

July 11, 2019

<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

## Utah Gas Corporation

Sample Delivery Group: L1114424

Samples Received: 06/29/2019

Project Number:

Description: Thomas 5 Spill

Report To: Mr. Steve Hale  
1125 Escalante Drive  
Rangely, CO 81648

Entire Report Reviewed By:

*Chris Ward*

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
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
WALL HEAD AREA L1114424-01	5
Qc: Quality Control Summary	7
Wet Chemistry by Method 3060A/7196A	7
Wet Chemistry by Method 9045D	8
Wet Chemistry by Method 9050AMod	9
Mercury by Method 7471A	10
Metals (ICP) by Method 6010B	11
Volatile Organic Compounds (GC) by Method 8015/8021	13
Semi-Volatile Organic Compounds (GC) by Method 8015	15
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	16
Gl: Glossary of Terms	18
Al: Accreditations & Locations	19
Sc: Sample Chain of Custody	20



# SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



WALL HEAD AREA L1114424-01 Solid

Collected by  
Steve Hale

Collected date/time  
06/28/19 12:30

Received date/time  
06/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1304063	1	07/02/19 03:03	07/02/19 03:03	TRB	Mt. Juliet, TN
Calculated Results	WG1305394	1	07/02/19 17:45	07/06/19 15:51	JIC	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1307140	1.020408	07/06/19 09:00	07/06/19 15:51	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1304384	1	07/01/19 13:12	07/01/19 15:48	TH	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1306460	1	07/04/19 11:30	07/04/19 12:36	MJA	Mt. Juliet, TN
Mercury by Method 7471A	WG1304925	1	07/02/19 08:35	07/02/19 11:39	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305394	1	07/02/19 17:45	07/02/19 23:56	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1307701	1	07/06/19 10:03	07/08/19 18:14	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1308622	5	07/10/19 05:45	07/10/19 20:10	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1309192	1	07/10/19 23:04	07/11/19 10:13	DMG	Mt. Juliet, TN

<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



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

<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

## WALL HEAD AREA

Collected date/time: 06/28/19 12:30

## SAMPLE RESULTS - 01

L1114424

ONE LAB. NATIONWIDE.



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.37		1	07/02/2019 03:03	WG1304063

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

## Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	9.67		1.00	1	07/06/2019 15:51	<a href="#">WG1305394</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	ND		2.04	1.020408	07/06/2019 15:51	<a href="#">WG1307140</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.25	<a href="#">T8</a>	1	07/01/2019 15:48	<a href="#">WG1304384</a>

## Sample Narrative:

L1114424-01 WG1304384: 7.25 at 23.8C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3250		10.0	1	07/04/2019 12:36	<a href="#">WG1306460</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0545		0.0200	1	07/02/2019 11:39	<a href="#">WG1304925</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.22		2.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Barium	142		0.500	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Cadmium	ND		0.500	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Chromium	9.67		1.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Copper	14.8		2.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Lead	17.8		0.500	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Nickel	18.3		2.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Selenium	ND		2.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Silver	ND		1.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>
Zinc	61.7		5.00	1	07/02/2019 23:56	<a href="#">WG1305394</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00329		0.000500	1	07/08/2019 18:14	<a href="#">WG1307701</a>
Toluene	ND		0.00500	1	07/08/2019 18:14	<a href="#">WG1307701</a>
Ethylbenzene	0.000857		0.000500	1	07/08/2019 18:14	<a href="#">WG1307701</a>
Total Xylene	0.00285	<a href="#">B</a>	0.00150	1	07/08/2019 18:14	<a href="#">WG1307701</a>
TPH (GC/FID) Low Fraction	0.281		0.100	1	07/08/2019 18:14	<a href="#">WG1307701</a>

## WALL HEAD AREA

Collected date/time: 06/28/19 12:30

## SAMPLE RESULTS - 01

L1114424

ONE LAB. NATIONWIDE.



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	89.4		77.0-120		07/08/2019 18:14	<a href="#">WG1307701</a>
(S) a,a,a-Trifluorotoluene(PID)	92.3		72.0-128		07/08/2019 18:14	<a href="#">WG1307701</a>

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

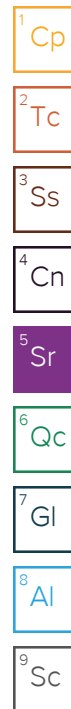
Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1000		20.0	5	07/10/2019 20:10	<a href="#">WG1308622</a>
(S) o-Terphenyl	183	<u>J1</u>	18.0-148		07/10/2019 20:10	<a href="#">WG1308622</a>

## Sample Narrative:

L1114424-01 WG1308622: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0899		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Acenaphthene	0.0921		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Acenaphthylene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Benzo(a)anthracene	0.0195		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Benzo(a)pyrene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Benzo(b)fluoranthene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Benzo(g,h,i)perylene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Benzo(k)fluoranthene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Chrysene	0.00711		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Dibenz(a,h)anthracene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Fluoranthene	0.0107		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Fluorene	0.303		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Naphthalene	0.0986		0.0200	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Phenanthrene	0.454		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
Pyrene	0.0157		0.00600	1	07/11/2019 10:13	<a href="#">WG1309192</a>
1-Methylnaphthalene	0.900		0.0200	1	07/11/2019 10:13	<a href="#">WG1309192</a>
2-Methylnaphthalene	1.04		0.0200	1	07/11/2019 10:13	<a href="#">WG1309192</a>
2-Chloronaphthalene	ND		0.0200	1	07/11/2019 10:13	<a href="#">WG1309192</a>
(S) p-Terphenyl-d14	81.7		23.0-120		07/11/2019 10:13	<a href="#">WG1309192</a>
(S) Nitrobenzene-d5	196	<u>J1</u>	14.0-149		07/11/2019 10:13	<a href="#">WG1309192</a>
(S) 2-Fluorobiphenyl	66.6		34.0-125		07/11/2019 10:13	<a href="#">WG1309192</a>



Method Blank (MB)

(MB) R3428108-1 07/06/19 15:43

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

1

Cp

2

Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

L1113997-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1113997-11 07/06/19 15:48 • (DUP) R3428108-7 07/06/19 15:48

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

L1115226-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1115226-01 07/06/19 15:58 • (DUP) R3428108-8 07/06/19 15:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	0.000	.992063 5	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3428108-2 07/06/19 15:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	25.3	105	80.0-120	

L1113997-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113997-10 07/06/19 15:45 • (MS) R3428108-3 07/06/19 15:45 • (MSD) R3428108-4 07/06/19 15:46

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	19.7	19.6	99.1	99.0	.9960159	75.0-125			0.592	20

L111628-01 Original Sample (OS) • Duplicate (DUP)

(OS) L111628-01 07/01/19 15:48 • (DUP) R3426508-2 07/01/19 15:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.76	7.78	1	0.257		1

Sample Narrative:  
OS: 7.76 at 24.9C  
DUP: 7.78 at 24.9C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1114224-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1114224-01 07/01/19 15:48 • (DUP) R3426508-3 07/01/19 15:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.62	7.25	1	4.98	J3	1

Sample Narrative:  
OS: 7.62 at 23.9C  
DUP: 7.25 at 23.8C

Laboratory Control Sample (LCS)

(LCS) R3426508-1 07/01/19 15:48

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

Sample Narrative:  
LCS: 9.92 at 22.3C





Method Blank (MB)

(MB) R3427572-1 07/04/19 12:36

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1114424-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1114424-01 07/04/19 12:36 • (DUP) R3427572-3 07/04/19 12:36

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3250	3250	1	0.000		20

L1115460-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1115460-04 07/04/19 12:36 • (DUP) R3427572-4 07/04/19 12:36

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	440	451	1	2.47		20

Laboratory Control Sample (LCS)

(LCS) R3427572-2 07/04/19 12:36

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	877	879	100	85.0-115	



Method Blank (MB)

(MB) R3426837-1 07/02/19 10:34

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.00280	0.0200

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

(LCS) R3426837-2 07/02/19 10:36 • (LCSD) R3426837-3 07/02/19 10:39

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.500	0.532	0.513	106	103	80.0-120			3.57	20

L1113476-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113476-02 07/02/19 10:41 • (MS) R3426837-4 07/02/19 10:44 • (MSD) R3426837-5 07/02/19 10:46

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.500	ND	0.470	0.491	93.2	97.4	1	75.0-125			4.29	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3427049-1 07/02/19 23:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.170	0.500
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Nickel	U		0.490	2.00
Selenium	U		0.620	2.00
Silver	U		0.120	1.00
Zinc	U		0.590	5.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

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

(LCS) R3427049-2 07/02/19 23:15 • (LCSD) R3427049-3 07/02/19 23:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	95.7	95.4	95.7	95.4	80.0-120			0.291	20
Barium	100	103	102	103	102	80.0-120			0.995	20
Cadmium	100	98.1	97.1	98.1	97.1	80.0-120			0.963	20
Chromium	100	98.2	98.0	98.2	98.0	80.0-120			0.253	20
Copper	100	99.8	98.5	99.8	98.5	80.0-120			1.31	20
Lead	100	98.2	97.9	98.2	97.9	80.0-120			0.308	20
Nickel	100	99.4	98.5	99.4	98.5	80.0-120			0.880	20
Selenium	100	96.2	94.9	96.2	94.9	80.0-120			1.31	20
Silver	20.0	18.0	18.0	90.2	89.9	80.0-120			0.293	20
Zinc	100	97.9	97.1	97.9	97.1	80.0-120			0.819	20

L1113614-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113614-02 07/02/19 23:20 • (MS) R3427049-6 07/02/19 23:28 • (MSD) R3427049-7 07/02/19 23:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	6.49	109	107	102	100	1	75.0-125			1.93	20
Barium	100	65.4	168	174	103	109	1	75.0-125			3.59	20
Cadmium	100	ND	96.1	101	96.1	101	1	75.0-125			4.88	20
Chromium	100	11.0	107	109	96.2	97.7	1	75.0-125			1.34	20
Copper	100	15.5	120	121	105	106	1	75.0-125			0.793	20
Lead	100	39.6	158	137	119	97.8	1	75.0-125			14.3	20
Nickel	100	13.3	118	120	104	107	1	75.0-125			1.84	20



L1113614-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113614-02 07/02/19 23:20 • (MS) R3427049-6 07/02/19 23:28 • (MSD) R3427049-7 07/02/19 23:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Selenium	100	ND	91.0	97.3	91.0	97.3	1	75.0-125			6.69	20
Silver	20.0	ND	17.5	18.3	87.4	91.6	1	75.0-125			4.72	20
Zinc	100	48.8	151	144	102	95.0	1	75.0-125			4.61	20

<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) R3428753-3 07/08/19 11:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000168	⌵	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0239	⌵	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	96.2			77.0-120
(S) a,a,a-Trifluorotoluene(PID)	98.4			72.0-128

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3428753-1 07/08/19 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0422	84.4	76.0-121	
Toluene	0.0500	0.0425	85.0	80.0-120	
Ethylbenzene	0.0500	0.0426	85.2	80.0-124	
Total Xylene	0.150	0.130	86.5	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			95.7	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			96.9	72.0-128	

Laboratory Control Sample (LCS)

(LCS) R3428753-2 07/08/19 11:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.00	90.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	
(S) a,a,a-Trifluorotoluene(PID)			102	72.0-128	



L1114287-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114287-01 07/08/19 19:57 • (MS) R3428753-4 07/08/19 20:17 • (MSD) R3428753-5 07/08/19 20:38

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Benzene	0.0614	1.10	6.44	6.31	87.0	84.9	100	10.0-155			1.97	32
Toluene	0.0614	U	4.38	4.08	71.3	66.5	100	10.0-160			7.02	34
Ethylbenzene	0.0614	U	5.84	5.58	95.2	91.0	100	10.0-160			4.50	32
Total Xylene	0.184	U	16.6	15.8	90.1	85.7	100	10.0-160			5.01	32
(S) a,a,a-Trifluorotoluene(FID)					101	101		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					100	102		72.0-128				

L1114287-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114287-01 07/08/19 19:57 • (MS) R3428753-6 07/08/19 20:58 • (MSD) R3428753-7 07/08/19 21:18

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	6.75	414	844	794	63.8	56.4	100	10.0-151			6.15	28
(S) a,a,a-Trifluorotoluene(FID)					107	107		77.0-120				
(S) a,a,a-Trifluorotoluene(PID)					106	106		72.0-128				

<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) R3429450-1 07/10/19 14:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	60.1			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3429450-2 07/10/19 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	35.8	71.6	50.0-150	
(S) o-Terphenyl			63.1	18.0-148	

L1114288-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114288-01 07/10/19 18:16 • (MS) R3429450-3 07/10/19 18:28 • (MSD) R3429450-4 07/10/19 18:41

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	62.7	17.3	73.8	76.5	90.0	94.4	1	50.0-150			3.67	20
(S) o-Terphenyl					43.5	42.2		18.0-148				

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3429687-2 07/11/19 04:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	88.0			14.0-149
(S) 2-Fluorobiphenyl	81.5			34.0-125
(S) p-Terphenyl-d14	88.5			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3429687-1 07/11/19 03:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0747	93.4	50.0-126	
Acenaphthene	0.0800	0.0716	89.5	50.0-120	
Acenaphthylene	0.0800	0.0731	91.4	50.0-120	
Benzo(a)anthracene	0.0800	0.0599	74.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0617	77.1	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0609	76.1	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0580	72.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0674	84.3	49.0-125	
Chrysene	0.0800	0.0660	82.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0543	67.9	47.0-125	
Fluoranthene	0.0800	0.0679	84.9	49.0-129	



Laboratory Control Sample (LCS)

(LCS) R3429687-1 07/11/19 03:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0647	80.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0573	71.6	46.0-125	
Naphthalene	0.0800	0.0649	81.1	50.0-120	
Phenanthrene	0.0800	0.0673	84.1	47.0-120	
Pyrene	0.0800	0.0693	86.6	43.0-123	
1-Methylnaphthalene	0.0800	0.0629	78.6	51.0-121	
2-Methylnaphthalene	0.0800	0.0601	75.1	50.0-120	
2-Chloronaphthalene	0.0800	0.0647	80.9	50.0-120	
(S) Nitrobenzene-d5			96.3	14.0-149	
(S) 2-Fluorobiphenyl			86.2	34.0-125	
(S) p-Terphenyl-d14			88.4	23.0-120	

L1114382-51 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114382-51 07/11/19 06:51 • (MS) R3429687-3 07/11/19 07:13 • (MSD) R3429687-4 07/11/19 07:36

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Anthracene	0.0953	U	0.0776	0.0835	81.4	87.6	1	10.0-145			7.40	30
Acenaphthene	0.0953	U	0.0757	0.0796	79.4	83.5	1	14.0-127			5.07	27
Acenaphthylene	0.0953	U	0.0779	0.0816	81.8	85.6	1	21.0-124			4.63	25
Benzo(a)anthracene	0.0953	U	0.0591	0.0643	62.0	67.5	1	10.0-139			8.49	30
Benzo(a)pyrene	0.0953	U	0.0641	0.0709	67.3	74.4	1	10.0-141			10.1	31
Benzo(b)fluoranthene	0.0953	U	0.0618	0.0684	64.9	71.8	1	10.0-140			10.1	36
Benzo(g,h,i)perylene	0.0953	U	0.0559	0.0618	58.6	64.9	1	10.0-140			10.1	33
Benzo(k)fluoranthene	0.0953	U	0.0641	0.0717	67.3	75.3	1	10.0-137			11.2	31
Chrysene	0.0953	U	0.0680	0.0746	71.4	78.3	1	10.0-145			9.19	30
Dibenz(a,h)anthracene	0.0953	U	0.0544	0.0594	57.1	62.4	1	10.0-132			8.79	31
Fluoranthene	0.0953	U	0.0662	0.0717	69.5	75.3	1	10.0-153			7.94	33
Fluorene	0.0953	U	0.0664	0.0703	69.6	73.8	1	11.0-130			5.75	29
Indeno(1,2,3-cd)pyrene	0.0953	U	0.0555	0.0617	58.3	64.8	1	10.0-137			10.6	32
Naphthalene	0.0953	U	0.0730	0.0760	76.6	79.8	1	10.0-135			4.00	27
Phenanthrene	0.0953	U	0.0668	0.0714	70.1	74.9	1	10.0-144			6.55	31
Pyrene	0.0953	U	0.0665	0.0726	69.8	76.1	1	10.0-148			8.74	35
1-Methylnaphthalene	0.0953	U	0.0685	0.0714	71.9	74.9	1	10.0-142			4.09	28
2-Methylnaphthalene	0.0953	U	0.0646	0.0670	67.8	70.3	1	10.0-137			3.62	28
2-Chloronaphthalene	0.0953	U	0.0702	0.0733	73.6	76.9	1	29.0-120			4.32	24
(S) Nitrobenzene-d5					91.6	95.3		14.0-149				
(S) 2-Fluorobiphenyl					81.7	86.1		34.0-125				
(S) p-Terphenyl-d14					75.7	82.1		23.0-120				

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

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

## Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
T8	Sample(s) received past/too close to holding time expiration.

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

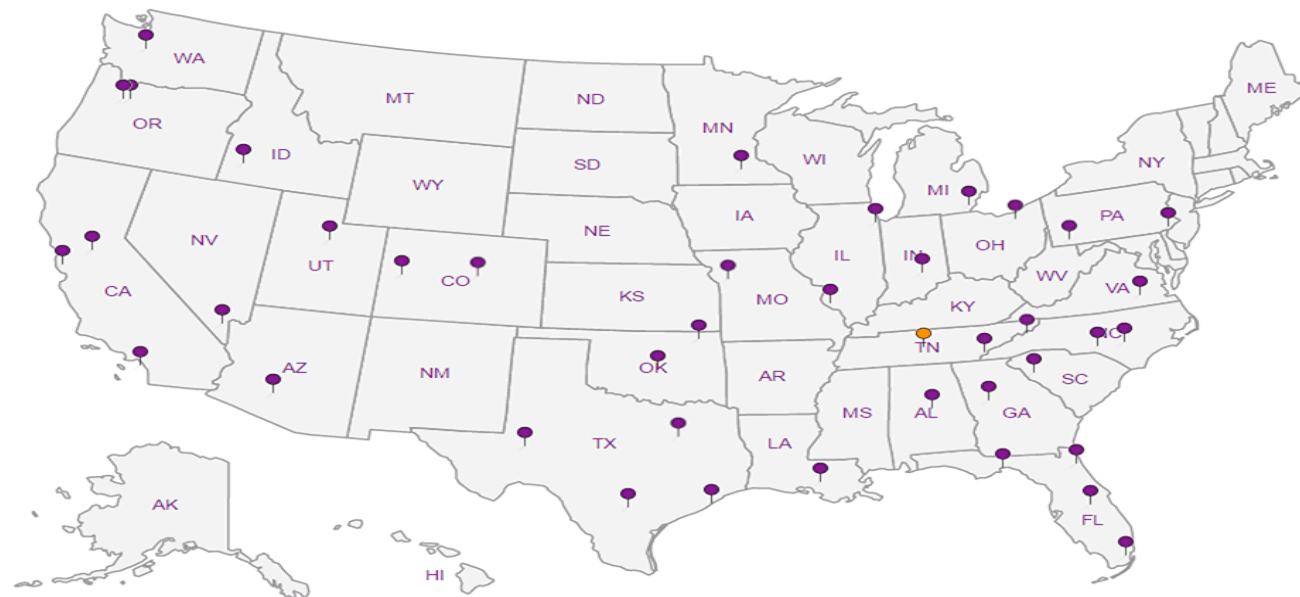
## Third Party Federal Accreditations

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.



Utah Gas Corp  
1125 Escalante Dr  
Panguitch CO 81468

Billing Information:  
  
Same

Report to:  
Steve Hale

Email To:  
shale@utahgascorp.com

Project  
Description: Thomas 5 spill

City/State  
Collected: Mack CO

Phone:  
Fax: 970-290-2912

Client Project #

Lab Project #

Collected by (print):  
Steve Hale

Site/Facility ID #  
Thomas 5

P.O. #

Collected by (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

No. of Cntrs

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

Well head area

Grab

SS

6"

6/28/19

12:30pm

3

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

Remarks:

Samples returned via:  
\_\_\_\_ UPS \_\_\_\_ FedEx \_\_\_\_ Courier

Tracking # 7384 41992856

Relinquished by: (Signature)

Date:  
6/28/19

Time:  
2:25pm

Received by: (Signature)

Trip Blank Received: Yes / No  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:  
6/28/19

Time:  
1700

Received by: (Signature)

Temp: °C  
62.0 / 1.1  
Bottles Received: 3

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)  
G

Date:  
6/29/19

Time:  
0845

Hold:

Condition:  
NCF / OK

Analysis / Container / Preservative

Table 910-1 Parameters

Chain of Custody  
Page 1 of 1

Pace Analytical  
National Center for Testing & Innovation

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

QR Code

L # 1114424  
G164

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks

Sample # (lab only)  
-61