ANALYTICAL REPORT

November 13, 2017

HRL Compliance Solutions- CO

Sample Delivery Group:	L948505
Samples Received:	11/04/2017
Project Number:	Black Hills
Description:	Black Hills - Homer Deep 9-41 Pit Closure
Site:	HD 9-41 PIT CLOSURE
Report To:	Kris Rowe 2385 F ½ Road Grand Junction, CO 81505

Entire Report Reviewed By:

Shane Gambill

Technical Service Representative

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

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NORTH WALL @ 1FT L948505-01 Solid

Collected by: Jordan Cario | Collected date/time: 11/03/17 14:27 | Received date/time: 11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1039971	1	11/07/17 14:15	11/08/17 11:25	CCE
Calculated Results	WG1039616	1	11/09/17 09:00	11/10/17 01:54	CCE
Wet Chemistry by Method 3060A/7196A	WG1039919	1	11/08/17 13:28	11/09/17 13:42	GB
Wet Chemistry by Method 9045D	WG1040977	1	11/10/17 11:20	11/10/17 12:37	ER
Wet Chemistry by Method 9050AMod	WG1039684	1	11/07/17 14:44	11/07/17 15:29	TH
Mercury by Method 7471A	WG1039338	1	11/05/17 14:23	11/06/17 13:11	EL
Metals (ICP) by Method 6010B	WG1039616	1	11/09/17 09:00	11/10/17 01:54	CCE
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1039337	1	11/05/17 06:48	11/06/17 06:18	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1039330	2	11/05/17 06:48	11/05/17 17:57	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1040545	1	11/11/17 09:03	11/13/17 15:46	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040588	1	11/10/17 03:06	11/10/17 11:17	KMP

SOUTH WALL @ 1FT L948505-02 Solid

Collected by: Jordan Cario | Collected date/time: 11/03/17 14:10 | Received date/time: 11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1039971	1	11/07/17 14:15	11/08/17 11:28	CCE
Calculated Results	WG1039616	1	11/09/17 09:00	11/10/17 02:11	CCE
Wet Chemistry by Method 3060A/7196A	WG1039919	1	11/08/17 13:28	11/09/17 13:43	GB
Wet Chemistry by Method 9045D	WG1040978	1	11/11/17 13:10	11/11/17 14:47	GB
Wet Chemistry by Method 9050AMod	WG1039684	1	11/07/17 14:44	11/07/17 15:29	TH
Mercury by Method 7471A	WG1039338	1	11/05/17 14:23	11/06/17 13:13	EL
Metals (ICP) by Method 6010B	WG1039616	1	11/09/17 09:00	11/10/17 02:11	CCE
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1039337	1	11/05/17 06:48	11/06/17 06:40	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1039330	1	11/05/17 06:48	11/05/17 18:16	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1040545	1	11/11/17 09:03	11/13/17 15:03	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040588	1	11/10/17 03:06	11/10/17 11:39	KMP

EAST WALL @ 1FT L948505-03 Solid

Collected by: Jordan Cario | Collected date/time: 11/03/17 14:00 | Received date/time: 11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1039971	1	11/07/17 14:15	11/08/17 11:31	CCE
Calculated Results	WG1039616	1	11/09/17 09:00	11/10/17 02:14	CCE
Wet Chemistry by Method 3060A/7196A	WG1039919	1	11/08/17 13:28	11/09/17 13:47	GB
Wet Chemistry by Method 9045D	WG1040978	1	11/11/17 13:10	11/11/17 14:47	GB
Wet Chemistry by Method 9050AMod	WG1039684	1	11/07/17 14:44	11/07/17 15:29	TH
Mercury by Method 7471A	WG1039338	1	11/05/17 14:23	11/06/17 13:15	EL
Metals (ICP) by Method 6010B	WG1039616	1	11/09/17 09:00	11/10/17 02:14	CCE
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1039337	1	11/05/17 06:48	11/09/17 17:09	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1039330	1	11/05/17 06:48	11/05/17 18:35	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1040545	1	11/11/17 09:03	11/13/17 16:19	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040588	1	11/10/17 03:06	11/10/17 12:01	KMP

WEST WALL @ 1FT L948505-04 Solid

Collected by: Jordan Cario | Collected date/time: 11/03/17 14:35 | Received date/time: 11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1039971	1	11/07/17 14:15	11/08/17 11:34	CCE
Calculated Results	WG1039616	1	11/09/17 09:00	11/10/17 02:24	CCE
Wet Chemistry by Method 3060A/7196A	WG1039919	1	11/08/17 13:28	11/09/17 13:48	GB
Wet Chemistry by Method 9045D	WG1040978	1	11/11/17 13:10	11/11/17 14:47	GB
Wet Chemistry by Method 9050AMod	WG1039684	1	11/07/17 14:44	11/07/17 15:29	TH

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

WEST WALL @ 1FT L948505-04 Solid

Collected by	Collected date/time	Received date/time
Jordan Cario	11/03/17 14:35	11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1039338	1	11/05/17 14:23	11/06/17 13:17	EL
Metals (ICP) by Method 6010B	WG1039616	1	11/09/17 09:00	11/10/17 02:24	CCE
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1039337	1	11/05/17 06:48	11/06/17 07:24	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1039330	1	11/05/17 06:48	11/05/17 18:54	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1040545	1	11/11/17 09:03	11/13/17 15:57	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040588	1	11/10/17 03:06	11/10/17 12:23	KMP

PIT BOTTOM @ 1FT L948505-05 Solid

Collected by	Collected date/time	Received date/time
Jordan Cario	11/03/17 14:20	11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1039971	1	11/07/17 14:15	11/08/17 11:38	CCE
Calculated Results	WG1039616	1	11/09/17 09:00	11/10/17 02:27	CCE
Wet Chemistry by Method 3060A/7196A	WG1039919	1	11/08/17 13:28	11/09/17 13:48	GB
Wet Chemistry by Method 9045D	WG1040978	1	11/11/17 13:10	11/11/17 14:47	GB
Wet Chemistry by Method 9050AMod	WG1039684	1	11/07/17 14:44	11/07/17 15:29	TH
Mercury by Method 7471A	WG1039338	1	11/05/17 14:23	11/06/17 13:20	EL
Metals (ICP) by Method 6010B	WG1039616	1	11/09/17 09:00	11/10/17 02:27	CCE
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1039337	1	11/05/17 06:48	11/06/17 07:46	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1039330	1	11/05/17 06:48	11/05/17 19:12	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1040545	1	11/11/17 09:03	11/13/17 16:08	TH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040588	1	11/10/17 03:06	11/10/17 12:44	KMP

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Shane Gambill
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.46		1	11/08/2017 11:25	WG1039971

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	16.2		1.00	1	11/10/2017 01:54	WG1039616

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	11/09/2017 13:42	WG1039919

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	11/10/2017 12:37	WG1040977

Sample Narrative:

L948505-01 WG1040977: 8.58 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1220		10.0	1	11/07/2017 15:29	WG1039684

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/06/2017 13:11	WG1039338

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.2	O1	2.00	1	11/10/2017 01:54	WG1039616
Barium	231	J6 O1	0.500	1	11/10/2017 01:54	WG1039616
Cadmium	ND	O1	0.500	1	11/10/2017 01:54	WG1039616
Chromium	16.2		1.00	1	11/10/2017 01:54	WG1039616
Copper	13.4		2.00	1	11/10/2017 01:54	WG1039616
Lead	8.23	O1	0.500	1	11/10/2017 01:54	WG1039616
Nickel	14.9	O1	2.00	1	11/10/2017 01:54	WG1039616
Selenium	ND	O1	2.00	1	11/10/2017 01:54	WG1039616
Silver	ND	O1	1.00	1	11/10/2017 01:54	WG1039616
Zinc	46.9	O1	5.00	1	11/10/2017 01:54	WG1039616

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.345		0.100	1	11/06/2017 06:18	WG1039337
(S) a,a,a-Trifluorotoluene(FID)	*91.5*		*77.0-120*		*11/06/2017 06:18*	WG1039337

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00500	2	11/05/2017 17:57	WG1039330
Toluene	0.0132		0.0100	2	11/05/2017 17:57	WG1039330
Ethylbenzene	0.00580		0.00500	2	11/05/2017 17:57	WG1039330
Total Xylenes	0.0222		0.0150	2	11/05/2017 17:57	WG1039330
(S) Toluene-d8	*109*		*80.0-120*		*11/05/2017 17:57*	WG1039330
(S) Dibromofluoromethane	*77.2*		*74.0-131*		*11/05/2017 17:57*	WG1039330
(S) a,a,a-Trifluorotoluene	*96.1*		*80.0-120*		*11/05/2017 17:57*	WG1039330
(S) 4-Bromofluorobenzene	*71.6*		*64.0-132*		*11/05/2017 17:57*	WG1039330

Sample Narrative:

L948505-01 WG1039330: Dilution due to sample foaming.

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	7.76		4.00	1	11/13/2017 15:46	WG1040545
(S) o-Terphenyl	*48.3*		*18.0-148*		*11/13/2017 15:46*	WG1040545

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	11/10/2017 11:17	WG1040588
Acenaphthene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Acenaphthylene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Benzo(a)anthracene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Benzo(a)pyrene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Benzo(b)fluoranthene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Benzo(g,h,i)perylene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Benzo(k)fluoranthene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Chrysene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Dibenz(a,h)anthracene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Fluoranthene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Fluorene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Naphthalene	ND		0.0200	1	11/10/2017 11:17	WG1040588
Phenanthrene	ND		0.00600	1	11/10/2017 11:17	WG1040588
Pyrene	ND		0.00600	1	11/10/2017 11:17	WG1040588
1-Methylnaphthalene	ND		0.0200	1	11/10/2017 11:17	WG1040588
2-Methylnaphthalene	ND		0.0200	1	11/10/2017 11:17	WG1040588
2-Chloronaphthalene	ND		0.0200	1	11/10/2017 11:17	WG1040588
(S) p-Terphenyl-d14	*83.7*		*23.0-120*		*11/10/2017 11:17*	WG1040588
(S) Nitrobenzene-d5	*83.7*		*14.0-149*		*11/10/2017 11:17*	WG1040588
(S) 2-Fluorobiphenyl	*92.0*		*34.0-125*		*11/10/2017 11:17*	WG1040588

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.70		1	11/08/2017 11:28	WG1039971

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	17.0		1.00	1	11/10/2017 02:11	WG1039616

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	11/09/2017 13:43	WG1039919

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.41	T8	1	11/11/2017 14:47	WG1040978

Sample Narrative:

L948505-02 WG1040978: 7.41 at 18.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2620		10.0	1	11/07/2017 15:29	WG1039684

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0200		0.0200	1	11/06/2017 13:13	WG1039338

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.53		2.00	1	11/10/2017 02:11	WG1039616
Barium	289		0.500	1	11/10/2017 02:11	WG1039616
Cadmium	ND		0.500	1	11/10/2017 02:11	WG1039616
Chromium	17.0		1.00	1	11/10/2017 02:11	WG1039616
Copper	17.6		2.00	1	11/10/2017 02:11	WG1039616
Lead	11.4		0.500	1	11/10/2017 02:11	WG1039616
Nickel	14.2		2.00	1	11/10/2017 02:11	WG1039616
Selenium	ND		2.00	1	11/10/2017 02:11	WG1039616
Silver	ND		1.00	1	11/10/2017 02:11	WG1039616
Zinc	43.6		5.00	1	11/10/2017 02:11	WG1039616

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.327		0.100	1	11/06/2017 06:40	WG1039337
(S) a,a,a-Trifluorotoluene(FID)	*90.9*		*77.0-120*		*11/06/2017 06:40*	WG1039337

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	1	11/05/2017 18:16	WG1039330
Toluene	ND		0.00500	1	11/05/2017 18:16	WG1039330
Ethylbenzene	ND		0.00250	1	11/05/2017 18:16	WG1039330
Total Xylenes	ND		0.00750	1	11/05/2017 18:16	WG1039330
(S) Toluene-d8	*108*		*80.0-120*		*11/05/2017 18:16*	WG1039330
(S) Dibromofluoromethane	*74.1*		*74.0-131*		*11/05/2017 18:16*	WG1039330
(S) a,a,a-Trifluorotoluene	*104*		*80.0-120*		*11/05/2017 18:16*	WG1039330
(S) 4-Bromofluorobenzene	*99.4*		*64.0-132*		*11/05/2017 18:16*	WG1039330

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	22.4		4.00	1	11/13/2017 15:03	WG1040545
(S) o-Terphenyl	*59.0*		*18.0-148*		*11/13/2017 15:03*	WG1040545

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	11/10/2017 11:39	WG1040588
Acenaphthene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Acenaphthylene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Benzo(a)anthracene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Benzo(a)pyrene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Benzo(b)fluoranthene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Benzo(g,h,i)perylene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Benzo(k)fluoranthene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Chrysene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Dibenz(a,h)anthracene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Fluoranthene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Fluorene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Naphthalene	ND		0.0200	1	11/10/2017 11:39	WG1040588
Phenanthrene	ND		0.00600	1	11/10/2017 11:39	WG1040588
Pyrene	ND		0.00600	1	11/10/2017 11:39	WG1040588
1-Methylnaphthalene	ND		0.0200	1	11/10/2017 11:39	WG1040588
2-Methylnaphthalene	ND		0.0200	1	11/10/2017 11:39	WG1040588
2-Chloronaphthalene	ND		0.0200	1	11/10/2017 11:39	WG1040588
(S) p-Terphenyl-d14	*90.2*		*23.0-120*		*11/10/2017 11:39*	WG1040588
(S) Nitrobenzene-d5	*88.8*		*14.0-149*		*11/10/2017 11:39*	WG1040588
(S) 2-Fluorobiphenyl	*94.5*		*34.0-125*		*11/10/2017 11:39*	WG1040588

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.26		1	11/08/2017 11:31	WG1039971

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	13.1		1.00	1	11/10/2017 02:14	WG1039616

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	11/09/2017 13:47	WG1039919

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.56	T8	1	11/11/2017 14:47	WG1040978

Sample Narrative:

L948505-03 WG1040978: 7.56 at 18.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2790		10.0	1	11/07/2017 15:29	WG1039684

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/06/2017 13:15	WG1039338

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.84		2.00	1	11/10/2017 02:14	WG1039616
Barium	237		0.500	1	11/10/2017 02:14	WG1039616
Cadmium	ND		0.500	1	11/10/2017 02:14	WG1039616
Chromium	14.9		1.00	1	11/10/2017 02:14	WG1039616
Copper	14.2		2.00	1	11/10/2017 02:14	WG1039616
Lead	8.79		0.500	1	11/10/2017 02:14	WG1039616
Nickel	14.6		2.00	1	11/10/2017 02:14	WG1039616
Selenium	ND		2.00	1	11/10/2017 02:14	WG1039616
Silver	ND		1.00	1	11/10/2017 02:14	WG1039616
Zinc	50.8		5.00	1	11/10/2017 02:14	WG1039616

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.494		0.100	1	11/09/2017 17:09	WG1039337
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*77.0-120*		*11/09/2017 17:09*	WG1039337

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	1	11/05/2017 18:35	WG1039330
Toluene	ND		0.00500	1	11/05/2017 18:35	WG1039330
Ethylbenzene	ND		0.00250	1	11/05/2017 18:35	WG1039330
Total Xylenes	ND		0.00750	1	11/05/2017 18:35	WG1039330
(S) Toluene-d8	*107*		*80.0-120*		*11/05/2017 18:35*	WG1039330
(S) Dibromofluoromethane	*74.8*		*74.0-131*		*11/05/2017 18:35*	WG1039330
(S) a,a,a-Trifluorotoluene	*98.0*		*80.0-120*		*11/05/2017 18:35*	WG1039330
(S) 4-Bromofluorobenzene	*99.5*		*64.0-132*		*11/05/2017 18:35*	WG1039330

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	16.3		4.00	1	11/13/2017 16:19	WG1040545
(S) o-Terphenyl	*60.8*		*18.0-148*		*11/13/2017 16:19*	WG1040545

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	11/10/2017 12:01	WG1040588
Acenaphthene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Acenaphthylene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Benzo(a)anthracene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Benzo(a)pyrene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Benzo(b)fluoranthene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Benzo(g,h,i)perylene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Benzo(k)fluoranthene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Chrysene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Dibenz(a,h)anthracene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Fluoranthene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Fluorene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Naphthalene	ND		0.0200	1	11/10/2017 12:01	WG1040588
Phenanthrene	ND		0.00600	1	11/10/2017 12:01	WG1040588
Pyrene	ND		0.00600	1	11/10/2017 12:01	WG1040588
1-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:01	WG1040588
2-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:01	WG1040588
2-Chloronaphthalene	ND		0.0200	1	11/10/2017 12:01	WG1040588
(S) p-Terphenyl-d14	*90.5*		*23.0-120*		*11/10/2017 12:01*	WG1040588
(S) Nitrobenzene-d5	*92.2*		*14.0-149*		*11/10/2017 12:01*	WG1040588
(S) 2-Fluorobiphenyl	*93.7*		*34.0-125*		*11/10/2017 12:01*	WG1040588

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.39		1	11/08/2017 11:34	WG1039971

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	14.8		1.00	1	11/10/2017 02:24	WG1039616

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	11/09/2017 13:48	WG1039919

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.55	T8	1	11/11/2017 14:47	WG1040978

Sample Narrative:

L948505-04 WG1040978: 7.55 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	ND		10.0	1	11/07/2017 15:29	WG1039684

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0212		0.0200	1	11/06/2017 13:17	WG1039338

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.6		2.00	1	11/10/2017 02:24	WG1039616
Barium	255		0.500	1	11/10/2017 02:24	WG1039616
Cadmium	ND		0.500	1	11/10/2017 02:24	WG1039616
Chromium	14.8		1.00	1	11/10/2017 02:24	WG1039616
Copper	15.5		2.00	1	11/10/2017 02:24	WG1039616
Lead	10.3		0.500	1	11/10/2017 02:24	WG1039616
Nickel	17.2		2.00	1	11/10/2017 02:24	WG1039616
Selenium	ND		2.00	1	11/10/2017 02:24	WG1039616
Silver	ND		1.00	1	11/10/2017 02:24	WG1039616
Zinc	53.6		5.00	1	11/10/2017 02:24	WG1039616

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.638		0.100	1	11/06/2017 07:24	WG1039337
(S) a,a,a-Trifluorotoluene(FID)	*91.8*		*77.0-120*		*11/06/2017 07:24*	WG1039337

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	1	11/05/2017 18:54	WG1039330
Toluene	ND		0.00500	1	11/05/2017 18:54	WG1039330
Ethylbenzene	ND		0.00250	1	11/05/2017 18:54	WG1039330
Total Xylenes	ND		0.00750	1	11/05/2017 18:54	WG1039330
(S) Toluene-d8	*102*		*80.0-120*		*11/05/2017 18:54*	WG1039330
(S) Dibromofluoromethane	*78.1*		*74.0-131*		*11/05/2017 18:54*	WG1039330
(S) a,a,a-Trifluorotoluene	*102*		*80.0-120*		*11/05/2017 18:54*	WG1039330
(S) 4-Bromofluorobenzene	*96.6*		*64.0-132*		*11/05/2017 18:54*	WG1039330

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	18.0		4.00	1	11/13/2017 15:57	WG1040545
(S) o-Terphenyl	*64.7*		*18.0-148*		*11/13/2017 15:57*	WG1040545

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	11/10/2017 12:23	WG1040588
Acenaphthene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Acenaphthylene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Benzo(a)anthracene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Benzo(a)pyrene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Benzo(b)fluoranthene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Benzo(g,h,i)perylene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Benzo(k)fluoranthene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Chrysene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Dibenz(a,h)anthracene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Fluoranthene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Fluorene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Naphthalene	ND		0.0200	1	11/10/2017 12:23	WG1040588
Phenanthrene	ND		0.00600	1	11/10/2017 12:23	WG1040588
Pyrene	ND		0.00600	1	11/10/2017 12:23	WG1040588
1-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:23	WG1040588
2-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:23	WG1040588
2-Chloronaphthalene	ND		0.0200	1	11/10/2017 12:23	WG1040588
(S) p-Terphenyl-d14	*88.0*		*23.0-120*		*11/10/2017 12:23*	WG1040588
(S) Nitrobenzene-d5	*88.3*		*14.0-149*		*11/10/2017 12:23*	WG1040588
(S) 2-Fluorobiphenyl	*92.5*		*34.0-125*		*11/10/2017 12:23*	WG1040588

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	29.8		1	11/08/2017 11:38	WG1039971

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	12.8		1.00	1	11/10/2017 02:27	WG1039616

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	11/09/2017 13:48	WG1039919

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.64	T8	1	11/11/2017 14:47	WG1040978

Sample Narrative:

L948505-05 WG1040978: 7.64 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	ND		10.0	1	11/07/2017 15:29	WG1039684

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/06/2017 13:20	WG1039338

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.84		2.00	1	11/10/2017 02:27	WG1039616
Barium	228		0.500	1	11/10/2017 02:27	WG1039616
Cadmium	ND		0.500	1	11/10/2017 02:27	WG1039616
Chromium	12.8		1.00	1	11/10/2017 02:27	WG1039616
Copper	12.4		2.00	1	11/10/2017 02:27	WG1039616
Lead	7.63		0.500	1	11/10/2017 02:27	WG1039616
Nickel	12.0		2.00	1	11/10/2017 02:27	WG1039616
Selenium	ND		2.00	1	11/10/2017 02:27	WG1039616
Silver	ND		1.00	1	11/10/2017 02:27	WG1039616
Zinc	40.1		5.00	1	11/10/2017 02:27	WG1039616

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.299		0.100	1	11/06/2017 07:46	WG1039337
(S) a,a,a-Trifluorotoluene(FID)	*91.9*		*77.0-120*		*11/06/2017 07:46*	WG1039337

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	1	11/05/2017 19:12	WG1039330
Toluene	ND		0.00500	1	11/05/2017 19:12	WG1039330
Ethylbenzene	ND		0.00250	1	11/05/2017 19:12	WG1039330
Total Xylenes	ND		0.00750	1	11/05/2017 19:12	WG1039330
(S) Toluene-d8	*103*		*80.0-120*		*11/05/2017 19:12*	WG1039330
(S) Dibromofluoromethane	*80.1*		*74.0-131*		*11/05/2017 19:12*	WG1039330
(S) a,a,a-Trifluorotoluene	*99.9*		*80.0-120*		*11/05/2017 19:12*	WG1039330
(S) 4-Bromofluorobenzene	*100*		*64.0-132*		*11/05/2017 19:12*	WG1039330

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	11/13/2017 16:08	WG1040545
(S) o-Terphenyl	*40.5*		*18.0-148*		*11/13/2017 16:08*	WG1040545

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	11/10/2017 12:44	WG1040588
Acenaphthene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Acenaphthylene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Benzo(a)anthracene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Benzo(a)pyrene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Benzo(b)fluoranthene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Benzo(g,h,i)perylene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Benzo(k)fluoranthene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Chrysene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Dibenz(a,h)anthracene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Fluoranthene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Fluorene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Naphthalene	ND		0.0200	1	11/10/2017 12:44	WG1040588
Phenanthrene	ND		0.00600	1	11/10/2017 12:44	WG1040588
Pyrene	ND		0.00600	1	11/10/2017 12:44	WG1040588
1-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:44	WG1040588
2-Methylnaphthalene	ND		0.0200	1	11/10/2017 12:44	WG1040588
2-Chloronaphthalene	ND		0.0200	1	11/10/2017 12:44	WG1040588
(S) p-Terphenyl-d14	*81.2*		*23.0-120*		*11/10/2017 12:44*	WG1040588
(S) Nitrobenzene-d5	*89.2*		*14.0-149*		*11/10/2017 12:44*	WG1040588
(S) 2-Fluorobiphenyl	*89.2*		*34.0-125*		*11/10/2017 12:44*	WG1040588

Method Blank (MB)

(MB) R3264404-1 11/09/17 13:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.64	2.00

L948505-01 Original Sample (OS) • Duplicate (DUP)

(OS) L948505-01 11/09/17 13:42 • (DUP) R3264404-4 11/09/17 13:43

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.000	1	0		20

L948653-01 Original Sample (OS) • Duplicate (DUP)

(OS) L948653-01 11/09/17 13:50 • (DUP) R3264404-9 11/09/17 13:51

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.760	1	0		20

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

(LCS) R3264404-2 11/09/17 13:36 • (LCSD) R3264404-3 11/09/17 13:36

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 %
Chromium,Hexavalent	56.9	39.6	39.4	70	69	30-170			1	20

L948505-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948505-02 11/09/17 13:43 • (MS) R3264404-5 11/09/17 13:43 • (MSD) R3264404-6 11/09/17 13:44

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 %
Chromium,Hexavalent	20.0	ND	16.8	16.8	84	84	1	75-125			0	20

L948442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L948442-01 11/10/17 12:37 • (DUP) R3264677-3 11/10/17 12:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.14	8.16	1	0.245		1

Sample Narrative:

OS: 8.14 at 18.3C

DUP: 8.16 at 18.3C

L949188-01 Original Sample (OS) • Duplicate (DUP)

(OS) L949188-01 11/10/17 12:37 • (DUP) R3264677-4 11/10/17 12:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.91	7.91	1	0.000		1

Sample Narrative:

OS: 7.91 at 18.4C

DUP: 7.91 at 18.3C

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

(LCS) R3264677-1 11/10/17 12:37 • (LCSD) R3264677-2 11/10/17 12:37

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	5.96	6.03	6.02	101	101	98.3-102			0.166	1

Sample Narrative:

LCS: 6.03 at 18C

LCSD: 6.02 at 18C

L948505-02 Original Sample (OS) • Duplicate (DUP)

(OS) L948505-02 11/11/17 14:47 • (DUP) R3264881-3 11/11/17 14:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.41	7.41	1	0.000		1

Sample Narrative:

OS: 7.41 at 18.9C

DUP: 7.41 at 18.8C

L949115-03 Original Sample (OS) • Duplicate (DUP)

(OS) L949115-03 11/11/17 14:47 • (DUP) R3264881-4 11/11/17 14:47

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.67	6.67	1	0.000		1

Sample Narrative:

OS: 6.67 at 18C

DUP: 6.67 at 18C

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

(LCS) R3264881-1 11/11/17 14:47 • (LCSD) R3264881-2 11/11/17 14:47

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	5.96	5.99	5.99	101	101	98.3-102			0.000	1

Sample Narrative:

LCS: 5.99 at 18.7C

LCSD: 5.99 at 18.8C

Method Blank (MB)

(MB) WG1039684-1 11/07/17 15:29

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

L948442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L948442-01 11/07/17 15:29 • (DUP) WG1039684-4 11/07/17 15:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	134	134	1	0.000		20

L948473-05 Original Sample (OS) • Duplicate (DUP)

(OS) L948473-05 11/07/17 15:29 • (DUP) WG1039684-5 11/07/17 15:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1450	1450	1	0.000		20

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

(LCS) WG1039684-2 11/07/17 15:29 • (LCSD) WG1039684-3 11/07/17 15:29

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	559	556	556	99.5	99.5	85.0-115			0.000	20

Method Blank (MB)

(MB) R3263372-1 11/06/17 12:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

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

(LCS) R3263372-2 11/06/17 12:31 • (LCSD) R3263372-3 11/06/17 12:33

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	0.270	0.270	90	90	80-120			0	20

L948233-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948233-01 11/06/17 12:40 • (MS) R3263372-4 11/06/17 12:42 • (MSD) R3263372-5 11/06/17 12:44

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	0.282	0.270	94	90	1	75-125			4	20

Method Blank (MB)

(MB) R3264542-1 11/10/17 01:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Copper	U		0.53	2.00
Lead	U		0.19	0.500
Nickel	U		0.49	2.00
Selenium	U		0.74	2.00
Silver	U		0.28	1.00
Zinc	U		0.59	5.00

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

(LCS) R3264542-2 11/10/17 01:47 • (LCSD) R3264542-3 11/10/17 01:50

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	97.4	100	97	100	80-120			3	20
Barium	100	107	110	107	110	80-120			3	20
Cadmium	100	100	103	100	103	80-120			3	20
Chromium	100	103	106	103	106	80-120			3	20
Copper	100	101	104	101	104	80-120			3	20
Lead	100	101	103	101	103	80-120			3	20
Nickel	100	102	105	102	105	80-120			3	20
Selenium	100	98.3	102	98	102	80-120			4	20
Silver	20.0	18.7	19.2	93	96	80-120			3	20
Zinc	100	101	104	101	104	80-120			3	20

L948505-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948505-01 11/10/17 01:54 • (MS) R3264542-6 11/10/17 02:04 • (MSD) R3264542-7 11/10/17 02:07

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	10.2	99.9	95.0	90	85	1	75-125			5	20
Barium	100	231	297	297	67	67	1	75-125	J6	J6	0	20
Cadmium	100	ND	88.3	88.0	88	88	1	75-125			0	20
Chromium	100	16.2	101	101	85	85	1	75-125			0	20
Copper	100	13.4	104	102	91	89	1	75-125			2	20
Lead	100	8.23	98.2	97.1	90	89	1	75-125			1	20
Nickel	100	14.9	106	106	91	91	1	75-125			0	20

L948505-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948505-01 11/10/17 01:54 • (MS) R3264542-6 11/10/17 02:04 • (MSD) R3264542-7 11/10/17 02:07

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 %
Selenium	100	ND	85.5	85.5	85	85	1	75-125			0	20
Silver	20.0	ND	16.8	16.8	84	84	1	75-125			0	20
Zinc	100	46.9	126	129	79	82	1	75-125			2	20

Method Blank (MB)

(MB) R3264456-3 11/06/17 01:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*94.5*			*77.0-120*

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

(LCS) R3264456-1 11/06/17 00:47 • (LCSD) R3264456-2 11/06/17 01:09

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	4.89	5.08	88.9	92.4	70.0-136			3.90	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*106*	*77.0-120*				

L948411-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948411-01 11/06/17 08:08 • (MS) R3264456-4 11/06/17 08:30 • (MSD) R3264456-5 11/06/17 08:52

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) Low Fraction	5.85	7.40	57.2	59.6	34.0	35.7	25	10.0-147			4.19	30
(S) a,a,a-Trifluorotoluene(FID)					*96.8*	*97.4*		*77.0-120*				

Method Blank (MB)

(MB) R3263674-3 11/05/17 10:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.00130	0.00250
Ethylbenzene	U		0.00129	0.00250
Toluene	U		0.00265	0.00500
Xylenes, Total	U		0.00125	0.00750
(S) Toluene-d8	*98.0*			*80.0-120*
(S) Dibromofluoromethane	*81.5*			*74.0-131*
(S) a,a,a-Trifluorotoluene	*98.1*			*80.0-120*
(S) 4-Bromofluorobenzene	*89.7*			*64.0-132*

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

(LCS) R3263674-1 11/05/17 09:09 • (LCSD) R3263674-2 11/05/17 09:27

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	0.625	0.556	0.551	89.0	88.2	72.6-120			0.930	20
Ethylbenzene	0.625	0.615	0.643	98.5	103	78.6-124			4.38	20
Toluene	0.625	0.620	0.639	99.2	102	76.7-116			3.07	20
Xylenes, Total	1.88	1.84	1.88	98.0	100	78.1-123			2.21	20
(S) Toluene-d8				*93.8*	*95.5*	*80.0-120*				
(S) Dibromofluoromethane				*88.7*	*88.5*	*74.0-131*				
(S) a,a,a-Trifluorotoluene				*98.8*	*97.1*	*80.0-120*				
(S) 4-Bromofluorobenzene				*84.1*	*94.3*	*64.0-132*				

L948505-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948505-05 11/05/17 19:12 • (MS) R3263674-4 11/05/17 19:48 • (MSD) R3263674-5 11/05/17 20:07

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 %
Benzene	0.625	ND	0.479	0.499	76.6	79.8	1	47.8-131			4.08	22.8
Ethylbenzene	0.625	ND	0.617	0.647	98.7	103	1	44.8-135			4.76	26.9
Toluene	0.625	ND	0.611	0.631	97.8	101	1	47.8-127			3.28	24.3
Xylenes, Total	1.88	ND	1.78	1.86	94.7	99.3	1	42.7-135			4.78	26.6
(S) Toluene-d8					*99.2*	*101*		*80.0-120*				
(S) Dibromofluoromethane					*78.9*	*79.2*		*74.0-131*				
(S) a,a,a-Trifluorotoluene					*97.3*	*100*		*80.0-120*				
(S) 4-Bromofluorobenzene					*106*	*101*		*64.0-132*				

Method Blank (MB)

(MB) R3265160-1 11/13/17 10:47

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	*46.4*			*18.0-148*

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

(LCS) R3265160-2 11/13/17 10:58 • (LCSD) R3265160-3 11/13/17 11:09

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) High Fraction	60.0	46.9	38.4	78.1	64.1	50.0-150			19.7	20
(S) o-Terphenyl				*69.4*	*56.1*	*18.0-148*				

L948505-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948505-02 11/13/17 15:03 • (MS) R3265160-4 11/13/17 15:14 • (MSD) R3265160-5 11/13/17 15:24

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) High Fraction	60.0	22.4	67.3	60.8	74.9	64.1	1	50.0-150			10.1	20
(S) o-Terphenyl					*75.9*	*71.2*		*18.0-148*				

Method Blank (MB)

(MB) R3264699-3 11/10/17 07:59

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	*88.9*			*14.0-149*
(S) 2-Fluorobiphenyl	*98.1*			*34.0-125*
(S) p-Terphenyl-d14	*93.6*			*23.0-120*

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

(LCS) R3264699-1 11/10/17 07:16 • (LCSD) R3264699-2 11/10/17 07:37

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 %
Anthracene	0.0800	0.0672	0.0688	84.0	86.1	50.0-125			2.40	20
Acenaphthene	0.0800	0.0664	0.0687	83.0	85.9	52.0-120			3.40	20
Acenaphthylene	0.0800	0.0668	0.0689	83.5	86.1	51.0-120			3.07	20
Benzo(a)anthracene	0.0800	0.0653	0.0649	81.7	81.1	46.0-121			0.670	20
Benzo(a)pyrene	0.0800	0.0575	0.0583	71.9	72.8	42.0-121			1.23	20
Benzo(b)fluoranthene	0.0800	0.0638	0.0646	79.7	80.7	42.0-123			1.24	20
Benzo(g,h,i)perylene	0.0800	0.0684	0.0694	85.5	86.7	43.0-128			1.40	20
Benzo(k)fluoranthene	0.0800	0.0698	0.0699	87.3	87.4	45.0-128			0.0800	20
Chrysene	0.0800	0.0667	0.0695	83.4	86.8	48.0-127			4.05	20
Dibenz(a,h)anthracene	0.0800	0.0709	0.0720	88.6	90.0	43.0-132			1.64	20
Fluoranthene	0.0800	0.0704	0.0722	88.0	90.3	49.0-129			2.49	20

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

(LCS) R3264699-1 11/10/17 07:16 • (LCSD) R3264699-2 11/10/17 07:37

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 %
Fluorene	0.0800	0.0664	0.0679	83.0	84.8	50.0-120			2.15	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0686	0.0699	85.7	87.3	44.0-131			1.90	20
Naphthalene	0.0800	0.0650	0.0673	81.3	84.1	50.0-120			3.46	20
Phenanthrene	0.0800	0.0635	0.0652	79.4	81.5	48.0-120			2.57	20
Pyrene	0.0800	0.0623	0.0631	77.9	78.9	48.0-135			1.23	20
1-Methylnaphthalene	0.0800	0.0679	0.0703	84.9	87.9	52.0-122			3.46	20
2-Methylnaphthalene	0.0800	0.0653	0.0674	81.7	84.3	52.0-120			3.12	20
2-Chloronaphthalene	0.0800	0.0669	0.0690	83.6	86.2	50.0-120			3.08	20
(S) Nitrobenzene-d5				*88.8*	*82.5*	*14.0-149*				
(S) 2-Fluorobiphenyl				*91.2*	*88.2*	*34.0-125*				
(S) p-Terphenyl-d14				*84.8*	*82.3*	*23.0-120*				

L948419-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948419-03 11/10/17 16:02 • (MS) R3264699-4 11/10/17 10:33 • (MSD) R3264699-5 11/10/17 10:55

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	0.0800	ND	0.0702	0.0699	87.7	87.4	1	20.0-136			0.387	24
Acenaphthene	0.0800	ND	0.0687	0.0694	85.8	86.8	1	29.0-124			1.12	20
Acenaphthylene	0.0800	ND	0.0701	0.0697	87.6	87.1	1	35.0-120			0.586	20
Benzo(a)anthracene	0.0800	ND	0.0659	0.0657	82.3	82.1	1	13.0-132			0.265	27
Benzo(a)pyrene	0.0800	ND	0.0690	0.0698	86.2	87.2	1	14.0-138			1.09	27
Benzo(b)fluoranthene	0.0800	ND	0.0639	0.0664	79.9	83.0	1	10.0-129			3.84	31
Benzo(g,h,i)perylene	0.0800	ND	0.0689	0.0699	86.1	87.4	1	10.0-133			1.47	30
Benzo(k)fluoranthene	0.0800	ND	0.0686	0.0683	85.8	85.4	1	15.0-131			0.513	27
Chrysene	0.0800	ND	0.0662	0.0671	82.8	83.9	1	15.0-137			1.27	25
Dibenz(a,h)anthracene	0.0800	ND	0.0705	0.0712	88.1	89.0	1	15.0-132			1.04	27
Fluoranthene	0.0800	ND	0.0712	0.0723	89.0	90.4	1	13.0-139			1.59	28
Fluorene	0.0800	ND	0.0686	0.0679	85.7	84.8	1	27.0-122			1.05	22
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0677	0.0691	84.6	86.4	1	11.0-133			2.10	29
Naphthalene	0.0800	ND	0.0665	0.0677	83.1	84.6	1	18.0-136			1.75	21
Phenanthrene	0.0800	ND	0.0663	0.0666	82.9	83.2	1	15.0-133			0.462	25
Pyrene	0.0800	ND	0.0628	0.0648	78.5	81.0	1	11.0-146			3.09	29
1-Methylnaphthalene	0.0800	ND	0.0686	0.0692	85.7	86.5	1	24.0-137			0.842	22
2-Methylnaphthalene	0.0800	ND	0.0659	0.0662	82.4	82.8	1	23.0-136			0.410	22
2-Chloronaphthalene	0.0800	ND	0.0696	0.0694	87.0	86.8	1	36.0-120			0.247	20
(S) Nitrobenzene-d5					*90.4*	*87.2*		*14.0-149*				
(S) 2-Fluorobiphenyl					*96.4*	*94.9*		*34.0-125*				
(S) p-Terphenyl-d14					*92.6*	*92.0*		*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, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
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.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences 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.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

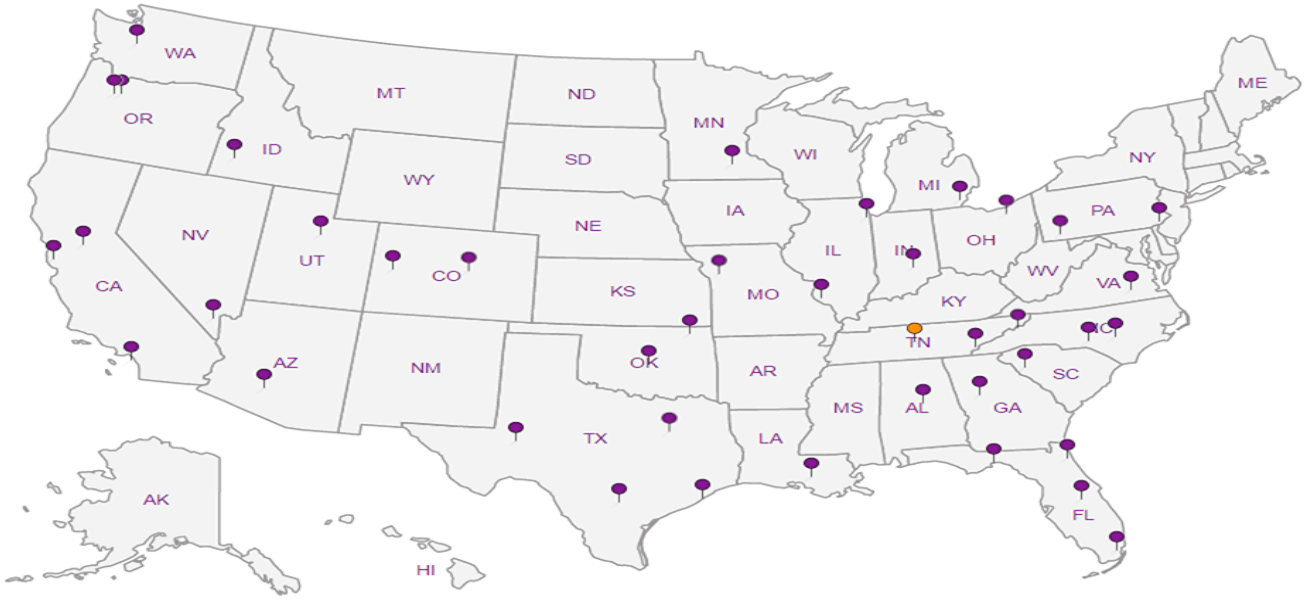
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences 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. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address:
HRL Compliance Solutions
2385 F ½ Road
Grand Junction, CO 81505

Billing Information:
HRL Compliance Solutions
2385 F ½ Road
Grand Junction, CO 81505
Quote #: HRLCSCO - 072016S

Report to: Kris Rowe, Jordan Cario
Email To: krowe@hrlcomp.com, jcario@hrlcomp.com

Project Description: **Black Hills - Homer Deep 9-41 Pit Closure**
City/State Collected: **DeBeque, CO**

Phone: **970-243-3271**
Fax:
Client Project #: **Black Hills**
Lab Project #
Collected by (print): **Jordan Cario**
Site/Facility ID #: **HD 9-41 Pit Closure**
P.O. #
Collected by (signature): Jordan Cario
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: 11/10/17
Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX (V8260BTEX)	GRO / DRO	PAH (SV8270PAHSIM)	910-1 Metals (MRCRA8 + Cu, Ni, Zn)	910-1 Metals Cont (CR6SS (includes pH) / CR3)	EC / SAR (SPCON / SAR)	Rem./Contaminant	Sample # (lab only)
North Wall @ 1ft	Grab	SS	1ft	11/3/17	2:27	2	X	X	X	X	X	X		-01
South Wall @ 1ft	Grab	SS	1ft	11/3/17	2:10	2	X	X	X	X	X	X		02
East Wall @ 1 ft	Grab	SS	1ft	11/3/17	2:00	2	X	X	X	X	X	X		03
West Wall @ 1 ft	Grab	SS	1ft	11/3/17	2:35	2	X	X	X	X	X	X		04
Pit Bottom @ 1 ft	Grab	SS	1ft	11/3/17	2:20	2	X	X	X	X	X	X		05

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L948505
Table E091
Acctnum: HRLCSCO
Template:
Prelogin:
TSR: Shane Gambill
Cooler:
Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other ___

Remarks: **Please see attached Table 910-1 for analysis.** 4094 8306 1074

pH ___ Temp ___
Flow ___ Other ___

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Jordan Cario	11/3/17	5:15pm	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	11/3/17	1800	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ___
Temp: 1.5 °C Bottles Received: 10
Date: 11/4/17 Time: 8:45

Condition: (lab use only) OK
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF:

COGCC Table 910-1
Concentration Levels

Contaminant of Concern	Concentrations
Organic Compounds in Soils	
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg[2]
BENZENE	0.17 mg/kg[2]
TOLUENE	85 mg/kg[2]
ETHYLBENZENE	100 mg/kg[2]
XYLENE (total)	175 mg/kg[2]
ACENAPHTHENE	1,000 mg/kg[2]
ANTHRACENE	1,000 mg/kg[2]
BENZO(A)ANTRHACENE	0.22 mg/kg[2]
BENZO(A)PYRENE	0.022 mg/kg[2]
BENZO(B)FLUORANTHENE	0.22 mg/kg[2]
BENZO(K)FLUORANTHENE	2.2 mg/kg[2]
CHRYSENE	22 mg/kg[2]
DIBENZO(A,H)ANTHRANCENE	0.022 mg/kg[2]
FLUORANTHENE	1,000 mg/kg[2]
FLUORENE	1,000 mg/kg[2]
INDENO(1,2,3-CD)PYRENE	0.22 mg/kg[2]
NAPHTHALENE	23 mg/kg[2]
PYRENE	1,000 mg/kg[2]
Metals in Soils	
ARSENIC	0.39 mg/kg[2]
BARIUM (LDNR True Total Barium)	15,000 mg/kg[2]
BORON (Hot Water Soluble)	2 mg/l[3]
CADMIUM	70 mg/kg[2]
CHROMIUM (III)	120,000 mg/kg[2]
CHROMIUM (IV)	23 mg/kg[2]
COPPER	3,100 mg/kg[2]
LEAD (inorganic)	400 mg/kg[2]
MERCURY	23 mg/kg[2]
NICKEL (soluble salts)	1,600 mg/kg[2]
SELENIUM	390 mg/kg[2]
SILVER	390 mg/kg[2]
ZINC	23,000 mg/kg[2]
Inorganics in Soils	
Sodium Absorption Ratio (SAR)	<12[5]
Electric Conductivity (EC)	<4mmhos/cm or 2x background
pH	6-9
Organic Compounds in Ground Water	
Benzene	5 µg/l[3]
Toluene	560 to 1,000 µg/l[3]
Ethylbenzene	700 µg/l[3]
Xylenes (Total)	1,400 to 10,000 µg/l[3,4]
Inorganics in Ground Water	
Total Dissolved Solids (TDS)	<1.25 x background[3]
Chlorides	<1.25 x background[3]
Sulfates	<1.25 x background[3]
Liquid Hydrocarbons in Soils in Ground Water	
Liquid hydrocarbons including condensate and oil	Below detection level

Table 910-1 soils

COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation programs.

[1] Consideration shall be given to background levels in native soils and ground water.
[2] Concentrations taken from CDPHE-HMWMD Table 1 Colorado Soil Evaluation Values (December 2007).
[3] Concentrations taken from CDPHE-WQCC Regulation 41 - The Basic Standards for Ground Water.
[4] For this range of standards, the first number in the range is a strictly health-based value, based on the WQCC's established methodology for human health-based standards. The second number in the range is a maximum contaminant level (MCL),

ESC LAB SCIENCES
Cooler Receipt Form

Client: HRLCSCO	SDG#	L948505	
Cooler Received/Opened On: 11/4/2017	Temperature:	1.3	
Received By: Christian Kacar			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			