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October 22, 2018

Rebecca Everette
Development Review Manager
City of Fort Collins, Colorado

**Reference: Phase II Environmental Site Assessment Summary Report
City of Fort Collins Brownfield
Country Club Reserve, 1949 East Douglas Road, Fort Collins, Colorado (Site)
TRC Project No. 241300.0001.0000**

Dear Ms. Everette:

This report summarizes the findings of a Phase II Environmental Site Assessment (Phase II ESA) conducted by TRC Environmental Corporation (TRC) at the request of the City of Fort Collins at the Country Club Reserve, at 1949 East Douglas Road, Fort Collins, Colorado (Site) for a United States Environmental Protection Agency (USEPA) Brownfields Assessment grant. A Site Location map is shown on **Figure 1**.

1. EXECUTIVE SUMMARY

The Phase II ESA included advancing four monitoring wells, installing five soil vapor points, and the collection and laboratory analyses of soil and groundwater samples to evaluate potential subsurface impacts at the Site. Analytical results document that the constituents of concern (COC) were either not detected above laboratory detection limits or were detected at concentrations close to or below applicable regulatory screening levels, with the exception of arsenic in all four soil samples. However, the concentrations of arsenic in all four locations are below USEPA's background arsenic concentration in Colorado, so arsenic is not considered a COC at the Site. The investigation results demonstrate that there is no risk to human health or the environment.

2. BACKGROUND

The approximate 77.12-acre Site is owned by Crystal Cove Development LLC. The Site is currently vacant. One plugged and abandoned oil and gas wellhead is present on the west-central portion of the Site.

TRC conducted a Phase I ESA at the Site on behalf of the City of Fort Collins. The results of the ESA were summarized in a corresponding report dated June 6, 2018. The Phase I ESA identified the presence of a Historical Recognized Environmental Condition (HREC) at the Site. Specifically, the Phase I ESA indicates that the plugged and abandoned well head located on the west-central portion of the Site represents an HREC.

3. OBJECTIVES OF THE PHASE II ESA

The objective of the Phase II ESA is to:

- Confirm that the plugged and abandoned wellhead located on the west-central portion of the Site has not impacted the groundwater or soil at the target area.

4. SCOPE AND METHODOLOGY OF THE PHASE II ESA

4.1 Introduction

The Phase II ESA consisted of:

- Advancing four soil borings for soil screening and soil sampling with a track mounted Geoprobe®;
- Collection and laboratory analysis of four soil samples collected from each of the four borings;
- Installation of four permanent ground water monitoring wells at the boring locations;
- Collection and laboratory analysis of four ground water samples from each of the four monitoring wells; and
- Installation and sampling of five soil vapor monitoring points.

TRC conducted a site inspection prior to initiating the field work to inspect the Site and locate the borings.

4.2 Soil Investigation

On July 5 and July 6, 2018, TRC and its subcontractor Remington Technologies, LLC installed four soil borings SB-1 through SB-4 at the locations shown on **Figure 2**. Prior to installing the soil borings, utility clearance was conducted and a hand auger was used to remove soil from each borehole to an approximate depth of four feet to verify that no utilities were present at the boring locations.

The soil borings were advanced using a Geoprobe® with direct push capabilities. All four soil borings were advanced to a depth ranging from 23 - 30 feet below ground surface (ft bgs) to evaluate soil conditions at each boring location. Soil was collected continuously via five-foot direct push intervals, utilizing a new sample liner each flight. A TRC scientist visually screened and logged the descriptions of the soil encountered in each boring. Photo-ionization detector (PID) readings were also recorded for each two-foot soil interval. Boring logs with soil descriptions, visual observations, and PID readings are presented in **Appendix A**. The soil at boring locations consisted of fine to medium sand with some silt. No free or residual product was detected at any of the borings.

One unsaturated soil sample was collected from each original soil boring location. Soil from each boring did not exhibit any apparent impacts; therefore, a soil sample was collected directly above the water table or from the interval of highest PID reading. The samples were transferred directly into pre-preserved laboratory-supplied sample containers. Each sample container was labeled with a unique identification number specifying the sample location, the time and date of sample collection, the analytical parameters required, the Site name, and the sampler's initials. The samples were preserved, as appropriate, and chilled to approximately 4°C under chain-of-custody until shipped to the laboratory.

Each of the soil samples was analyzed for:

- DRO by Semi-Volatile Organic Compounds (SVOC) by Gas Chromatograph (GC) Method 8015
- Gasoline Range Organics (GRO) by VOC by GC Method 8015D/GRO

- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) by GC/Mass Spectrometer (GC/MS) Method 8260C
- RCRA 8 Metals by Inductively Coupled Plasma (ICP) - Optical Emission Spectrometer (OES) Method 6010B

4.3 Ground Water Investigation

SB-3 and SB-4 had 1-inch diameter permanent wells installed to a depth of approximately 30 ft bgs and constructed with 10 feet of 0.10-slot poly vinyl chloride (PVC) screen at the bottom and 20 feet of blank PVC casing at the top. SB-1 and SB-2 had 1-inch diameter permanent wells installed to approximately 42 and 37 ft bg, respectively, and constructed with 10 feet of 0.10-slot PVC screen at the bottom and 32 and 27 feet of blank PVC casing at the top. The monitoring wells, MW-1 through MW-4, were constructed as permanent monitoring wells with appropriately sized screen and sand filter packs as well as with permanent surface completions. **Figure 2** shows their approximate locations. TRC developed the monitoring wells on August 15, 2018 and allowed 24 hours for the wells to equilibrate after development before sampling.

Prior to initiating ground water sampling activities, ground water level measurements were first collected from each well at the Site. The depth from the top of casing (TOC) to the top of the ground water was recorded at each well for use in calculating ground water elevations. A team of surveyors measured the surface elevations using a Global Positioning System (GPS) unit on September 20, 2018. Ground water level measurements were recorded on a Water Level Gauging Form presented in **Appendix B**.

Hand bailing and sampling procedures were utilized in connection with the ground water sampling activities. Disposable hand bailers were used at all four monitoring wells since the ground water levels were too deep for the peristaltic pump to lift water to the surface. Prior to sampling, each well was purged. Field parameters including pH, oxidation reduction potential (ORP/Eh), dissolved oxygen (DO), specific conductance, turbidity, and temperature of the ground water being purged was measured periodically and recorded in the field notebook. The visual appearance of the ground water was also recorded. Three field measurement readings were recorded prior to sampling.

Care was taken to minimize agitation and aeration of the samples during sample collection activities. Each ground water sample was transferred directly into appropriate pre-preserved laboratory-supplied sample containers. Each sample container was labeled with a unique identification number specifying the sample location, the time and date of sample collection, the analytical parameters required, the Site name, and the sampler's initials. The samples were preserved, as appropriate, and chilled to approximately 4°C under chain-of-custody until shipped to the laboratory. Ground water sample collection data was recorded on the Sampling Form presented in **Appendix C**.

Each of the ground water samples was analyzed for:

- DRO by SVOC (GC) by Method 8015
- GRO and BTEX by VOC (GC) Method 8015D/GRO
- Methane, Ethane, Ethene by VOC (GC) Method RSK175
- Dissolved Calcium, Dissolved Iron, Dissolved Magnesium, Dissolved Potassium, Dissolved Sodium by Metals (ICP) Method 6010B
- Bromide, Chloride, Nitrate and Nitrite, Sulfate by Wet Chemistry Method 9056A
- Alkalinity by Wet Chemistry Method 2320 B-2011

4.4 Soil Vapor Investigation

Five soil vapor points were constructed on Site. Four of the points were installed surrounding the plugged and abandoned well while the last point was installed at the edge of the property as a background control sample. The four soil vapor points constructed around the plugged and abandoned well, SVP-1 through SVP-4, were installed in five foot intervals to a maximum radius of 20 feet. The fifth soil vapor point, SVP-5, was installed at the edge of the property boundary as a control sample. The soil vapor points were installed to a target depth of approximately three to five feet bgs by a direct push drill rig. The soil probes were constructed with a dedicated stainless-steel soil vapor tip, connected to the ground surface with Teflon tubing. After the soil vapor probes were installed to the target depth, the boreholes were backfilled with hydrated bentonite to create a seal and completed at-grade with flush mount surface completions. Field screening of soil vapor points using an Eagle multi-gas meter did not detect significant VOC concentrations above background levels in any of the samples.

4.5 Decontamination Procedures

Down-hole drilling equipment was decontaminated with high pressure tap water prior to each soil boring. Sampling tools were decontaminated using a trisodium phosphate cleaning detergent and tap water rinse followed by a distilled water rinse. The equipment and tools were decontaminated prior to each soil boring and collection of each sample. Hand bailers from ground water purging and sampling activities were discarded after the collection of project samples.

5. RESULTS

5.1 Soil Analytical Results

The soil analytical results are summarized in **Table 1** along with applicable soil standards. The laboratory analytical report is provided in **Appendix D**.

The analytical results indicate that soil within the target area does not contain any COC at concentrations above the Colorado Oil and Gas Conservation Commission Screening Level (COGCC SL) standards, except for arsenic. Arsenic exceeded the COGCC SL of 0.39 milligrams per kilogram (mg/kg) at all four soil borings with the highest concentration at SB-3 (5.73 mg/kg). According to the U.S. Environmental Protection Agency (USEPA), the average background concentration of arsenic in Colorado is 11 mg/kg. The arsenic concentration at each soil boring is less than 11 mg/kg and there is no reason to believe arsenic contamination could have occurred on Site. Therefore, arsenic is not a COC for on-Site soil at the target area. TPH and BTEX concentrations were well below the COGCC SL in all four borings. These results confirm that there are no COCs in soil at the Site and do not pose any risk to human health and the environment.

5.2 Ground Water Analytical Results

The ground water analytical results are summarized in **Table 2** along with applicable Colorado Department of Public Health and Environment (CDPHE) ground water standards. The laboratory analytical report is provided in **Appendix D**.

The ground water samples collected at the Site did not indicate an exceedance over CDPHE ground water standards at any of the four locations. There were no detections of BTEX in any of the four wells and any detections of TPH were minor. These results confirm that there are no COCs in ground water at the Site and do not pose any risk to human health and the environment.

5.3 Ground Water Flow Directions

Ground water was encountered at depths that ranged between approximately 22 and 34 feet bgs (**Appendix B**). Ground water level measurements (**Appendix B**) and grade elevations at well locations were used to estimate ground water elevations and develop a ground water elevation contour map (**Figure 3**). Accordingly, ground water elevations were estimated to range between approximately 5075 feet above mean sea level (ft-AMSL) near MW-3 and 5076 ft-AMSL near MW-2. **Figure 3** indicates that the horizontal ground water flow direction in the shallow zone is generally southeasterly (i.e., from the northwest to the southeast) consistent with the Site topography. The average horizontal hydraulic gradient was estimated to be approximately 0.005 ft/ft.

6. CONCLUSIONS

The following conclusions are made based on the Phase II ESA results:

- Soil at the Site meets the COGCC SL for TPH and BTEX; thus, these constituents are not considered COCs for soil at the Site.
- Arsenic concentrations detected during this Phase II ESA are all well below the average background concentration of 11 mg/kg in Colorado and there is no reason to believe arsenic contamination could have occurred on Site; therefore arsenic is not considered a COC for soil at the Site.
- The shallow ground water at the Site meets CDPHE ground water standards for BTEX within the target area; thus, these constituents are not considered COCs for shallow ground water at the Site.

7. LIMITING CONDITIONS/ASSUMPTIONS

It should be noted that this investigation is limited in nature and extent and was conducted for due diligence purposes based upon the Phase I ESA conducted by TRC. The scope of work of this Phase II ESA was based on results from the previous Phase I Investigation, which listed the plugged and abandoned wellhead as a HREC. As such, the target area evaluated in this Phase II ESA was limited to constituents likely related to historical operations at the potential REC including TPH-DRO, TPH-GRO, BTEX, and RCRA 8 Metals in soil, and BTEX, TPH, and dissolved gases in ground water. This investigation is therefore intended to identify significant impacts to environmental conditions of the Site to common and suspected COCs based on the Phase I ESA and should not be construed to guarantee or warrant the Site from environmental impacts or rule out the possibility of impacts to the Site in locations not evaluated as part of this assessment.

Sincerely,
TRC Environmental Corporation



Natalie Pabon
Engineer II



Jason Jayroe
Project Manager

Enclosures:

Figure 1 – Site Location Map

Figure 2 – Monitoring Wells and Soil Vapor Points Locations Map

Figure 3 – Ground Water Elevation Contour Map

Table 1 – Soil Analytical Results

Table 2 – Ground Water Analytical Results

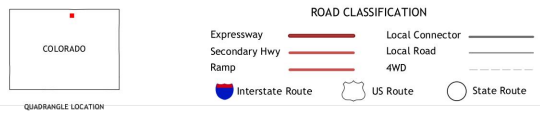
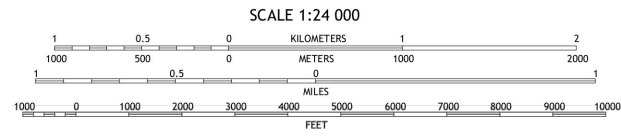
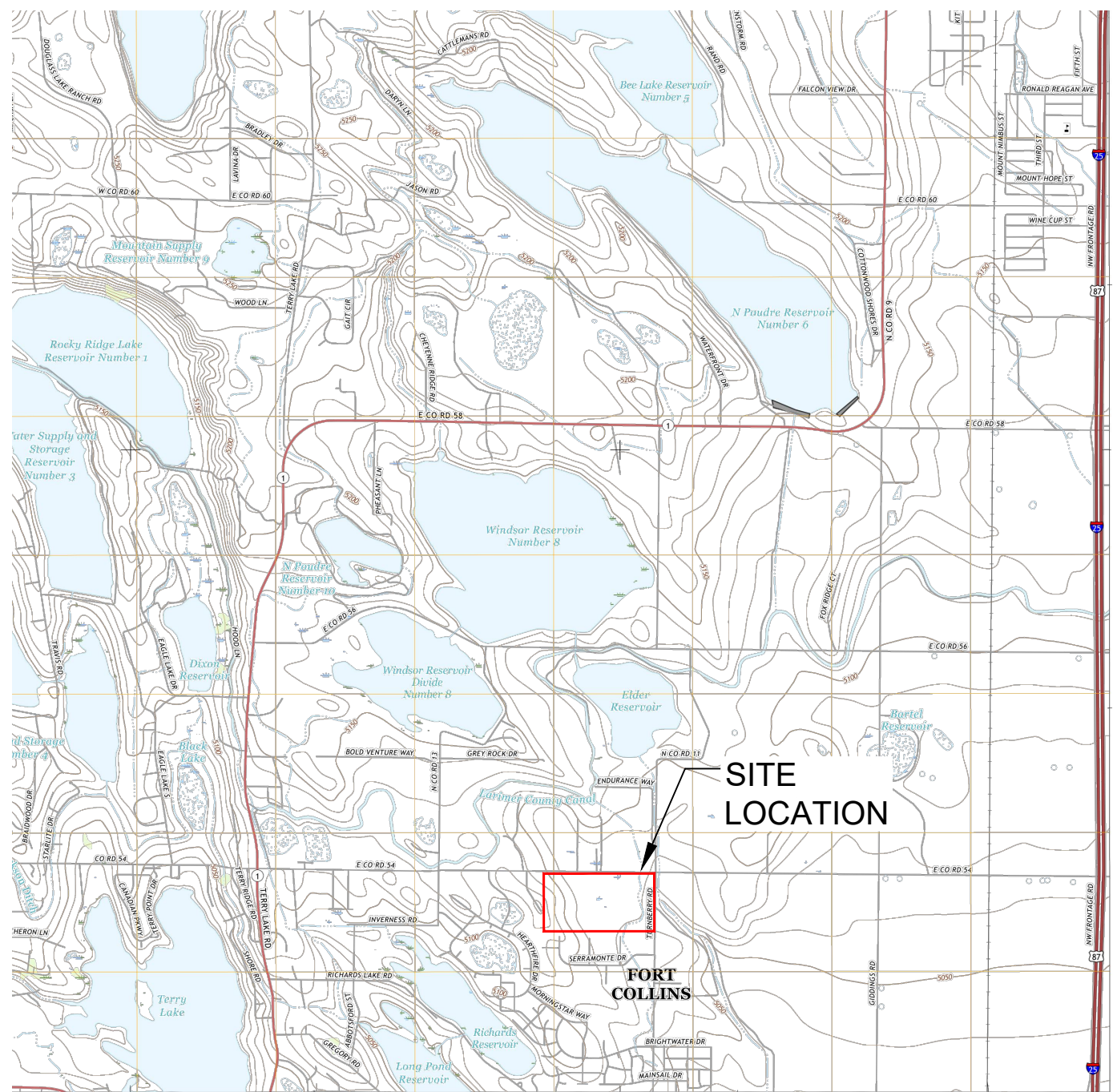
Appendix A – Soil Boring logs

Appendix B – Water Level Gauging Forms

Appendix C – Ground Water Sampling Forms

Appendix D – Laboratory Analytical Results

6.5411 - USER: Npabon - ATTACHED: XREFS - ATTACHED: IMAGES
 DRAWING NAME: \\fortcollins-pp2\Remediation\FTC Brownfield\Sites\Current\Oil and Gas\Country Club Reserve\Phase II\Implementation\Report\Figures\CCR Phase 2 Figure 1.dwg --- PLOT DATE: October 22, 2018 - 4:34PM --- LAYOUT: Figure 1



**WELLINGTON QUADRANGLE
 COLORADO
 USGS 7.5-MINUTE SERIES**



PROJECT:	CITY OF FORT COLLINS BROWNFIELD COUNTRY CLUB RESERVE FORT COLLINS, COLORADO
TITLE:	SITE LOCATION MAP

DRAWN BY:	N. PABON
CHECKED BY:	J. JAYROE
APPROVED BY:	J. JAYROE
DATE:	SEPTEMBER 2018
PROJ. NO.:	241300.0001.0000
FILE:	CCR Phase 2 Figure 1.dwg

FIGURE 1



LEGEND

- ▬ PROPERTY BOUNDARY
- ⊕ PLUGGED & ABANDONED (P&A) WELL
- SOIL BORING (SB) / MONITORING WELL (MW)
- ◇ SOIL VAPOR POINT (SVP)

NOTE

SOURCE AERIAL: GOOGLE EARTH, GOOGLE INC. PHOTOGRAPH CIRCA 2018

PROJECT: **CITY OF FORT COLLINS BROWNFIELD COUNTRY CLUB RESERVE**

TITLE: **MONITORING WELLS AND SOIL VAPOR POINTS LOCATIONS**

DRAWN BY: E. EMERSON
 CHECKED BY: J. JAYROE
 APPROVED BY: J. JAYROE
 DATE: 7/26/2018

PROJ. NO: 241300.0001.0000

FIGURE 2



131 LINCOLN AVE, SUITE 200
 FORT COLLINS, CO 80524
 PHONE: 970-484-3263

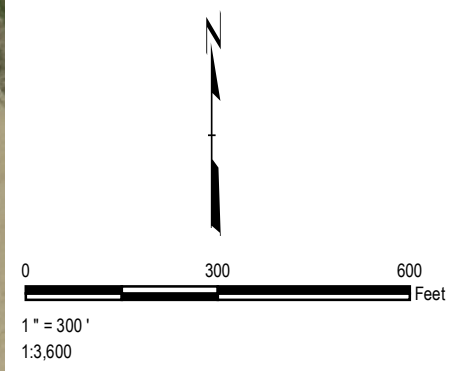
FILE NO:



LEGEND

- SITE BOUNDARY
- MONITORING WELL
- PLUGGED AND ABANDONED WELL
- GROUNDWATER CONTOURS
(DASHED WHERE INFERRED, FT AMSL)

- NOTES**
- BASE MAP IMAGERY FROM ESRI "CLARITY" WEB SERVICE LAYER, YEAR UNKNOWN.



PROJECT:		CITY OF FORT COLLINS BROWNFIELD COUNTRY CLUB RESERVE FORT COLLINS, COLORADO	
TITLE:			
GROUNDWATER ELEVATION CONTOUR MAP			
DRAWN BY:	S. MAJOR	PROJ. NO.:	241300
CHECKED BY:	N. PABON	FIGURE 3	
APPROVED BY:	J. JAYROE		
DATE:	OCTOBER 2018		
		131 E. Lincoln Avenue, Suite 200 Fort Collins, CO 80524 Phone: 970.484.3263 www.trcsolutions.com	
FILE NO.:	241300-002.mxd		

**Table 1 - Soil Analytical Results
City of Fort Collins Brownfield
Country Club Reserve**

Client Sample ID			SB-1-32	SB-2-16	SB-3-15	SB-4-20				
Lab Sample ID			L1007912-01	L1007912-02	L1007912-03	L1007912-04				
Date Collected			07/05/2018	07/05/2018	07/05/2018	07/05/2018				
Analyte	Units	COGCC SL								
RCRA 8 Metals										
Arsenic	mg/kg	0.39	1.97	J	5.1	5.73	1.46	J		
Barium	mg/kg	15000	58.8		47.5	98	104			
Cadmium	mg/kg	70	<0.500		<0.500	0.133	J	<0.500		
Chromium	mg/kg	23*	21.2		12.7	14.7		8.05		
Lead	mg/kg	400	5.13		8.04	9.08		4.21		
Selenium	mg/kg	390	1.54	J	<2.00	<2.00		<2.00		
Silver	mg/kg	390	0.283	J	<1.00	<1.00		<1.00		
Mercury	mg/kg	23	0.017	J	0.0142	J	0.0111	J	0.00473	J
TPH GRO/DRO										
TPH (Gc/Fid) High Fraction	mg/kg	500	<4.00		<4.00	<4.00		<4.00		
TPH (Gc/Fid) Low Fraction	mg/kg	500	0.036	J	0.0927	J	0.104	0.0241	J	
BTEX										
Benzene	mg/kg	0.17	0.000778		0.00152	0.00135		0.000186	J	
Toluene	mg/kg	85	0.000796	J	0.00214	J	0.00303	J	0.000201	J
Ethylbenzene	mg/kg	100	0.000125	J	0.000757	0.00102		<0.000500		
Xylenes, Total	mg/kg	175	<0.00150		0.00164	0.00328		<0.00150		

Notes:

Exceedance

J = estimated concentration

mg/kg = milligrams per kilogram

*Chromium screened against Chromium VI screening Level

**Table 2 - Ground Water Analytical Results
City of Fort Collins Brownfield
Country Club Reserve**

Client Sample ID				MW-01	MW-02	MW-03	MW-04
Lab Sample ID				L1018955-03	L1018955-01	L1018955-02	L1018955-04
Date Collected				8/16/2018	8/16/2018	8/16/2018	8/17/2018
Analyte	Units	CDPHE Groundwater Organic Standards ¹	CDPHE Groundwater Human Health Standards ²				
Alkalinity							
Alkalinity	mg/l			412	440	448	442
Major Anions							
Bromide	mg/l			0.129	J <1	<1	<1
Chloride	mg/l			29.5	27.5	31.3	22.4
Sulfate	mg/l			510	956	736	394
Nitrate as (N)	mg/l		1	0.42	0.305	0.892	0.191
Nitrite as (N)	mg/l		10	0.311	0.47	<0.1	0.15
Major Cations, Dissolved							
Calcium	mg/l			139	181	202	140
Iron	mg/l			<0.1	<0.1	<0.1	<0.1
Magnesium	mg/l			69.3	105	93	71.9
Potassium	mg/l			7.4	8.57	3.29	3.84
Sodium	mg/l			168	271	181	126
BTEX							
Benzene	mg/l	0.005		<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/l	0.56		<0.001	<0.001	<0.001	<0.001
Ethylbenzene	mg/l	0.7		<0.0005	<0.0005	<0.0005	<0.0005
Xylenes, Total	mg/l	1.4		<0.0015	<0.0015	<0.0015	<0.0015
Dissolved Gases							
Methane	mg/l			0.0132	0.00855	J <0.01	0.0113
Ethane	mg/l			<0.013	<0.013	<0.013	<0.013
Ethene	mg/l			<0.013	<0.013	<0.013	<0.013
Total Petroleum Hydrocarbons (TPH)							
TPH (GC/FID) High Fraction	mg/l			<0.1	0.137	0.0615	J 0.0624
TPH (GC/FID) Low Fraction	mg/l			0.858	0.34	<1	<1

Notes:

Exceedance

J = estimated concentration

mg/L = milligrams per liter

1 - Colorado Department of Public Health & Environment, Groundwater Organic Chemical Standards, Table A (CDPHE, 2016)

2 - Colorado Department of Public Health & Environment, Domestic Water Supply - Human Health Standards, Table 1 (CDPHE, 2016)

APPENDIX A
SOIL BORING LOGS



LOG OF SOIL BORING

PROJECT NAME: Country Club Reserve - P&A Well	SOIL BORING ID: SB-1 (MW-1)	
PROJECT NUMBER: 241300.0001.0000	LOCATION: West of P&A well by ~150 feet	SHEET 1 OF
LOGGED BY: Eric Emerson		SURFACE ELEV.:
PROJECT LOCATION: North Fort Collins Revitalization	N: E:	DATE STARTED: 7-5-18
DRILLED BY: Penington	DRILLER NAME: Travis	DATE COMPLETED: 7-5-18

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
					2.5	<p>Composite</p> <p>Well sorted sand, fine, some medium and silt, yellowish brown, organic material, dense, dry to moist, No HC odor or staining</p>	<p>Hand agar to check for utilities abandoned irrigation</p>
				0.2	5.0	<p>Well sorted fine sand, trace medium, some silt, yellowish brown, medium dense, moist, No HC odor or staining</p>	
					7.5	<p>SAA, No HC odor or staining</p>	
					10.0	<p>No Recovery</p>	
				0.4	12.5	<p>Well sorted, fine sand, trace medium and silt, dark yellowish brown, dense, moist, No HC odor or staining</p>	<p>Bentonite chips</p> <p>Blank</p>
					15.0	<p>No Recovery</p>	
				0.7	17.5	<p>Well sorted, fine fine sand, SAA except increased density, very dense</p>	
					20.0	<p>No Recovery</p>	

DRILLING METHOD Direct Push
DRILL RIG Geoprobe F822DT
BORING DIAMETER 3 in (actual 3.25)

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

SIGNED _____ DATE _____

CHECKED _____ DATE _____



LOG OF SOIL BORING

SHEET 2 OF

PROJECT NAME: Country Club Reserve - P&A Well

SOIL BORING ID: SB-1 (MW-1)

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
					0.0	Well Sorted fine sand, some medium, trace coarse and silt, light yellowish brown, dense, moist, No HC odor or staining	
	NR	30" of 60"			22.5	No Recovery	
					25.0	Well Sorted fine sand, some medium and silt, trace coarse (not enough for partly sorted), yellowish brown, loose, moist, No HC odor or staining	
	NR	40" of 60"			27.5		Sand 10/20
					30.0	Well Sorted, fine sand, trace coarse, some medium and silt, loose, very moist, light yellowish brown, No HC odor or staining	
					32.5	contact weathered shale, light olive grey brown, very dense	Collapsed
						Refusal TD during sampling	
					35.0	Construction TD = 29.5 feet (32.87 w/ Riser)	Total Depth Borehole (3" air barrel got little further)
					37.5	Sand - 29.5 feet - 18.5 feet	
					40.0	Screen 29.5 - 19.5 feet	
					42.5	Bentonite - 18.5 - 0.5 feet	
					45.0		

SIGNED

DATE

CHECKED

DATE



LOG OF SOIL BORING

PROJECT NAME: Country Club Reserve - P&A Well	SOIL BORING ID: <u>SB-2 (CMW-2)</u>	
PROJECT NUMBER: 241300.0001.0000	LOCATION: <u>North of P&A well ~150 feet</u>	SHEET 1 OF 2
LOGGED BY: Eric Emerson		SURFACE ELEV.: <u> </u>
PROJECT LOCATION: North Fort Collins Revitalization	N: <u> </u> E: <u> </u>	DATE STARTED: <u>7-5-18</u>
DRILLED BY: <u>Rerington</u>	DRILLER NAME: <u>Travis</u>	DATE COMPLETED: <u> </u>

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		NA		0.0		well sorted fine sand, some medium and silt, yellowish brown, loose, dry → moist, No HC odor or stain, roots	Hand auger to check for utilities
		16% of 32"		0.0	2.5	well sorted fine sand, yellowish brown, loose moist, No HC or odor or staining	
	NR				5.0	No Recovery SAA, dense, No HC or odor or staining	
		32% of 60"		0.1	7.5		
	NR				10.0	No Recovery SAA, dense, No HC odor or staining except brown, loses yellow tint	← end of recover
	NR			0.2	12.5	No Recovery	
		46% of 60"		0.0	15.0	well sorted sand, fine, some silt, trace medium light yellowish brown, roots, loose to medium dense, No HC odor or staining, moist	Sample SB-2-16 1550 7-5-18 (4)
	NR				20.0	No Recovery	

DRILLING METHOD <u>Direct Push</u>
DRILL RIG <u>Geopac 7822DT</u>
BORING DIAMETER <u>3 in (actual 3.25)</u>

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM



LOG OF SOIL BORING

SHEET 2 OF 2

PROJECT NAME: Country Club Reserve - P&A Well SOIL BORING ID: SB-2 (MW-2)

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		35% of 60%		88	22.5	Saturated entire sample well sorted fine sand, some medium coarse silt, trace coarse, loose, saturated, No HC odor or staining	No visible contact for water zone
	NR				25.0	No Recovery	TD of well
	NR				27.5	Sluff, dry, rig hit refusal at approx. 27 feet Total Borehole depth	Could not get to same depth with 3" core barrel
					30.0		Construction Details Slot - 0.015 in Sand - 23 - 12.5
					32.5		
					35.0	P/TOC 26.80	TV - 23.2 Bentonite - 12.5 - 0.5
					37.5		Screen Interval 23.2 - 13.2
					40.0		
					42.5		
					45.0		

SIGNED _____ DATE _____

CHECKED _____ DATE _____



LOG OF SOIL BORING

PROJECT NAME: Country Club Reserve - P&A Well	SOIL BORING ID: SB-3 (mw-3)	
PROJECT NUMBER: 241300.0001.0000	LOCATION: East of P&A well by ~150 feet	SHEET 1 OF
LOGGED BY: Eric Emerson		SURFACE ELEV.:
PROJECT LOCATION: North Fort Collins Revitalization	N: E:	DATE STARTED: 7-6-18
DRILLED BY: Penington	DRILLER NAME: Travis Stolz	DATE COMPLETED:

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
					11.7	Composite Well sorted fine sand, some silt and medium sand, roots, yellowish brown, dense, moist, NO HC odor or staining	Head Auger
		15' of 30'			2.5	SAA, no NO HC odor or staining	
		48' of 60'			5.0	Well sorted fine sand, some silt, trace medium sand, from dark yellowish brown to light yellowish brown, medium dense, moist, NO HC odor or staining	
		24' of 60'			7.5		
					10.0	Well sorted fine sand, some silt and medium sand, dark yellowish brown, dense, moist, NO HC odor or staining	
		12' of 60'			15.0	Well sorted fine sand SAA grading, color, density, moisture, NO HC odor or staining	Sample SB-3-15 7-6-18 0860
					17.5		
					20.0		

DRILLING METHOD Direct Push
DRILL RIG Geoprobe 7820T
BORING DIAMETER 3 in (7.25 actual)

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE: During construction			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM
7-6-18	0830	24.3 rising	70.2 (4' Reser)
7-6-18	1400	25.16	33.0

Td
BTL
Finshen



LOG OF SOIL BORING

SHEET 2 OF 2

PROJECT NAME: Country Club Reserve - P&A Well SOIL BORING ID: 99-3 (MW-3)

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
		18% out 60"		NA	22.5	[Saturated] well sorted fine sand, some fines, trace medium sand, yellowish brown, loose, saturated no HC odor or staining, some plasticity	
		34% out 60"		NA	25.0 27.5	[Saturated] well sorted fine sand, decreased fines (trace large), plyable, very pale brown, loose to very loose saturated, no HC odor or staining, little plasticity	
		13" for 13"		NA	30.0	weathered shale and medium sand (broken shale and silt)	TD well collapse
					32.5	Refusal	
					35.0	Construction Details TD = ~29.5 Abgs BTAC 29.00 Screen - 29.5 - 19.5 feet Sand - 29.5 - 17.5 feet Bentonite - 17.5 - 0.5 feet 1 in OD PVC well	
					37.5		
					40.0		
					42.5		
					45.0		

SIGNED _____ DATE _____

CHECKED _____ DATE _____



LOG OF SOIL BORING

PROJECT NAME: Country Club Reserve - P&A Well	SOIL BORING ID: <u>SB-4 (MW-4)</u>	
PROJECT NUMBER: 241300.0001.0000	LOCATION: <u>South of P&A well by 150 feet</u>	SHEET 1 OF 2
LOGGED BY: Eric Emerson		SURFACE ELEV.: <u> </u>
PROJECT LOCATION: North Fort Collins Revitalization	N: <u> </u> E: <u> </u>	DATE STARTED: <u>7-6-18</u>
DRILLED BY: <u>Remington</u>	DRILLER NAME: <u>Travis Stolz</u>	DATE COMPLETED: <u> </u>

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
					0.0	well sorted fine sand, some silt and medium sand, yellowish brown, medium dense, moist, No HC odor or staining	Hand Auger
					2.5		
					5.0	well sorted fine sand, some silt, yellowish brown dense, moist, No HC odor or staining	
					7.5	well sorted fine sand, trace silt and medium sand, yellowish brown, medium dense, moist, No HC odor or staining	Sample MS/MSD 7-6-18 @ 0930
					10.0	well sorted fine sand, some silt and medium sand, dark yellowish brown, dense, moist, No HC odor or staining	
					12.5		
					15.0	Shoe only, no recovery, re try well sorted fine sand, with silt, trace medium sand, pale brown, loose, very moist, some plasticity	Sample SB-4-20 @ 0940 7-6-18
					17.5	color change pale brown to light olive brown, well sorted fine sand, trace fines and medium sand	
					20.0		

DRILLING METHOD <u>Direct Push</u>
DRILL RIG <u>Geoprobe 7822DT</u>
BORING DIAMETER <u>3 in (actual 3.25 in)</u>

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM



^{correct}
LOG OF SOIL BORING

SHEET 2 OF 2

PROJECT NAME: Country Club Reserve - P&A Well SOIL BORING ID: SB-4 (RW-4)

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
				Øφ	22.5	well sorted fine sand, with silt, trace medium sand, pale brown, loose, very moist some plasticity	Sample SB-4-20 @ 0940
				Øφ	25.0	Color change pale brown to light olive brown, well sorted fine sand, trace fines and medium sand	
				Øφ	27.5	well sorted fine sand, some silt, trace medium sand, light olive brown to olive yellow, moist, medium dense, No HC or staining	} Borehole obstruction or barrel refusal for sample description of approximate lithology
					27.5	Total drilled to ~27 feet, refusal (but no indication of weathered shale)	
					30.0	<u>Construction Details</u>	
					32.5	TD - 22.5 feet (3in couldn't reach 2in depth) Screen interval - 22.5ft Sand - 20 - Bentonite	
					35.0	<u>Step-Out Details (Auger Run)</u>	
					37.5	Drilled to 30 feet, reamed	
					37.5	Well TD @ 23.5 (collapse from 30-23)	- PITOC 26.85
					40.0	Screen interval 23.5-12.5 feet by S	
					40.0	Sand - 23-12.5 feet by S	
					40.0	Bentonite 12.5 - 0.5 feet	
					42.5		
					45.0		

SIGNED _____ DATE _____ CHECKED _____ DATE _____

APPENDIX B
WATER LEVEL GAUGING FORMS

APPENDIX C
GROUND WATER SAMPLING FORMS



WATER SAMPLE LOG

PROJECT NAME: FTC Brownfields -CCR PREPARED BY: UP DATE: 8/16/18 CHECKED BY: _____ DATE: _____

PROJECT NUMBER: 241300.0001

SAMPLE ID: MW-03 WELL DIAMETER: 2" 4" 6" OTHER 1"

WELL MATERIAL: PVC SS IRON GALVANIZED STEEL OTHER

SAMPLE TYPE: GW WW SW DI LEACHATE OTHER

PURGING TIME: 16:05 DATE: 8/16/18 SAMPLE TIME: 16:30 DATE: 8/16/18

PURGE METHOD: PUMP BAILER

DEPTH TO WATER: 25.48 T/ PVC PH: _____ SU CONDUCTIVITY: _____ umhos/cm

DEPTH TO BOTTOM: _____ T/ PVC ORP: _____ mV DO: _____ mg/L

WELL VOLUME: _____ LITERS GALLONS TURBIDITY: _____ NTU

VOLUME REMOVED: _____ LITERS GALLONS NONE SLIGHT MODERATE VERY

COLOR: _____ ODOR: None TEMPERATURE: _____ °C OTHER: _____

FILTRATE (0.45 um) YES NO

TURBIDITY NONE SLIGHT MODERATE VERY

FILTRATE COLOR: _____ FILTRATE ODOR: _____

DISPOSAL METHOD: GROUND DRUM OTHER

QC SAMPLE: MS/MSD DUP-

COMMENTS: _____

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
<u>16:05</u>	<u>—</u>	<u>8.13</u>	<u>1608</u>	<u>439.8</u>	<u>2.89</u>	<u>—</u>	<u>18.28</u>	<u>25.52</u>	INITIAL
<u>16:15</u>	<u>—</u>	<u>8.20</u>	<u>1368</u>	<u>507.6</u>	<u>3.01</u>	<u>—</u>	<u>13.94</u>	<u>25.72</u>	<u>—</u>
<u>16:25</u>	<u>—</u>	<u>8.83</u>	<u>1392</u>	<u>484.2</u>	<u>2.95</u>	<u>—</u>	<u>14.27</u>	<u>25.77</u>	<u>—</u>

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

pH: +/- 10% COND.: +/- 10% ORP: +/- 10% D.O.: +/- 10% TURB: +/- 10% or <= 5 TEMP.: +/- 0.5°C

BOTTLES FILLED		PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____							
NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED
<u>3</u>	<u>250</u>	<u>HDPE</u>	<u>A</u>	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N					
<u>7</u>	<u>40</u>	<u>Amber</u>	<u>E</u>	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N

SHIPPING METHOD: _____ DATE SHIPPED: _____ AIRBILL NUMBER: _____

DOC NUMBER: _____ SIGNATURE: _____ DATE SIGNED: _____

REVISED 06/2011



WATER SAMPLE LOG

PROJECT NAME: <u>FTC Brownfields-CCR</u>	PREPARED	CHECKED
PROJECT NUMBER: <u>241300.0001</u>	BY: <u>MP</u> DATE: <u>8/17/18</u>	BY: _____ DATE: _____

SAMPLE ID: <u>MW-04</u>	WELL DIAMETER: <input type="checkbox"/> 2" <input type="checkbox"/> 4" <input type="checkbox"/> 6" <input checked="" type="checkbox"/> OTHER <u>1"</u>
WELL MATERIAL: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> SS <input type="checkbox"/> IRON <input type="checkbox"/> GALVANIZED STEEL <input type="checkbox"/> OTHER	
SAMPLE TYPE: <input checked="" type="checkbox"/> GW <input type="checkbox"/> WW <input type="checkbox"/> SW <input type="checkbox"/> DI <input type="checkbox"/> LEACHATE <input type="checkbox"/> OTHER	

PURGING	TIME: <u>09:30</u>	DATE: <u>8/17/18</u>	SAMPLE	TIME: <u>09:55</u>	DATE: <u>8/17/18</u>
PURGE METHOD: <input type="checkbox"/> PUMP <input checked="" type="checkbox"/> BAILER			PH: _____ SU CONDUCTIVITY: _____ umhos/cm		
DEPTH TO WATER: <u>28.26</u> T/ PVC			ORP: _____ mV DO: _____ mg/L		
DEPTH TO BOTTOM: _____ T/ PVC			TURBIDITY: _____ NTU		
WELL VOLUME: _____ LITERS <input type="checkbox"/> GALLONS			<input type="checkbox"/> NONE <input type="checkbox"/> SLIGHT <input checked="" type="checkbox"/> MODERATE <input type="checkbox"/> VERY		
VOLUME REMOVED: _____ LITERS <input type="checkbox"/> GALLONS			TEMPERATURE: _____ °C OTHER: _____		
COLOR: _____ ODOR: <u>none</u>			COLOR: _____ ODOR: <u>none</u>		
TURBIDITY: <input type="checkbox"/> NONE <input checked="" type="checkbox"/> SLIGHT <input type="checkbox"/> MODERATE <input type="checkbox"/> VERY			FILTRATE (0.45 um) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
DISPOSAL METHOD: <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> DRUM <input type="checkbox"/> OTHER			FILTRATE COLOR: _____ FILTRATE ODOR: _____		
			QC SAMPLE: <input type="checkbox"/> MS/MSD <input type="checkbox"/> DUP-		
COMMENTS:					

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
<u>09:30</u>	<u>—</u>	<u>7.18</u>	<u>1542</u>	<u>-47.3</u>	<u>4.36</u>	<u>—</u>	<u>15.99</u>	<u>28.33</u>	INITIAL
<u>09:40</u>	<u>—</u>	<u>7.36</u>	<u>1150</u>	<u>29.7</u>	<u>4.02</u>	<u>—</u>	<u>14.94</u>	<u>28.42</u>	<u>—</u>
<u>09:50</u>	<u>—</u>	<u>7.63</u>	<u>1134</u>	<u>-20.8</u>	<u>3.40</u>	<u>—</u>	<u>14.19</u>	<u>28.47</u>	<u>—</u>

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:

PH: +/- 10% COND.: +/- 10% ORP: +/- 10% D.O.: +/- 10% TURB: +/- 10% or <= 5 TEMP.: +/- 0.5°C

BOTTLES FILLED		PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F - _____									
NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED	NUMBER	SIZE	TYPE	PRESERVATIVE	FILTERED		
<u>3</u>	<u>250</u>	<u>HDPE</u>	<u>A</u>	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N		
<u>7</u>	<u>40</u>	<u>Amber</u>	<u>E</u>	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N		
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N		
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N		
				<input type="checkbox"/> Y <input type="checkbox"/> N					<input type="checkbox"/> Y <input type="checkbox"/> N		

SHIPPING METHOD: _____	DATE SHIPPED: _____	AIRBILL NUMBER: _____
COC NUMBER: _____	SIGNATURE: _____	DATE SIGNED: _____

APPENDIX D
LABORATORY ANALYTICAL RESULTS

July 25, 2018

TRC Solutions - Suncor

Sample Delivery Group: L1007912
Samples Received: 07/10/2018
Project Number:
Description: FTC CCR

Report To: Jason Jayroe
131 E. Lincoln Ave
Suite 200
Fort Collins, CO 80524

Entire Report Reviewed By:



Jason Romer
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³Ss
SB-1-32 L1007912-01	5	
SB-2-16 L1007912-02	6	⁴Cn
SB-3-15 L1007912-03	7	⁵Sr
SB-4-20 L1007912-04	8	
Qc: Quality Control Summary	9	⁶Qc
Mercury by Method 7471A	9	
Metals (ICP) by Method 6010B	10	⁷Gl
Volatile Organic Compounds (GC) by Method 8015/8021	11	⁸Al
Semi-Volatile Organic Compounds (GC) by Method 8015	12	
Gl: Glossary of Terms	13	⁹Sc
Al: Accreditations & Locations	14	
Sc: Sample Chain of Custody	15	



SB-1-32 L1007912-01 Solid

Collected by Eric Emerson
 Collected date/time 07/05/18 13:20
 Received date/time 07/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1136077	1	07/10/18 20:16	07/11/18 10:55	JDG
Metals (ICP) by Method 6010B	WG1136387	1	07/11/18 18:25	07/12/18 20:21	JDG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1136204	1	07/10/18 16:37	07/11/18 19:40	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1136500	1	07/12/18 19:58	07/13/18 02:36	TNG

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

SB-2-16 L1007912-02 Solid

Collected by Eric Emerson
 Collected date/time 07/05/18 15:50
 Received date/time 07/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1136077	1	07/10/18 20:16	07/11/18 11:53	JDG
Metals (ICP) by Method 6010B	WG1136387	1	07/11/18 18:25	07/12/18 20:24	JDG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1136204	1	07/10/18 16:37	07/11/18 20:04	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1136500	1	07/12/18 19:58	07/13/18 03:08	TNG

SB-3-15 L1007912-03 Solid

Collected by Eric Emerson
 Collected date/time 07/05/18 09:30
 Received date/time 07/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1136077	1	07/10/18 20:16	07/11/18 11:55	JDG
Metals (ICP) by Method 6010B	WG1136387	1	07/11/18 18:25	07/12/18 20:27	JDG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1136204	1	07/10/18 16:37	07/11/18 20:27	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1136500	1	07/12/18 19:58	07/13/18 03:19	TNG

SB-4-20 L1007912-04 Solid

Collected by Eric Emerson
 Collected date/time 07/05/18 09:40
 Received date/time 07/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1136077	1	07/10/18 20:16	07/11/18 11:58	JDG
Metals (ICP) by Method 6010B	WG1136387	1	07/11/18 18:25	07/12/18 20:31	JDG
Volatile Organic Compounds (GC) by Method 8015/8021	WG1136204	1	07/10/18 16:37	07/11/18 20:51	GLN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1136500	1	07/12/18 19:58	07/13/18 03:30	TNG



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Jason Romer
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Mercury	17.0	J	2.80	20.0	1	07/11/2018 10:55	WG1136077

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Arsenic	1970	J	650	2000	1	07/12/2018 20:21	WG1136387
Barium	58800		170	500	1	07/12/2018 20:21	WG1136387
Cadmium	U		70.0	500	1	07/12/2018 20:21	WG1136387
Chromium	21200		140	1000	1	07/12/2018 20:21	WG1136387
Lead	5130		190	500	1	07/12/2018 20:21	WG1136387
Selenium	1540	J	740	2000	1	07/12/2018 20:21	WG1136387
Silver	283	J	280	1000	1	07/12/2018 20:21	WG1136387

3 Ss

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Benzene	0.778		0.120	0.500	1	07/11/2018 19:40	WG1136204
Toluene	0.796	B J	0.150	5.00	1	07/11/2018 19:40	WG1136204
Ethylbenzene	0.125	B J	0.110	0.500	1	07/11/2018 19:40	WG1136204
Total Xylene	U		0.460	1.50	1	07/11/2018 19:40	WG1136204
TPH (GC/FID) Low Fraction	36.0	J	21.7	100	1	07/11/2018 19:40	WG1136204
(S) a,a,a-Trifluorotoluene(FID)	100			77.0-120		07/11/2018 19:40	WG1136204
(S) a,a,a-Trifluorotoluene(PID)	99.1			75.0-128		07/11/2018 19:40	WG1136204

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
TPH (GC/FID) High Fraction	U		769	4000	1	07/13/2018 02:36	WG1136500
(S) o-Terphenyl	45.5			18.0-148		07/13/2018 02:36	WG1136500



Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Mercury	14.2	J	2.80	20.0	1	07/11/2018 11:53	WG1136077

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Arsenic	5100		650	2000	1	07/12/2018 20:24	WG1136387
Barium	47500		170	500	1	07/12/2018 20:24	WG1136387
Cadmium	U		70.0	500	1	07/12/2018 20:24	WG1136387
Chromium	12700		140	1000	1	07/12/2018 20:24	WG1136387
Lead	8040		190	500	1	07/12/2018 20:24	WG1136387
Selenium	U		740	2000	1	07/12/2018 20:24	WG1136387
Silver	U		280	1000	1	07/12/2018 20:24	WG1136387

3 Ss

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Benzene	1.52		0.120	0.500	1	07/11/2018 20:04	WG1136204
Toluene	2.14	B J	0.150	5.00	1	07/11/2018 20:04	WG1136204
Ethylbenzene	0.757	B	0.110	0.500	1	07/11/2018 20:04	WG1136204
Total Xylene	1.64		0.460	1.50	1	07/11/2018 20:04	WG1136204
TPH (GC/FID) Low Fraction	92.7	J	21.7	100	1	07/11/2018 20:04	WG1136204
(S) a,a,a-Trifluorotoluene(FID)	97.9			77.0-120		07/11/2018 20:04	WG1136204
(S) a,a,a-Trifluorotoluene(PID)	97.3			75.0-128		07/11/2018 20:04	WG1136204

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
TPH (GC/FID) High Fraction	U		769	4000	1	07/13/2018 03:08	WG1136500
(S) o-Terphenyl	43.0			18.0-148		07/13/2018 03:08	WG1136500



Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Mercury	11.1	J	2.80	20.0	1	07/11/2018 11:55	WG1136077

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	5730		650	2000	1	07/12/2018 20:27	WG1136387
Barium	98000		170	500	1	07/12/2018 20:27	WG1136387
Cadmium	133	J	70.0	500	1	07/12/2018 20:27	WG1136387
Chromium	14700		140	1000	1	07/12/2018 20:27	WG1136387
Lead	9080		190	500	1	07/12/2018 20:27	WG1136387
Selenium	U		740	2000	1	07/12/2018 20:27	WG1136387
Silver	U		280	1000	1	07/12/2018 20:27	WG1136387

3 Ss

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	1.35		0.120	0.500	1	07/11/2018 20:27	WG1136204
Toluene	3.03	J	0.150	5.00	1	07/11/2018 20:27	WG1136204
Ethylbenzene	1.02	B	0.110	0.500	1	07/11/2018 20:27	WG1136204
Total Xylene	3.28		0.460	1.50	1	07/11/2018 20:27	WG1136204
TPH (GC/FID) Low Fraction	104		21.7	100	1	07/11/2018 20:27	WG1136204
(S) a,a,a-Trifluorotoluene(FID)	98.2			77.0-120		07/11/2018 20:27	WG1136204
(S) a,a,a-Trifluorotoluene(PID)	97.8			75.0-128		07/11/2018 20:27	WG1136204

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	U		769	4000	1	07/13/2018 03:19	WG1136500
(S) o-Terphenyl	50.2			18.0-148		07/13/2018 03:19	WG1136500



Mercury by Method 7471A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Mercury	4.73	J	2.80	20.0	1	07/11/2018 11:58	WG1136077

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Arsenic	1460	J	650	2000	1	07/12/2018 20:31	WG1136387
Barium	104000		170	500	1	07/12/2018 20:31	WG1136387
Cadmium	U		70.0	500	1	07/12/2018 20:31	WG1136387
Chromium	8050		140	1000	1	07/12/2018 20:31	WG1136387
Lead	4210		190	500	1	07/12/2018 20:31	WG1136387
Selenium	U		740	2000	1	07/12/2018 20:31	WG1136387
Silver	U		280	1000	1	07/12/2018 20:31	WG1136387

3 Ss

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Benzene	0.186	J	0.120	0.500	1	07/11/2018 20:51	WG1136204
Toluene	0.201	B J	0.150	5.00	1	07/11/2018 20:51	WG1136204
Ethylbenzene	U		0.110	0.500	1	07/11/2018 20:51	WG1136204
Total Xylene	U		0.460	1.50	1	07/11/2018 20:51	WG1136204
TPH (GC/FID) Low Fraction	24.1	J	21.7	100	1	07/11/2018 20:51	WG1136204
(S) a,a,a-Trifluorotoluene(FID)	99.5			77.0-120		07/11/2018 20:51	WG1136204
(S) a,a,a-Trifluorotoluene(PID)	98.5			75.0-128		07/11/2018 20:51	WG1136204

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
TPH (GC/FID) High Fraction	U		769	4000	1	07/13/2018 03:30	WG1136500
(S) o-Terphenyl	41.6			18.0-148		07/13/2018 03:30	WG1136500



Method Blank (MB)

(MB) R3324729-1 07/11/18 10:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		2.80	20.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

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

(LCS) R3324729-2 07/11/18 10:50 • (LCSD) R3324729-3 07/11/18 10:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Mercury	300	269	269	89.7	89.5	80.0-120			0.200	20

L1007912-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1007912-01 07/11/18 10:55 • (MS) R3324729-4 07/11/18 10:58 • (MSD) R3324729-5 07/11/18 11:08

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	300	17.0	277	266	86.7	83.0	1	75.0-125			4.01	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3325239-1 07/12/18 19:28

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/kg		ug/kg	ug/kg
Arsenic	U		650	2000
Barium	U		170	500
Cadmium	U		70.0	500
Chromium	U		140	1000
Lead	217	<u>J</u>	190	500
Selenium	U		740	2000
Silver	U		280	1000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

(LCS) R3325239-2 07/12/18 19:31 • (LCSD) R3325239-3 07/12/18 19:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	ug/kg	%	%	%			%	%
Arsenic	100000	94700	95900	94.7	95.9	80.0-120			1.19	20
Barium	100000	103000	104000	103	104	80.0-120			0.883	20
Cadmium	100000	97700	98700	97.7	98.7	80.0-120			1.03	20
Chromium	100000	99800	100000	99.8	100	80.0-120			0.394	20
Lead	100000	98000	99000	98.0	99.0	80.0-120			0.997	20
Selenium	100000	93700	95400	93.7	95.4	80.0-120			1.77	20
Silver	20000	19000	19000	95.0	95.2	80.0-120			0.219	20

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1007892-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1007892-01 07/12/18 19:37 • (MS) R3325239-6 07/12/18 19:47 • (MSD) R3325239-7 07/12/18 19:51

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
	ug/kg	ug/kg	ug/kg	ug/kg	%	%		%			%	%
Arsenic	146000	55400	169000	156000	77.6	69.1	1	75.0-125		<u>J6</u>	7.65	20
Barium	146000	147000	290000	263000	98.3	79.6	1	75.0-125			9.83	20
Cadmium	146000	421	146000	143000	100	97.6	1	75.0-125			2.43	20
Chromium	146000	24300	161000	155000	94.1	89.4	1	75.0-125			4.32	20
Lead	146000	16800	161000	153000	98.6	93.4	1	75.0-125			4.90	20
Selenium	146000	U	138000	134000	94.9	91.9	1	75.0-125			3.21	20
Silver	29200	U	28800	28100	98.8	96.4	1	75.0-125			2.48	20



Method Blank (MB)

(MB) R3325027-5 07/11/18 15:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/kg		ug/kg	ug/kg
Benzene	U		0.120	0.500
Toluene	0.253	↓	0.150	5.00
Ethylbenzene	0.111	↓	0.110	0.500
Total Xylene	U		0.460	1.50
TPH (GC/FID) Low Fraction	U		21.7	100
^(S) a,a,a-Trifluorotoluene(FID)	101			77.0-120
^(S) a,a,a-Trifluorotoluene(PID)	100			75.0-128

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) R3325027-1 07/11/18 13:22 • (LCSD) R3325027-2 07/11/18 13:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	ug/kg	%	%	%			%	%
Benzene	50.0	54.0	54.2	108	108	71.0-121			0.477	20
Toluene	50.0	51.9	51.5	104	103	72.0-120			0.898	20
Ethylbenzene	50.0	53.4	53.3	107	107	76.0-121			0.137	20
Total Xylene	150	168	166	112	111	75.0-124			0.779	20
^(S) a,a,a-Trifluorotoluene(FID)				100	101	77.0-120				
^(S) a,a,a-Trifluorotoluene(PID)				99.8	99.4	75.0-128				

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

(LCS) R3325027-3 07/11/18 14:10 • (LCSD) R3325027-4 07/11/18 14:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/kg	ug/kg	ug/kg	%	%	%			%	%
TPH (GC/FID) Low Fraction	5500	6090	6060	111	110	70.0-136			0.628	20
^(S) a,a,a-Trifluorotoluene(FID)				107	107	77.0-120				
^(S) a,a,a-Trifluorotoluene(PID)				109	110	75.0-128				



Method Blank (MB)

(MB) R3325293-1 07/13/18 01:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPH (GC/FID) High Fraction	U		769	4000
<i>(S) o-Terphenyl</i>	65.3			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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325293-2 07/13/18 01:42 • (LCSD) R3325293-3 07/13/18 01:53

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPH (GC/FID) High Fraction	50000	35700	36900	71.3	73.8	50.0-150			3.43	20
<i>(S) o-Terphenyl</i>				89.8	92.0	18.0-148				

L1007912-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1007912-01 07/13/18 02:36 • (MS) R3325293-4 07/13/18 02:47 • (MSD) R3325293-5 07/13/18 02:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
TPH (GC/FID) High Fraction	50000	U	34800	34100	69.6	68.2	1	50.0-150			1.94	20
<i>(S) o-Terphenyl</i>					84.7	83.6		18.0-148				



Guide to Reading and Understanding Your Laboratory Report

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

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.
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.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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 ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

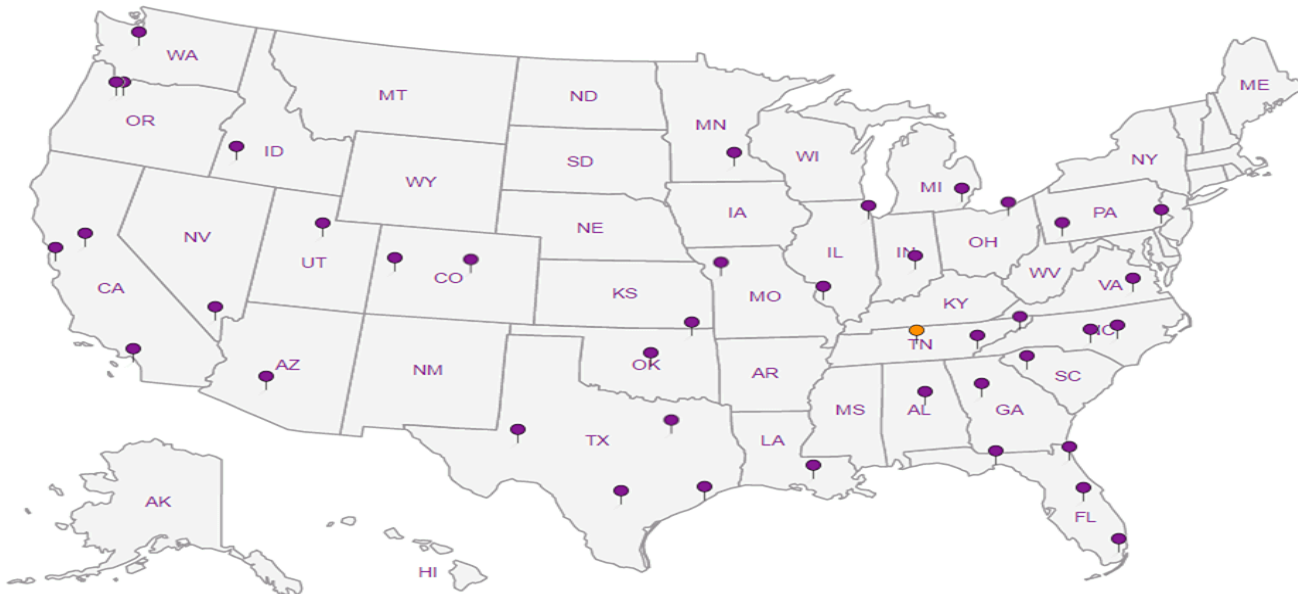
Third Party Federal Accreditations

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

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

Our Locations

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



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

TRC Solutions
Fort Collins

Billing Information:

Analysis / Container / Preservative

Chain of Custody Page of



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



Report to:
Jason Jayroe

Email To:
jjayroe@trcsolutions.com

Project Description:
FTC CCR

City/State Collected:
Fort Collins, CO

Phone: **9704205666**
Fax:

Client Project #

Lab Project #

Collected by (print):
Eric Emerson

Site/Facility ID #

P.O. #

Collected by (signature):
[Signature]

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

Immediately Packed on Ice N Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	TPH GRO	TPH DRO	RCRA 8 Metals
SB-1-32	Grab	SS	32	07/05/2018	1320	4	X	X	X	X
SB-2-16	Grab	SS	16	07/05/2018	1550	4	X	X	X	X
SB-3-15	Grab	SS	15	07/05/2018	0800	4	X	X	X	X
SB-4-MS/MSD	Grab	SS	20	07/05/2018	0930	8	X	X	X	X
SB-4-20	Grab	SS	20	07/05/2018	0940	4	X	X	X	X

L# **L1067912**

C129

Template:
Prelogin:
TSR:
PB:
Shipped Via:

Remarks	Sample # (lab only)
	-01
	02
	03
Hold this	04

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

Remarks:

ESCDEN

Samples returned via:
 UPS FedEx Courier

Tracking # **48616933 5960**

pH Temp
Flow Other

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

Relinquished by: (Signature)
[Signature]
Date: **07/09/18**
Time: **16:00**

Date: **07/09/18**
Time: **16:47**

Received by: (Signature)
[Signature]
Received by: (Signature)
[Signature]
Received for lab by: (Signature)
[Signature]

Trip Blank Received: Yes No
HCL/MeOH
TBR
Temp: **24.73** °C
Bottles Received: **24/402**

If preservation required by Login: Date/Time

Hold: **7-029**

Condition: **NCF / OK**

August 27, 2018

TRC Solutions - Suncor

Sample Delivery Group: L1018955
Samples Received: 08/18/2018
Project Number: 241300.0001
Description: FTC CCR

Report To: Jason Jayroe
131 E. Lincoln Ave
Suite 200
Fort Collins, CO 80524

Entire Report Reviewed By:



Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	1 Cp
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MW-03 L1018955-02	6	4 Cn
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MW-04 L1018955-04	8	
Qc: Quality Control Summary	9	6 Qc
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SAMPLE SUMMARY



MW-02 L1018955-01 GW

Collected by
Natalie Pabon
Collected date/time
08/16/18 13:15
Received date/time
08/18/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1156979	1	08/24/18 14:35	08/24/18 14:35	GB
Wet Chemistry by Method 9056A	WG1154105	10	08/21/18 07:39	08/21/18 07:39	ELN
Wet Chemistry by Method 9056A	WG1154214	1	08/18/18 12:02	08/18/18 12:02	MAJ
Metals (ICP) by Method 6010B	WG1155529	1	08/22/18 13:45	08/22/18 21:54	ST
Volatile Organic Compounds (GC) by Method 8015/8021	WG1154427	1	08/19/18 13:41	08/19/18 13:41	LRL
Volatile Organic Compounds (GC) by Method RSK175	WG1154860	1	08/21/18 14:31	08/21/18 14:31	MEL
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1155345	1	08/23/18 00:41	08/23/18 12:06	TH

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

MW-03 L1018955-02 GW

Collected by
Natalie Pabon
Collected date/time
08/16/18 16:30
Received date/time
08/18/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1156979	1	08/24/18 14:49	08/24/18 14:49	GB
Wet Chemistry by Method 9056A	WG1154214	1	08/18/18 13:00	08/18/18 13:00	MAJ
Wet Chemistry by Method 9056A	WG1155155	10	08/22/18 00:57	08/22/18 00:57	ELN
Metals (ICP) by Method 6010B	WG1155529	1	08/22/18 13:45	08/22/18 21:56	ST
Volatile Organic Compounds (GC) by Method 8015/8021	WG1154427	1	08/19/18 14:03	08/19/18 14:03	LRL
Volatile Organic Compounds (GC) by Method RSK175	WG1154860	1	08/21/18 14:51	08/21/18 14:51	MEL
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1155345	1	08/23/18 00:41	08/23/18 12:24	TH

6
Qc

7
Gl

8
Al

9
Sc

MW-01 L1018955-03 GW

Collected by
Natalie Pabon
Collected date/time
08/16/18 17:30
Received date/time
08/18/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1156979	1	08/24/18 14:57	08/24/18 14:57	GB
Wet Chemistry by Method 9056A	WG1154214	1	08/18/18 13:30	08/18/18 13:30	MAJ
Wet Chemistry by Method 9056A	WG1155155	10	08/22/18 01:12	08/22/18 01:12	ELN
Metals (ICP) by Method 6010B	WG1155529	1	08/22/18 13:45	08/22/18 21:59	ST
Volatile Organic Compounds (GC) by Method 8015/8021	WG1154427	1	08/19/18 14:26	08/19/18 14:26	LRL
Volatile Organic Compounds (GC) by Method RSK175	WG1154860	1	08/21/18 14:59	08/21/18 14:59	MEL
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1155345	1	08/23/18 00:41	08/23/18 12:42	TH

MW-04 L1018955-04 GW

Collected by
Natalie Pabon
Collected date/time
08/17/18 09:55
Received date/time
08/18/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1156979	1	08/24/18 15:04	08/24/18 15:04	GB
Wet Chemistry by Method 9056A	WG1154214	1	08/18/18 14:16	08/18/18 14:16	MAJ
Wet Chemistry by Method 9056A	WG1155155	5	08/22/18 01:28	08/22/18 01:28	ELN
Metals (ICP) by Method 6010B	WG1155529	1	08/22/18 13:45	08/22/18 22:01	ST
Volatile Organic Compounds (GC) by Method 8015/8021	WG1154427	1	08/19/18 14:48	08/19/18 14:48	LRL
Volatile Organic Compounds (GC) by Method RSK175	WG1154860	1	08/21/18 15:03	08/21/18 15:03	MEL
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG1155345	1	08/23/18 00:41	08/23/18 12:59	TH



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

Chris Ward
Project Manager

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



Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	440000		2710	20000	1	08/24/2018 14:35	WG1156979

Sample Narrative:

L1018955-01 WG1156979: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Bromide	U		79.0	1000	1	08/18/2018 12:02	WG1154214
Chloride	27500		51.9	1000	1	08/18/2018 12:02	WG1154214
Nitrate as (N)	305		22.7	100	1	08/18/2018 12:02	WG1154214
Nitrite as (N)	470		27.7	100	1	08/18/2018 12:02	WG1154214
Sulfate	956000		774	50000	10	08/21/2018 07:39	WG1154105

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium,Dissolved	181000		46.3	1000	1	08/22/2018 21:54	WG1155529
Iron,Dissolved	U		14.1	100	1	08/22/2018 21:54	WG1155529
Magnesium,Dissolved	105000		11.1	1000	1	08/22/2018 21:54	WG1155529
Potassium,Dissolved	8570		102	1000	1	08/22/2018 21:54	WG1155529
Sodium,Dissolved	271000		98.5	1000	1	08/22/2018 21:54	WG1155529

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.190	0.500	1	08/19/2018 13:41	WG1154427
Toluene	U		0.412	1.00	1	08/19/2018 13:41	WG1154427
Ethylbenzene	U		0.160	0.500	1	08/19/2018 13:41	WG1154427
Total Xylene	U		0.510	1.50	1	08/19/2018 13:41	WG1154427
TPH (GC/FID) Low Fraction	340		31.4	100	1	08/19/2018 13:41	WG1154427
(S) a,a,a-Trifluorotoluene(FID)	98.5			77.0-122		08/19/2018 13:41	WG1154427
(S) a,a,a-Trifluorotoluene(PID)	99.3			80.0-121		08/19/2018 13:41	WG1154427

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Methane	8.55	J	2.91	10.0	1	08/21/2018 14:31	WG1154860
Ethane	U		4.07	13.0	1	08/21/2018 14:31	WG1154860
Ethene	U		4.26	13.0	1	08/21/2018 14:31	WG1154860

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	137		24.7	100	1	08/23/2018 12:06	WG1155345
(S) o-Terphenyl	83.2			31.0-160		08/23/2018 12:06	WG1155345

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



Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	448000		2710	20000	1	08/24/2018 14:49	WG1156979

Sample Narrative:

L1018955-02 WG1156979: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Bromide	U		79.0	1000	1	08/18/2018 13:00	WG1154214
Chloride	31300		51.9	1000	1	08/18/2018 13:00	WG1154214
Nitrate as (N)	892		22.7	100	1	08/18/2018 13:00	WG1154214
Nitrite as (N)	U		27.7	100	1	08/18/2018 13:00	WG1154214
Sulfate	736000		774	50000	10	08/22/2018 00:57	WG1155155

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium,Dissolved	202000		46.3	1000	1	08/22/2018 21:56	WG1155529
Iron,Dissolved	U		14.1	100	1	08/22/2018 21:56	WG1155529
Magnesium,Dissolved	93000		11.1	1000	1	08/22/2018 21:56	WG1155529
Potassium,Dissolved	3290		102	1000	1	08/22/2018 21:56	WG1155529
Sodium,Dissolved	181000		98.5	1000	1	08/22/2018 21:56	WG1155529

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.190	0.500	1	08/19/2018 14:03	WG1154427
Toluene	U		0.412	1.00	1	08/19/2018 14:03	WG1154427
Ethylbenzene	U		0.160	0.500	1	08/19/2018 14:03	WG1154427
Total Xylene	U		0.510	1.50	1	08/19/2018 14:03	WG1154427
TPH (GC/FID) Low Fraction	U		31.4	100	1	08/19/2018 14:03	WG1154427
(S) a,a,a-Trifluorotoluene(FID)	98.4			77.0-122		08/19/2018 14:03	WG1154427
(S) a,a,a-Trifluorotoluene(PID)	99.3			80.0-121		08/19/2018 14:03	WG1154427

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Methane	U		2.91	10.0	1	08/21/2018 14:51	WG1154860
Ethane	U		4.07	13.0	1	08/21/2018 14:51	WG1154860
Ethene	U		4.26	13.0	1	08/21/2018 14:51	WG1154860

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	61.5	J	24.7	100	1	08/23/2018 12:24	WG1155345
(S) o-Terphenyl	70.5			31.0-160		08/23/2018 12:24	WG1155345

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



Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	412000		2710	20000	1	08/24/2018 14:57	WG1156979

Sample Narrative:

L1018955-03 WG1156979: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Bromide	129	<u>B J</u>	79.0	1000	1	08/18/2018 13:30	WG1154214
Chloride	29500		51.9	1000	1	08/18/2018 13:30	WG1154214
Nitrate as (N)	420		22.7	100	1	08/18/2018 13:30	WG1154214
Nitrite as (N)	311		27.7	100	1	08/18/2018 13:30	WG1154214
Sulfate	510000		774	50000	10	08/22/2018 01:12	WG1155155

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium,Dissolved	139000		46.3	1000	1	08/22/2018 21:59	WG1155529
Iron,Dissolved	U		14.1	100	1	08/22/2018 21:59	WG1155529
Magnesium,Dissolved	69300		11.1	1000	1	08/22/2018 21:59	WG1155529
Potassium,Dissolved	7400		102	1000	1	08/22/2018 21:59	WG1155529
Sodium,Dissolved	168000		98.5	1000	1	08/22/2018 21:59	WG1155529

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.190	0.500	1	08/19/2018 14:26	WG1154427
Toluene	U		0.412	1.00	1	08/19/2018 14:26	WG1154427
Ethylbenzene	U		0.160	0.500	1	08/19/2018 14:26	WG1154427
Total Xylene	U		0.510	1.50	1	08/19/2018 14:26	WG1154427
TPH (GC/FID) Low Fraction	858		31.4	100	1	08/19/2018 14:26	WG1154427
(S) a,a,a-Trifluorotoluene(FID)	98.3			77.0-122		08/19/2018 14:26	WG1154427
(S) a,a,a-Trifluorotoluene(PID)	98.1			80.0-121		08/19/2018 14:26	WG1154427

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Methane	13.2		2.91	10.0	1	08/21/2018 14:59	WG1154860
Ethane	U		4.07	13.0	1	08/21/2018 14:59	WG1154860
Ethene	U		4.26	13.0	1	08/21/2018 14:59	WG1154860

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	U		24.7	100	1	08/23/2018 12:42	WG1155345
(S) o-Terphenyl	69.5			31.0-160		08/23/2018 12:42	WG1155345

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



Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	442000		2710	20000	1	08/24/2018 15:04	WG1156979

Sample Narrative:

L1018955-04 WG1156979: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Bromide	U	<u>J6</u>	79.0	1000	1	08/18/2018 14:16	WG1154214
Chloride	22400		51.9	1000	1	08/18/2018 14:16	WG1154214
Nitrate as (N)	191	<u>B</u>	22.7	100	1	08/18/2018 14:16	WG1154214
Nitrite as (N)	150		27.7	100	1	08/18/2018 14:16	WG1154214
Sulfate	394000		387	25000	5	08/22/2018 01:28	WG1155155

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Calcium,Dissolved	140000		46.3	1000	1	08/22/2018 22:01	WG1155529
Iron,Dissolved	U		14.1	100	1	08/22/2018 22:01	WG1155529
Magnesium,Dissolved	71900		11.1	1000	1	08/22/2018 22:01	WG1155529
Potassium,Dissolved	3840		102	1000	1	08/22/2018 22:01	WG1155529
Sodium,Dissolved	126000		98.5	1000	1	08/22/2018 22:01	WG1155529

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.190	0.500	1	08/19/2018 14:48	WG1154427
Toluene	U		0.412	1.00	1	08/19/2018 14:48	WG1154427
Ethylbenzene	U		0.160	0.500	1	08/19/2018 14:48	WG1154427
Total Xylene	U		0.510	1.50	1	08/19/2018 14:48	WG1154427
TPH (GC/FID) Low Fraction	U		31.4	100	1	08/19/2018 14:48	WG1154427
(S) a,a,a-Trifluorotoluene(FID)	98.9			77.0-122		08/19/2018 14:48	WG1154427
(S) a,a,a-Trifluorotoluene(PID)	99.4			80.0-121		08/19/2018 14:48	WG1154427

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Methane	11.3		2.91	10.0	1	08/21/2018 15:03	WG1154860
Ethane	U		4.07	13.0	1	08/21/2018 15:03	WG1154860
Ethene	U		4.26	13.0	1	08/21/2018 15:03	WG1154860

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	62.4	<u>J</u>	24.7	100	1	08/23/2018 12:59	WG1155345
(S) o-Terphenyl	57.4			31.0-160		08/23/2018 12:59	WG1155345

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



Method Blank (MB)

(MB) R3336578-1 08/24/18 13:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Alkalinity	3240	↓	2710	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1018955-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018955-01 08/24/18 14:35 • (DUP) R3336578-3 08/24/18 14:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	440000	437000	1	0.720		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1019519-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1019519-04 08/24/18 17:29 • (DUP) R3336578-7 08/24/18 17:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	51800	51600	1	0.377		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

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

(LCS) R3336578-4 08/24/18 15:39 • (LCSD) R3336578-6 08/24/18 17:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Alkalinity	100000	98400	95000	98.4	95.0	85.0-115			3.55	20

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3335298-1 08/20/18 23:07

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1018541-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018541-01 08/21/18 00:58 • (DUP) R3335298-4 08/21/18 01:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	5080	5160	1	1.61		15

L1018908-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018908-01 08/21/18 05:34 • (DUP) R3335298-7 08/21/18 05:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	97900	97800	1	0.116		15

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

(LCS) R3335298-2 08/20/18 23:20 • (LCSD) R3335298-3 08/20/18 23:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40000	39000	38900	97.5	97.3	80.0-120			0.260	15

L1018541-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1018541-01 08/21/18 00:58 • (MS) R3335298-5 08/21/18 01:53 • (MSD) R3335298-6 08/21/18 02:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	5080	55100	55300	100	100	1	80.0-120			0.351	15

L1018908-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1018908-01 08/21/18 05:34 • (MS) R3335298-8 08/21/18 06:02

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	97900	143000	89.7	1	80.0-120	E



Method Blank (MB)

(MB) R3335108-1 08/18/18 09:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Bromide	131	↓	79.0	1000
Chloride	86.4	↓	51.9	1000
Nitrate	25.1	↓	22.7	100
Nitrite	U		27.7	100

¹ Cp

² Tc

³ Ss

⁴ Cn

L1018960-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1018960-02 08/18/18 15:19 • (DUP) R3335108-6 08/18/18 15:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Bromide	U	0.000	1	0.000		15
Chloride	21400	21000	1	1.90		15
Nitrate	71.0	70.5	1	0.707	↓	15
Nitrite	U	0.000	1	0.000		15

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

L1018976-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018976-01 08/18/18 19:26 • (DUP) R3335108-8 08/18/18 19:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Bromide	ND	244	1	0.000		15
Nitrate	4650	4610	1	0.674		15
Nitrite	ND	0.000	1	0.000		15

⁹ Sc

L1018976-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018976-01 08/18/18 20:27 • (DUP) R3335108-9 08/18/18 20:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	301000	299000	5	0.711		15



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

(LCS) R3335108-2 08/18/18 09:35 • (LCSD) R3335108-3 08/18/18 09:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Bromide	40000	39100	39000	97.8	97.5	80.0-120			0.359	15
Chloride	40000	38500	38500	96.3	96.2	80.0-120			0.104	15
Nitrate	8000	7930	7910	99.2	98.8	80.0-120			0.350	15
Nitrite	8000	7690	7700	96.2	96.3	80.0-120			0.112	15

1 Cp

2 Tc

3 Ss

4 Cn

L1018955-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1018955-04 08/18/18 14:16 • (MS) R3335108-4 08/18/18 14:32 • (MSD) R3335108-5 08/18/18 14:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Bromide	50000	U	28000	27900	55.9	55.8	1	80.0-120	J6	J6	0.194	15
Chloride	50000	22400	70300	70200	95.8	95.6	1	80.0-120			0.136	15
Nitrate	5000	191	4350	4330	83.1	82.7	1	80.0-120			0.404	15
Nitrite	5000	150	5080	5090	98.7	98.7	1	80.0-120			0.0846	15

5 Sr

6 Qc

7 Gl

8 Al

L1018960-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1018960-07 08/18/18 17:38 • (MS) R3335108-7 08/18/18 17:53

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Bromide	50000	U	45000	90.1	1	80.0-120	
Chloride	50000	13800	62800	97.9	1	80.0-120	
Nitrate	5000	U	4620	92.3	1	80.0-120	
Nitrite	5000	U	4950	98.9	1	80.0-120	

9 Sc



Method Blank (MB)

(MB) R3335825-1 08/21/18 23:55

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		77.4	5000

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) R3335825-2 08/22/18 00:11 • (LCSD) R3335825-3 08/22/18 00:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Sulfate	40000	37700	37800	94.3	94.4	80.0-120			0.169	15



Method Blank (MB)

(MB) R3335903-1 08/22/18 21:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Calcium,Dissolved	U		46.3	1000
Iron,Dissolved	U		14.1	100
Magnesium,Dissolved	54.4	↓	11.1	1000
Potassium,Dissolved	117	↓	102	1000
Sodium,Dissolved	316	↓	98.5	1000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

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

(LCS) R3335903-2 08/22/18 21:15 • (LCSD) R3335903-3 08/22/18 21:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Calcium,Dissolved	10000	9840	9920	98.4	99.2	80.0-120			0.805	20
Iron,Dissolved	10000	9830	9910	98.3	99.1	80.0-120			0.831	20
Magnesium,Dissolved	10000	10000	10100	100	101	80.0-120			0.524	20
Potassium,Dissolved	10000	9720	9850	97.2	98.5	80.0-120			1.27	20
Sodium,Dissolved	10000	10200	10200	102	102	80.0-120			0.713	20

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1018796-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1018796-03 08/22/18 21:20 • (MS) R3335903-5 08/22/18 21:25 • (MSD) R3335903-6 08/22/18 21:27

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Calcium,Dissolved	10000	72400	82300	82400	99.4	100	1	75.0-125			0.0782	20
Iron,Dissolved	10000	5290	15200	15100	99.0	98.6	1	75.0-125			0.253	20
Magnesium,Dissolved	10000	29500	39000	39100	94.6	95.5	1	75.0-125			0.242	20
Potassium,Dissolved	10000	9630	19300	19200	97.0	96.0	1	75.0-125			0.552	20
Sodium,Dissolved	10000	51000	60100	59900	91.0	89.4	1	75.0-125			0.269	20



Method Blank (MB)

(MB) R3335316-5 08/19/18 06:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.190	0.500
Toluene	U		0.412	1.00
Ethylbenzene	U		0.160	0.500
Total Xylene	U		0.510	1.50
TPH (GC/FID) Low Fraction	U		31.4	100
(S) a,a,a-Trifluorotoluene(FID)	99.6			77.0-122
(S) a,a,a-Trifluorotoluene(PID)	99.8			80.0-121

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

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

(LCS) R3335316-1 08/19/18 04:15 • (LCSD) R3335316-2 08/19/18 04:37

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	50.0	52.9	51.5	106	103	71.0-121			2.65	20
Toluene	50.0	54.0	52.7	108	105	72.0-120			2.52	20
Ethylbenzene	50.0	54.3	52.8	109	106	75.0-122			2.69	20
Total Xylene	150	164	159	109	106	74.0-124			3.04	20
(S) a,a,a-Trifluorotoluene(FID)				99.4	99.4	77.0-122				
(S) a,a,a-Trifluorotoluene(PID)				98.4	99.4	80.0-121				

7 Gl

8 Al

9 Sc

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

(LCS) R3335316-3 08/19/18 05:00 • (LCSD) R3335316-4 08/19/18 05:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
TPH (GC/FID) Low Fraction	5500	6210	5940	113	108	71.0-136			4.55	20
(S) a,a,a-Trifluorotoluene(FID)				105	104	77.0-122				
(S) a,a,a-Trifluorotoluene(PID)				109	109	80.0-121				



L1018743-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1018743-01 08/19/18 06:51 • (MS) R3335316-6 08/19/18 15:33 • (MSD) R3335316-7 08/19/18 16:19

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	50.0	ND	47.8	47.6	95.5	95.3	1	29.0-146			0.299	20
Toluene	50.0	ND	47.9	47.5	95.8	95.0	1	35.0-140			0.856	20
Ethylbenzene	50.0	ND	46.9	47.1	93.9	94.2	1	39.0-143			0.303	20
Total Xylene	150	ND	143	143	95.3	95.1	1	42.0-142			0.140	20
(S) a,a,a-Trifluorotoluene(FID)					99.1	99.2		77.0-122				
(S) a,a,a-Trifluorotoluene(PID)					98.7	98.8		80.0-121				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

L1018743-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1018743-01 08/19/18 06:51 • (MS) R3335316-8 08/19/18 16:42 • (MSD) R3335316-9 08/19/18 17:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5500	ND	5600	5940	102	108	1	18.0-160			5.83	20
(S) a,a,a-Trifluorotoluene(FID)					101	102		77.0-122				
(S) a,a,a-Trifluorotoluene(PID)					107	108		80.0-121				

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3335409-1 08/21/18 13:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Methane	U		2.91	10.0
Ethane	U		4.07	13.0
Ethene	U		4.26	13.0

L1018940-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1018940-01 08/21/18 14:29 • (DUP) R3335409-2 08/21/18 14:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Methane	ND	0.000	1	0.000		20
Ethane	ND	0.000	1	0.000		20
Ethene	ND	0.000	1	0.000		20

L1018960-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1018960-08 08/21/18 16:06 • (DUP) R3335409-3 08/21/18 16:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Methane	1370	1330	1	3.40		20
Ethane	U	0.000	1	0.000		20
Ethene	U	0.000	1	0.000		20

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

(LCS) R3335409-4 08/21/18 16:15 • (LCSD) R3335409-5 08/21/18 16:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Methane	67.8	77.7	70.5	115	104	85.0-115			9.64	20
Ethane	129	118	115	91.2	89.0	85.0-115			2.44	20
Ethene	127	117	113	92.0	88.9	85.0-115			3.39	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3336372-1 08/23/18 11:13

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPH (GC/FID) High Fraction	U		24.7	100
<i>(S) o-Terphenyl</i>	89.0			31.0-160

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

(LCS) R3336372-2 08/23/18 11:31 • (LCSD) R3336372-4 08/23/18 11:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPH (GC/FID) High Fraction	1500	1320	1260	88.0	84.0	50.0-150			4.65	20
<i>(S) o-Terphenyl</i>				106	99.0	31.0-160				

1 Cp

2 Tc

3 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.

Abbreviations and Definitions

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

Qualifier Description

B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

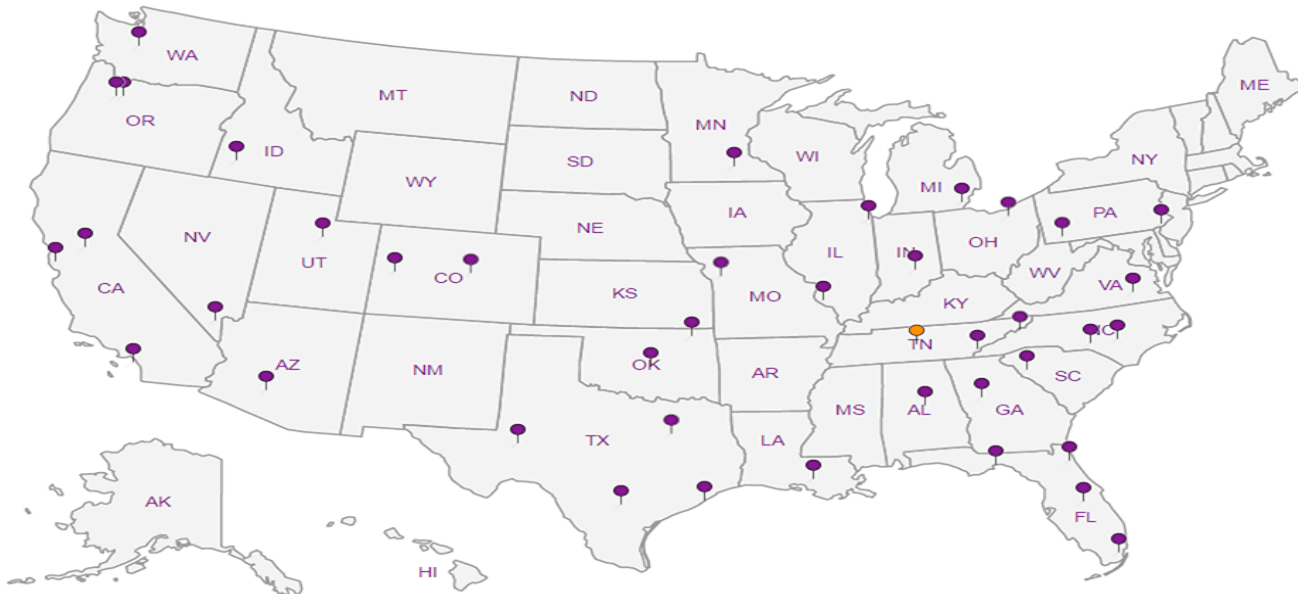
Third Party Federal Accreditations

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

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

Our Locations

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



Company Name/Address: TRC Solutions 131 E. Lincoln Ave Suite 200 Fort Collins, CO 80524		Billing Information: Jason Jayroe TRC Solutions 131 E. Lincoln Ave Suite 200 Fort Collins, CO 80524		Analysis / Container / Preservative				Chain of Custody Page ___ of ___	
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YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to: Jason Jayroe	Email To: jjayroe@trcsolutions.com
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Project Description: FTC Brownfields - CCR	City/State Collected: Ft. Collins, CO
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Phone: 303-395-4038	Client Project # 241300.0001	Lab Project #
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Collected by (print): Natalie Pabon	Site/Facility ID #	P.O. #
--	--------------------	--------

Collected by (signature): Natalie Pabon	Rush? (Lab MUST Be Notified) Same Day200% Next Day100% Two Day50% Three Day25%	Date Results Needed
Immediately Packed on Ice N ___ Y <u>X</u>	Email? ___ No <input checked="" type="checkbox"/> Yes	No. of Cntrs
	FAX? ___ No ___ Yes	

L# 1018955
G077

Acctnum: SUNTRCFCCO
Template:
Prelogin:
TSR:
Cooler:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	BTEX (GRO) (3) 40ml Amber w/HCI	TPH-DRO (2) 40ml Amber w/HCI	RSK-175 (2) 40ml Amber w/HCI	Diss. Metals* - 250ml HDPE w/NO3-No Pres	N02N03, - 250ml HDPE No Pres	ALK,Br,Cl, S04 - 250ml HDPE No Pres
MW-02	Grab	GW	27'	8/16/18	13:15	10	X	X	X	X	X	X
MW-03	Grab	GW	27'	8/16/18	16:30	10	X	X	X	X	X	X
MW-01	Grab	GW	40'	8/16/18	17:30	10	X	X	X	X	X	X
MW-04	Grab	GW	30'	8/17/18	09:55	10	X	X	X	X	X	X
		GW										
		GW										
		GW										
		GW										
		GW										
		GW										

Shipped Via:
Rem./Contaminant Sample # (lab only)

01
02
03
04

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other # 4361 6930 3358 pH _____ Temp _____
Remarks: Dissolved Metals to be lab filtered prior to analysis. Flaw _____ Other _____

Relinquished by (Signature): Natalie Pabon	Date: 8/17/18	Time: 12:30	Received by (Signature): [Signature]	Samples returned via: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> Other	Condition: (lab use only) L-5 MUPP
Relinquished by (Signature): [Signature]	Date: 8/17/18	Time: 1730	Received by (Signature): [Signature]	Temp: 3.6°C Bottles Received: 40	COC Seal Intact: Y N / NA
Relinquished by (Signature): [Signature]	Date: _____	Time: _____	Received for lab by (Signature): [Signature]	Date: 8/18/18 Time: 0845	pH Checked: NCF: YLS

**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <u>SUNTRCFCD</u>	SDG# <u>1078955</u>		
Cooler Received/Opened On: <u>8/18/18</u>	Temperature: <u>3.4</u>		
Received By: <u>Keteishia Cameron</u>			
Signature: <u>[Signature]</u>			
Receipt Check List			
	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?		/	
Preservation Correct / Checked?			

Andy Vann



Login #:1018955	Client:SUNTRCFCCO	Date:08/18/18	Evaluated by:Matthew Lockhart
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Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding time	Login Clarification Needed	
Improper temperature	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
Improper preservation	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Couri
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
		Carrier:
		Tracking#

Login Comments: Client does not specify what dissolved metals to run.

Client informed by:	Call	x	Email	Voice Mail	Date: 8/20/18	Time: 1122
TSR Initials: CMW	Client Contact: Jason Jayroe					

Login Instructions:

Please log for CADICP, MGDICP, NADICP, FEDICP, and KDICP