Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 20, 2019

Entrada Consulting Group

Sample Delivery Group:	L1170911
Samples Received:	12/14/2019
Project Number:	
Description:	Laramie Hells Gulch 26-6 Spill Response

Report To: Stuart Hall
240 Mesa Avenue
Grand Junction, CO 81501

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

SS6 L1170911-01 Solid

Collected by: Jessica Dilka | Collected date/time: 12/13/19 11:55 | Received date/time: 12/14/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1397073	1	12/17/19 14:06	12/17/19 14:06	EL	Mt. Juliet, TN
Calculated Results	WG1397347	1	12/16/19 18:37	12/17/19 00:44	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1397045	1	12/16/19 11:00	12/16/19 18:58	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1397697	1	12/17/19 14:30	12/17/19 16:50	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1396956	1	12/15/19 13:00	12/15/19 15:25	BAM	Mt. Juliet, TN
Mercury by Method 7471A	WG1397371	1	12/16/19 14:21	12/16/19 21:30	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1397347	1	12/16/19 18:37	12/17/19 00:44	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1397311	1	12/14/19 16:47	12/16/19 13:43	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1397421	1	12/16/19 21:41	12/17/19 19:00	FM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1397433	1	12/17/19 15:57	12/17/19 21:39	AAT	Mt. Juliet, TN

SS7 L1170911-02 Solid

Collected by: Jessica Dilka | Collected date/time: 12/13/19 12:00 | Received date/time: 12/14/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1397073	1	12/17/19 14:09	12/17/19 14:09	EL	Mt. Juliet, TN
Calculated Results	WG1397347	1	12/16/19 18:39	12/17/19 00:46	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1397045	1	12/16/19 11:00	12/16/19 18:59	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1397697	1	12/17/19 14:30	12/17/19 16:50	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1396956	1	12/15/19 13:00	12/15/19 15:25	BAM	Mt. Juliet, TN
Mercury by Method 7471A	WG1397371	1	12/16/19 14:21	12/16/19 21:33	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1397347	1	12/16/19 18:39	12/17/19 00:46	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1397311	1	12/14/19 16:47	12/16/19 14:03	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1397421	1	12/16/19 21:41	12/17/19 18:09	FM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1397433	1	12/17/19 15:57	12/17/19 21:59	AAT	Mt. Juliet, TN

SS8 L1170911-03 Solid

Collected by: Jessica Dilka | Collected date/time: 12/13/19 12:05 | Received date/time: 12/14/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1397073	1	12/17/19 14:12	12/17/19 14:12	EL	Mt. Juliet, TN
Calculated Results	WG1397347	1	12/16/19 18:39	12/17/19 00:49	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1397045	1	12/16/19 11:00	12/16/19 18:59	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1397697	1	12/17/19 14:30	12/17/19 16:50	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1396956	1	12/15/19 13:00	12/15/19 15:25	BAM	Mt. Juliet, TN
Mercury by Method 7471A	WG1397371	1	12/16/19 14:21	12/16/19 21:11	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1397347	1	12/16/19 18:39	12/17/19 00:49	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1397311	1	12/14/19 16:47	12/16/19 14:23	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1397421	1	12/16/19 21:41	12/17/19 18:47	FM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1397433	1	12/17/19 15:57	12/17/19 22:20	AAT	Mt. Juliet, TN

SS9 L1170911-04 Solid

Collected by: Jessica Dilka | Collected date/time: 12/13/19 12:10 | Received date/time: 12/14/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1397073	1	12/17/19 14:14	12/17/19 14:14	EL	Mt. Juliet, TN
Calculated Results	WG1397347	1	12/16/19 18:37	12/17/19 00:51	EL	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1397045	1	12/16/19 11:00	12/16/19 19:00	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1397697	1	12/17/19 14:30	12/17/19 16:50	EEM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1396956	1	12/15/19 13:00	12/15/19 15:25	BAM	Mt. Juliet, TN
Mercury by Method 7471A	WG1397371	1	12/16/19 14:21	12/16/19 21:35	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1397347	1	12/16/19 18:37	12/17/19 00:51	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1397311	1	12/14/19 16:47	12/16/19 14:44	BMB	Mt. Juliet, TN

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

SS9 L1170911-04 Solid

Collected by: Jessica Dilka
Collected date/time: 12/13/19 12:10
Received date/time: 12/14/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1397421	1	12/16/19 21:41	12/17/19 18:22	FM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1397433	1	12/17/19 15:57	12/17/19 22:41	AAT	Mt. Juliet, TN

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

Chris Ward
Project Manager

Report Revision History

Version 1: 12/18/19 10:39

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.778		1	12/17/2019 14:06	WG1397073

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	15.3		1.00	1	12/17/2019 00:44	WG1397347

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	12/16/2019 18:58	WG1397045

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	T8	1	12/17/2019 16:50	WG1397697

Sample Narrative:

L1170911-01 WG1397697: 7.97 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	551		10.0	1	12/15/2019 15:25	WG1396956

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	12/16/2019 21:30	WG1397371

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.39		2.00	1	12/17/2019 00:44	WG1397347
Barium	155		0.500	1	12/17/2019 00:44	WG1397347
Cadmium	ND		0.500	1	12/17/2019 00:44	WG1397347
Chromium	15.3		1.00	1	12/17/2019 00:44	WG1397347
Copper	12.7		2.00	1	12/17/2019 00:44	WG1397347
Lead	11.5		0.500	1	12/17/2019 00:44	WG1397347
Nickel	17.7		2.00	1	12/17/2019 00:44	WG1397347
Selenium	ND		2.00	1	12/17/2019 00:44	WG1397347
Silver	ND		1.00	1	12/17/2019 00:44	WG1397347
Zinc	51.5		5.00	1	12/17/2019 00:44	WG1397347

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00338		0.000500	1	12/16/2019 13:43	WG1397311
Toluene	ND		0.00500	1	12/16/2019 13:43	WG1397311
Ethylbenzene	0.00173		0.000500	1	12/16/2019 13:43	WG1397311
Total Xylene	0.0333		0.00150	1	12/16/2019 13:43	WG1397311
TPH (GC/FID) Low Fraction	0.342	B	0.100	1	12/16/2019 13:43	WG1397311

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)	*102*		*77.0-120*		*12/16/2019 13:43*	WG1397311
(S) a,a,a-Trifluorotoluene(PID)	*98.1*		*72.0-128*		*12/16/2019 13:43*	WG1397311

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	12/17/2019 19:00	WG1397421
(S) o-Terphenyl	*40.4*		*18.0-148*		*12/17/2019 19:00*	WG1397421

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	12/17/2019 21:39	WG1397433
Acenaphthene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Acenaphthylene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Benzo(a)anthracene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Benzo(a)pyrene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Benzo(b)fluoranthene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Benzo(g,h,i)perylene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Benzo(k)fluoranthene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Chrysene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Dibenz(a,h)anthracene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Fluoranthene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Fluorene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Naphthalene	ND		0.0200	1	12/17/2019 21:39	WG1397433
Phenanthrene	ND		0.00600	1	12/17/2019 21:39	WG1397433
Pyrene	ND		0.00600	1	12/17/2019 21:39	WG1397433
1-Methylnaphthalene	ND		0.0200	1	12/17/2019 21:39	WG1397433
2-Methylnaphthalene	ND		0.0200	1	12/17/2019 21:39	WG1397433
2-Chloronaphthalene	ND		0.0200	1	12/17/2019 21:39	WG1397433
(S) p-Terphenyl-d14	*95.5*		*23.0-120*		*12/17/2019 21:39*	WG1397433
(S) Nitrobenzene-d5	*99.1*		*14.0-149*		*12/17/2019 21:39*	WG1397433
(S) 2-Fluorobiphenyl	*81.1*		*34.0-125*		*12/17/2019 21:39*	WG1397433

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.25		1	12/17/2019 14:09	WG1397073

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	12.8		1.00	1	12/17/2019 00:46	WG1397347

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	12/16/2019 18:59	WG1397045

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.54	T8	1	12/17/2019 16:50	WG1397697

Sample Narrative:

L1170911-02 WG1397697: 8.54 at 22.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	275		10.0	1	12/15/2019 15:25	WG1396956

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	12/16/2019 21:33	WG1397371

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.85		2.00	1	12/17/2019 00:46	WG1397347
Barium	161		0.500	1	12/17/2019 00:46	WG1397347
Cadmium	ND		0.500	1	12/17/2019 00:46	WG1397347
Chromium	12.8		1.00	1	12/17/2019 00:46	WG1397347
Copper	10.8		2.00	1	12/17/2019 00:46	WG1397347
Lead	11.3		0.500	1	12/17/2019 00:46	WG1397347
Nickel	15.5		2.00	1	12/17/2019 00:46	WG1397347
Selenium	ND		2.00	1	12/17/2019 00:46	WG1397347
Silver	ND		1.00	1	12/17/2019 00:46	WG1397347
Zinc	47.7		5.00	1	12/17/2019 00:46	WG1397347

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00192		0.000500	1	12/16/2019 14:03	WG1397311
Toluene	ND		0.00500	1	12/16/2019 14:03	WG1397311
Ethylbenzene	0.00172		0.000500	1	12/16/2019 14:03	WG1397311
Total Xylene	0.0130		0.00150	1	12/16/2019 14:03	WG1397311
TPH (GC/FID) Low Fraction	0.600		0.100	1	12/16/2019 14:03	WG1397311

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)	*102*		*77.0-120*		*12/16/2019 14:03*	WG1397311
(S) a,a,a-Trifluorotoluene(PID)	*100*		*72.0-128*		*12/16/2019 14:03*	WG1397311

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	12/17/2019 18:09	WG1397421
(S) o-Terphenyl	*48.4*		*18.0-148*		*12/17/2019 18:09*	WG1397421

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	12/17/2019 21:59	WG1397433
Acenaphthene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Acenaphthylene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Benzo(a)anthracene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Benzo(a)pyrene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Benzo(b)fluoranthene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Benzo(g,h,i)perylene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Benzo(k)fluoranthene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Chrysene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Dibenz(a,h)anthracene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Fluoranthene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Fluorene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Naphthalene	ND		0.0200	1	12/17/2019 21:59	WG1397433
Phenanthrene	ND		0.00600	1	12/17/2019 21:59	WG1397433
Pyrene	ND		0.00600	1	12/17/2019 21:59	WG1397433
1-Methylnaphthalene	ND		0.0200	1	12/17/2019 21:59	WG1397433
2-Methylnaphthalene	ND		0.0200	1	12/17/2019 21:59	WG1397433
2-Chloronaphthalene	ND		0.0200	1	12/17/2019 21:59	WG1397433
(S) p-Terphenyl-d14	*100*		*23.0-120*		*12/17/2019 21:59*	WG1397433
(S) Nitrobenzene-d5	*107*		*14.0-149*		*12/17/2019 21:59*	WG1397433
(S) 2-Fluorobiphenyl	*87.5*		*34.0-125*		*12/17/2019 21:59*	WG1397433

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.39		1	12/17/2019 14:12	WG1397073

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	16.1		1.00	1	12/17/2019 00:49	WG1397347

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	12/16/2019 18:59	WG1397045

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	T8	1	12/17/2019 16:50	WG1397697

Sample Narrative:

L1170911-03 WG1397697: 8.37 at 22.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	489		10.0	1	12/15/2019 15:25	WG1396956

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	12/16/2019 21:11	WG1397371

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.43		2.00	1	12/17/2019 00:49	WG1397347
Barium	168		0.500	1	12/17/2019 00:49	WG1397347
Cadmium	ND		0.500	1	12/17/2019 00:49	WG1397347
Chromium	16.1		1.00	1	12/17/2019 00:49	WG1397347
Copper	11.8		2.00	1	12/17/2019 00:49	WG1397347
Lead	11.2		0.500	1	12/17/2019 00:49	WG1397347
Nickel	17.1		2.00	1	12/17/2019 00:49	WG1397347
Selenium	ND		2.00	1	12/17/2019 00:49	WG1397347
Silver	ND		1.00	1	12/17/2019 00:49	WG1397347
Zinc	54.5		5.00	1	12/17/2019 00:49	WG1397347

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000927		0.000500	1	12/16/2019 14:23	WG1397311
Toluene	ND		0.00500	1	12/16/2019 14:23	WG1397311
Ethylbenzene	ND		0.000500	1	12/16/2019 14:23	WG1397311
Total Xylene	ND		0.00150	1	12/16/2019 14:23	WG1397311
TPH (GC/FID) Low Fraction	ND		0.100	1	12/16/2019 14:23	WG1397311

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)	*106*		*77.0-120*		*12/16/2019 14:23*	WG1397311
(S) a,a,a-Trifluorotoluene(PID)	*96.3*		*72.0-128*		*12/16/2019 14:23*	WG1397311

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	12/17/2019 18:47	WG1397421
(S) o-Terphenyl	*41.7*		*18.0-148*		*12/17/2019 18:47*	WG1397421

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	12/17/2019 22:20	WG1397433
Acenaphthene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Acenaphthylene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Benzo(a)anthracene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Benzo(a)pyrene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Benzo(b)fluoranthene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Benzo(g,h,i)perylene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Benzo(k)fluoranthene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Chrysene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Dibenz(a,h)anthracene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Fluoranthene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Fluorene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Naphthalene	ND		0.0200	1	12/17/2019 22:20	WG1397433
Phenanthrene	ND		0.00600	1	12/17/2019 22:20	WG1397433
Pyrene	ND		0.00600	1	12/17/2019 22:20	WG1397433
1-Methylnaphthalene	ND		0.0200	1	12/17/2019 22:20	WG1397433
2-Methylnaphthalene	ND		0.0200	1	12/17/2019 22:20	WG1397433
2-Chloronaphthalene	ND		0.0200	1	12/17/2019 22:20	WG1397433
(S) p-Terphenyl-d14	*87.4*		*23.0-120*		*12/17/2019 22:20*	WG1397433
(S) Nitrobenzene-d5	*97.3*		*14.0-149*		*12/17/2019 22:20*	WG1397433
(S) 2-Fluorobiphenyl	*75.4*		*34.0-125*		*12/17/2019 22:20*	WG1397433

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.63		1	12/17/2019 14:14	WG1397073

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	13.0		1.00	1	12/17/2019 00:51	WG1397347

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	12/16/2019 19:00	WG1397045

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	12/17/2019 16:50	WG1397697

Sample Narrative:

L1170911-04 WG1397697: 7.95 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1170		10.0	1	12/15/2019 15:25	WG1396956

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0300	1	12/16/2019 21:35	WG1397371

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.52		2.00	1	12/17/2019 00:51	WG1397347
Barium	142		0.500	1	12/17/2019 00:51	WG1397347
Cadmium	ND		0.500	1	12/17/2019 00:51	WG1397347
Chromium	13.0		1.00	1	12/17/2019 00:51	WG1397347
Copper	13.0		2.00	1	12/17/2019 00:51	WG1397347
Lead	11.5		0.500	1	12/17/2019 00:51	WG1397347
Nickel	16.8		2.00	1	12/17/2019 00:51	WG1397347
Selenium	ND		2.00	1	12/17/2019 00:51	WG1397347
Silver	ND		1.00	1	12/17/2019 00:51	WG1397347
Zinc	52.1		5.00	1	12/17/2019 00:51	WG1397347

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0140		0.000500	1	12/16/2019 14:44	WG1397311
Toluene	ND		0.00500	1	12/16/2019 14:44	WG1397311
Ethylbenzene	0.00347		0.000500	1	12/16/2019 14:44	WG1397311
Total Xylene	0.0301		0.00150	1	12/16/2019 14:44	WG1397311
TPH (GC/FID) Low Fraction	0.321	B	0.100	1	12/16/2019 14:44	WG1397311

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)	*105*		*77.0-120*		*12/16/2019 14:44*	WG1397311
(S) a,a,a-Trifluorotoluene(PID)	*95.8*		*72.0-128*		*12/16/2019 14:44*	WG1397311

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	12/17/2019 18:22	WG1397421
(S) o-Terphenyl	*41.8*		*18.0-148*		*12/17/2019 18:22*	WG1397421

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	12/17/2019 22:41	WG1397433
Acenaphthene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Acenaphthylene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Benzo(a)anthracene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Benzo(a)pyrene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Benzo(b)fluoranthene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Benzo(g,h,i)perylene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Benzo(k)fluoranthene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Chrysene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Dibenz(a,h)anthracene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Fluoranthene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Fluorene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Naphthalene	ND		0.0200	1	12/17/2019 22:41	WG1397433
Phenanthrene	ND		0.00600	1	12/17/2019 22:41	WG1397433
Pyrene	ND		0.00600	1	12/17/2019 22:41	WG1397433
1-Methylnaphthalene	ND		0.0200	1	12/17/2019 22:41	WG1397433
2-Methylnaphthalene	ND		0.0200	1	12/17/2019 22:41	WG1397433
2-Chloronaphthalene	ND		0.0200	1	12/17/2019 22:41	WG1397433
(S) p-Terphenyl-d14	*83.1*		*23.0-120*		*12/17/2019 22:41*	WG1397433
(S) Nitrobenzene-d5	*88.7*		*14.0-149*		*12/17/2019 22:41*	WG1397433
(S) 2-Fluorobiphenyl	*71.7*		*34.0-125*		*12/17/2019 22:41*	WG1397433

Method Blank (MB)

(MB) R3482913-1 12/16/19 18:46

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

L1170385-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1170385-01 12/16/19 18:52 • (DUP) R3482913-3 12/16/19 18:52

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

L1170911-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1170911-04 12/16/19 19:00 • (DUP) R3482913-4 12/16/19 19:00

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) R3482913-2 12/16/19 18:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	25.1	105	80.0-120	

L1170990-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170990-02 12/16/19 19:01 • (MS) R3482913-5 12/16/19 19:01 • (MSD) R3482913-6 12/16/19 19:01

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	19.1	18.8	95.4	94.0	1	75.0-125			1.47	20

L1170990-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1170990-02 12/16/19 19:01 • (MS) R3482913-7 12/16/19 19:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	638	ND	624	97.8	50	75.0-125	

L1170907-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1170907-01 12/17/19 16:50 • (DUP) R3483324-2 12/17/19 16:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.67	8.64	1	0.347		1

Sample Narrative:

OS: 8.67 at 21.6C

DUP: 8.64 at 21.8C

L1171345-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1171345-05 12/17/19 16:50 • (DUP) R3483324-3 12/17/19 16:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.27	7.30	1	0.412		1

Sample Narrative:

OS: 7.27 at 21.2C

DUP: 7.3 at 20.9C

Laboratory Control Sample (LCS)

(LCS) R3483324-1 12/17/19 16:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 17.7C

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

Method Blank (MB)

(MB) R3482516-1 12/15/19 15:25

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

L1170385-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1170385-01 12/15/19 15:25 • (DUP) R3482516-3 12/15/19 15:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2610	2610	1	0.345		20

L1170990-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1170990-05 12/15/19 15:25 • (DUP) R3482516-4 12/15/19 15:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4020	4030	1	0.273		20

Laboratory Control Sample (LCS)

(LCS) R3482516-2 12/15/19 15:25

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	475	498	105	85.0-115	

Method Blank (MB)

(MB) R3482961-1 12/16/19 21:04

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

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

(LCS) R3482961-2 12/16/19 21:06 • (LCSD) R3482961-3 12/16/19 21:08

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	0.500	0.455	0.460	91.0	92.0	80.0-120			1.09	20

L1170911-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170911-03 12/16/19 21:11 • (MS) R3482961-4 12/16/19 21:13 • (MSD) R3482961-5 12/16/19 21:15

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	0.500	ND	0.483	0.453	93.1	87.2	1	75.0-125			6.31	20

Method Blank (MB)

(MB) R3482989-1 12/17/19 00:07

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) R3482989-2 12/17/19 00:09 • (LCSD) R3482989-3 12/17/19 00:12

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	89.6	88.1	89.6	88.1	80.0-120			1.78	20
Barium	100	100	98.2	100	98.2	80.0-120			2.03	20
Cadmium	100	97.2	95.9	97.2	95.9	80.0-120			1.42	20
Chromium	100	101	99.5	101	99.5	80.0-120			1.74	20
Copper	100	102	101	102	101	80.0-120			0.993	20
Lead	100	93.5	90.9	93.5	90.9	80.0-120			2.78	20
Nickel	100	97.6	95.3	97.6	95.3	80.0-120			2.37	20
Selenium	100	98.0	96.1	98.0	96.1	80.0-120			1.88	20
Silver	20.0	19.4	19.1	97.2	95.4	80.0-120			1.86	20
Zinc	100	95.7	93.3	95.7	93.3	80.0-120			2.61	20

L1170733-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170733-01 12/17/19 00:15 • (MS) R3482989-6 12/17/19 00:23 • (MSD) R3482989-7 12/17/19 00:25

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	112	1.21	105	109	92.2	96.1	1	75.0-125			4.16	20
Barium	112	30.5	135	137	92.6	94.7	1	75.0-125			1.79	20
Cadmium	112	0.121	112	116	99.2	103	1	75.0-125			3.97	20
Chromium	112	14.1	121	129	95.4	102	1	75.0-125			5.77	20
Copper	112	10.6	127	132	103	108	1	75.0-125			4.38	20
Lead	112	4.28	108	113	92.2	96.7	1	75.0-125			4.59	20

L1170733-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170733-01 12/17/19 00:15 • (MS) R3482989-6 12/17/19 00:23 • (MSD) R3482989-7 12/17/19 00:25

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	112	17.0	128	134	98.9	104	1	75.0-125			4.49	20
Selenium	112	0.803	113	118	100	105	1	75.0-125			4.34	20
Silver	22.5	U	22.6	23.5	101	105	1	75.0-125			3.82	20
Zinc	112	21.1	123	126	90.5	93.3	1	75.0-125			2.49	20

Method Blank (MB)

(MB) R3482954-3 12/16/19 11:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000267	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0417	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*102*			*72.0-128*

Laboratory Control Sample (LCS)

(LCS) R3482954-1 12/16/19 10:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0535	107	76.0-121	
Toluene	0.0500	0.0505	101	80.0-120	
Ethylbenzene	0.0500	0.0522	104	80.0-124	
Total Xylene	0.150	0.143	95.3	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			*108*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*105*	*72.0-128*	

Laboratory Control Sample (LCS)

(LCS) R3482954-2 12/16/19 10:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.72	104	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*113*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*129*	*72.0-128*	J1

L1170494-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170494-01 12/16/19 17:07 • (MS) R3482954-4 12/16/19 21:33 • (MSD) R3482954-5 12/16/19 21:54

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 %
TPH (GC/FID) Low Fraction	550	79.4	558	534	87.0	82.7	100	10.0-151			4.40	28
(S) a,a,a-Trifluorotoluene(FID)					*114*	*113*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*128*	*128*		*72.0-128*				

Method Blank (MB)

(MB) R3483340-1 12/17/19 13:21

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	*70.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3483340-2 12/17/19 13:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	40.6	81.2	50.0-150	
(S) o-Terphenyl			*67.3*	*18.0-148*	

Method Blank (MB)

(MB) R3483504-2 12/17/19 20:58

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	*115*			*14.0-149*
(S) 2-Fluorobiphenyl	*96.4*			*34.0-125*
(S) p-Terphenyl-d14	*113*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3483504-1 12/17/19 20:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0725	90.6	50.0-126	
Acenaphthene	0.0800	0.0755	94.4	50.0-120	
Acenaphthylene	0.0800	0.0784	98.0	50.0-120	
Benzo(a)anthracene	0.0800	0.0711	88.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0701	87.6	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0667	83.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0681	85.1	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0724	90.5	49.0-125	
Chrysene	0.0800	0.0700	87.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0636	79.5	47.0-125	
Fluoranthene	0.0800	0.0703	87.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3483504-1 12/17/19 20:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0775	96.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0661	82.6	46.0-125	
Naphthalene	0.0800	0.0747	93.4	50.0-120	
Phenanthrene	0.0800	0.0673	84.1	47.0-120	
Pyrene	0.0800	0.0686	85.8	43.0-123	
1-Methylnaphthalene	0.0800	0.0836	105	51.0-121	
2-Methylnaphthalene	0.0800	0.0746	93.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0742	92.8	50.0-120	
(S) Nitrobenzene-d5			*116*	*14.0-149*	
(S) 2-Fluorobiphenyl			*98.2*	*34.0-125*	
(S) p-Terphenyl-d14			*113*	*23.0-120*	

L1170721-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1170721-02 12/18/19 02:48 • (MS) R3483504-3 12/18/19 03:09 • (MSD) R3483504-4 12/18/19 03:29

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 %
Anthracene	0.109	0.0307	0.122	0.102	83.4	64.8	1	10.0-145			17.8	30
Acenaphthene	0.109	0.0222	0.111	0.105	81.2	75.4	1	14.0-127			5.52	27
Acenaphthylene	0.109	ND	0.0980	0.100	85.1	86.8	1	21.0-124			2.37	25
Benzo(a)anthracene	0.109	0.0818	0.144	0.133	57.0	46.3	1	10.0-139			8.21	30
Benzo(a)pyrene	0.109	0.0976	0.143	0.138	41.2	37.2	1	10.0-141			2.96	31
Benzo(b)fluoranthene	0.109	0.102	0.137	0.128	32.1	23.5	1	10.0-140			6.99	36
Benzo(g,h,i)perylene	0.109	0.0678	0.123	0.136	50.5	62.4	1	10.0-140			10.3	33
Benzo(k)fluoranthene	0.109	0.0274	0.109	0.106	74.7	71.8	1	10.0-137			2.57	31
Chrysene	0.109	0.130	0.166	0.127	33.2	0.000	1	10.0-145		J6	27.0	30
Dibenz(a,h)anthracene	0.109	0.0125	0.0825	0.0814	64.2	62.9	1	10.0-132			1.35	31
Fluoranthene	0.109	0.194	0.228	0.187	31.7	0.000	1	10.0-153		J6	20.0	33
Fluorene	0.109	0.0233	0.111	0.100	80.1	70.2	1	11.0-130			9.85	29
Indeno(1,2,3-cd)pyrene	0.109	0.0494	0.110	0.113	55.3	58.1	1	10.0-137			2.98	32
Naphthalene	0.109	0.0292	0.0955	0.0989	60.8	63.5	1	10.0-135			3.42	27
Phenanthrene	0.109	0.234	0.245	0.179	10.2	0.000	1	10.0-144		J3 J6	31.4	31
Pyrene	0.109	0.273	0.321	0.197	44.4	0.000	1	10.0-148		J3 J6	48.1	35
1-Methylnaphthalene	0.109	ND	0.0953	0.0925	81.4	78.4	1	10.0-142			2.95	28
2-Methylnaphthalene	0.109	ND	0.0885	0.0868	71.2	69.3	1	10.0-137			1.90	28
2-Chloronaphthalene	0.109	ND	0.0915	0.0900	83.9	82.1	1	29.0-120			1.68	24
(S) Nitrobenzene-d5					*101*	*98.7*		*14.0-149*				
(S) 2-Fluorobiphenyl					*85.6*	*82.9*		*34.0-125*				
(S) p-Terphenyl-d14					*138*	*95.4*		*23.0-120*	J1			

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
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	T104704245-18-15
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

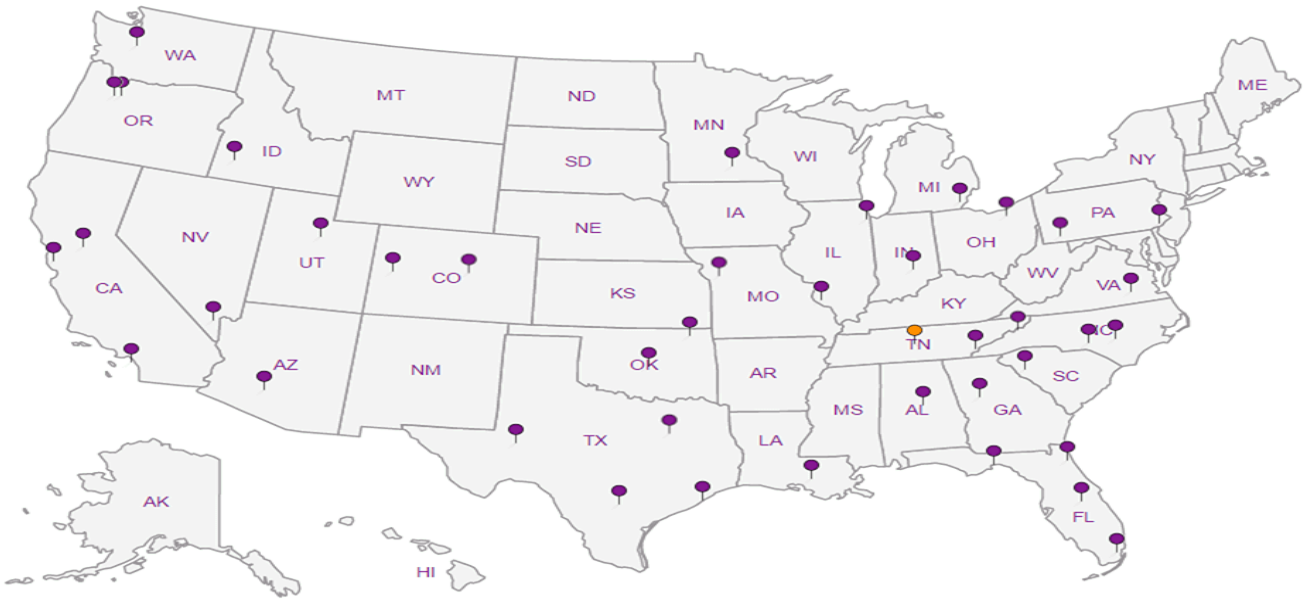
Third Party Federal Accreditations

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.



Entrada Consulting Group
330 Grand Avenue, Unit C
Grand Junction, CO 81501

Billing Information:

Report to: **Stuart Hall**

Email To: **shall@entradainc.com**

Project Description: **Laramie Hells Gulch 26-6 Spill Response**

City/State Collected: **CO**

Phone: **970-712-7329**
Fax:

Client Project #

Lab Project #

Collected by (print): **Jessica Dilka**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH (GRO)	TPH (DRO)	BTEX	PAH *	Electrical Conductivity	SAR, pH	Metals *				Remarks	Sample # (lab only)
SS6	Grab			12/13/19	1155	2	X	X	X	X	X	X	X					01
SS7	Grab			12/13/19	1200	2	X	X	X	X	X	X	X					02
SS8	Grab			12/13/19	1205	2	X	X	X	X	X	X	X					03
SS9	Grab			12/19/19	1210	2	X	X	X	X	X	X	X					04

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
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 # 1170911
A224

Acctnum: **OXYGJCO**
Template:
Prelogin:
TSR:
PB:
Shipped Via:

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

Remarks:
***COGCC Table 910 PAH and Metals Lists**

pH _____ Temp _____
Flow _____ Other _____

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

Tracking # 7136 2664 0175

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	12/13/19	1500	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	12/13/19	1700	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.3 °C Bottles Received: 8

Date: 12.14.19 Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK