRB                 | Mt. Juliet, TN     |
| Calculated Results  | WG1372841 | 1        | 10/31/19 10:42        | 11/03/19 21:33     | JDG                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 3060A/7196A                         | WG1373805 | 1        | 11/03/19 13:30        | 11/03/19 21:33     | ANP                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9045D                               | WG1373125 | 1        | 10/31/19 15:54        | 10/31/19 20:41     | ANP                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9050AMod                            | WG1374038 | 1        | 11/05/19 08:10        | 11/05/19 11:30     | SL                  | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                               | WG1372950 | 1        | 11/01/19 00:10        | 11/01/19 06:58     | ELN                 | Mt. Juliet, TN     |
| Wet Chemistry by Method 9056A                               | WG1372950 | 5        | 11/01/19 00:10        | 11/01/19 07:12     | ELN                 | Mt. Juliet, TN     |
| Mercury by Method 7471A                                     | WG1372698 | 1        | 10/31/19 10:30        | 10/31/19 22:58     | TCT                 | Mt. Juliet, TN     |
| Metals (ICP) by Method 6010B                                | WG1372841 | 1        | 10/31/19 10:42        | 11/01/19 15:04     | JDG                 | Mt. Juliet, TN     |
| Volatile Organic Compounds (GC) by Method 8015/8021         | WG1375130 | 500      | 10/31/19 00:58        | 11/05/19 19:12     | DWR                 | Mt. Juliet, TN     |
| Semi-Volatile Organic Compounds (GC) by Method 8015         | WG1372986 | 10       | 11/01/19 08:20        | 11/02/19 13:17     | JDG                 | Mt. Juliet, TN     |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1372977 | 1        | 10/31/19 20:18        | 11/01/19 11:41     | AAT                 | Mt. Juliet, TN     |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1372977 | 20       | 10/31/19 20:18        | 11/03/19 17:32     | LEA                 | Mt. Juliet, TN     |

ACCOUNT:

Golder & Associates - CO

PROJECT:

19125681

SDG:

L1154948

DATE/TIME:

01/17/20 10:22

PAGE:

3 of 34



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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

### Report Revision History

---

Version 1: 11/08/19 16:42  
Version 2: 12/09/19 11:36  
Version 3: 12/19/19 17:22  
Version 4: 01/14/20 15:39  
Version 5: 01/16/20 11:54  
Version 6: 01/16/20 13:30

### Project Narrative

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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 | 47.6   |           | 1        | 11/04/2019 13:50     | WG1373644 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 5490            |           | 10.0         | 1        | 11/05/2019 11:30     | <a href="#">WG1374038</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 1930         |           | 50.0      | 5        | 11/01/2019 09:01     | <a href="#">WG1372307</a> |
| Sulfate  | 272          |           | 50.0      | 1        | 11/01/2019 00:56     | <a href="#">WG1372307</a> |

## Metals (ICP) by Method 6010B

| Analyte   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|-----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Calcium   | 1840         |           | 100       | 1        | 10/31/2019 18:47     | <a href="#">WG1372630</a> |
| Magnesium | 3180         |           | 100       | 1        | 10/31/2019 18:47     | <a href="#">WG1372630</a> |
| Sodium    | 2560         |           | 100       | 1        | 10/31/2019 18:47     | <a href="#">WG1372630</a> |

## 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       | 524          |           | 50.0      | 500      | 11/06/2019 04:21     | <a href="#">WG1375689</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 94.6         |           | 77.0-120  |          | 11/06/2019 04:21     | <a href="#">WG1375689</a> |

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

| Analyte                   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|---------------------------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Benzene                   | ND           |           | 0.0400    | 40       | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| Toluene                   | 1.14         |           | 0.200     | 40       | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| Ethylbenzene              | 1.36         |           | 0.100     | 40       | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| Total Xylenes             | 11.0         |           | 0.260     | 40       | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| (S) Toluene-d8            | 103          |           | 75.0-131  |          | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| (S) 4-Bromofluorobenzene  | 106          |           | 67.0-138  |          | 11/06/2019 06:21     | <a href="#">WG1375535</a> |
| (S) 1,2-Dichloroethane-d4 | 120          |           | 70.0-130  |          | 11/06/2019 06:21     | <a href="#">WG1375535</a> |

## 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 | 1280         |           | 40.0      | 10       | 11/02/2019 12:51     | <a href="#">WG1372986</a> |
| (S) o-Terphenyl            | 58.5         |           | 18.0-148  |          | 11/02/2019 12:51     | <a href="#">WG1372986</a> |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 15.7   |           | 1        | 11/04/2019 13:53     | WG1373644 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 8030            |           | 10.0         | 1        | 11/05/2019 11:30     | <a href="#">WG1374038</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 2060         |           | 50.0      | 5        | 11/01/2019 01:43     | <a href="#">WG1372307</a> |
| Sulfate  | 645          |           | 50.0      | 1        | 11/01/2019 01:27     | <a href="#">WG1372307</a> |

## Metals (ICP) by Method 6010B

| Analyte   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|-----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Calcium   | 11900        |           | 100       | 1        | 10/31/2019 18:50     | <a href="#">WG1372630</a> |
| Magnesium | 4330         |           | 100       | 1        | 10/31/2019 18:50     | <a href="#">WG1372630</a> |
| Sodium    | 1660         |           | 100       | 1        | 10/31/2019 18:50     | <a href="#">WG1372630</a> |

## 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       | 195          |           | 50.0      | 500      | 11/06/2019 04:42     | <a href="#">WG1375689</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 96.6         |           | 77.0-120  |          | 11/06/2019 04:42     | <a href="#">WG1375689</a> |

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

| Analyte                   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|---------------------------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Benzene                   | ND           |           | 0.0400    | 40       | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| Toluene                   | ND           |           | 0.200     | 40       | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| Ethylbenzene              | 0.231        |           | 0.100     | 40       | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| Total Xylenes             | 2.11         |           | 0.260     | 40       | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| (S) Toluene-d8            | 102          |           | 75.0-131  |          | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| (S) 4-Bromofluorobenzene  | 105          |           | 67.0-138  |          | 11/06/2019 06:41     | <a href="#">WG1375535</a> |
| (S) 1,2-Dichloroethane-d4 | 121          |           | 70.0-130  |          | 11/06/2019 06:41     | <a href="#">WG1375535</a> |

## 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 | 541          |           | 20.0      | 5        | 11/02/2019 00:34     | <a href="#">WG1372986</a> |
| (S) o-Terphenyl            | 80.7         |           | 18.0-148  |          | 11/02/2019 00:34     | <a href="#">WG1372986</a> |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 58.8   |           | 1        | 11/04/2019 13:56     | WG1373644 |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 5960            |           | 10.0         | 1        | 11/05/2019 11:30     | <a href="#">WG1374038</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 1860         |           | 50.0      | 5        | 11/01/2019 06:43     | <a href="#">WG1372950</a> |
| Sulfate  | ND           |           | 50.0      | 1        | 11/01/2019 06:00     | <a href="#">WG1372950</a> |

## Metals (ICP) by Method 6010B

| Analyte   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|-----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Calcium   | 1680         |           | 100       | 1        | 11/01/2019 15:01     | <a href="#">WG1372841</a> |
| Magnesium | 4040         |           | 100       | 1        | 11/01/2019 15:01     | <a href="#">WG1372841</a> |
| Sodium    | 2900         |           | 100       | 1        | 11/01/2019 15:01     | <a href="#">WG1372841</a> |

## 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       | 839          |           | 50.0      | 500      | 11/07/2019 07:43     | <a href="#">WG1375515</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 91.6         |           | 77.0-120  |          | 11/07/2019 07:43     | <a href="#">WG1375515</a> |

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

| Analyte                   | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|---------------------------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Benzene                   | ND           |           | 0.0400    | 40       | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| Toluene                   | 0.227        |           | 0.200     | 40       | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| Ethylbenzene              | 0.903        |           | 0.100     | 40       | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| Total Xylenes             | 10.0         |           | 0.260     | 40       | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| (S) Toluene-d8            | 101          |           | 75.0-131  |          | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| (S) 4-Bromofluorobenzene  | 102          |           | 67.0-138  |          | 11/04/2019 14:12     | <a href="#">WG1374491</a> |
| (S) 1,2-Dichloroethane-d4 | 116          |           | 70.0-130  |          | 11/04/2019 14:12     | <a href="#">WG1374491</a> |

## 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 | 721          |           | 20.0      | 5        | 11/02/2019 13:04     | <a href="#">WG1372986</a> |
| (S) o-Terphenyl            | 87.8         |           | 18.0-148  |          | 11/02/2019 13:04     | <a href="#">WG1372986</a> |



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 36.0   |           | 1        | 11/04/2019 13:58     | WG1373644 |

## Calculated Results

| Analyte             | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|---------------------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chromium, Trivalent | 24.6         |           | 1.00      | 1        | 11/03/2019 21:33     | <a href="#">WG1372841</a> |

## Wet Chemistry by Method 3060A/7196A

| Analyte              | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------------------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chromium, Hexavalent | ND           |           | 2.00      | 1        | 11/03/2019 21:33     | <a href="#">WG1373805</a> |

## Wet Chemistry by Method 9045D

| Analyte | Result su | Qualifier          | Dilution | Analysis date / time | Batch                     |
|---------|-----------|--------------------|----------|----------------------|---------------------------|
| pH      | 8.36      | <a href="#">T8</a> | 1        | 10/31/2019 20:41     | <a href="#">WG1373125</a> |

## Sample Narrative:

L1154948-16 WG1373125: 8.36 at 19.9C

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 8310            |           | 10.0         | 1        | 11/05/2019 11:30     | <a href="#">WG1374038</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 2690         |           | 50.0      | 5        | 11/01/2019 07:12     | <a href="#">WG1372950</a> |
| Sulfate  | 152          |           | 50.0      | 1        | 11/01/2019 06:58     | <a href="#">WG1372950</a> |

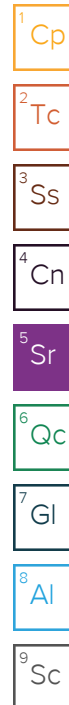
## Mercury by Method 7471A

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|---------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Mercury | 0.748        |           | 0.0300    | 1        | 10/31/2019 22:58     | <a href="#">WG1372698</a> |

## Metals (ICP) by Method 6010B

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Arsenic  | 23.1         |           | 0.460     | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Barium   | 182          |           | 0.500     | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Boron    | ND           |           | 10.0      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Cadmium  | ND           |           | 0.500     | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Chromium | 24.6         |           | 1.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Copper   | 13.2         |           | 2.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Lead     | 11.9         |           | 0.500     | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Nickel   | 16.7         |           | 2.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Selenium | ND           |           | 2.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Silver   | ND           |           | 1.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |
| Zinc     | 66.4         |           | 5.00      | 1        | 11/01/2019 15:04     | <a href="#">WG1372841</a> |

## Sample Narrative:





Collected date/time: 10/24/19 16:40

L1154948

## Metals (ICP) by Method 6010B

| Analyte  | Result<br>mg/kg | Qualifier | RDL<br>mg/kg | Dilution | Analysis<br>date / time | Batch |
|--|-----------------|-----------|--------------|----------|-------------------------|-------|
| L1154948-16 WG1372841: Arsenic captured to MDL for the lower detection limit - CMW 1/15/20 |                 |           |              |          |                         |       |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

| Analyte                         | Result<br>mg/kg | Qualifier | RDL<br>mg/kg | Dilution | Analysis<br>date / time | Batch                     |
|---------------------------------|-----------------|-----------|--------------|----------|-------------------------|---------------------------|
| Benzene                         | 7.88            |           | 0.250        | 500      | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| Toluene                         | ND              |           | 2.50         | 500      | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| Ethylbenzene                    | 17.9            |           | 0.250        | 500      | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| Total Xylene                    | 95.2            |           | 0.750        | 500      | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| TPH (GC/FID) Low Fraction       | 2980            |           | 50.0         | 500      | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 91.1            |           | 77.0-120     |          | 11/05/2019 19:12        | <a href="#">WG1375130</a> |
| (S) a,a,a-Trifluorotoluene(PID) | 99.3            |           | 72.0-128     |          | 11/05/2019 19:12        | <a href="#">WG1375130</a> |

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

| Analyte                    | Result<br>mg/kg | Qualifier | RDL<br>mg/kg | Dilution | Analysis<br>date / time | Batch                     |
|----------------------------|-----------------|-----------|--------------|----------|-------------------------|---------------------------|
| TPH (GC/FID) High Fraction | 1570            |           | 40.0         | 10       | 11/02/2019 13:17        | <a href="#">WG1372986</a> |
| (S) o-Terphenyl            | 83.5            |           | 18.0-148     |          | 11/02/2019 13:17        | <a href="#">WG1372986</a> |

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

| Analyte                | Result<br>mg/kg | Qualifier | RDL<br>mg/kg | Dilution | Analysis<br>date / time | Batch                     |
|------------------------|-----------------|-----------|--------------|----------|-------------------------|---------------------------|
| Anthracene             | 0.00646         |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Acenaphthene           | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Acenaphthylene         | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Benzo(a)anthracene     | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Benzo(a)pyrene         | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Benzo(b)fluoranthene   | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Benzo(g,h,i)perylene   | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Benzo(k)fluoranthene   | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Chrysene               | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Dibenz(a,h)anthracene  | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Fluoranthene           | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Fluorene               | 0.0569          |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Indeno(1,2,3-cd)pyrene | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Naphthalene            | 2.91            |           | 0.400        | 20       | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| Phenanthrene           | 0.0540          |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| Pyrene                 | ND              |           | 0.00600      | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| 1-Methylnaphthalene    | 2.01            |           | 0.400        | 20       | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| 2-Methylnaphthalene    | 2.91            |           | 0.400        | 20       | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| 2-Chloronaphthalene    | ND              |           | 0.0200       | 1        | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| (S) p-Terphenyl-d14    | 105             |           | 23.0-120     |          | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| (S) p-Terphenyl-d14    | 125             | J7        | 23.0-120     |          | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| (S) Nitrobenzene-d5    | 413             | J7        | 14.0-149     |          | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| (S) Nitrobenzene-d5    | 0.000           | J2        | 14.0-149     |          | 11/01/2019 11:41        | <a href="#">WG1372977</a> |
| (S) 2-Fluorobiphenyl   | 135             | J7        | 34.0-125     |          | 11/03/2019 17:32        | <a href="#">WG1372977</a> |
| (S) 2-Fluorobiphenyl   | 105             |           | 34.0-125     |          | 11/01/2019 11:41        | <a href="#">WG1372977</a> |

## Sample Narrative:

L1154948-16 WG1372977: Surrogate recovery impacted by matrix interference.



Method Blank (MB)

(MB) R3467994-1 11/03/19 21:31

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

L1154948-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1154948-16 11/03/19 21:33 • (DUP) R3467994-3 11/03/19 21:33

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

L1156514-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1156514-11 11/03/19 21:51 • (DUP) R3467994-8 11/03/19 21:51

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

Laboratory Control Sample (LCS)

(LCS) R3467994-2 11/03/19 21:31

|                     | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|---------------------|--------------|------------|----------|-------------|---------------|
| Analyte             | mg/kg        | mg/kg      | %        | %           |               |
| Chromium,Hexavalent | 24.0         | 22.1       | 92.0     | 80.0-120    |               |

L1155220-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1155220-04 11/03/19 21:39 • (MS) R3467994-4 11/03/19 21:36 • (MSD) R3467994-5 11/03/19 21:37

|                     | Spike Amount (dry) | Original Result (dry) | MS Result (dry) | MSD Result (dry) | MS Rec. | MSD Rec. | Dilution | Rec. Limits | MS Qualifier | MSD Qualifier | RPD   | RPD Limits |
|---------------------|--------------------|-----------------------|-----------------|------------------|---------|----------|----------|-------------|--------------|---------------|-------|------------|
| Analyte             | mg/kg              | mg/kg                 | mg/kg           | mg/kg            | %       | %        |          | %           |              |               | %     | %          |
| Chromium,Hexavalent | 20.7               | U                     | 17.8            | 17.9             | 86.1    | 86.3     | 1        | 75.0-125    |              |               | 0.230 | 20         |

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1155220-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1155220-04 11/03/19 21:39 • (MS) R3467994-6 11/03/19 21:38

|                     | Spike Amount<br>(dry) | Original Result<br>(dry) | MS Result (dry) | MS Rec. | Dilution | Rec. Limits | <u>MS Qualifier</u> |
|---------------------|-----------------------|--------------------------|-----------------|---------|----------|-------------|---------------------|
| Analyte             | mg/kg                 | mg/kg                    | mg/kg           | %       |          | %           |                     |
| Chromium,Hexavalent | 691                   | U                        | 950             | 137     | 50       | 75.0-125    | <u>J5</u>           |

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1154948-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1154948-16 10/31/19 20:41 • (DUP) R3467274-2 10/31/19 20:41

|         | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte | su              | su         |          | %       |               | %              |
| pH      | 8.36            | 8.37       | 1        | 0.120   |               | 1              |

Sample Narrative:  
OS: 8.36 at 19.9C  
DUP: 8.37 at 19.9C

L1155467-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1155467-13 10/31/19 20:41 • (DUP) R3467274-3 10/31/19 20:41

|         | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte | su              | su         |          | %       |               | %              |
| pH      | 7.68            | 7.60       | 1        | 1.05    | J3            | 1              |

Sample Narrative:  
OS: 7.68 at 20.1C  
DUP: 7.6 at 19.5C

Laboratory Control Sample (LCS)

(LCS) R3467274-1 10/31/19 20:41

|         | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|---------|--------------|------------|----------|-------------|---------------|
| Analyte | su           | su         | %        | %           |               |
| pH      | 10.0         | 9.96       | 99.6     | 99.0-101    |               |

Sample Narrative:  
LCS: 9.96 at 17.4C

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3468490-1 11/05/19 11:30

| Analyte              | MB Result<br>umhos/cm | MB Qualifier | MB MDL<br>umhos/cm | MB RDL<br>umhos/cm |
|----------------------|-----------------------|--------------|--------------------|--------------------|
| Specific Conductance | U                     |              | 10.0               | 10.0               |

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

L1154948-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1154948-03 11/05/19 11:30 • (DUP) R3468490-3 11/05/19 11:30

| Analyte              | Original Result<br>umhos/cm | DUP Result<br>umhos/cm | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------------------|-----------------------------|------------------------|----------|--------------|---------------|------------------------|
| Specific Conductance | 5620                        | 5440                   | 1        | 3.25         |               | 20                     |

<sup>7</sup>Gl

<sup>8</sup>Al

L1154948-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1154948-13 11/05/19 11:30 • (DUP) R3468490-4 11/05/19 11:30

| Analyte              | Original Result<br>umhos/cm | DUP Result<br>umhos/cm | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------------------|-----------------------------|------------------------|----------|--------------|---------------|------------------------|
| Specific Conductance | 5490                        | 5540                   | 1        | 0.907        |               | 20                     |

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3468490-2 11/05/19 11:30

| Analyte              | Spike Amount<br>umhos/cm | LCS Result<br>umhos/cm | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|----------------------|--------------------------|------------------------|---------------|------------------|---------------|
| Specific Conductance | 393                      | 399                    | 102           | 85.0-115         |               |

Method Blank (MB)

(MB) R3467386-1 10/31/19 19:15

|          | MB Result | MB Qualifier | MB MDL | MB RDL |
|----------|-----------|--------------|--------|--------|
| Analyte  | mg/kg     |              | mg/kg  | mg/kg  |
| Chloride | 3.38      | ⌵            | 0.795  | 10.0   |
| Sulfate  | 2.05      | ⌵            | 0.570  | 50.0   |

L1154948-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1154948-04 10/31/19 20:50 • (DUP) R3467386-3 10/31/19 21:05

|          | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|----------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte  | mg/kg           | mg/kg      |          | %       |               | %              |
| Chloride | 687             | 757        | 20       | 9.68    |               | 15             |
| Sulfate  | 7410            | 6720       | 20       | 9.71    |               | 15             |

L1155170-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1155170-04 11/01/19 05:34 • (DUP) R3467386-6 11/01/19 05:50

|          | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|----------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte  | mg/kg           | mg/kg      |          | %       |               | %              |
| Chloride | 141             | 131        | 1        | 7.84    |               | 15             |
| Sulfate  | 98.6            | 96.2       | 1        | 2.49    |               | 15             |

Laboratory Control Sample (LCS)

(LCS) R3467386-2 10/31/19 19:31

|          | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|----------|--------------|------------|----------|-------------|---------------|
| Analyte  | mg/kg        | mg/kg      | %        | %           |               |
| Chloride | 200          | 208        | 104      | 80.0-120    |               |
| Sulfate  | 200          | 204        | 102      | 80.0-120    |               |

L1154948-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-12 11/01/19 00:10 • (MS) R3467386-4 11/01/19 00:25 • (MSD) R3467386-5 11/01/19 00:41

|          | 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      | %       | %        |          | %           |              |               | %     | %          |
| Chloride | 500          | 245             | 826       | 806        | 116     | 112      | 1        | 80.0-120    |              |               | 2.52  | 15         |
| Sulfate  | 500          | 123             | 549       | 545        | 85.2    | 84.3     | 1        | 80.0-120    |              |               | 0.753 | 15         |

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3467457-1 11/01/19 02:09

| Analyte  | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|----------|--------------------|--------------|-----------------|-----------------|
| Chloride | 2.65               | ↓            | 0.795           | 10.0            |
| Sulfate  | U                  |              | 0.570           | 50.0            |

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1154787-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1154787-03 11/01/19 03:50 • (DUP) R3467457-3 11/01/19 04:05

| Analyte  | Original Result<br>(dry)<br>mg/kg | DUP Result<br>(dry)<br>mg/kg | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------|-----------------------------------|------------------------------|----------|--------------|---------------|------------------------|
| Chloride | 15.4                              | 11.2                         | 1        | 31.8         | P1            | 15                     |
| Sulfate  | 188                               | 191                          | 1        | 1.80         |               | 15                     |

L1155371-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1155371-03 11/01/19 08:38 • (DUP) R3467457-6 11/01/19 08:53

| Analyte  | Original Result<br>mg/kg | DUP Result<br>mg/kg | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------|--------------------------|---------------------|----------|--------------|---------------|------------------------|
| Chloride | 116                      | 113                 | 1        | 2.09         |               | 15                     |
| Sulfate  | 925                      | 920                 | 1        | 0.644        |               | 15                     |

Laboratory Control Sample (LCS)

(LCS) R3467457-2 11/01/19 02:23

| Analyte  | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|----------|-----------------------|---------------------|---------------|------------------|---------------|
| Chloride | 200                   | 212                 | 106           | 80.0-120         |               |
| Sulfate  | 200                   | 210                 | 105           | 80.0-120         |               |

L1154948-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-15 11/01/19 06:00 • (MS) R3467457-4 11/01/19 06:14 • (MSD) R3467457-5 11/01/19 06:29

| Analyte  | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|----------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| Chloride | 500                   | 1940                     | 2530               | 2600                | 120          | 132           | 1        | 80.0-120         | E            | E J5          | 2.45     | 15              |
| Sulfate  | 500                   | ND                       | 526                | 519                 | 103          | 102           | 1        | 80.0-120         |              |               | 1.33     | 15              |



Method Blank (MB)

(MB) R3467297-1 10/31/19 22:06

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

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

(LCS) R3467297-2 10/31/19 22:08 • (LCSD) R3467297-3 10/31/19 22:11

|         | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD  | RPD Limits |
|---------|--------------|------------|-------------|----------|-----------|-------------|---------------|----------------|------|------------|
| Analyte | mg/kg        | mg/kg      | mg/kg       | %        | %         | %           |               |                | %    | %          |
| Mercury | 0.500        | 0.466      | 0.476       | 93.2     | 95.2      | 80.0-120    |               |                | 2.10 | 20         |

L1154820-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154820-06 10/31/19 22:14 • (MS) R3467297-4 10/31/19 22:16 • (MSD) R3467297-5 10/31/19 22:19

|         | 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      | %       | %        |          | %           |              |               | %    | %          |
| Mercury | 0.500        | 0.322           | 0.586     | 0.734      | 52.6    | 82.4     | 1        | 75.0-125    | J6           | J3            | 22.6 | 20         |

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1154948-13,14

Method Blank (MB)

(MB) R3467308-1 10/31/19 17:46

| Analyte   | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|-----------|--------------------|--------------|-----------------|-----------------|
| Calcium   | U                  |              | 4.63            | 100             |
| Magnesium | 3.70               | U            | 1.11            | 100             |
| Sodium    | 25.4               | U            | 9.85            | 100             |

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

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

(LCS) R3467308-2 10/31/19 17:48 • (LCSD) R3467308-3 10/31/19 17:51

| Analyte   | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCSD Result<br>mg/kg | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|-----------|-----------------------|---------------------|----------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| Calcium   | 1000                  | 1030                | 1020                 | 103           | 102            | 80.0-120         |               |                | 0.428    | 20              |
| Magnesium | 1000                  | 1040                | 1050                 | 104           | 105            | 80.0-120         |               |                | 0.193    | 20              |
| Sodium    | 1000                  | 1010                | 1000                 | 101           | 100            | 80.0-120         |               |                | 0.702    | 20              |

L1154948-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-01 10/31/19 17:53 • (MS) R3467308-6 10/31/19 18:01 • (MSD) R3467308-7 10/31/19 18:03

| Analyte   | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|-----------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| Calcium   | 1000                  | 5190                     | 6300               | 5610                | 112          | 42.6          | 1        | 75.0-125         |              | V             | 11.6     | 20              |
| Magnesium | 1000                  | 4580                     | 5950               | 5520                | 137          | 93.5          | 1        | 75.0-125         | V            |               | 7.57     | 20              |
| Sodium    | 1000                  | 594                      | 1600               | 1490                | 101          | 89.1          | 1        | 75.0-125         |              |               | 7.76     | 20              |

Method Blank (MB)

(MB) R3467656-1 11/01/19 13:43

| Analyte   | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>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   | U                  |              | 4.63            | 100             |
| Chromium  | U                  |              | 0.140           | 1.00            |
| Copper    | U                  |              | 0.530           | 2.00            |
| Lead      | U                  |              | 0.190           | 0.500           |
| Magnesium | U                  |              | 1.11            | 100             |
| Nickel    | U                  |              | 0.490           | 2.00            |
| Selenium  | U                  |              | 0.620           | 2.00            |
| Silver    | U                  |              | 0.120           | 1.00            |
| Sodium    | 28.2               | U            | 9.85            | 100             |
| Zinc      | 0.838              | U            | 0.590           | 5.00            |

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

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

(LCS) R3467656-2 11/01/19 13:45 • (LCSD) R3467656-3 11/01/19 13:48

| Analyte   | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCSD Result<br>mg/kg | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|-----------|-----------------------|---------------------|----------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| Arsenic   | 100                   | 94.2                | 94.6                 | 94.2          | 94.6           | 80.0-120         |               |                | 0.417    | 20              |
| Barium    | 100                   | 103                 | 104                  | 103           | 104            | 80.0-120         |               |                | 1.04     | 20              |
| Boron     | 100                   | 93.6                | 96.0                 | 93.6          | 96.0           | 80.0-120         |               |                | 2.47     | 20              |
| Cadmium   | 100                   | 94.0                | 94.7                 | 94.0          | 94.7           | 80.0-120         |               |                | 0.721    | 20              |
| Calcium   | 1000                  | 984                 | 985                  | 98.4          | 98.5           | 80.0-120         |               |                | 0.119    | 20              |
| Chromium  | 100                   | 97.4                | 97.7                 | 97.4          | 97.7           | 80.0-120         |               |                | 0.251    | 20              |
| Copper    | 100                   | 93.9                | 94.0                 | 93.9          | 94.0           | 80.0-120         |               |                | 0.0781   | 20              |
| Lead      | 100                   | 95.5                | 95.1                 | 95.5          | 95.1           | 80.0-120         |               |                | 0.366    | 20              |
| Magnesium | 1000                  | 982                 | 992                  | 98.2          | 99.2           | 80.0-120         |               |                | 0.954    | 20              |
| Nickel    | 100                   | 95.9                | 96.5                 | 95.9          | 96.5           | 80.0-120         |               |                | 0.607    | 20              |
| Selenium  | 100                   | 93.9                | 94.2                 | 93.9          | 94.2           | 80.0-120         |               |                | 0.320    | 20              |
| Silver    | 20.0                  | 17.1                | 17.2                 | 85.4          | 85.8           | 80.0-120         |               |                | 0.506    | 20              |
| Sodium    | 1000                  | 1010                | 1010                 | 101           | 101            | 80.0-120         |               |                | 0.336    | 20              |
| Zinc      | 100                   | 95.2                | 95.6                 | 95.2          | 95.6           | 80.0-120         |               |                | 0.452    | 20              |



L1154948-15,16

L1154712-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154712-08 11/01/19 13:51 • (MS) R3467656-6 11/01/19 13:59 • (MSD) R3467656-7 11/01/19 14:02

|           | Spike Amount (dry) | Original Result (dry) | MS Result (dry) | MSD Result (dry) | MS Rec. | MSD Rec. | Dilution | Rec. Limits | MS Qualifier | MSD Qualifier | RPD   | RPD Limits |
|-----------|--------------------|-----------------------|-----------------|------------------|---------|----------|----------|-------------|--------------|---------------|-------|------------|
| Analyte   | mg/kg              | mg/kg                 | mg/kg           | mg/kg            | %       | %        |          | %           |              |               | %     | %          |
| Arsenic   | 113                | U                     | 101             | 106              | 89.4    | 93.3     | 1        | 75.0-125    |              |               | 4.26  | 20         |
| Barium    | 113                | 167                   | 249             | 221              | 72.5    | 47.0     | 1        | 75.0-125    | J6           | J6            | 12.3  | 20         |
| Boron     | 113                | U                     | 85.3            | 87.7             | 75.4    | 77.5     | 1        | 75.0-125    |              |               | 2.72  | 20         |
| Cadmium   | 113                | 0.346                 | 108             | 110              | 94.8    | 96.9     | 1        | 75.0-125    |              |               | 2.17  | 20         |
| Calcium   | 1130               | 22700                 | 19200           | 22600            | 0.000   | 0.000    | 1        | 75.0-125    | V            | V             | 16.3  | 20         |
| Chromium  | 113                | 203                   | 317             | 205              | 100     | 1.38     | 1        | 75.0-125    |              | J3 J6         | 43.0  | 20         |
| Copper    | 113                | 50.1                  | 150             | 147              | 87.8    | 85.9     | 1        | 75.0-125    |              |               | 1.47  | 20         |
| Lead      | 113                | 16.1                  | 124             | 123              | 94.9    | 94.6     | 1        | 75.0-125    |              |               | 0.321 | 20         |
| Magnesium | 1130               | 19700                 | 24700           | 15000            | 443     | 0.000    | 1        | 75.0-125    | V            | J3 V          | 49.0  | 20         |
| Nickel    | 113                | 163                   | 335             | 211              | 152     | 42.7     | 1        | 75.0-125    | J5           | J3 J6         | 45.2  | 20         |
| Selenium  | 113                | U                     | 101             | 106              | 89.0    | 93.3     | 1        | 75.0-125    |              |               | 4.66  | 20         |
| Silver    | 22.6               | U                     | 18.5            | 18.9             | 81.6    | 83.7     | 1        | 75.0-125    |              |               | 2.54  | 20         |
| Sodium    | 1130               | 351                   | 1410            | 1390             | 93.9    | 92.0     | 1        | 75.0-125    |              |               | 1.48  | 20         |
| Zinc      | 113                | 70.1                  | 164             | 157              | 83.1    | 76.6     | 1        | 75.0-125    |              |               | 4.60  | 20         |

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3468677-3 11/05/19 11:00

| Analyte                            | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|------------------------------------|--------------------|--------------|-----------------|-----------------|
| Benzene                            | 0.000214           | ⌋            | 0.000120        | 0.000500        |
| Toluene                            | 0.000247           | ⌋            | 0.000150        | 0.00500         |
| Ethylbenzene                       | 0.000195           | ⌋            | 0.000110        | 0.000500        |
| Total Xylene                       | U                  |              | 0.000460        | 0.00150         |
| TPH (GC/FID) Low Fraction          | 0.0263             | ⌋            | 0.0217          | 0.100           |
| (S)<br>a,a,a-Trifluorotoluene(FID) | 102                |              |                 | 77.0-120        |
| (S)<br>a,a,a-Trifluorotoluene(PID) | 105                |              |                 | 72.0-128        |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3468677-1 11/05/19 09:58

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|------------------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| Benzene                            | 0.0500                | 0.0479              | 95.8          | 76.0-121         |               |
| Toluene                            | 0.0500                | 0.0474              | 94.8          | 80.0-120         |               |
| Ethylbenzene                       | 0.0500                | 0.0458              | 91.6          | 80.0-124         |               |
| Total Xylene                       | 0.150                 | 0.137               | 91.3          | 37.0-160         |               |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     | 100           | 77.0-120         |               |
| (S)<br>a,a,a-Trifluorotoluene(PID) |                       |                     | 103           | 72.0-128         |               |

Laboratory Control Sample (LCS)

(LCS) R3468677-2 11/05/19 10:19

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|------------------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| TPH (GC/FID) Low Fraction          | 5.50                  | 5.79                | 105           | 72.0-127         |               |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     | 118           | 77.0-120         |               |
| (S)<br>a,a,a-Trifluorotoluene(PID) |                       |                     | 115           | 72.0-128         |               |



L1154948-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-02 11/05/19 18:11 • (MS) R3468677-4 11/05/19 19:53 • (MSD) R3468677-5 11/05/19 20:14

| Analyte                            | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| Benzene                            | 4.95                  | 0.0619                   | 3.84               | 3.75                | 76.3         | 74.5          | 100      | 10.0-155         |              |               | 2.37     | 32              |
| Toluene                            | 4.95                  | ND                       | 3.58               | 3.69                | 72.3         | 74.5          | 100      | 10.0-160         |              |               | 3.03     | 34              |
| Ethylbenzene                       | 4.95                  | ND                       | 3.76               | 3.70                | 76.0         | 74.7          | 100      | 10.0-160         |              |               | 1.61     | 32              |
| Total Xylene                       | 14.8                  | ND                       | 10.0               | 9.97                | 67.6         | 67.4          | 100      | 10.0-160         |              |               | 0.300    | 32              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                          |                    |                     | 100          | 99.1          |          | 77.0-120         |              |               |          |                 |
| (S)<br>a,a,a-Trifluorotoluene(PID) |                       |                          |                    |                     | 100          | 98.8          |          | 72.0-128         |              |               |          |                 |

Sample Narrative:

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

L1154948-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-02 11/05/19 18:11 • (MS) R3468677-6 11/05/19 20:34 • (MSD) R3468677-7 11/05/19 20:55

| Analyte                            | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| TPH (GC/FID) Low Fraction          | 545                   | 138                      | 608                | 627                 | 86.2         | 89.7          | 100      | 10.0-151         |              |               | 3.08     | 28              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                          |                    |                     | 114          | 112           |          | 77.0-120         |              |               |          |                 |
| (S)<br>a,a,a-Trifluorotoluene(PID) |                       |                          |                    |                     | 112          | 112           |          | 72.0-128         |              |               |          |                 |

Sample Narrative:

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

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3469546-2 11/06/19 23:18

| Analyte                            | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|------------------------------------|--------------------|--------------|-----------------|-----------------|
| TPH (GC/FID) Low Fraction          | 0.0242             | ⬇            | 0.0217          | 0.100           |
| (S)<br>a,a,a-Trifluorotoluene(FID) | 99.3               |              |                 | 77.0-120        |

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

Laboratory Control Sample (LCS)

(LCS) R3469546-1 11/06/19 22:21

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|------------------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| TPH (GC/FID) Low Fraction          | 5.50                  | 5.62                | 102           | 72.0-127         |               |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     | 107           | 77.0-120         |               |

Method Blank (MB)

(MB) R3469864-3 11/06/19 00:47

| Analyte                            | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|------------------------------------|--------------------|--------------|-----------------|-----------------|
| TPH (GC/FID) Low Fraction          | U                  |              | 0.0217          | 0.100           |
| (S)<br>a,a,a-Trifluorotoluene(FID) | 100                |              |                 | 77.0-120        |

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3469864-2 11/05/19 23:40

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|------------------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| TPH (GC/FID) Low Fraction          | 5.50                  | 5.61                | 102           | 72.0-127         |               |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     | 116           | 77.0-120         |               |

L1155108-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1155108-03 11/06/19 05:23 • (MS) R3469864-4 11/06/19 06:04 • (MSD) R3469864-5 11/06/19 06:25

| Analyte                            | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| TPH (GC/FID) Low Fraction          | 11000                 | 7700                     | 14000              | 14500               | 57.3         | 61.8          | 2000     | 10.0-151         |              |               | 3.51     | 28              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                          |                    |                     | 112          | 108           |          | 77.0-120         |              |               |          |                 |

Method Blank (MB)

(MB) R3468974-2 11/04/19 07:15

| Analyte                   | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>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            | 105                |              |                 | 75.0-131        |
| (S) 4-Bromofluorobenzene  | 96.6               |              |                 | 67.0-138        |
| (S) 1,2-Dichloroethane-d4 | 107                |              |                 | 70.0-130        |

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3468974-1 11/04/19 06:14

| Analyte                   | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|---------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| Benzene                   | 0.125                 | 0.140               | 112           | 70.0-123         |               |
| Ethylbenzene              | 0.125                 | 0.129               | 103           | 74.0-126         |               |
| Toluene                   | 0.125                 | 0.124               | 99.2          | 75.0-121         |               |
| Xylenes, Total            | 0.375                 | 0.335               | 89.3          | 72.0-127         |               |
| (S) Toluene-d8            |                       |                     | 100           | 75.0-131         |               |
| (S) 4-Bromofluorobenzene  |                       |                     | 97.4          | 67.0-138         |               |
| (S) 1,2-Dichloroethane-d4 |                       |                     | 117           | 70.0-130         |               |

L1153981-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1153981-14 11/04/19 13:52 • (MS) R3468974-3 11/04/19 15:14 • (MSD) R3468974-4 11/04/19 15:35

| Analyte                   | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|---------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| Benzene                   | 5.00                  | 0.130                    | 4.82               | 2.73                | 93.8         | 52.0          | 40       | 10.0-149         |              | J3            | 55.4     | 37              |
| Ethylbenzene              | 5.00                  | ND                       | 3.83               | 1.92                | 76.6         | 38.4          | 40       | 10.0-160         |              | J3            | 66.4     | 38              |
| Toluene                   | 5.00                  | ND                       | 3.80               | 1.75                | 76.0         | 35.0          | 40       | 10.0-156         |              | J3            | 73.9     | 38              |
| Xylenes, Total            | 15.0                  | ND                       | 10.4               | 5.17                | 69.3         | 34.5          | 40       | 10.0-160         |              | J3            | 67.2     | 38              |
| (S) Toluene-d8            |                       |                          |                    |                     | 103          | 101           |          | 75.0-131         |              |               |          |                 |
| (S) 4-Bromofluorobenzene  |                       |                          |                    |                     | 101          | 102           |          | 67.0-138         |              |               |          |                 |
| (S) 1,2-Dichloroethane-d4 |                       |                          |                    |                     | 114          | 118           |          | 70.0-130         |              |               |          |                 |

Sample Narrative:

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



Method Blank (MB)

(MB) R3469630-3 11/06/19 00:31

| Analyte                   | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>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            | 105                |              |                 | 75.0-131        |
| (S) 4-Bromofluorobenzene  | 95.9               |              |                 | 67.0-138        |
| (S) 1,2-Dichloroethane-d4 | 110                |              |                 | 70.0-130        |

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3469630-2 11/05/19 23:30

| Analyte                   | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|---------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| Benzene                   | 0.125                 | 0.128               | 102           | 70.0-123         |               |
| Ethylbenzene              | 0.125                 | 0.113               | 90.4          | 74.0-126         |               |
| Toluene                   | 0.125                 | 0.115               | 92.0          | 75.0-121         |               |
| Xylenes, Total            | 0.375                 | 0.298               | 79.5          | 72.0-127         |               |
| (S) Toluene-d8            |                       |                     | 102           | 75.0-131         |               |
| (S) 4-Bromofluorobenzene  |                       |                     | 96.7          | 67.0-138         |               |
| (S) 1,2-Dichloroethane-d4 |                       |                     | 118           | 70.0-130         |               |

L1154948-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1154948-10 11/06/19 00:51 • (MS) R3469630-4 11/06/19 07:43 • (MSD) R3469630-5 11/06/19 08:04

| Analyte                   | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|---------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| Benzene                   | 0.125                 | ND                       | 0.113              | 0.106               | 90.4         | 84.8          | 1        | 10.0-149         |              |               | 6.39     | 37              |
| Ethylbenzene              | 0.125                 | ND                       | 0.108              | 0.106               | 86.4         | 84.8          | 1        | 10.0-160         |              |               | 1.87     | 38              |
| Toluene                   | 0.125                 | ND                       | 0.107              | 0.102               | 85.6         | 81.6          | 1        | 10.0-156         |              |               | 4.78     | 38              |
| Xylenes, Total            | 0.375                 | ND                       | 0.320              | 0.268               | 85.3         | 71.5          | 1        | 10.0-160         |              |               | 17.7     | 38              |
| (S) Toluene-d8            |                       |                          |                    |                     | 101          | 103           |          | 75.0-131         |              |               |          |                 |
| (S) 4-Bromofluorobenzene  |                       |                          |                    |                     | 98.9         | 98.3          |          | 67.0-138         |              |               |          |                 |
| (S) 1,2-Dichloroethane-d4 |                       |                          |                    |                     | 112          | 106           |          | 70.0-130         |              |               |          |                 |

Method Blank (MB)

(MB) R3467687-4 11/02/19 00:21

| Analyte                    | MB Result | MB Qualifier | MB MDL | MB RDL   |
|----------------------------|-----------|--------------|--------|----------|
|                            | mg/kg     |              | mg/kg  | mg/kg    |
| TPH (GC/FID) High Fraction | U         |              | 0.769  | 4.00     |
| (S) o-Terphenyl            | 77.8      |              |        | 18.0-148 |

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3467687-1 11/01/19 17:12

| Analyte                    | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|----------------------------|--------------|------------|----------|-------------|---------------|
|                            | mg/kg        | mg/kg      | %        | %           |               |
| TPH (GC/FID) High Fraction | 50.0         | 40.9       | 81.8     | 50.0-150    |               |
| (S) o-Terphenyl            |              |            | 102      | 18.0-148    |               |

L1155318-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1155318-01 11/01/19 20:43 • (MS) R3467687-2 11/01/19 20:56 • (MSD) R3467687-3 11/01/19 21:09

| Analyte                    | Spike Amount (dry) | Original Result (dry) | MS Result (dry) | MSD Result (dry) | MS Rec. | MSD Rec. | Dilution | Rec. Limits | MS Qualifier | MSD Qualifier | RPD  | RPD Limits |
|----------------------------|--------------------|-----------------------|-----------------|------------------|---------|----------|----------|-------------|--------------|---------------|------|------------|
|                            | mg/kg              | mg/kg                 | mg/kg           | mg/kg            | %       | %        |          | %           |              |               | %    | %          |
| TPH (GC/FID) High Fraction | 55.0               | 8.84                  | 54.4            | 51.7             | 82.9    | 78.2     | 1        | 50.0-150    |              |               | 4.99 | 20         |
| (S) o-Terphenyl            |                    |                       |                 |                  | 106     | 105      |          | 18.0-148    |              |               |      |            |

Method Blank (MB)

(MB) R3467659-2 11/01/19 09:14

| Analyte                | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>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    | 106                |              |                 | 14.0-149        |
| (S) 2-Fluorobiphenyl   | 96.0               |              |                 | 34.0-125        |
| (S) p-Terphenyl-d14    | 105                |              |                 | 23.0-120        |

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3467659-1 11/01/19 08:52

| Analyte               | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|-----------------------|-----------------------|---------------------|---------------|------------------|---------------|
| Anthracene            | 0.0800                | 0.0751              | 93.9          | 50.0-126         |               |
| Acenaphthene          | 0.0800                | 0.0704              | 88.0          | 50.0-120         |               |
| Acenaphthylene        | 0.0800                | 0.0729              | 91.1          | 50.0-120         |               |
| Benzo(a)anthracene    | 0.0800                | 0.0669              | 83.6          | 45.0-120         |               |
| Benzo(a)pyrene        | 0.0800                | 0.0679              | 84.9          | 42.0-120         |               |
| Benzo(b)fluoranthene  | 0.0800                | 0.0644              | 80.5          | 42.0-121         |               |
| Benzo(g,h,i)perylene  | 0.0800                | 0.0653              | 81.6          | 45.0-125         |               |
| Benzo(k)fluoranthene  | 0.0800                | 0.0752              | 94.0          | 49.0-125         |               |
| Chrysene              | 0.0800                | 0.0711              | 88.9          | 49.0-122         |               |
| Dibenz(a,h)anthracene | 0.0800                | 0.0659              | 82.4          | 47.0-125         |               |
| Fluoranthene          | 0.0800                | 0.0746              | 93.3          | 49.0-129         |               |

Laboratory Control Sample (LCS)

(LCS) R3467659-1 11/01/19 08:52

| Analyte                | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | <u>LCS Qualifier</u> |
|------------------------|-----------------------|---------------------|---------------|------------------|----------------------|
| Fluorene               | 0.0800                | 0.0674              | 84.3          | 49.0-120         |                      |
| Indeno(1,2,3-cd)pyrene | 0.0800                | 0.0673              | 84.1          | 46.0-125         |                      |
| Naphthalene            | 0.0800                | 0.0664              | 83.0          | 50.0-120         |                      |
| Phenanthrene           | 0.0800                | 0.0741              | 92.6          | 47.0-120         |                      |
| Pyrene                 | 0.0800                | 0.0718              | 89.8          | 43.0-123         |                      |
| 1-Methylnaphthalene    | 0.0800                | 0.0655              | 81.9          | 51.0-121         |                      |
| 2-Methylnaphthalene    | 0.0800                | 0.0637              | 79.6          | 50.0-120         |                      |
| 2-Chloronaphthalene    | 0.0800                | 0.0667              | 83.4          | 50.0-120         |                      |
| (S) Nitrobenzene-d5    |                       |                     | 98.8          | 14.0-149         |                      |
| (S) 2-Fluorobiphenyl   |                       |                     | 87.9          | 34.0-125         |                      |
| (S) p-Terphenyl-d14    |                       |                     | 92.8          | 23.0-120         |                      |

L1155201-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1155201-01 11/01/19 12:03 • (MS) R3467659-3 11/01/19 12:24 • (MSD) R3467659-4 11/01/19 12:45

| Analyte                | Spike Amount<br>(dry)<br>mg/kg | Original Result<br>(dry)<br>mg/kg | MS Result (dry)<br>mg/kg | MSD Result<br>(dry)<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | <u>MS Qualifier</u> | <u>MSD Qualifier</u> | RPD<br>% | RPD Limits<br>% |
|------------------------|--------------------------------|-----------------------------------|--------------------------|------------------------------|--------------|---------------|----------|------------------|---------------------|----------------------|----------|-----------------|
| Anthracene             | 0.0898                         | 0.000937                          | 0.0742                   | 0.0672                       | 81.6         | 73.8          | 1        | 10.0-145         |                     |                      | 9.84     | 30              |
| Acenaphthene           | 0.0898                         | U                                 | 0.0700                   | 0.0642                       | 78.0         | 71.5          | 1        | 14.0-127         |                     |                      | 8.70     | 27              |
| Acenaphthylene         | 0.0898                         | U                                 | 0.0714                   | 0.0671                       | 79.5         | 74.8          | 1        | 21.0-124         |                     |                      | 6.16     | 25              |
| Benzo(a)anthracene     | 0.0898                         | 0.00227                           | 0.0750                   | 0.0643                       | 81.0         | 69.1          | 1        | 10.0-139         |                     |                      | 15.3     | 30              |
| Benzo(a)pyrene         | 0.0898                         | 0.00186                           | 0.0712                   | 0.0630                       | 77.2         | 68.1          | 1        | 10.0-141         |                     |                      | 12.2     | 31              |
| Benzo(b)fluoranthene   | 0.0898                         | 0.00264                           | 0.0682                   | 0.0590                       | 73.1         | 62.8          | 1        | 10.0-140         |                     |                      | 14.5     | 36              |
| Benzo(g,h,i)perylene   | 0.0898                         | 0.00158                           | 0.0633                   | 0.0561                       | 68.7         | 60.7          | 1        | 10.0-140         |                     |                      | 12.0     | 33              |
| Benzo(k)fluoranthene   | 0.0898                         | 0.00102                           | 0.0686                   | 0.0615                       | 75.2         | 67.4          | 1        | 10.0-137         |                     |                      | 10.9     | 31              |
| Chrysene               | 0.0898                         | 0.00286                           | 0.0745                   | 0.0638                       | 79.8         | 67.8          | 1        | 10.0-145         |                     |                      | 15.6     | 30              |
| Dibenz(a,h)anthracene  | 0.0898                         | U                                 | 0.0611                   | 0.0562                       | 68.0         | 62.6          | 1        | 10.0-132         |                     |                      | 8.23     | 31              |
| Fluoranthene           | 0.0898                         | 0.00916                           | 0.112                    | 0.0840                       | 115          | 83.3          | 1        | 10.0-153         |                     |                      | 28.8     | 33              |
| Fluorene               | 0.0898                         | U                                 | 0.0651                   | 0.0590                       | 72.5         | 65.8          | 1        | 11.0-130         |                     |                      | 9.76     | 29              |
| Indeno(1,2,3-cd)pyrene | 0.0898                         | 0.00110                           | 0.0642                   | 0.0577                       | 70.3         | 63.0          | 1        | 10.0-137         |                     |                      | 10.7     | 32              |
| Naphthalene            | 0.0898                         | U                                 | 0.0658                   | 0.0643                       | 73.3         | 71.6          | 1        | 10.0-135         |                     |                      | 2.24     | 27              |
| Phenanthrene           | 0.0898                         | 0.00480                           | 0.0926                   | 0.0725                       | 97.8         | 75.4          | 1        | 10.0-144         |                     |                      | 24.3     | 31              |
| Pyrene                 | 0.0898                         | 0.00716                           | 0.102                    | 0.0767                       | 105          | 77.4          | 1        | 10.0-148         |                     |                      | 28.0     | 35              |
| 1-Methylnaphthalene    | 0.0898                         | U                                 | 0.0642                   | 0.0608                       | 71.5         | 67.8          | 1        | 10.0-142         |                     |                      | 5.39     | 28              |
| 2-Methylnaphthalene    | 0.0898                         | U                                 | 0.0626                   | 0.0589                       | 69.8         | 65.6          | 1        | 10.0-137         |                     |                      | 6.09     | 28              |
| 2-Chloronaphthalene    | 0.0898                         | U                                 | 0.0645                   | 0.0599                       | 71.9         | 66.8          | 1        | 29.0-120         |                     |                      | 7.39     | 24              |
| (S) Nitrobenzene-d5    |                                |                                   |                          |                              | 90.2         | 95.0          |          | 14.0-149         |                     |                      |          |                 |
| (S) 2-Fluorobiphenyl   |                                |                                   |                          |                              | 77.1         | 80.9          |          | 34.0-125         |                     |                      |          |                 |
| (S) p-Terphenyl-d14    |                                |                                   |                          |                              | 81.7         | 85.7          |          | 23.0-120         |                     |                      |          |                 |

1

Cp

2

Tc

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Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



## Guide to Reading and Understanding Your Laboratory Report

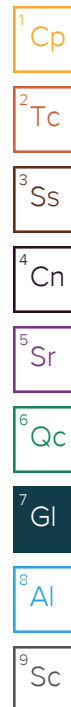
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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   |
|-----------|---|
| 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.  |
| 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.   |
| 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.   |





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 <sup>1</sup>     | n/a              |
| Colorado                | TN00003     | New York                    | 11742            |
| Connecticut             | PH-0197     | North Carolina              | Env375           |
| Florida                 | E87487      | North Carolina <sup>1</sup> | DW21704          |
| Georgia                 | NELAP       | North Carolina <sup>3</sup> | 41               |
| Georgia <sup>1</sup>    | 923         | North Dakota                | R-140            |
| Idaho                   | TN00003     | Ohio–VAP                    | CL0069           |
| Illinois                | 200008      | Oklahoma                    | 9915             |
| Indiana                 | C-TN-01     | Oregon                      | TN200002         |
| Iowa                    | 364         | Pennsylvania                | 68-02979         |
| Kansas                  | E-10277     | Rhode Island                | LA000356         |
| Kentucky <sup>1 6</sup> | 90010       | South Carolina              | 84004            |
| Kentucky <sup>2</sup>   | 16          | South Dakota                | n/a              |
| Louisiana               | AI30792     | Tennessee <sup>1 4</sup>    | 2006             |
| Louisiana <sup>1</sup>  | LA180010    | Texas                       | T104704245-18-15 |
| Maine                   | TN0002      | Texas <sup>5</sup>          | 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             |

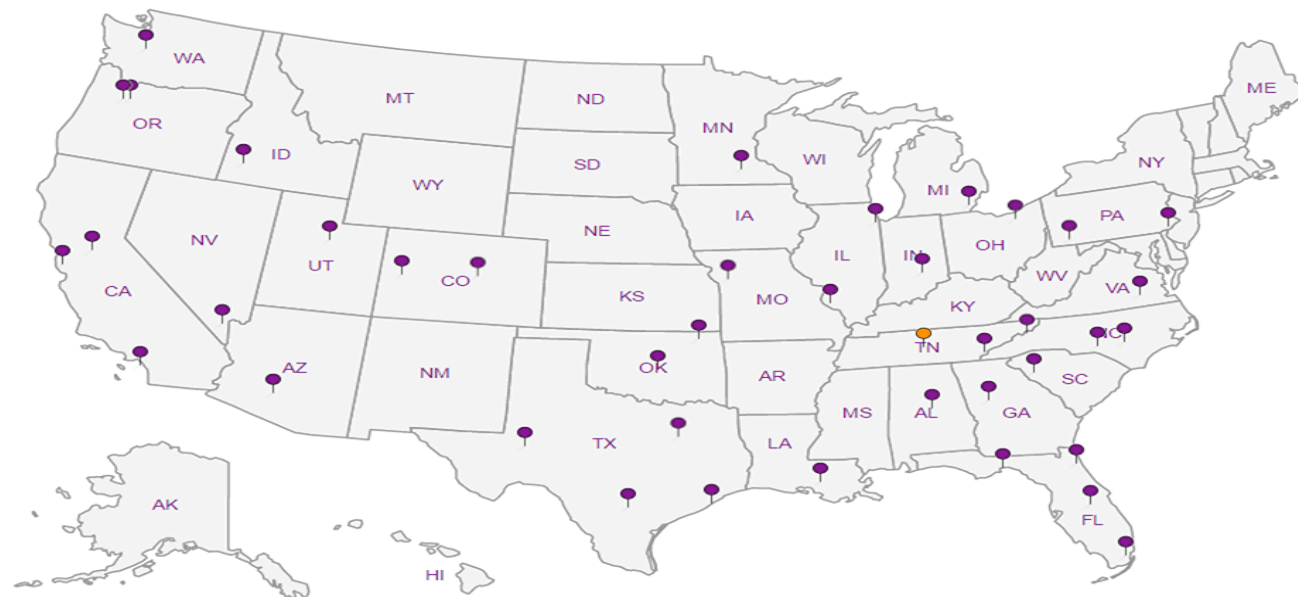
## Third Party Federal Accreditations

|                               |         |                     |               |
|-------------------------------|---------|---------------------|---------------|
| A2LA – ISO 17025              | 1461.01 | AIHA-LAP, LLC EMLAP | 100789        |
| A2LA – ISO 17025 <sup>5</sup> | 1461.02 | DOD                 | 1461.01       |
| Canada                        | 1461.01 | USDA                | P330-15-00234 |
| EPA–Crypto                    | TN00003 |                     |               |

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

## 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

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

Rush? (Lab MUST Be Notified)

Quote #

Immediately  
Packed on Ice N ☐ Y ☒

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

Date Results Needed

No.  
of  
Cntrs

| Sample ID | Comp/Grab | Matrix * | Depth | Date | Time | No. of Cntrs |
|-----------|-----------|----------|-------|------|------|--------------|
|-----------|-----------|----------|-------|------|------|--------------|

|                     |   |    |       |          |      |   |
|---------------------|---|----|-------|----------|------|---|
| PI6-B5-FF 14-16 FT  | G | SS | 14-16 | 10/24/19 | 1530 | 1 |
| X PI6-B1-FF 8-10 FT | G | SS | 8-10  | 10/24/19 | 1600 | 2 |
| PI4-B2-FF 0-2 FT    | G | SS | 0-2   | 10/24/19 | 1700 | 1 |
| PI6-B3-FF 0-2 FT    | G | SS | 0-2   | 10/25/19 | 1000 | 1 |
| PI6-B4-FF 2-4 FT    | G | SS | 2-4   | 10/25/19 | 1030 | 1 |
| X PI6-B5-FF 6-8 FT  | G | SS | 6-8   | 10/25/19 | 1140 | 2 |
| PI7-B1-FF 6-8 FT    | G | SS | 6-8   | 10/25/19 | 1220 | 1 |
| PI7-B2-FF 4-6 FT    | G | SS | 4-6   | 10/25/19 | 1240 | 1 |
| PI7-B3-FF 8-10 FT   | G | SS | 8-10  | 10/25/19 | 1300 | 1 |

## \* Matrix:

SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

## Remarks:

Samples returned via:  
☐ UPS ☒ FedEx ☐ Courier

Tracking #

1203 5789 2656

pH Temp

Flow Other

## 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

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C  
25.0 = 25.0 18

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10-29-19 Time: 8:45

10-0172

Condition:  
NCF 10X

## Analysis / Container / Preservative

CHLORIDE,SPCON,SO4 8ozClr-NoPres

DRO 8ozClr-NoPres

GRO, V82608TEX 8ozClr-NoPres

SAR (Ca, Mg, Na) 8ozClr-NoPres

Table 910

Chain of Custody Page 1 of 2

Pace Analytical®  
National Center for Testing & Innovation  
1154948

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



SDG #

Table

Acctnum: GOLDCO

Template: T157215

Prelogin: P735037

PM: 288 - Daphne Richards

PB: BF 10/9/19

Shipped Via: FedEx Saver

Remarks

Sample # (lab only)

M062

# 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

## 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

No.  
of  
Cntrs

## Sample ID

## Comp/Grab

## Matrix \*

## Depth

## Date

## Time

P17-B 4-FF 8-10 FT G SS 8-10 10/25/19 1330 1

P17-B 5-FF 7.5 FT G SS 7.5 10/25/19 1340 1

P18-B 5-FF 4-4 FT G SS 4-4 10/25/19 1510 1

P18-B 1-FF 5-5.5 FT G SS 5-5.5 10/25/19 1600 1

P18-B 2-FF 4-5 FT G SS 4-5 10/25/19 1630 1

P18-B 1-FF 4-5.5 FT G SS 4-5.5 10/25/19 1640 1

## \* Matrix:

SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - Waste Water  
DW - Drinking Water  
OT - Other

## Remarks:

## Samples returned via:

UPS FedEx Courier

## Tracking #

1203 5789 2656

## Relinquished by: (Signature)

Tricia Hall

## Date:

10/28/19 0730

## Time:

## Received by: (Signature)

## Trip Blank Received: Yes/No

HCL/MeOH  
TBR

## Relinquished by: (Signature)

## Date:

## Time:

## Received by: (Signature)

## Temp: °C Bottles Received:

25 ± 0.25 18

## If preservation required by Login: Date/Time

## Relinquished by: (Signature)

## Date:

## Time:

## Received for lab by: (Signature)

## Date: Time:

10-29-19 8:45

## Hold:

## Condition:

NCF / OK

## Analysis / Container / Preservative

CHLORIDE, SPCON, SO4 8oz Clr-NoPres

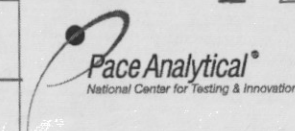
DRO 8oz Clr-NoPres

GRO, V8260BTEX 8oz Clr-NoPres

SAR (Ca, Mg, Na) 8oz Clr-NoPres

Table 910

## Chain of Custody Page 2 of 2



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



## SDG #

1154946

## Table #

Acctnum: GOLDCO

Template: T157215

Prelogin: P735037

PM: 288 - Daphne Richards

PB: BF 10/9/19

Shipped Via: FedEx Saver

## Remarks

## Sample # (lab only)

## 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

# 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

## Analysis / Container / Preservative

Chain of Custody Page 2 of 2



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

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

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

No.  
of  
Cntrs

Immediately

Packed on Ice N Y X

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

CHLORIDE, SPCON, SO4 8oz Clr-NoPres

DRO 8oz Clr-NoPres

GRO, V82608TEX 8oz Clr-NoPres

SAR (Ca, Mg, Na) 8oz Clr-NoPres

Table 910

SDG #

1159946

Table #

Acctnum: GOLDCO

Template: T157215

Prelogin: P735037

PM: 288 - Daphne Richards

PB: BF 10/19/19

Shipped Via: FedEx Saver

Remarks

Sample # (lab only)

P17-B4-FF 8-10 FT G SS 8-10 10/25/19 1330 1 Y Y Y Y

P17-B5-FF 7.5 FT G SS 7.5 10/25/19 1340 1 Y Y X X

P18-B5-FF 4-4 FT G SS 4-4 10/25/19 1510 1 Y Y X Y

P18-B1-FF 4-5.5 FT G SS 4-5.5 10/25/19 1600 1 Y Y X X

P18-B2-FF 4-5 FT G SS 4-5 10/25/19 1630 1 Y Y X Y

Y P18-B1-FF 4-5.5 FT G SS 4-5.5 10/25/19 1640 1 X X

On Hold

On Hold

-15

-10

10/30

## \* Matrix:

SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - Waste Water  
DW - Drinking Water  
OT - Other

## Remarks:

Samples returned via:

UPS FedEx Courier

Tracking #

1203 5789 2656

pH Temp

Flow Other

## 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  
VQA Zero Headspace: Y N  
Preservation Correct/Checked: Y N  
RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

Tricia Hall

Date:

10/28/19 0730

Time:

Received by: (Signature)

Trip Blank Received: Yes No

HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C

25±0.25 18

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:

10-29-19 8:45

Time:

Hold:

Condition:

NCF / OK

---

**Katie Ingram**

**From:** Chris Ward <ward@pacenational.com>  
**Sent:** Wednesday, October 30, 2019 9:42 AM  
**To:** Project Service <ProjServ@pacenational.com>  
**Cc:** Sample Storage <SampleStorage@pacenational.com>  
**Subject:** L1154948 \*GOLDCO\* Remove samples from HOLD

Please remove the following from HOLD (add to the same SDG)

**P18-B2-4 - 5 for**

CHLORIDE  
SPCON  
SULFATE  
DRO  
GRO  
V8260BTEX  
SAR  
CAICP  
MGICP  
NAICP

**P18-B1-4 - 5.5 ft for**

TABLE910  
CHLORIDE  
SULFATE

**Thanks,**

**Chris Ward**

*Project Manager*

**Pace Analytical National Center for Testing & Innovation**

12065 Lebanon Road | Mt. Juliet, TN 37122

ward@pacenational.com | [www.pacenational.com](http://www.pacenational.com)

615.773.9712

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# ANALYTICAL REPORT

January 17, 2020

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Golder & Associates - CO

Sample Delivery Group: L1163543  
Samples Received: 11/21/2019  
Project Number: 19125681  
Description: Wexpro - Craig Pits Delin.

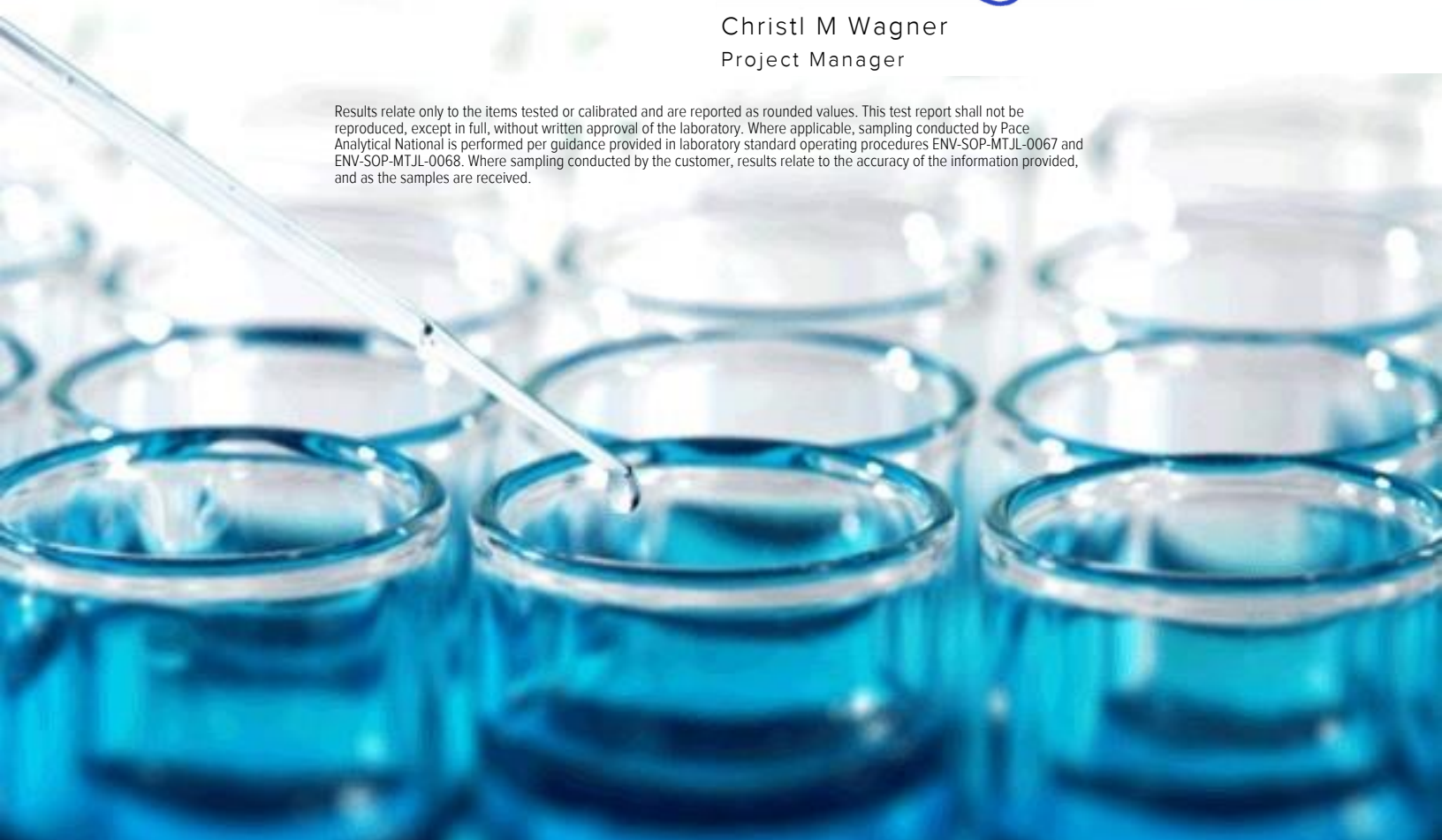
Report To: Matt Somogyi  
7245 W Alaska Drive, Ste 200  
Lakewood, CO 80226

Entire Report Reviewed By:



Christl M Wagner  
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.





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# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



## P18-B2-STEPOUT1-6-8FT L1163543-01 Solid

Collected by  
Tricia Hall

Collected date/time  
11/15/19 16:30

Received date/time  
11/21/19 08:30

| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst | Location       |
|---|-----------|----------|-----------------------|--------------------|---------|----------------|
| Calculated Results                                  | WG1385786 | 1        | 11/26/19 11:49        | 11/26/19 11:49     | CCE     | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod                    | WG1387974 | 1        | 11/27/19 11:02        | 11/27/19 12:10     | EEM     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 1        | 11/25/19 23:50        | 11/26/19 07:50     | ELN     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 50       | 11/25/19 23:50        | 11/26/19 08:06     | ELN     | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1387216 | 1        | 11/22/19 11:17        | 11/26/19 18:24     | DWR     | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1385572 | 1        | 11/22/19 21:29        | 11/23/19 18:20     | KME     | Mt. Juliet, TN |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## P18-B3-STEPOUT6-5-5.5FT L1163543-02 Solid

Collected by  
Tricia Hall

Collected date/time  
11/16/19 10:10

Received date/time  
11/21/19 08:30

| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst | Location       |
|---|-----------|----------|-----------------------|--------------------|---------|----------------|
| Calculated Results                                  | WG1385786 | 1        | 11/26/19 11:52        | 11/26/19 11:52     | CCE     | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod                    | WG1387974 | 1        | 11/27/19 11:02        | 11/27/19 12:10     | EEM     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 1        | 11/25/19 23:50        | 11/26/19 08:22     | ELN     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 5        | 11/25/19 23:50        | 11/26/19 15:09     | ELN     | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1387216 | 1        | 11/22/19 11:17        | 11/26/19 18:45     | DWR     | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1385572 | 1        | 11/22/19 21:29        | 11/23/19 18:33     | KME     | Mt. Juliet, TN |

## P18-B4-STEPOUT1 - 4-5FT L1163543-03 Solid

Collected by  
Tricia Hall

Collected date/time  
11/16/19 11:30

Received date/time  
11/21/19 08:30

| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst | Location       |
|---|-----------|----------|-----------------------|--------------------|---------|----------------|
| Calculated Results                                  | WG1385786 | 1        | 11/26/19 11:54        | 11/26/19 11:54     | CCE     | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod                    | WG1387974 | 1        | 11/27/19 11:02        | 11/27/19 12:10     | EEM     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 1        | 11/25/19 23:50        | 11/26/19 08:39     | ELN     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 5        | 11/25/19 23:50        | 11/26/19 08:55     | ELN     | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1387216 | 1        | 11/22/19 11:17        | 11/26/19 19:05     | DWR     | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1385572 | 1        | 11/22/19 21:29        | 11/23/19 18:46     | KME     | Mt. Juliet, TN |

## P18-B1-STEPOUT2-0-2FT L1163543-09 Solid

Collected by  
Tricia Hall

Collected date/time  
11/17/19 11:30

Received date/time  
11/21/19 08:30

| Method  | Batch     | Dilution | Preparation date/time | Analysis date/time | Analyst | Location       |
|---|-----------|----------|-----------------------|--------------------|---------|----------------|
| Calculated Results                                  | WG1385786 | 1        | 11/26/19 12:10        | 11/26/19 12:10     | CCE     | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod                    | WG1387974 | 1        | 11/27/19 11:02        | 11/27/19 12:10     | EEM     | Mt. Juliet, TN |
| Wet Chemistry by Method 9056A                       | WG1386839 | 1        | 11/25/19 23:50        | 11/26/19 11:07     | ELN     | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1387620 | 1        | 11/22/19 11:17        | 11/28/19 08:21     | JHH     | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015 | WG1385572 | 1        | 11/22/19 21:29        | 11/23/19 19:38     | KME     | 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: 12/03/19 10:21  
Version 2: 12/09/19 14:14  
Version 3: 12/19/19 17:22  
Version 4: 01/16/20 11:23  
Version 5: 01/16/20 11:42  
Version 6: 01/16/20 13:20  
Version 7: 01/17/20 09:52

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 6.15   |           | 1        | 11/26/2019 11:49     | WG1385786 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 1400            |           | 10.0         | 1        | 11/27/2019 12:10     | <a href="#">WG1387974</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 122          |           | 10.0      | 1        | 11/26/2019 07:50     | <a href="#">WG1386839</a> |
| Sulfate  | 15100        |           | 2500      | 50       | 11/26/2019 08:06     | <a href="#">WG1386839</a> |

## 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           | <a href="#">J3</a> | 0.100     | 1        | 11/26/2019 18:24     | <a href="#">WG1387216</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 93.0         |                    | 77.0-120  |          | 11/26/2019 18:24     | <a href="#">WG1387216</a> |

## 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        | 11/23/2019 18:20     | <a href="#">WG1385572</a> |
| (S) o-Terphenyl            | 58.5         |           | 18.0-148  |          | 11/23/2019 18:20     | <a href="#">WG1385572</a> |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 8.02   |           | 1        | 11/26/2019 11:52     | WG1385786 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 674             |           | 10.0         | 1        | 11/27/2019 12:10     | <a href="#">WG1387974</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 85.5         |           | 10.0      | 1        | 11/26/2019 08:22     | <a href="#">WG1386839</a> |
| Sulfate  | 1350         |           | 250       | 5        | 11/26/2019 15:09     | <a href="#">WG1386839</a> |

## 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           | <a href="#">J3</a> | 0.100     | 1        | 11/26/2019 18:45     | <a href="#">WG1387216</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 93.1         |                    | 77.0-120  |          | 11/26/2019 18:45     | <a href="#">WG1387216</a> |

## 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        | 11/23/2019 18:33     | <a href="#">WG1385572</a> |
| (S) o-Terphenyl            | 64.3         |           | 18.0-148  |          | 11/23/2019 18:33     | <a href="#">WG1385572</a> |

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



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 6.00   |           | 1        | 11/26/2019 11:54     | WG1385786 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 1110            |           | 10.0         | 1        | 11/27/2019 12:10     | <a href="#">WG1387974</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 214          |           | 10.0      | 1        | 11/26/2019 08:39     | <a href="#">WG1386839</a> |
| Sulfate  | 2350         |           | 250       | 5        | 11/26/2019 08:55     | <a href="#">WG1386839</a> |

## 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           | <a href="#">J3</a> | 0.100     | 1        | 11/26/2019 19:05     | <a href="#">WG1387216</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 93.3         |                    | 77.0-120  |          | 11/26/2019 19:05     | <a href="#">WG1387216</a> |

## 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        | 11/23/2019 18:46     | <a href="#">WG1385572</a> |
| (S) o-Terphenyl            | 61.7         |           | 18.0-148  |          | 11/23/2019 18:46     | <a href="#">WG1385572</a> |

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



## Calculated Results

| Analyte                 | Result | Qualifier | Dilution | Analysis date / time | Batch     |
|-------------------------|--------|-----------|----------|----------------------|-----------|
| Sodium Adsorption Ratio | 1.55   |           | 1        | 11/26/2019 12:10     | WG1385786 |

## Wet Chemistry by Method 9050AMod

| Analyte              | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch                     |
|----------------------|-----------------|-----------|--------------|----------|----------------------|---------------------------|
| Specific Conductance | 282             |           | 10.0         | 1        | 11/27/2019 12:10     | <a href="#">WG1387974</a> |

## Wet Chemistry by Method 9056A

| Analyte  | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch                     |
|----------|--------------|-----------|-----------|----------|----------------------|---------------------------|
| Chloride | 51.0         |           | 10.0      | 1        | 11/26/2019 11:07     | <a href="#">WG1386839</a> |
| Sulfate  | ND           |           | 50.0      | 1        | 11/26/2019 11:07     | <a href="#">WG1386839</a> |

## 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        | 11/28/2019 08:21     | <a href="#">WG1387620</a> |
| (S) a,a,a-Trifluorotoluene(FID) | 93.8         |           | 77.0-120  |          | 11/28/2019 08:21     | <a href="#">WG1387620</a> |

## 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        | 11/23/2019 19:38     | <a href="#">WG1385572</a> |
| (S) o-Terphenyl            | 56.1         |           | 18.0-148  |          | 11/23/2019 19:38     | <a href="#">WG1385572</a> |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3476913-1 11/27/19 12:10

| Analyte              | MB Result<br>umhos/cm | MB Qualifier | MB MDL<br>umhos/cm | MB RDL<br>umhos/cm |
|----------------------|-----------------------|--------------|--------------------|--------------------|
| Specific Conductance | U                     |              | 10.0               | 10.0               |

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1163182-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1163182-01 11/27/19 12:10 • (DUP) R3476913-3 11/27/19 12:10

| Analyte              | Original Result<br>umhos/cm | DUP Result<br>umhos/cm | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------------------|-----------------------------|------------------------|----------|--------------|---------------|------------------------|
| Specific Conductance | 76.7                        | 74.4                   | 1        | 3.04         |               | 20                     |

L1163543-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1163543-09 11/27/19 12:10 • (DUP) R3476913-4 11/27/19 12:10

| Analyte              | Original Result<br>umhos/cm | DUP Result<br>umhos/cm | Dilution | DUP RPD<br>% | DUP Qualifier | DUP RPD<br>Limits<br>% |
|----------------------|-----------------------------|------------------------|----------|--------------|---------------|------------------------|
| Specific Conductance | 282                         | 320                    | 1        | 12.5         |               | 20                     |

Laboratory Control Sample (LCS)

(LCS) R3476913-2 11/27/19 12:10

| Analyte              | Spike Amount<br>umhos/cm | LCS Result<br>umhos/cm | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|----------------------|--------------------------|------------------------|---------------|------------------|---------------|
| Specific Conductance | 475                      | 476                    | 100           | 85.0-115         |               |



Method Blank (MB)

(MB) R3476572-1 11/26/19 02:54

|          | MB Result | MB Qualifier | MB MDL | MB RDL |
|----------|-----------|--------------|--------|--------|
| Analyte  | mg/kg     |              | mg/kg  | mg/kg  |
| Chloride | 2.56      | J            | 0.795  | 10.0   |
| Sulfate  | U         |              | 0.570  | 50.0   |

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1162667-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1162667-24 11/26/19 04:16 • (DUP) R3476572-3 11/26/19 04:33

|          | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|----------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte  | mg/kg           | mg/kg      |          | %       |               | %              |
| Chloride | 1.45            | 1.84       | 1        | 23.6    | J P1          | 15             |
| Sulfate  | U               | 1.77       | 1        | 200     | J P1          | 15             |

L1163853-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1163853-01 11/26/19 11:39 • (DUP) R3476572-6 11/26/19 11:56

|          | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|----------|-----------------|------------|----------|---------|---------------|----------------|
| Analyte  | mg/kg           | mg/kg      |          | %       |               | %              |
| Chloride | ND              | 2.77       | 1        | 0.000   |               | 15             |
| Sulfate  | ND              | 36.7       | 1        | 0.000   |               | 15             |

Laboratory Control Sample (LCS)

(LCS) R3476572-2 11/26/19 03:10

|          | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|----------|--------------|------------|----------|-------------|---------------|
| Analyte  | mg/kg        | mg/kg      | %        | %           |               |
| Chloride | 200          | 215        | 108      | 80.0-120    |               |
| Sulfate  | 200          | 212        | 106      | 80.0-120    |               |

L1163081-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1163081-02 11/26/19 07:00 • (MS) R3476572-4 11/26/19 07:17 • (MSD) R3476572-5 11/26/19 07:33

|          | Spike Amount (dry) | Original Result (dry) | MS Result (dry) | MSD Result (dry) | MS Rec. | MSD Rec. | Dilution | Rec. Limits | MS Qualifier | MSD Qualifier | RPD    | RPD Limits |
|----------|--------------------|-----------------------|-----------------|------------------|---------|----------|----------|-------------|--------------|---------------|--------|------------|
| Analyte  | mg/kg              | mg/kg                 | mg/kg           | mg/kg            | %       | %        |          | %           |              |               | %      | %          |
| Chloride | 518                | 2.85                  | 548             | 545              | 105     | 105      | 1        | 80.0-120    |              |               | 0.619  | 15         |
| Sulfate  | 518                | 282                   | 815             | 815              | 103     | 103      | 1        | 80.0-120    |              |               | 0.0323 | 15         |

Method Blank (MB)

(MB) R3476992-2 11/26/19 10:49

| Analyte                            | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|------------------------------------|--------------------|--------------|-----------------|-----------------|
| TPH (GC/FID) Low Fraction          | 0.0254             | ⬇            | 0.0217          | 0.100           |
| (S)<br>a,a,a-Trifluorotoluene(FID) | 97.1               |              |                 | 77.0-120        |

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

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

(LCS) R3476992-1 11/26/19 10:08 • (LCSD) R3476992-3 11/26/19 15:59

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCSD Result<br>mg/kg | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|-----------------------|---------------------|----------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| TPH (GC/FID) Low Fraction          | 5.50                  | 4.53                | 6.09                 | 82.4          | 111            | 72.0-127         |               | ⬇3             | 29.4     | 20              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     |                      | 106           | 111            | 77.0-120         |               |                |          |                 |

L1162892-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1162892-01 11/26/19 13:34 • (MS) R3476992-4 11/26/19 21:09 • (MSD) R3476992-5 11/26/19 21:30

| Analyte                            | Spike Amount<br>(dry)<br>mg/kg | Original Result<br>(dry)<br>mg/kg | MS Result (dry)<br>mg/kg | MSD Result<br>(dry)<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|--------------------------------|-----------------------------------|--------------------------|------------------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| TPH (GC/FID) Low Fraction          | 148                            | 0.930                             | 126                      | 127                          | 84.3         | 85.0          | 25.3     | 10.0-151         |              |               | 0.844    | 28              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                                |                                   |                          |                              | 109          | 109           |          | 77.0-120         |              |               |          |                 |

Method Blank (MB)

(MB) R3477817-3 11/28/19 05:16

| Analyte                            | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|------------------------------------|--------------------|--------------|-----------------|-----------------|
| TPH (GC/FID) Low Fraction          | 0.0224             | ⬇            | 0.0217          | 0.100           |
| (S)<br>a,a,a-Trifluorotoluene(FID) | 98.7               |              |                 | 77.0-120        |

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

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

(LCS) R3477817-1 11/28/19 04:14 • (LCSD) R3477817-2 11/28/19 04:34

| Analyte                            | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCSD Result<br>mg/kg | LCS Rec.<br>% | LCSD Rec.<br>% | Rec. Limits<br>% | LCS Qualifier | LCSD Qualifier | RPD<br>% | RPD Limits<br>% |
|------------------------------------|-----------------------|---------------------|----------------------|---------------|----------------|------------------|---------------|----------------|----------|-----------------|
| TPH (GC/FID) Low Fraction          | 5.50                  | 6.37                | 6.11                 | 116           | 111            | 72.0-127         |               |                | 4.17     | 20              |
| (S)<br>a,a,a-Trifluorotoluene(FID) |                       |                     |                      | 113           | 113            | 77.0-120         |               |                |          |                 |



Method Blank (MB)

(MB) R3475517-1 11/23/19 17:54

| Analyte                    | MB Result<br>mg/kg | MB Qualifier | MB MDL<br>mg/kg | MB RDL<br>mg/kg |
|----------------------------|--------------------|--------------|-----------------|-----------------|
| TPH (GC/FID) High Fraction | U                  |              | 0.769           | 4.00            |
| (S) o-Terphenyl            | 75.1               |              |                 | 18.0-148        |

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Laboratory Control Sample (LCS)

(LCS) R3475517-2 11/23/19 18:07

| Analyte                    | Spike Amount<br>mg/kg | LCS Result<br>mg/kg | LCS Rec.<br>% | Rec. Limits<br>% | LCS Qualifier |
|----------------------------|-----------------------|---------------------|---------------|------------------|---------------|
| TPH (GC/FID) High Fraction | 50.0                  | 43.3                | 86.6          | 50.0-150         |               |
| (S) o-Terphenyl            |                       |                     | 77.3          | 18.0-148         |               |

L1163543-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1163543-13 11/23/19 20:31 • (MS) R3475517-3 11/23/19 20:45 • (MSD) R3475517-4 11/23/19 20:58

| Analyte                    | Spike Amount<br>mg/kg | Original Result<br>mg/kg | MS Result<br>mg/kg | MSD Result<br>mg/kg | MS Rec.<br>% | MSD Rec.<br>% | Dilution | Rec. Limits<br>% | MS Qualifier | MSD Qualifier | RPD<br>% | RPD Limits<br>% |
|----------------------------|-----------------------|--------------------------|--------------------|---------------------|--------------|---------------|----------|------------------|--------------|---------------|----------|-----------------|
| TPH (GC/FID) High Fraction | 50.0                  | 31.7                     | 85.3               | 60.5                | 107          | 57.6          | 1        | 50.0-150         |              | J3            | 34.0     | 20              |
| (S) o-Terphenyl            |                       |                          |                    |                     | 70.0         | 72.5          |          | 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

|    |   |
|----|---|
| 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.  |
| P1 | RPD value not applicable for sample concentrations less than 5 times the reporting limit. |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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 <sup>1</sup>     | n/a              |
| Colorado                | TN00003     | New York                    | 11742            |
| Connecticut             | PH-0197     | North Carolina              | Env375           |
| Florida                 | E87487      | North Carolina <sup>1</sup> | DW21704          |
| Georgia                 | NELAP       | North Carolina <sup>3</sup> | 41               |
| Georgia <sup>1</sup>    | 923         | North Dakota                | R-140            |
| Idaho                   | TN00003     | Ohio–VAP                    | CL0069           |
| Illinois                | 200008      | Oklahoma                    | 9915             |
| Indiana                 | C-TN-01     | Oregon                      | TN200002         |
| Iowa                    | 364         | Pennsylvania                | 68-02979         |
| Kansas                  | E-10277     | Rhode Island                | LA000356         |
| Kentucky <sup>1 6</sup> | 90010       | South Carolina              | 84004            |
| Kentucky <sup>2</sup>   | 16          | South Dakota                | n/a              |
| Louisiana               | AI30792     | Tennessee <sup>1 4</sup>    | 2006             |
| Louisiana <sup>1</sup>  | LA180010    | Texas                       | T104704245-18-15 |
| Maine                   | TN0002      | Texas <sup>5</sup>          | 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             |

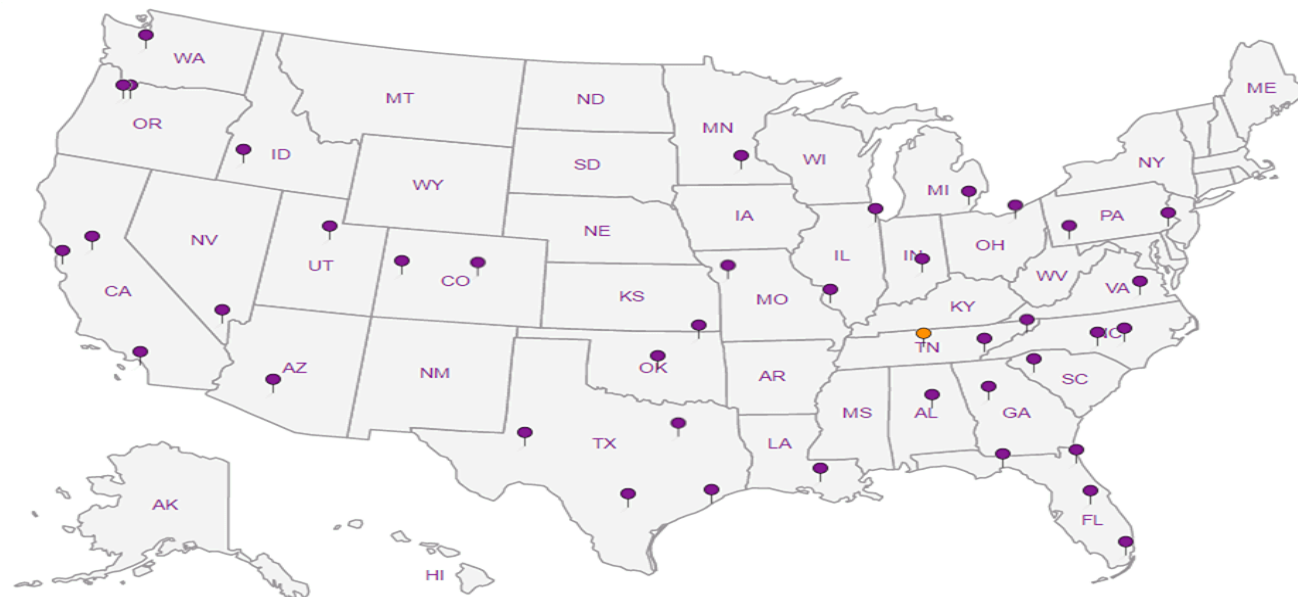
## Third Party Federal Accreditations

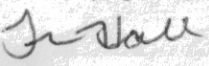
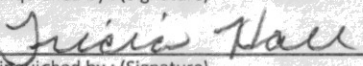

|                               |         |                     |               |
|-------------------------------|---------|---------------------|---------------|
| A2LA – ISO 17025              | 1461.01 | AIHA-LAP, LLC EMLAP | 100789        |
| A2LA – ISO 17025 <sup>5</sup> | 1461.02 | DOD                 | 1461.01       |
| Canada                        | 1461.01 | USDA                | P330-15-00234 |
| EPA–Crypto                    | TN00003 |                     |               |


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

## 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.



|   |  |  |                      |   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
|---|--|--|----------------------|---|------------|---|--------------|--|---|---|---|--|--|--|--|--|-----|--|--|
| <b>Golder &amp; Associates</b><br><br><b>7245 W. Alaska Dr. Suite 200</b><br><b>Lakewood, CO 80226</b>                                      |  |  |                      | Billing Information:  |            |   |              | Pres Chk                                       |   | Analysis / Container / Preservative   |   |  |  |  |  |  |     | Chain of Custody Page <u>1</u> of <u>2</u> |  |
|   |  |  |                      | Report to:<br><b>Matt Somogyi</b>   |            |   |              | Email To:<br><b>Matthew_Somogyi@golder.com</b> |   |   |   |  |  |  |  |  |     |  |  |
| Project Description:<br><b>Wexpro - Craig Pits Delin.</b>   |  |  |                      | City/State Collected:<br><b>Craig, CO</b>   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Phone: <b>303-980-0540</b>  |  | Client Project #<br><b>19125681</b>  |                      | Lab Project #   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Fax: <b>303-9985-2080</b>   |  |  |                      |   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Collected by (print):<br><b>Tricia Hall</b>   |  | Site/Facility ID #   |                      | P.O. #  |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Collected by (signature):<br>                               |  | <b>Rush?</b> (Lab MUST Be Notified)<br><input type="checkbox"/> Same Day <input type="checkbox"/> Five Day<br><input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only)<br><input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only)<br><input type="checkbox"/> Three Day |                      | Quote #   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Immediately Packed on Ice: N <input type="checkbox"/> Y <input checked="" type="checkbox"/>   |  |  |                      | Date Results Needed   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
|   |  |  |                      |   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Sample ID   |  | Comp/Grab  | Matrix *             | Depth   | Date       | Time  | No. of Cntrs |  |   |   |   |  |  |  |  |  |     |  |  |
| P8-B2 - ft Stepa H-6-ft   |  | G  | SS                   | 6-8   | 11/15/2019 | 1630  | 1            | V  | V | X   | X |  |  |  |  |  | -01 |  |  |
| P8-B3 - ft Stepa H-6-5-5-ft   |  | G  | SS                   | 5-5.5   | 11/16/2019 | 1010  | 1            | V  | V | X   | X |  |  |  |  |  | -02 |  |  |
| P8-B4 - ft Stepa H-4-5-ft   |  | G  | SS                   | 4-5   | 11/16/2019 | 1130  | 1            | X  | V | V   | V |  |  |  |  |  | -03 |  |  |
| P12-B3 - ft Stepa H-3-10-2-ft   |  | G  | SS                   | 10-12   | 11/16/2019 | 1300  | 1            | X  | X | X   | V |  |  |  |  |  | -04 |  |  |
| P10-B1 - ft Stepa H-2-22-23-ft  |  | G  | SS                   | 22-23   | 11/16/2019 | 1520  | 1            | X  | X | V   | V |  |  |  |  |  | -05 |  |  |
| P10-B2 - ft Stepa H-2-0-2-ft  |  | G  | SS                   | 0-2   | 11/17/2019 | 0900  | 1            | X  | X | X   | V |  |  |  |  |  | -06 |  |  |
| P10-B3 - ft Stepa H-1-4-6-ft  |  | G  | SS                   | 4-6   | 11/17/2019 | 0950  | 1            | X  | X | V   | X |  |  |  |  |  | -07 |  |  |
| P10-B4 - ft Stepa H-1-6-6.5-ft  |  | G  | SS                   | 6-6.5   | 11/17/2019 | 1050  | 1            | V  | V | X   | X |  |  |  |  |  | -08 |  |  |
| P8-B1 - ft Stepa H-2-0-2-ft   |  | G  | SS                   | 0-2   | 11/17/2019 | 1130  | 1            | V  | V | V   | V |  |  |  |  |  | -09 |  |  |
| P7-B1 - ft Stepa H-2-4-ft   |  | G  | SS                   | 2-4   | 11/17/2019 | 1340  | 1            | V  | V | V   | V |  |  |  |  |  | -10 |  |  |
| * Matrix:<br>SS - Soil   AIR - Air   F - Filter<br>GW - Groundwater   B - Bioassay<br>WW - Waste Water<br>DW - Drinking Water<br>OT - Other |  | Remarks:   |                      |   |            | pH _____ Temp _____<br>Flow _____ Other _____ |              |  |   | Sample Receipt Checklist<br>COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> N<br>COC Signed/Accurate: <input checked="" type="checkbox"/> <input type="checkbox"/> N<br>Bottles arrive intact: <input checked="" type="checkbox"/> <input type="checkbox"/> N<br>Correct bottles used: <input checked="" type="checkbox"/> <input type="checkbox"/> N<br>Sufficient volume sent: <input checked="" type="checkbox"/> <input type="checkbox"/> N<br>If Applicable<br>VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N<br>Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N<br><b>RAD SCREEN: &lt;0.5 mR/hr</b> |   |  |  |  |  |  |     |  |  |
| Samples returned via:   |  | Tracking # <b>1275 8600 3968</b>   |                      |   |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |
| Relinquished by: (Signature)<br>                          |  | Date:<br><b>11/18/19</b>   | Time:<br><b>0800</b> | Received by: (Signature)  |            |   |              | Trip Blank Received: Yes/No<br>HCL/MeOH<br>TBR |   |   |   | Temp: <b>12m°C</b> Bottles Received: <b>15</b> |  |  |  | If preservation required by Login: Date/Time |     |  |  |
| Relinquished by: (Signature)  |  | Date:  | Time:                | Received by: (Signature)  |            |   |              | Date: <b>11/21/19</b> Time: <b>830</b>         |   |   |   | Hold:  |  |  |  | Condition: <b>NCF 1 OK</b>                   |     |  |  |
| Relinquished by: (Signature)  |  | Date:  | Time:                | Received for lab by: (Signature)<br> |            |   |              |  |   |   |   |  |  |  |  |  |     |  |  |

|  |  |  |  |  |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
|--|--|--|--|--|--|----------|--|--|--|------------|--|--|--|---------------------|--|-----------------------------|--|--|--|
| <b>Golder &amp; Associates</b>   |  |  |  | Billing Information:   |  |          |  | Analysis / Container / Preservative  |  |            |  | Chain of Custody Page 2 of 2   |  |                     |  |                             |  |  |  |
| 7245 W. Alaska Dr. Suite 200<br>Lakewood, CO 80226   |  |  |  | Report to:<br><b>Matt Somogyi</b>  |  |          |  | Email To:<br><b>Matthew_Somogyi@golder.com</b>   |  |            |  | <br>12065 Lebanon Rd<br>Mount Juliet, TN 37122<br>Phone: 615-758-5858<br>Phone: 800-767-5859<br>Fax: 615-758-5859 |  |                     |  |                             |  |  |  |
| Project Description: <b>Wexpro - Craig Pits Delin.</b>                                     |  |  |  | City/State Collected: <b>Craig, CO</b>   |  |          |  | <div>Choice, Second, SO4<br/>DRO<br/>GEO<br/>SAR Clearing, Nal<br/>Table 910 full list</div> |  |            |  | L # <b>1163543</b>   |  |                     |  |                             |  |  |  |
| Phone: <b>303-980-0540</b><br>Fax: <b>303-9985-2080</b>                                    |  |  |  | Client Project # <b>19125681</b>   |  |          |  |  |  |            |  | Table #  |  |                     |  |                             |  |  |  |
| Collected by (print): <b>Tricia Hall</b>   |  |  |  | Site/Facility ID #   |  |          |  |  |  |            |  | Acctnum: <b>GOLDCO</b>   |  |                     |  |                             |  |  |  |
| Collected by (signature): <b>Tricia Hall</b>   |  |  |  | P.O. #   |  |          |  |  |  |            |  | Template:  |  |                     |  |                             |  |  |  |
| Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/> |  |  |  | <b>Rush?</b> (Lab MUST Be Notified)<br><input type="checkbox"/> Same Day <input type="checkbox"/> Five Day<br><input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only)<br><input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only)<br><input type="checkbox"/> Three Day |  |          |  | Quote #  |  |            |  | Prelogin:  |  |                     |  |                             |  |  |  |
| Sample ID  |  |  |  | Comp/Grab  |  | Matrix * |  | Depth  |  | Date       |  | Time   |  | No. of Cntrs        |  | TSR: <b>Daphne Richards</b> |  |  |  |
| P7-B 210 ft  |  |  |  | G  |  | SS       |  | 10-12  |  | 11/17/2019 |  | 1400   |  | 1                   |  | PB:                         |  |  |  |
| P7-B 3-14 ft   |  |  |  | G  |  | SS       |  | 14-15  |  | 11/17/2019 |  | 1430   |  | 1                   |  | Shipped Via:                |  |  |  |
| P7-B 410 ft  |  |  |  | G  |  | SS       |  | 10   |  | 11/17/2019 |  | 1450   |  | 2                   |  | Remarks                     |  |  |  |
| P7-B 4 ft  |  |  |  | G  |  | SS       |  | 2-4  |  | 11/17/2019 |  | 1520   |  | 1                   |  | Sample # (lab only)         |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  | -11                         |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  | -12                         |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  | -13                         |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  | -14                         |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  |                             |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  |                             |  |  |  |
| P - B - ft   |  |  |  |  |  |          |  | / /2019  |  |            |  |  |  |                     |  |                             |  |  |  |
| * Matrix:  |  |  |  | Remarks:   |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| SS - Soil AIR - Air F - Filter   |  |  |  | pH _____ Temp _____  |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| GW - Groundwater B - Bioassay  |  |  |  | Flow _____ Other _____   |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| WW - WasteWater  |  |  |  | Samples returned via:  |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| DW - Drinking Water  |  |  |  | <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier   |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| OT - Other   |  |  |  | Tracking #   |  |          |  |  |  |            |  |  |  |                     |  |                             |  |  |  |
| Relinquished by: (Signature)   |  |  |  | Date:  |  | Time:    |  | Received by: (Signature)   |  |            |  | Trip Blank Received: Yes / No  |  |                     |  |                             |  |  |  |
| <b>Tricia Hall</b>   |  |  |  | 11/18/19   |  | 0800     |  |  |  |            |  | HCL / MeOH TBR   |  |                     |  |                             |  |  |  |
| Relinquished by: (Signature)   |  |  |  | Date:  |  | Time:    |  | Received by: (Signature)   |  |            |  | Temp: <b>42°C</b> Bottles Received: <b>15</b>  |  |                     |  |                             |  |  |  |
|  |  |  |  |  |  |          |  |  |  |            |  | If preservation required by Login: Date/Time   |  |                     |  |                             |  |  |  |
| Relinquished by: (Signature)   |  |  |  | Date:  |  | Time:    |  | Received for lab by: (Signature)   |  |            |  | Date:  |  | Time:               |  |                             |  |  |  |
|  |  |  |  |  |  |          |  | <b>mp</b>  |  |            |  | 11-21-19   |  | 830                 |  |                             |  |  |  |
|  |  |  |  |  |  |          |  |  |  |            |  | Hold:  |  | Condition: NCF / OK |  |                             |  |  |  |