Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 17, 2018

Utah Gas Corporation

Sample Delivery Group:	L1052582
Samples Received:	12/13/2018
Project Number:	
Description:	DCU #1 Flowline Release
Site:	DCU #1
Report To:	Mr. Steve Hale 1125 Escalante Drive Rangely, CO 81648

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

TABLE OF CONTENTS

FLOWLINE ELBOW L1052582-01 Solid

Collected by: Steven H.
Collected date/time: 12/12/18 11:00
Received date/time: 12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1210462	1	12/13/18 17:45	12/14/18 15:17	TRB
Calculated Results	WG1210637	1	12/15/18 10:45	12/17/18 12:19	EEM
Wet Chemistry by Method 3060A/7196A	WG1211902	1	12/17/18 08:42	12/17/18 12:19	EEM
Wet Chemistry by Method 9045D	WG1210760	1	12/14/18 10:06	12/14/18 12:15	EEM
Wet Chemistry by Method 9050AMod	WG1210802	1	12/14/18 11:00	12/14/18 13:20	BAM
Mercury by Method 7471A	WG1210706	1	12/13/18 21:05	12/14/18 08:39	ABL
Metals (ICP) by Method 6010B	WG1210637	1	12/15/18 10:45	12/15/18 18:34	WBD
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211710	50	12/13/18 15:56	12/17/18 01:27	ACG
Volatile Organic Compounds (GC) by Method 8021	WG1211089	1	12/13/18 15:56	12/15/18 03:14	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1210862	1	12/14/18 00:22	12/14/18 11:46	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1210609	1	12/13/18 21:21	12/14/18 03:20	DMG

FLOWLINE SOUTHEND L1052582-02 Solid

Collected by: Steven H.
Collected date/time: 12/12/18 11:10
Received date/time: 12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1210462	1	12/13/18 17:45	12/14/18 15:20	TRB
Calculated Results	WG1210637	1	12/15/18 10:45	12/17/18 12:20	EEM
Wet Chemistry by Method 3060A/7196A	WG1211902	1	12/17/18 08:42	12/17/18 12:20	EEM
Wet Chemistry by Method 9045D	WG1210760	1	12/14/18 10:06	12/14/18 12:15	EEM
Wet Chemistry by Method 9050AMod	WG1210802	1	12/14/18 11:00	12/14/18 13:20	BAM
Mercury by Method 7471A	WG1210706	1	12/13/18 21:05	12/14/18 08:49	ABL
Metals (ICP) by Method 6010B	WG1210637	1	12/15/18 10:45	12/15/18 18:37	WBD
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211710	1	12/13/18 15:56	12/17/18 01:49	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1210862	1	12/14/18 00:22	12/14/18 12:10	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1210609	1	12/13/18 21:21	12/14/18 03:42	DMG

SW BMP L1052582-03 Solid

Collected by: Steven H.
Collected date/time: 12/12/18 11:15
Received date/time: 12/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1210462	1	12/13/18 17:45	12/14/18 15:23	TRB
Calculated Results	WG1210637	1	12/15/18 10:45	12/17/18 12:23	EEM
Wet Chemistry by Method 3060A/7196A	WG1211902	1	12/17/18 08:42	12/17/18 12:23	EEM
Wet Chemistry by Method 9045D	WG1210760	1	12/14/18 10:06	12/14/18 12:15	EEM
Wet Chemistry by Method 9050AMod	WG1210802	1	12/14/18 11:00	12/14/18 13:20	BAM
Mercury by Method 7471A	WG1210706	1	12/13/18 21:05	12/14/18 08:52	ABL
Metals (ICP) by Method 6010B	WG1210637	1	12/15/18 10:45	12/15/18 18:40	WBD
Volatile Organic Compounds (GC) by Method 8015/8021	WG1211089	1	12/13/18 15:56	12/15/18 03:56	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1210862	1	12/14/18 00:22	12/14/18 11:58	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1210609	1	12/13/18 21:21	12/14/18 04:04	DMG

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	28.6		1	12/14/2018 15:17	WG1210462

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	9.51		1.00	1	12/17/2018 12:19	WG1210637

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	12/17/2018 12:19	WG1211902

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.47	T8	1	12/14/2018 12:15	WG1210760

Sample Narrative:

L1052582-01 WG1210760: 7.47 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2970		10.0	1	12/14/2018 13:20	WG1210802

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND	J6	0.0200	1	12/14/2018 08:39	WG1210706

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.96		2.00	1	12/15/2018 18:34	WG1210637
Barium	363		0.500	1	12/15/2018 18:34	WG1210637
Cadmium	ND		0.500	1	12/15/2018 18:34	WG1210637
Chromium	9.51		1.00	1	12/15/2018 18:34	WG1210637
Copper	9.44		2.00	1	12/15/2018 18:34	WG1210637
Lead	13.2		0.500	1	12/15/2018 18:34	WG1210637
Nickel	11.0		2.00	1	12/15/2018 18:34	WG1210637
Selenium	ND		2.00	1	12/15/2018 18:34	WG1210637
Silver	ND		1.00	1	12/15/2018 18:34	WG1210637
Zinc	54.7		5.00	1	12/15/2018 18:34	WG1210637

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.45		0.0250	50	12/17/2018 01:27	WG1211710
Toluene	4.18		0.250	50	12/17/2018 01:27	WG1211710
Ethylbenzene	0.184		0.000500	1	12/15/2018 03:14	WG1211089
Total Xylene	6.28		0.0750	50	12/17/2018 01:27	WG1211710
TPH (GC/FID) Low Fraction	201		5.00	50	12/17/2018 01:27	WG1211710

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)	*82.8*		*77.0-120*		*12/15/2018 03:14*	WG1211089
(S) a,a,a-Trifluorotoluene(FID)	*88.2*		*77.0-120*		*12/17/2018 01:27*	WG1211710
(S) a,a,a-Trifluorotoluene(PID)	*91.0*		*72.0-128*		*12/15/2018 03:14*	WG1211089
(S) a,a,a-Trifluorotoluene(PID)	*102*		*72.0-128*		*12/17/2018 01:27*	WG1211710

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	7.44		4.00	1	12/14/2018 11:46	WG1210862
(S) o-Terphenyl	*60.3*		*18.0-148*		*12/14/2018 11:46*	WG1210862

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Acenaphthene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Acenaphthylene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Benzo(a)anthracene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Benzo(a)pyrene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Benzo(b)fluoranthene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Benzo(g,h,i)perylene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Benzo(k)fluoranthene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Chrysene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Dibenz(a,h)anthracene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Fluoranthene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Fluorene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Naphthalene	0.0469		0.0200	1	12/14/2018 03:20	WG1210609
Phenanthrene	ND		0.00600	1	12/14/2018 03:20	WG1210609
Pyrene	ND		0.00600	1	12/14/2018 03:20	WG1210609
1-Methylnaphthalene	0.0272		0.0200	1	12/14/2018 03:20	WG1210609
2-Methylnaphthalene	0.0529		0.0200	1	12/14/2018 03:20	WG1210609
2-Chloronaphthalene	ND		0.0200	1	12/14/2018 03:20	WG1210609
(S) p-Terphenyl-d14	*87.8*		*23.0-120*		*12/14/2018 03:20*	WG1210609
(S) Nitrobenzene-d5	*129*		*14.0-149*		*12/14/2018 03:20*	WG1210609
(S) 2-Fluorobiphenyl	*44.1*		*34.0-125*		*12/14/2018 03:20*	WG1210609

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.55		1	12/14/2018 15:20	WG1210462

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	13.7		1.00	1	12/17/2018 12:20	WG1210637

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6 O1	2.00	1	12/17/2018 12:20	WG1211902

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	12/14/2018 12:15	WG1210760

Sample Narrative:

L1052582-02 WG1210760: 8.01 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1940		10.0	1	12/14/2018 13:20	WG1210802

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0912		0.0200	1	12/14/2018 08:49	WG1210706

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.35		2.00	1	12/15/2018 18:37	WG1210637
Barium	433		0.500	1	12/15/2018 18:37	WG1210637
Cadmium	ND		0.500	1	12/15/2018 18:37	WG1210637
Chromium	13.7		1.00	1	12/15/2018 18:37	WG1210637
Copper	11.2		2.00	1	12/15/2018 18:37	WG1210637
Lead	11.9		0.500	1	12/15/2018 18:37	WG1210637
Nickel	15.3		2.00	1	12/15/2018 18:37	WG1210637
Selenium	ND		2.00	1	12/15/2018 18:37	WG1210637
Silver	ND		1.00	1	12/15/2018 18:37	WG1210637
Zinc	44.2		5.00	1	12/15/2018 18:37	WG1210637

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00345		0.000500	1	12/17/2018 01:49	WG1211710
Toluene	ND		0.00500	1	12/17/2018 01:49	WG1211710
Ethylbenzene	0.000684	B	0.000500	1	12/17/2018 01:49	WG1211710
Total Xylene	0.00246	B	0.00150	1	12/17/2018 01:49	WG1211710
TPH (GC/FID) Low Fraction	0.158		0.100	1	12/17/2018 01:49	WG1211710

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)	*88.2*		*77.0-120*		*12/17/2018 01:49*	WG1211710
(S) a,a,a-Trifluorotoluene(PID)	*96.6*		*72.0-128*		*12/17/2018 01:49*	WG1211710

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	8.12		4.00	1	12/14/2018 12:10	WG1210862
(S) o-Terphenyl	*70.3*		*18.0-148*		*12/14/2018 12:10*	WG1210862

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Acenaphthene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Acenaphthylene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Benzo(a)anthracene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Benzo(a)pyrene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Benzo(b)fluoranthene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Benzo(g,h,i)perylene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Benzo(k)fluoranthene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Chrysene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Dibenz(a,h)anthracene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Fluoranthene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Fluorene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Naphthalene	ND		0.0200	1	12/14/2018 03:42	WG1210609
Phenanthrene	ND		0.00600	1	12/14/2018 03:42	WG1210609
Pyrene	ND		0.00600	1	12/14/2018 03:42	WG1210609
1-Methylnaphthalene	ND		0.0200	1	12/14/2018 03:42	WG1210609
2-Methylnaphthalene	ND		0.0200	1	12/14/2018 03:42	WG1210609
2-Chloronaphthalene	ND		0.0200	1	12/14/2018 03:42	WG1210609
(S) p-Terphenyl-d14	*109*		*23.0-120*		*12/14/2018 03:42*	WG1210609
(S) Nitrobenzene-d5	*125*		*14.0-149*		*12/14/2018 03:42*	WG1210609
(S) 2-Fluorobiphenyl	*86.4*		*34.0-125*		*12/14/2018 03:42*	WG1210609

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	17.2		1	12/14/2018 15:23	WG1210462

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	9.57		1.00	1	12/17/2018 12:23	WG1210637

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	12/17/2018 12:23	WG1211902

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.87	T8	1	12/14/2018 12:15	WG1210760

Sample Narrative:

L1052582-03 WG1210760: 7.87 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3130		10.0	1	12/14/2018 13:20	WG1210802

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	12/14/2018 08:52	WG1210706

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.41		2.00	1	12/15/2018 18:40	WG1210637
Barium	328		0.500	1	12/15/2018 18:40	WG1210637
Cadmium	ND		0.500	1	12/15/2018 18:40	WG1210637
Chromium	9.57		1.00	1	12/15/2018 18:40	WG1210637
Copper	11.0		2.00	1	12/15/2018 18:40	WG1210637
Lead	10.9		0.500	1	12/15/2018 18:40	WG1210637
Nickel	12.3		2.00	1	12/15/2018 18:40	WG1210637
Selenium	ND		2.00	1	12/15/2018 18:40	WG1210637
Silver	ND		1.00	1	12/15/2018 18:40	WG1210637
Zinc	46.1		5.00	1	12/15/2018 18:40	WG1210637

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0225		0.000500	1	12/15/2018 03:56	WG1211089
Toluene	0.0241		0.00500	1	12/15/2018 03:56	WG1211089
Ethylbenzene	0.00282		0.000500	1	12/15/2018 03:56	WG1211089
Total Xylene	0.0158		0.00150	1	12/15/2018 03:56	WG1211089
TPH (GC/FID) Low Fraction	0.523		0.100	1	12/15/2018 03:56	WG1211089

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)	*85.8*		*77.0-120*		*12/15/2018 03:56*	WG1211089
(S) a,a,a-Trifluorotoluene(PID)	*97.0*		*72.0-128*		*12/15/2018 03:56*	WG1211089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	12/14/2018 11:58	WG1210862
(S) o-Terphenyl	*44.3*		*18.0-148*		*12/14/2018 11:58*	WG1210862

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Acenaphthene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Acenaphthylene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Benzo(a)anthracene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Benzo(a)pyrene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Benzo(b)fluoranthene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Benzo(g,h,i)perylene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Benzo(k)fluoranthene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Chrysene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Dibenz(a,h)anthracene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Fluoranthene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Fluorene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Naphthalene	ND		0.0200	1	12/14/2018 04:04	WG1210609
Phenanthrene	ND		0.00600	1	12/14/2018 04:04	WG1210609
Pyrene	ND		0.00600	1	12/14/2018 04:04	WG1210609
1-Methylnaphthalene	ND		0.0200	1	12/14/2018 04:04	WG1210609
2-Methylnaphthalene	ND		0.0200	1	12/14/2018 04:04	WG1210609
2-Chloronaphthalene	ND		0.0200	1	12/14/2018 04:04	WG1210609
(S) p-Terphenyl-d14	*84.4*		*23.0-120*		*12/14/2018 04:04*	WG1210609
(S) Nitrobenzene-d5	*120*		*14.0-149*		*12/14/2018 04:04*	WG1210609
(S) 2-Fluorobiphenyl	*48.4*		*34.0-125*		*12/14/2018 04:04*	WG1210609

Method Blank (MB)

(MB) R3368811-1 12/17/18 12:17

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

L1052582-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1052582-01 12/17/18 12:19 • (DUP) R3368811-3 12/17/18 12:20

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

Laboratory Control Sample (LCS)

(LCS) R3368811-2 12/17/18 12:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	24.4	102	80.0-120	

L1052582-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052582-02 12/17/18 12:20 • (MS) R3368811-4 12/17/18 12:20 • (MSD) R3368811-5 12/17/18 12:21

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 %
Chromium,Hexavalent	20.0	ND	9.40	8.36	47.0	41.8	1	75.0-125	J6	J6	11.7	20

L1052582-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1052582-02 12/17/18 12:20 • (MS) R3368811-7 12/17/18 12:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	682	ND	609	89.3	50	75.0-125	

L1052197-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1052197-01 12/14/18 12:15 • (DUP) R3368338-2 12/14/18 12:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.02	5.86	1	2.69	J3	1

Sample Narrative:

OS: 6.02 at 22.1C

DUP: 5.86 at 22C

Laboratory Control Sample (LCS)

(LCS) R3368338-1 12/14/18 12:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 19.1C

Method Blank (MB)

(MB) R3368299-1 12/14/18 13:20

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

L1052014-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1052014-02 12/14/18 13:20 • (DUP) R3368299-3 12/14/18 13:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	162	162	1	0.123		20

L1052582-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1052582-03 12/14/18 13:20 • (DUP) R3368299-4 12/14/18 13:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3130	3030	1	3.15		20

Laboratory Control Sample (LCS)

(LCS) R3368299-2 12/14/18 13:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	877	893	102	90.0-110	

Method Blank (MB)

(MB) R3368354-1 12/14/18 08:31

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

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

(LCS) R3368354-2 12/14/18 08:34 • (LCSD) R3368354-3 12/14/18 08:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.259	0.276	86.4	92.0	80.0-120			6.32	20

L1052582-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052582-01 12/14/18 08:39 • (MS) R3368354-4 12/14/18 08:42 • (MSD) R3368354-5 12/14/18 08:44

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 %
Mercury	0.300	ND	0.275	0.233	87.6	73.7	1	75.0-125		J6	16.4	20

Method Blank (MB)

(MB) R3368561-1 12/15/18 17:59

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

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

(LCS) R3368561-2 12/15/18 18:02 • (LCSD) R3368561-3 12/15/18 18:04

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	92.9	93.7	92.9	93.7	80.0-120			0.816	20
Barium	100	98.8	99.2	98.8	99.2	80.0-120			0.423	20
Cadmium	100	93.2	93.4	93.2	93.4	80.0-120			0.252	20
Chromium	100	95.6	95.2	95.6	95.2	80.0-120			0.423	20
Copper	100	95.1	96.3	95.1	96.3	80.0-120			1.23	20
Lead	100	92.8	93.9	92.8	93.9	80.0-120			1.22	20
Nickel	100	94.2	95.6	94.2	95.6	80.0-120			1.45	20
Selenium	100	93.1	93.0	93.1	93.0	80.0-120			0.112	20
Silver	20.0	17.8	17.8	88.9	88.8	80.0-120			0.0544	20
Zinc	100	95.8	96.4	95.8	96.4	80.0-120			0.644	20

L1051381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1051381-03 12/15/18 18:07 • (MS) R3368561-6 12/15/18 18:15 • (MSD) R3368561-7 12/15/18 18:17

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 %
Arsenic	104	U	92.0	88.2	88.8	85.1	1	75.0-125			4.23	20
Barium	104	1.89	101	97.2	95.9	92.0	1	75.0-125			4.04	20
Cadmium	104	U	93.6	90.0	90.3	86.8	1	75.0-125			3.91	20
Chromium	104	3.29	99.7	96.7	93.0	90.2	1	75.0-125			3.02	20
Copper	104	5.03	100	97.6	91.8	89.3	1	75.0-125			2.65	20
Lead	104	1.02	95.0	91.6	90.7	87.4	1	75.0-125			3.67	20

L1051381-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1051381-03 12/15/18 18:07 • (MS) R3368561-6 12/15/18 18:15 • (MSD) R3368561-7 12/15/18 18:17

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 %
Nickel	104	U	96.1	92.4	92.8	89.2	1	75.0-125			3.93	20
Selenium	104	U	91.9	88.3	88.7	85.2	1	75.0-125			4.03	20
Silver	20.7	U	17.8	17.2	85.8	83.0	1	75.0-125			3.32	20
Zinc	104	17.2	111	108	91.0	87.6	1	75.0-125			3.17	20

Method Blank (MB)

(MB) R3368593-5 12/15/18 02:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000235	J	0.000120	0.000500
Toluene	0.000509	J	0.000150	0.00500
Ethylbenzene	0.000182	J	0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*91.7*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*101*			*72.0-128*

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

(LCS) R3368593-1 12/15/18 01:07 • (LCSD) R3368593-2 12/15/18 01:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0455	0.0437	90.9	87.4	76.0-121			3.96	20
Toluene	0.0500	0.0476	0.0454	95.2	90.7	80.0-120			4.85	20
Ethylbenzene	0.0500	0.0482	0.0463	96.4	92.5	80.0-124			4.13	20
Total Xylene	0.150	0.144	0.138	95.7	91.7	37.0-160			4.20	20
(S) a,a,a-Trifluorotoluene(FID)				*90.8*	*90.6*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*98.9*	*99.2*	*72.0-128*				

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

(LCS) R3368593-3 12/15/18 01:50 • (LCSD) R3368593-4 12/15/18 02:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.51	5.30	100	96.3	72.0-127			3.89	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*115*	*115*	*72.0-128*				

Method Blank (MB)

(MB) R3368806-5 12/16/18 22:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000210	J	0.000120	0.000500
Toluene	0.000312	J	0.000150	0.00500
Ethylbenzene	0.000166	J	0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*91.4*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*102*			*72.0-128*

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

(LCS) R3368806-1 12/16/18 20:22 • (LCSD) R3368806-2 12/16/18 20:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0403	0.0439	80.6	87.8	76.0-121			8.57	20
Toluene	0.0500	0.0422	0.0453	84.5	90.5	80.0-120			6.92	20
Ethylbenzene	0.0500	0.0436	0.0469	87.2	93.9	80.0-124			7.44	20
Total Xylene	0.150	0.130	0.140	86.6	93.1	37.0-160			7.27	20
(S) a,a,a-Trifluorotoluene(FID)				*91.2*	*90.9*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*99.8*	*99.2*	*72.0-128*				

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

(LCS) R3368806-3 12/16/18 21:05 • (LCSD) R3368806-4 12/16/18 21:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.04	5.57	91.7	101	72.0-127			9.86	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*113*	*115*	*72.0-128*				

Method Blank (MB)

(MB) R3368309-1 12/14/18 11:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*85.7*			*18.0-148*

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

(LCS) R3368309-2 12/14/18 11:24 • (LCSD) R3368309-3 12/14/18 11:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) High Fraction	50.0	45.4	46.7	90.8	93.4	50.0-150			2.82	20
(S) o-Terphenyl				*104*	*112*	*18.0-148*				

L1051916-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1051916-01 12/14/18 12:22 • (MS) R3368309-4 12/14/18 12:33 • (MSD) R3368309-5 12/14/18 12:45

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) High Fraction	801	835	4070	3170	404	281	14.4	50.0-150	J5	J3 J5	24.8	20
(S) o-Terphenyl					*83.3*	*92.6*		*18.0-148*				

Method Blank (MB)

(MB) R3368444-3 12/14/18 02:58

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	*134*			*14.0-149*
(S) 2-Fluorobiphenyl	*100*			*34.0-125*
(S) p-Terphenyl-d14	*106*			*23.0-120*

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

(LCS) R3368444-1 12/14/18 02:14 • (LCSD) R3368444-2 12/14/18 02:36

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 %
Anthracene	0.0800	0.0860	0.0878	108	110	50.0-126			2.07	20
Acenaphthene	0.0800	0.0859	0.0882	107	110	50.0-120			2.64	20
Acenaphthylene	0.0800	0.0798	0.0813	99.8	102	50.0-120			1.86	20
Benzo(a)anthracene	0.0800	0.0864	0.0877	108	110	45.0-120			1.49	20
Benzo(a)pyrene	0.0800	0.0729	0.0757	91.1	94.6	42.0-120			3.77	20
Benzo(b)fluoranthene	0.0800	0.0830	0.0918	104	115	42.0-121			10.1	20
Benzo(g,h,i)perylene	0.0800	0.0848	0.0842	106	105	45.0-125			0.710	20
Benzo(k)fluoranthene	0.0800	0.0957	0.0941	120	118	49.0-125			1.69	20
Chrysene	0.0800	0.0886	0.0912	111	114	49.0-122			2.89	20
Dibenz(a,h)anthracene	0.0800	0.0937	0.0918	117	115	47.0-125			2.05	20
Fluoranthene	0.0800	0.0889	0.0914	111	114	49.0-129			2.77	20

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

(LCS) R3368444-1 12/14/18 02:14 • (LCSD) R3368444-2 12/14/18 02:36

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 %
Fluorene	0.0800	0.0809	0.0829	101	104	49.0-120			2.44	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0896	0.0878	112	110	46.0-125			2.03	20
Naphthalene	0.0800	0.0815	0.0836	102	105	50.0-120			2.54	20
Phenanthrene	0.0800	0.0777	0.0805	97.1	101	47.0-120			3.54	20
Pyrene	0.0800	0.0880	0.0866	110	108	43.0-123			1.60	20
1-Methylnaphthalene	0.0800	0.0839	0.0863	105	108	51.0-121			2.82	20
2-Methylnaphthalene	0.0800	0.0810	0.0830	101	104	50.0-120			2.44	20
2-Chloronaphthalene	0.0800	0.0814	0.0832	102	104	50.0-120			2.19	20
(S) Nitrobenzene-d5				*137*	*144*	*14.0-149*				
(S) 2-Fluorobiphenyl				*99.9*	*104*	*34.0-125*				
(S) p-Terphenyl-d14				*111*	*109*	*23.0-120*				

L1052442-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1052442-01 12/14/18 10:16 • (MS) R3368444-4 12/14/18 10:38 • (MSD) R3368444-5 12/14/18 11:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0752	ND	0.0741	0.0787	98.5	99.9	1	10.0-145			6.02	30
Acenaphthene	0.0752	ND	0.0726	0.0771	96.5	97.8	1	14.0-127			6.01	27
Acenaphthylene	0.0752	ND	0.0658	0.0706	87.5	89.6	1	21.0-124			7.04	25
Benzo(a)anthracene	0.0752	ND	0.0745	0.0790	99.1	100	1	10.0-139			5.86	30
Benzo(a)pyrene	0.0752	ND	0.0787	0.0821	105	104	1	10.0-141			4.23	31
Benzo(b)fluoranthene	0.0752	ND	0.0716	0.0737	95.2	93.5	1	10.0-140			2.89	36
Benzo(g,h,i)perylene	0.0752	ND	0.0712	0.0710	94.7	90.1	1	10.0-140			0.281	33
Benzo(k)fluoranthene	0.0752	ND	0.0819	0.0884	109	112	1	10.0-137			7.63	31
Chrysene	0.0752	ND	0.0779	0.0821	104	104	1	10.0-145			5.25	30
Dibenz(a,h)anthracene	0.0752	ND	0.0784	0.0796	104	101	1	10.0-132			1.52	31
Fluoranthene	0.0752	ND	0.0663	0.0695	88.2	88.2	1	10.0-153			4.71	33
Fluorene	0.0752	ND	0.0678	0.0712	90.2	90.4	1	11.0-130			4.89	29
Indeno(1,2,3-cd)pyrene	0.0752	ND	0.0748	0.0757	99.5	96.1	1	10.0-137			1.20	32
Naphthalene	0.0752	ND	0.0744	0.0781	98.9	99.1	1	10.0-135			4.85	27
Phenanthrene	0.0752	ND	0.0719	0.0756	95.6	95.9	1	10.0-144			5.02	31
Pyrene	0.0752	ND	0.0916	0.0984	122	125	1	10.0-148			7.16	35
1-Methylnaphthalene	0.0752	ND	0.0632	0.0675	84.0	85.7	1	10.0-142			6.58	28
2-Methylnaphthalene	0.0752	ND	0.0665	0.0705	88.4	89.5	1	10.0-137			5.84	28
2-Chloronaphthalene	0.0752	ND	0.0716	0.0761	95.2	96.6	1	29.0-120			6.09	24
(S) Nitrobenzene-d5					*129*	*130*		*14.0-149*				
(S) 2-Fluorobiphenyl					*86.1*	*86.4*		*34.0-125*				
(S) p-Terphenyl-d14					*108*	*115*		*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	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

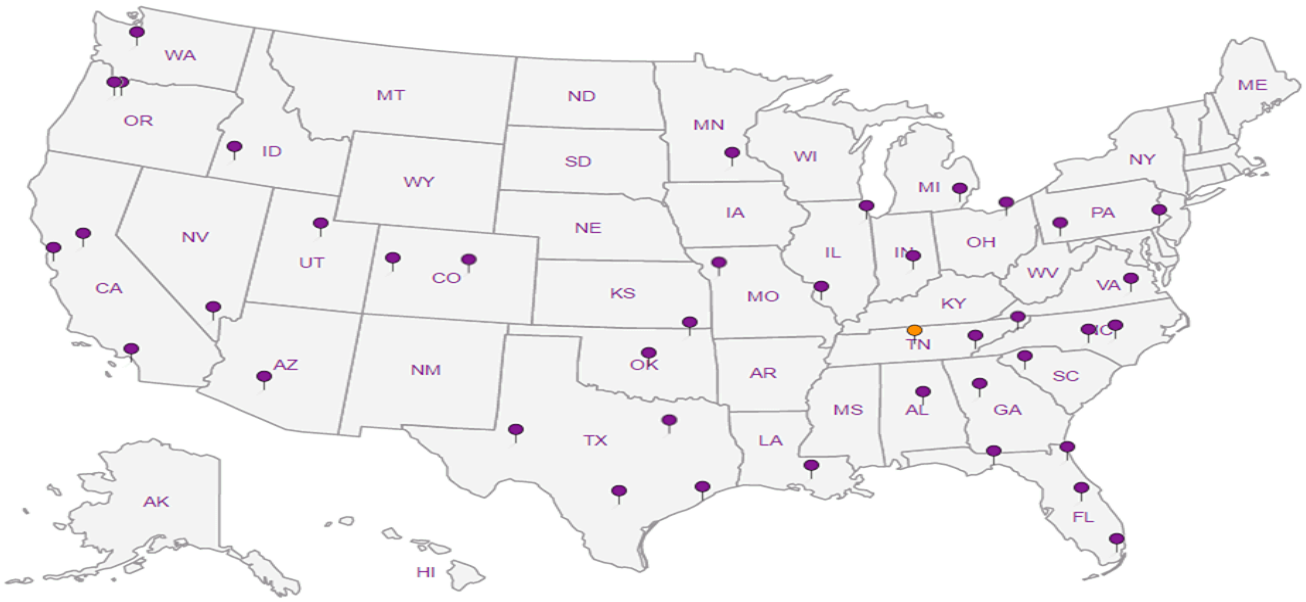
Third Party Federal Accreditations

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.



Utah Gas Corporation

1125 Escalante Drive
Rangely, CO 81648

Billing Information:
Attn: Accounts Payable
1125 Escalante Dr.
Rangely, CO 81648

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LABORATORIES
a subsidiary of Pace Analytical
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1652582

F145

Report to: Steven Hale

Email To: Shale@utahgascorp.com

Project Description: DCU #1 Flowline Release

City/State Collected: Rangely CO

Phone: 970-675-4400
Fax:

Client Project #

Lab Project #

Collected by (print): Steven Hale

Site/Facility ID # DCU #1

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y Y

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

Quote #

Date Results Needed

Acctnum: UTAHGASRCO
Template:
Prelogin:
TSR: 728 - Shane Gambill
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Table 910	Remarks	Sample # (lab only)
Flowline Elbow	G		6'	12/12	11:00	3	✓		-01
Flowline Southend	G		6'	12/12	11:10	3	✓		02
SW BMP	G		6"	12/12	11:15	3	✓		03

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking # 4510 1668 3536

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

RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	12/12/18	4:00 PM	
Relinquished by: (Signature)	Date: 12/12/18	Time: 1730	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 0.4+0.3=0.7 °C Bottles Received: 3 1=402

Date: 12/13/18 Time: 345

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK