ANALYTICAL REPORT

March 21, 2016

HRL Compliance Solutions- CO

Sample Delivery Group:	L822919
Samples Received:	03/11/2016
Project Number:	
Description:	Black Hills - Whittaker Flats D-17 - Cuttings Remediation
Site:	WHITTAKER FLATS D-17
Report To:	Jordan Cario 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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LIFT 1 BASELINE 6IN L822919-01 Solid

Collected by: Jordan Cario
Collected date/time: 03/10/16 14:00
Received date/time: 03/11/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG855882	1	03/14/16 11:07	03/15/16 14:08	ST
Calculated Results	WG856195	1	03/15/16 11:25	03/16/16 09:26	LTB
Mercury by Method 7471A	WG855803	1	03/12/16 10:45	03/15/16 08:27	BRJ
Metals (ICP) by Method 6010B	WG855882	1	03/14/16 11:07	03/14/16 15:02	ST
Metals (ICP) by Method 6010B	WG855882	20	03/14/16 11:07	03/14/16 19:00	ST
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG856976	5	03/17/16 09:29	03/17/16 19:04	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG856965	50	03/17/16 13:44	03/18/16 13:49	JM
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG856023	5	03/15/16 09:00	03/15/16 17:58	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG855995	5	03/12/16 23:25	03/13/16 01:52	JHH
Wet Chemistry by Method 3060A/7196A	WG856173	1	03/15/16 07:50	03/15/16 14:08	AMC
Wet Chemistry by Method 9045D	WG855834	1	03/14/16 11:13	03/14/16 11:13	AMC
Wet Chemistry by Method 9050AMod	WG855959	1	03/16/16 08:27	03/16/16 08:27	SJM

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.

Shane Gambill
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L822919-01	LIFT 1 BASELINE_6IN	9045D

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	15.3		1	03/16/2016 09:26	WG856195

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	10.6		2.00	1	03/15/2016 14:08	WG855882

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	03/15/2016 14:08	WG856173

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.44		1	03/14/2016 11:13	WG855834

Sample Narrative:

9045D L822919-01 WG855834: 8.44 at 24.1c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2260		1	03/16/2016 08:27	WG855959

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0554		0.0200	1	03/15/2016 08:27	WG855803

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.08		2.00	1	03/14/2016 15:02	WG855882
Barium	16700		10.0	20	03/14/2016 19:00	WG855882
Cadmium	ND		0.500	1	03/14/2016 15:02	WG855882
Chromium	10.6		1.00	1	03/14/2016 15:02	WG855882
Copper	30.3		2.00	1	03/14/2016 15:02	WG855882
Lead	16.3		0.500	1	03/14/2016 15:02	WG855882
Nickel	17.4		2.00	1	03/14/2016 15:02	WG855882
Selenium	ND		2.00	1	03/14/2016 15:02	WG855882
Silver	ND		1.00	1	03/14/2016 15:02	WG855882
Zinc	50.2		5.00	1	03/14/2016 15:02	WG855882

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	7.22		0.500	5	03/15/2016 17:58	WG856023
(S) a,a,a-Trifluorotoluene(FID)	*95.0*		*59.0-128*		*03/15/2016 17:58*	WG856023

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0240		0.00500	5	03/13/2016 01:52	WG855995
Toluene	0.199	J3 J5	0.0250	5	03/13/2016 01:52	WG855995
Ethylbenzene	0.0496	J3	0.00500	5	03/13/2016 01:52	WG855995
Total Xylenes	0.562	J3 J5	0.0150	5	03/13/2016 01:52	WG855995
(S) Toluene-d8	*99.6*		*88.7-115*		*03/13/2016 01:52*	WG855995
(S) Dibromofluoromethane	*96.9*		*76.3-123*		*03/13/2016 01:52*	WG855995
(S) a,a,a-Trifluorotoluene	*97.1*		*87.2-117*		*03/13/2016 01:52*	WG855995
(S) 4-Bromofluorobenzene	*97.2*		*69.7-129*		*03/13/2016 01:52*	WG855995

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1260		200	50	03/18/2016 13:49	WG856965
(S) o-Terphenyl	*0.000*	J7	*50.0-150*		*03/18/2016 13:49*	WG856965

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0581		0.0300	5	03/17/2016 19:04	WG856976
Acenaphthene	0.166		0.0300	5	03/17/2016 19:04	WG856976
Acenaphthylene	ND		0.0300	5	03/17/2016 19:04	WG856976
Benzo(a)anthracene	0.183		0.0300	5	03/17/2016 19:04	WG856976
Benzo(a)pyrene	0.0663		0.0300	5	03/17/2016 19:04	WG856976
Benzo(b)fluoranthene	0.267		0.0300	5	03/17/2016 19:04	WG856976
Benzo(g,h,i)perylene	0.0767		0.0300	5	03/17/2016 19:04	WG856976
Benzo(k)fluoranthene	0.0473		0.0300	5	03/17/2016 19:04	WG856976
Chrysene	0.342		0.0300	5	03/17/2016 19:04	WG856976
Dibenz(a,h)anthracene	0.0458		0.0300	5	03/17/2016 19:04	WG856976
Fluoranthene	0.281		0.0300	5	03/17/2016 19:04	WG856976
Fluorene	0.180		0.0300	5	03/17/2016 19:04	WG856976
Indeno(1,2,3-cd)pyrene	0.0488		0.0300	5	03/17/2016 19:04	WG856976
Naphthalene	0.781		0.100	5	03/17/2016 19:04	WG856976
Phenanthrene	0.591		0.0300	5	03/17/2016 19:04	WG856976
Pyrene	0.263		0.0300	5	03/17/2016 19:04	WG856976
1-Methylnaphthalene	0.646		0.100	5	03/17/2016 19:04	WG856976
2-Methylnaphthalene	0.762		0.100	5	03/17/2016 19:04	WG856976
2-Chloronaphthalene	ND		0.100	5	03/17/2016 19:04	WG856976
(S) p-Terphenyl-d14	*84.1*		*32.2-131*		*03/17/2016 19:04*	WG856976
(S) Nitrobenzene-d5	*61.2*		*22.1-146*		*03/17/2016 19:04*	WG856976
(S) 2-Fluorobiphenyl	*76.4*		*40.6-122*		*03/17/2016 19:04*	WG856976

Method Blank (MB)

(MB) 03/15/16 14:04

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Chromium,Hexavalent	ND		2.00

L822909-01 Original Sample (OS) • Duplicate (DUP)

(OS) 03/15/16 14:07 • (DUP) 03/15/16 14:07

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

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

(LCS) 03/15/16 14:05 • (LCSD) 03/15/16 14:06

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	62.8	63.0	110	111	80.0-120			0.000	20

L822909-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/15/16 14:07 • (MS) 03/15/16 14:07 • (MSD) 03/15/16 14:07

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 %
Chromium,Hexavalent	20.0	1.40	10.7	10.7	46.0	47.0	1	75.0-125	J6	J6	0.000	20

L822578-15 Original Sample (OS) • Duplicate (DUP)

(OS) 03/14/16 11:13 • (DUP) 03/14/16 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.17	8.16	1	0.122		1

L823130-09 Original Sample (OS) • Duplicate (DUP)

(OS) 03/14/16 11:13 • (DUP) 03/14/16 11:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.57	6.57	1	0.000		1

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

(LCS) 03/14/16 11:13 • (LCSD) 03/14/16 11:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.31	6.40	6.39	101	101	98.5-102			0.156	1

Method Blank (MB)

(MB) 03/16/16 08:27

Analyte	MB Result umhos/cm	MB Qualifier	MB RDL umhos/cm
Specific Conductance	1.90		

L822222-01 Original Sample (OS) • Duplicate (DUP)

(OS) 03/16/16 08:27 • (DUP) 03/16/16 08:27

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	406	406	1	0.000		20

L823003-05 Original Sample (OS) • Duplicate (DUP)

(OS) 03/16/16 08:27 • (DUP) 03/16/16 08:27

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	88.3	88.1	1	0.227		20

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

(LCS) 03/16/16 08:27 • (LCSD) 03/16/16 08:27

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	915	944	939	103	103	90.0-110			0.531	20

Method Blank (MB)

(MB) 03/15/16 07:34

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Mercury	ND		0.0200

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

(LCS) 03/15/16 07:36 • (LCSD) 03/15/16 07:39

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	0.268	0.282	89	94	80-120			5	20

L822841-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/15/16 07:42 • (MS) 03/15/16 07:44 • (MSD) 03/15/16 07:47

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	0.000668	0.244	0.244	81	81	1	75-125			0	20

Method Blank (MB)

(MB) 03/14/16 14:21

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Arsenic	ND		2.00
Barium	ND		0.500
Cadmium	ND		0.500
Chromium	ND		1.00
Copper	ND		2.00
Lead	ND		0.500
Nickel	ND		2.00
Selenium	ND		2.00
Silver	ND		1.00
Zinc	ND		5.00

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

(LCS) 03/14/16 14:24 • (LCSD) 03/14/16 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	99.3	101	99	101	80-120			1	20
Barium	100	102	103	102	103	80-120			1	20
Cadmium	100	101	102	101	102	80-120			1	20
Chromium	100	98.0	98.0	98	98	80-120			0	20
Copper	100	103	103	103	103	80-120			1	20
Lead	100	104	105	104	105	80-120			1	20
Nickel	100	100	102	100	102	80-120			1	20
Selenium	100	102	103	102	103	80-120			1	20
Silver	100	93.5	94.0	94	94	80-120			1	20
Zinc	100	98.7	100	99	100	80-120			2	20

L822850-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/14/16 14:32 • (MS) 03/14/16 14:40 • (MSD) 03/14/16 14:43

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	6.52	106	105	100	99	1	75-125			1	20
Barium	100	32.9	122	124	89	91	1	75-125			1	20
Cadmium	100	0.153	103	101	103	101	1	75-125			2	20

L822850-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/14/16 14:32 • (MS) 03/14/16 14:40 • (MSD) 03/14/16 14:43

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	100	5.96	96.8	95.5	91	90	1	75-125			1	20
Copper	100	12.8	117	116	104	103	1	75-125			1	20
Lead	100	29.6	127	135	97	105	1	75-125			6	20
Nickel	100	9.53	109	109	100	99	1	75-125			1	20
Selenium	100	0.166	105	104	105	104	1	75-125			1	20
Silver	100	ND	99.5	96.3	100	96	1	75-125			3	20
Zinc	100	40.3	125	127	85	87	1	75-125			2	20

Method Blank (MB)

(MB) 03/15/16 12:33

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
TPH (GC/FID) Low Fraction	ND		0.100
(S) a,a,a-Trifluorotoluene(FID)	*102*		*59.0-128*

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

(LCS) 03/15/16 11:29 • (LCSD) 03/15/16 11:51

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	6.17	6.23	112	113	63.5-137			1.01	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*104*	*59.0-128*				

L823065-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/15/16 15:51 • (MS) 03/15/16 16:54 • (MSD) 03/15/16 17:16

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	5.50	0.0980	23.1	21.9	83.6	79.4	5	28.5-138			5.08	23.6
(S) a,a,a-Trifluorotoluene(FID)					*101*	*101*		*59.0-128*				

Method Blank (MB)

(MB) 03/13/16 00:14

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Benzene	ND		0.00100
Ethylbenzene	ND		0.00100
Toluene	ND		0.00500
Xylenes, Total	ND		0.00300
(S) Toluene-d8	*107*		*88.7-115*
(S) Dibromofluoromethane	*98.1*		*76.3-123*
(S) a,a,a-Trifluorotoluene	*102*		*87.2-117*
(S) 4-Bromofluorobenzene	*104*		*69.7-129*

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

(LCS) 03/12/16 22:36 • (LCSD) 03/12/16 22:55

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	0.0250	0.0231	0.0226	92.6	90.3	72.6-120			2.50	20
Ethylbenzene	0.0250	0.0232	0.0233	92.7	93.4	78.6-124			0.770	20
Toluene	0.0250	0.0235	0.0232	94.1	92.9	76.7-116			1.30	20
Xylenes, Total	0.0750	0.0680	0.0685	90.6	91.3	78.1-123			0.760	20
(S) Toluene-d8				*101*	*100*	*88.7-115*				
(S) Dibromofluoromethane				*96.0*	*94.2*	*76.3-123*				
(S) a,a,a-Trifluorotoluene				*99.5*	*98.7*	*87.2-117*				
(S) 4-Bromofluorobenzene				*102*	*101*	*69.7-129*				

L822919-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/13/16 01:52 • (MS) 03/13/16 00:53 • (MSD) 03/13/16 01:13

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	0.0250	0.0240	0.132	0.115	86.2	72.8	5	47.8-131			13.5	22.8
Ethylbenzene	0.0250	0.0496	0.169	0.124	95.2	59.5	5	44.8-135		J3	30.5	26.9
Toluene	0.0250	0.199	0.710	0.321	409	98.0	5	47.8-127	J5	J3	75.4	24.3
Xylenes, Total	0.0750	0.562	2.46	0.979	507	111	5	42.7-135	J5	J3	86.3	26.6
(S) Toluene-d8					*92.2*	*98.2*		*88.7-115*				
(S) Dibromofluoromethane					*95.6*	*97.2*		*76.3-123*				
(S) a,a,a-Trifluorotoluene					*88.4*	*96.2*		*87.2-117*				
(S) 4-Bromofluorobenzene					*90.7*	*96.5*		*69.7-129*				

Method Blank (MB)

(MB) 03/18/16 08:44

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
TPH (GC/FID) High Fraction	ND		4.00
(S) o-Terphenyl	*81.5*		*50.0-150*

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

(LCS) 03/18/16 08:55 • (LCSD) 03/18/16 09:07

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	52.1	49.8	86.9	83.0	50.0-150			4.55	20
(S) o-Terphenyl				*83.6*	*91.7*	*50.0-150*				

Method Blank (MB)

(MB) 03/17/16 14:50

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Anthracene	ND		0.00600
Acenaphthene	ND		0.00600
Acenaphthylene	ND		0.00600
Benzo(a)anthracene	ND		0.00600
Benzo(a)pyrene	ND		0.00600
Benzo(b)fluoranthene	ND		0.00600
Benzo(g,h,i)perylene	ND		0.00600
Benzo(k)fluoranthene	ND		0.00600
Chrysene	ND		0.00600
Dibenz(a,h)anthracene	ND		0.00600
Fluoranthene	ND		0.00600
Fluorene	ND		0.00600
Indeno(1,2,3-cd)pyrene	ND		0.00600
Naphthalene	ND		0.0200
Phenanthrene	ND		0.00600
Pyrene	ND		0.00600
1-Methylnaphthalene	ND		0.0200
2-Methylnaphthalene	ND		0.0200
2-Chloronaphthalene	ND		0.0200
(S) p-Terphenyl-d14	*101*		*32.2-131*
(S) Nitrobenzene-d5	*102*		*22.1-146*
(S) 2-Fluorobiphenyl	*103*		*40.6-122*

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

(LCS) 03/17/16 14:08 • (LCSD) 03/17/16 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0819	0.0812	102	101	50.3-130			0.930	20
Acenaphthene	0.0800	0.0828	0.0831	103	104	52.4-120			0.480	20
Acenaphthylene	0.0800	0.0827	0.0830	103	104	49.6-120			0.420	20
Benzo(a)anthracene	0.0800	0.0829	0.0825	104	103	46.7-125			0.520	20
Benzo(a)pyrene	0.0800	0.0753	0.0773	94.2	96.7	42.3-119			2.62	20
Benzo(b)fluoranthene	0.0800	0.0857	0.0837	107	105	43.6-124			2.36	20
Benzo(g,h,i)perylene	0.0800	0.0859	0.0867	107	108	45.1-132			0.890	20
Benzo(k)fluoranthene	0.0800	0.0782	0.0822	97.8	103	46.1-131			4.98	20

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

(LCS) 03/17/16 14:08 • (LCSD) 03/17/16 14:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chrysene	0.0800	0.0857	0.0866	107	108	49.5-131			1.01	20
Dibenz(a,h)anthracene	0.0800	0.0876	0.0876	109	109	44.8-133			0.0100	20
Fluoranthene	0.0800	0.0809	0.0817	101	102	49.3-128			1.02	20
Fluorene	0.0800	0.0810	0.0810	101	101	50.6-121			0.0500	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0884	0.0881	110	110	46.1-135			0.300	20
Naphthalene	0.0800	0.0783	0.0784	97.9	98.0	49.6-115			0.0900	20
Phenanthrene	0.0800	0.0787	0.0788	98.3	98.5	48.8-121			0.120	20
Pyrene	0.0800	0.0950	0.0950	119	119	44.7-130			0.0400	20
1-Methylnaphthalene	0.0800	0.0817	0.0825	102	103	50.6-122			0.960	20
2-Methylnaphthalene	0.0800	0.0819	0.0818	102	102	50.4-120			0.140	20
2-Chloronaphthalene	0.0800	0.0804	0.0805	101	101	53.9-121			0.140	20
(S) p-Terphenyl-d14				*94.4*	*96.5*	*32.2-131*				
(S) Nitrobenzene-d5				*94.3*	*98.2*	*22.1-146*				
(S) 2-Fluorobiphenyl				*97.0*	*100*	*40.6-122*				

L823704-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/17/16 16:36 • (MS) 03/17/16 16:57 • (MSD) 03/17/16 17:18

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	0.0323	0.108	0.101	94.4	85.8	1	26.5-141			6.61	21.2
Acenaphthene	0.0800	0.00855	0.0875	0.0849	98.7	95.5	1	31.9-130			2.99	20
Acenaphthylene	0.0800	0.00211	0.0789	0.0772	96.0	93.8	1	33.7-129			2.26	20
Benzo(a)anthracene	0.0800	0.00261	0.0908	0.0851	110	103	1	18.3-136			6.46	24.6
Benzo(a)pyrene	0.0800	0.00171	0.0888	0.0835	109	102	1	16.9-135			6.20	25.2
Benzo(b)fluoranthene	0.0800	0.00534	0.0961	0.0910	113	107	1	10.0-134			5.50	30.9
Benzo(g,h,i)perylene	0.0800	0.00481	0.0834	0.0775	98.3	90.9	1	14.1-140			7.29	25.5
Benzo(k)fluoranthene	0.0800	0.00241	0.0773	0.0724	93.6	87.5	1	18.2-138			6.46	25.6
Chrysene	0.0800	0.0400	0.191	0.174	188	167	1	17.1-145	J5	J5	9.43	24.2
Dibenz(a,h)anthracene	0.0800	0.00183	0.0806	0.0752	98.5	91.8	1	18.5-138			6.94	24.3
Fluoranthene	0.0800	0.0152	0.0994	0.0949	105	99.7	1	15.4-144			4.62	27.1
Fluorene	0.0800	0.0503	0.133	0.127	104	96.4	1	23.5-136			4.37	20
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0788	0.0736	98.5	92.0	1	14.5-142			6.82	25.8
Naphthalene	0.0800	0.00558	0.0824	0.0785	96.1	91.1	1	29.2-128			4.95	20
Phenanthrene	0.0800	0.229	0.312	0.298	103	86.0	1	20.1-134			4.42	23.6
Pyrene	0.0800	0.0552	0.149	0.140	117	106	1	11.0-148			5.83	26.1

L823704-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 03/17/16 16:36 • (MS) 03/17/16 16:57 • (MSD) 03/17/16 17:18

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 %
1-Methylnaphthalene	0.0800	0.0113	0.0851	0.0821	92.2	88.4	1	28.4-137			3.59	20
2-Methylnaphthalene	0.0800	0.00143	0.0804	0.0774	98.8	95.0	1	26.6-137			3.81	20
2-Chloronaphthalene	0.0800	ND	0.0752	0.0740	94.0	92.5	1	38.6-126			1.62	20
(S) p-Terphenyl-d14					*92.5*	*92.8*		*32.2-131*				
(S) Nitrobenzene-d5					*90.8*	*90.4*		*22.1-146*				
(S) 2-Fluorobiphenyl					*91.0*	*93.4*		*40.6-122*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
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.
(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.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

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		

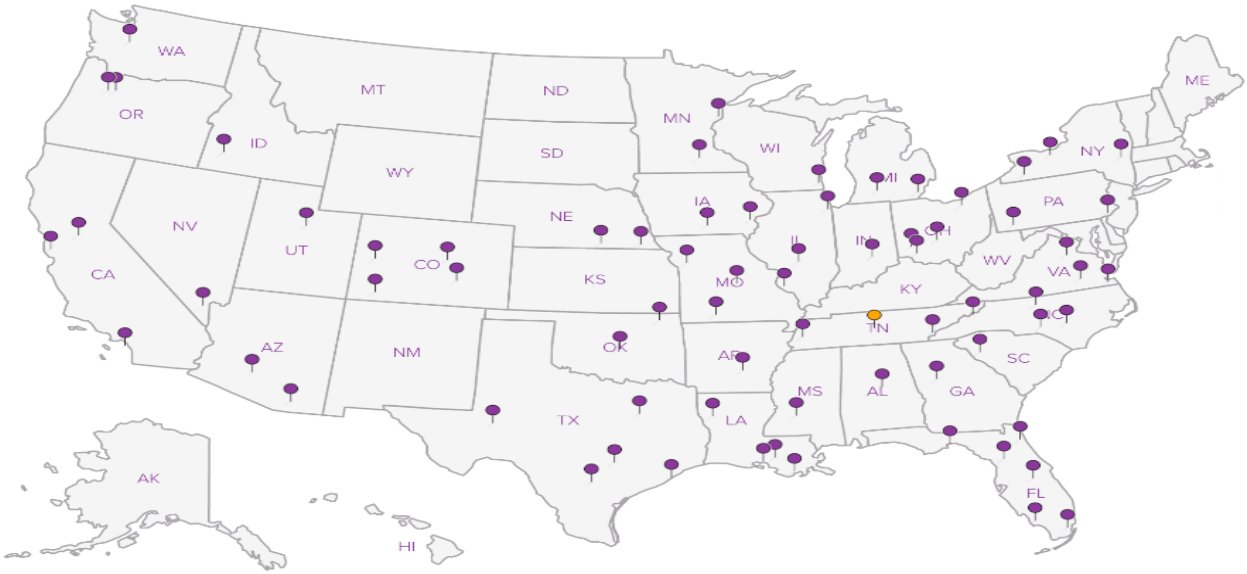
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	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 - 042015S

Report to: Jordan Cario
Email To: jcario@hrlcomp.com

Project Description: **Black Hills - Whittaker Flats D-17 - Cuttings Remediation**
City/State Collected: **DeBeque, CO**

Phone: **970-243-3271**
Fax:
Client Project #
Lab Project #

Collected by (print): **Jordan Cario**
Site/Facility ID #: **Whittaker Flats D-17**
P.O. #

Collected by (signature):
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: 03/17/2016
Email? ___No ✓Yes
FAX? ✓No ___Yes

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)
Lift 1 Baseline	Comp	SS	**6in**	**3/10/16**	**2:00**	3	X	X	X	X	X	X						-01

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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

L # L822919
F093
Acctnum: **HRLCSCO**
Template:
Prelogin:
TSR: **Shane Gambill**
Cooler:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Jordan Cario	3/10/16	4:00pm	
Relinquished by : (Signature)	Date: 3/10/16	Time: 16:30	Received by: (Signature) 643671360664
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ _____
Temp: 2.4°C Bottles Received: 3
Date: 3-11-16 Time: 0900

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