



July 30, 2020

Mr. Chris Canfield  
Department of Natural Resources  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203-2136

**RE: 2020 Quarter 2 Report  
Billings 1 Tank Battery  
NE ¼ NE ¼ SEC.34 T2N R68W 6PM  
40.099394, -104.983999  
Weld County, Colorado**

Dear Mr. Canfield:

This report summarizes activities conducted in the second quarter of 2020 to address petroleum hydrocarbon impacts at the Billings Tank Battery (site). The Billings Well Pad and Tank Battery site is located within the Northeast Quarter of Section 34, Township 2 North, Range 68 West, of the 6th Prime Meridian (Figure 1). A site map is included (Figure 2) and analytical results (Table 2).

#### **BACKGROUND**

On May 31, 2019, a soil sample was collected from immediately northwest of the northern most tank. The soil sample was collected from a depth of 5 feet below ground surface (bgs). The soil sample was in excess of COGCC Table 910-1 allowable limits for Benzene and pH.

On August 12, 2019, twelve additional borings were advanced at the site in the area surrounding the initial sample. All of the soil samples were below the COGCC standards.

On October 15, 2019, a COGAC™ injection event was performed in the vicinity of monitoring well TMW-4. A total of 8 injection points were advanced with injection intervals ranging from 12 to 17 feet below ground surface. A total of 1,000 pounds of COGAC™ was introduced to the subsurface intervals.

#### **MONITORING RESULTS**

Groundwater monitoring was conducted on 6/15/2020. The collected groundwater sample was analyzed for BTEX.

Monitoring well TMW-2 was reported below the COGCC Table 910-1 allowable limit.

Groundwater was not observed and unable to be sampled in monitoring wells TMW-1, TMW-2, and TMW-4.

Quarterly groundwater monitoring will continue.



Please contact me if you have any questions or require additional information.

Sincerely,

David Tewkesbury  
Environmental Specialist  
Crestone Peak Resources  
10188 E. Interstate 25 Frontage Road  
Firestone, CO 80504  
t 303.774.3985  
c 720.236.5525  
e [david.tewkesbury@crestonepr.com](mailto:david.tewkesbury@crestonepr.com)



Attachments:

Table 1 – Groundwater Elevation Data  
Table 2 – Groundwater Analytical Results  
Figure 1 – Location Map  
Figure 2 – Site Map  
Figure 3 – Groundwater Monitoring Map (6/15/2020)  
Groundwater Laboratory Report

**TABLE 1 - GROUNDWATER ELEVATION  
CRESTONE PEAK RESOURCES**

**Billings 1**

Well ID	Date	Top of Casing	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Temperature (°C)	Conductivity (µS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	pH (SU)
TMW-1	8/29/2019	100.00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/2019		DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/6/2019		DRY	DRY	DRY	DRY	DRY	DRY	DRY
	1/15/2020		8.36	91.64	NM	NM	NM	NM	NM
	6/15/2020		DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMW-2	8/29/2019	100.19	15.16	85.03	NM	NM	NM	NM	NM
	10/23/2019		13.40	86.79	NM	NM	NM	NM	NM
	11/6/2019		NM	NM	NM	NM	NM	NM	NM
	1/15/2020		14.64	85.36	NM	NM	NM	NM	NM
	6/15/2020		15.20	85.36	NM	NM	NM	NM	NM
TMW-3	8/29/2019	100.33	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/2019		DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/6/2019		17.58	82.75	NM	NM	NM	NM	NM
	1/15/2020		16.40	83.93	NM	NM	NM	NM	NM
	6/15/2020		DRY	DRY	DRY	DRY	DRY	DRY	DRY
TMW-4	8/29/2019	99.98	14.73	85.25	NM	NM	NM	NM	NM
	10/23/2019		DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/6/2019		DRY	DRY	DRY	DRY	DRY	DRY	DRY
	1/15/2020		Full of Carbon						
	6/15/2020		DRY	DRY	DRY	DRY	DRY	DRY	DRY

**NOTES:**

DES - Destroyed  
NM - Not Measured

**TABLE 2 - GROUNDWATER ANALYTICAL RESULTS  
CRESTONE PEAK RESOURCES**

**Billings 1**

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Table 910-1 Limit</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
TMW-1	8/29/2019	NS	NS	NS	NS
	10/23/2019	NS	NS	NS	NS
	11/6/2019	NS	NS	NS	NS
	1/15/2020	<1.0	<1.0	<1.0	<3.0
	6/15/2020	NS	NS	NS	NS
TMW-2	8/29/2019	<1.0	<1.0	<1.0	<1.0
	10/23/2019	Sample lost at lab	Sample lost at lab	Sample lost at lab	Sample lost at lab
	11/6/2019	NS	NS	NS	NS
	1/15/2020	NS	NS	NS	NS
	6/15/2020	<1.0	<1.0	<1.0	<3.0
TMW-3	8/29/2019	NS	NS	NS	NS
	10/23/2019	NS	NS	NS	NS
	11/6/2019	NS	NS	NS	NS
	1/15/2020	<b>7.58</b>	<1.0	81.5	<3.0
	6/15/2020	NS	NS	NS	NS
TMW-4	8/29/2019	<b>227</b>	<1.0	390	10
	10/23/2019	NS	NS	NS	NS
	11/6/2019	NS	NS	NS	NS
	1/15/2020	NS	NS	NS	NS
	6/15/2020	NS	NS	NS	NS

**NOTES:**

µg/L - micrograms per liter

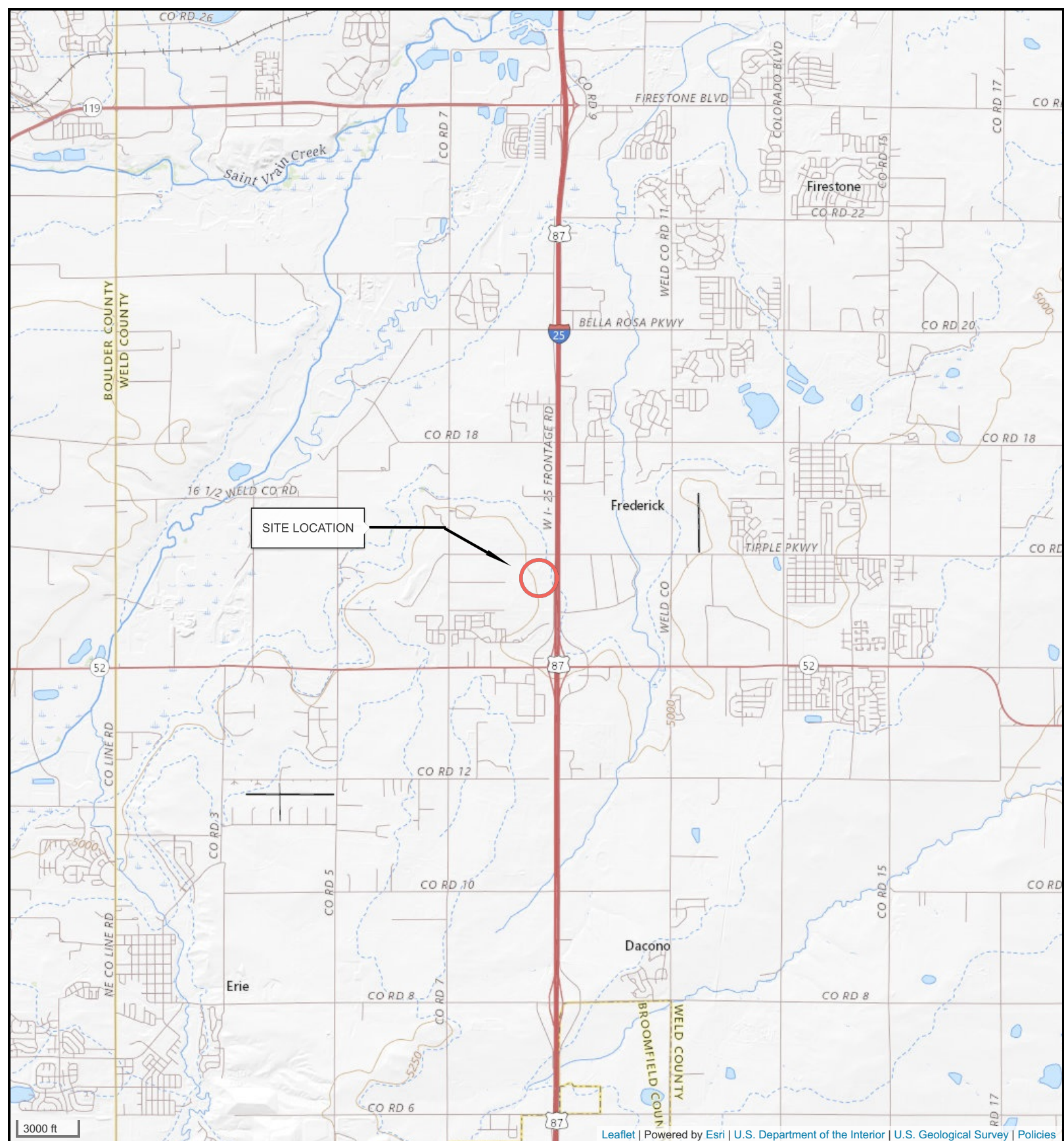
**BOLD** - indicates result exceeds the applicable standard

< - indicates result is less than the stated laboratory reporting limit

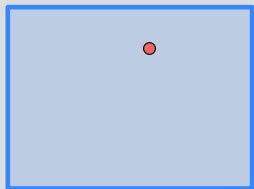
NS - Not Sampled

COGCC Table 910-1 - Colorado Oil and Gas CoNServation Commission Table 910-1

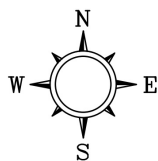
Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B



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Latitude: 40.099394  
Longitude: -104.983999



Crestone Peak Resources  
Billings

**FIGURE 1  
SITE LOCATION MAP**

40.099394, -104.983999  
Frederick, Colorado



PROJECT BILLINGS  
NUMBER

APPROVED BY

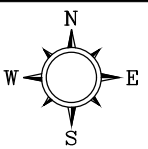
CHECKED BY

DRAWN BY  
JCD 2/19/2020

FILENAME  
BILLINGS\_1903\_2.DWG



SOURCE: 2018 AERIAL PHOTOGRAPHY; © GOOGLE



LEGEND

- TMW-1/⊕  
B-1 APPROXIMATE TEMPORARY  
MONITORING WELL LOCATION
- B-5 ● SOIL SAMPLE LOCATION
- BERM
- x-x-x-x- FENCE

NOTES

- LOCATIONS ARE APPROXIMATE
- COORDINATE SYSTEM: WGS 1984  
PROJECTION: TRANSVERSE MERCATOR

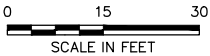
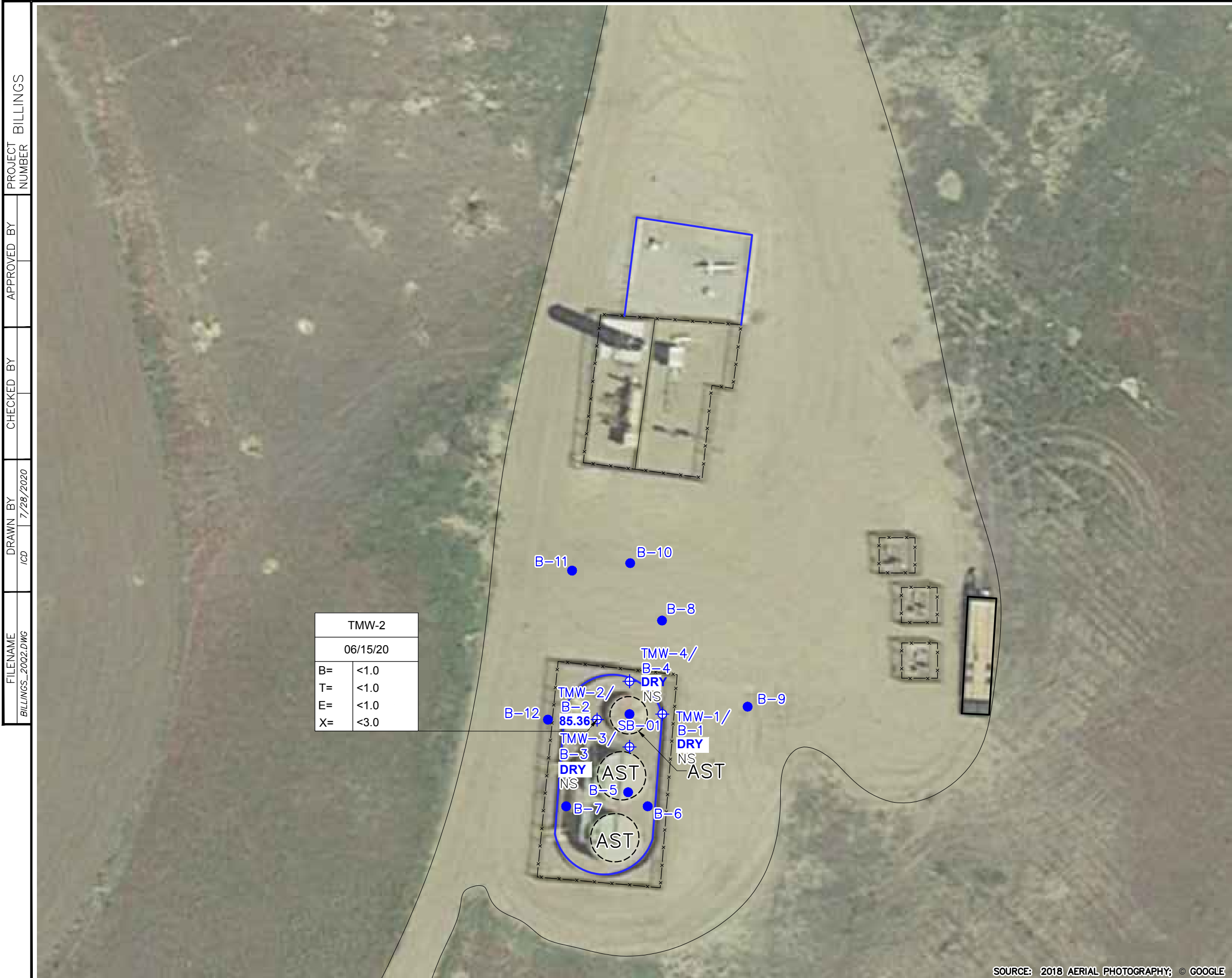


FIGURE 2  
SITE MAP

BILLINGS  
40.099394, -104.983999  
WELD COUNTY, COLORADO



PROJECT BILLINGS  
NUMBER

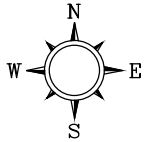
APPROVED BY

CHECKED BY

DRAWN BY 7/28/2020  
JCD

FILENAME  
BILLINGS\_2002.DWG

TMW-2	
06/15/20	
B=	<1.0
T=	<1.0
E=	<1.0
X=	<3.0



LEGEND

- TMW-1/ϕ  
B-1  
B-5
- 
- x—x—x—x—
- 85.36  
DRY
- B  
T  
E  
X  
μg/L  
<  
NS
- APPROXIMATE TEMPORARY  
MONITORING WELL LOCATION
- SOIL SAMPLE LOCATION
- BERM
- FENCE
- GROUNDWATER ELEVATION (FEET)
- WELL IS DRY
- NOT ENOUGH DATA TO CONSTRUCT  
GROUNDWATER CONTOURS
- BENZENE (μg/L)
- TOLUENE (μg/L)
- ETHYLBENZENE (μg/L)
- TOTAL XYLENES (μg/L)
- MICROGRAMS PER LITER
- NOT DETECTED ABOVE LIMIT NOTED
- NOT SAMPLED

NOTES

- LOCATIONS ARE APPROXIMATE
- COORDINATE SYSTEM: WGS 1984  
PROJECTION: TRANSVERSE MERCATOR



FIGURE 3

GROUNDWATER MONITORING MAP  
06/15/2020

BILLINGS  
40.099394, -104.983999  
WELD COUNTY, COLORADO

SOURCE: 2018 AERIAL PHOTOGRAPHY; © GOOGLE

June 26, 2020

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Crestone Peak Resources

Sample Delivery Group: L1231674  
Samples Received: 06/20/2020  
Project Number:  
Description: Billings  
Site: BILLINGS  
Report To: Lonnie Dent  
10188 E. I-25 Frontage Road  
Fireston, CO, CO 80504

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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	<sup>3</sup> Ss
TMW-2 L1231674-01	5	
Qc: Quality Control Summary	6	<sup>4</sup> Cn
Volatile Organic Compounds (GC/MS) by Method 8260B	6	<sup>5</sup> Sr
Gl: Glossary of Terms	7	
Al: Accreditations & Locations	8	<sup>6</sup> Qc
Sc: Sample Chain of Custody	9	<sup>7</sup> Gl
		<sup>8</sup> Al
		<sup>9</sup> Sc

TMW-2 L1231674-01 GW

Collected by  
Jesse Wilson

Collected date/time  
06/15/20 12:10

Received date/time  
06/20/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1499218	1	06/25/20 17:26	06/25/20 17:26	DWR	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



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.

Jason Romer  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/25/2020 17:26	<a href="#">WG1499218</a>
Toluene	ND		0.00100	1	06/25/2020 17:26	<a href="#">WG1499218</a>
Ethylbenzene	ND		0.00100	1	06/25/2020 17:26	<a href="#">WG1499218</a>
o-Xylene	ND		0.00100	1	06/25/2020 17:26	<a href="#">WG1499218</a>
m&p-Xylene	ND		0.00200	1	06/25/2020 17:26	<a href="#">WG1499218</a>
Total Xylenes	ND		0.00300	1	06/25/2020 17:26	<a href="#">WG1499218</a>
(S) Toluene-d8	111		80.0-120		06/25/2020 17:26	<a href="#">WG1499218</a>
(S) 4-Bromofluorobenzene	106		77.0-126		06/25/2020 17:26	<a href="#">WG1499218</a>
(S) 1,2-Dichloroethane-d4	94.9		70.0-130		06/25/2020 17:26	<a href="#">WG1499218</a>

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





Method Blank (MB)

(MB) R3543351-2 06/25/20 13:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Ethylbenzene	U		0.000137	0.00100
Toluene	U		0.000278	0.00100
Xylenes, Total	U		0.000174	0.00300
o-Xylene	U		0.000174	0.00100
m&p-Xylenes	U		0.000430	0.00200
(S) Toluene-d8	114			80.0-120
(S) 4-Bromofluorobenzene	99.9			77.0-126
(S) 1,2-Dichloroethane-d4	93.6			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3543351-1 06/25/20 12:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00544	109	70.0-123	
Ethylbenzene	0.00500	0.00517	103	79.0-123	
Toluene	0.00500	0.00538	108	79.0-120	
Xylenes, Total	0.0150	0.0155	103	79.0-123	
o-Xylene	0.00500	0.00482	96.4	80.0-122	
m&p-Xylenes	0.0100	0.0107	107	80.0-122	
(S) Toluene-d8			111	80.0-120	
(S) 4-Bromofluorobenzene			103	77.0-126	
(S) 1,2-Dichloroethane-d4			93.9	70.0-130	

1  
Cp

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Ss

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Sc



## Guide to Reading and Understanding Your Laboratory Report

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

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

### Abbreviations and Definitions

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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

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

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

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

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

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

## Our Locations

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



