

## HRL Compliance Solutions- CO

Sample Delivery Group: L852306  
Samples Received: 08/10/2016  
Project Number: PAH/SAR MON SAMPLES  
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.



<sup>1</sup> Cp: Cover Page	1
<sup>2</sup> Tc: Table of Contents	2
<sup>3</sup> Ss: Sample Summary	3
<sup>4</sup> Cn: Case Narrative	4
<sup>5</sup> Sr: Sample Results	5
LIFT 1 MONITORING (SAR/PAH) L852306-01	5
<sup>6</sup> Qc: Quality Control Summary	6
Wet Chemistry by Method 9050AMod	6
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	7
<sup>7</sup> Gl: Glossary of Terms	8
<sup>8</sup> Al: Accreditations & Locations	9
<sup>9</sup> Sc: Chain of Custody	10

<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
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<sup>9</sup> Sc



## LIFT 1 MONITORING (SAR/PAH) L852306-01 Solid

Collected by  
Jordan Cario

Collected date/time  
08/09/16 09:00

Received date/time  
08/10/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG897702	1	08/11/16 07:08	08/12/16 03:47	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG897764	5	08/11/16 10:46	08/12/16 10:21	ADF
Wet Chemistry by Method 9050AMod	WG897721	1	08/11/16 13:40	08/11/16 13:40	AMC

<sup>1</sup>Cp

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<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

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<sup>8</sup>Al

<sup>9</sup>Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. 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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	36.9		1	08/12/2016 03:47	WG897702

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	6050		1	08/11/2016 13:40	<a href="#">WG897721</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzo(a)anthracene	0.424		0.0300	5	08/12/2016 10:21	<a href="#">WG897764</a>
Benzo(a)pyrene	0.144		0.0300	5	08/12/2016 10:21	<a href="#">WG897764</a>
Benzo(b)fluoranthene	0.634		0.0300	5	08/12/2016 10:21	<a href="#">WG897764</a>
Dibenz(a,h)anthracene	0.118		0.0300	5	08/12/2016 10:21	<a href="#">WG897764</a>
(S) p-Terphenyl-d14	68.7		32.2-131		08/12/2016 10:21	<a href="#">WG897764</a>
(S) Nitrobenzene-d5	35.5		22.1-146		08/12/2016 10:21	<a href="#">WG897764</a>
(S) 2-Fluorobiphenyl	59.7		40.6-122		08/12/2016 10:21	<a href="#">WG897764</a>

1  
Cp2  
Tc3  
Ss4  
Cn5  
Sr6  
Qc7  
Gl8  
Al9  
Sc



Method Blank (MB)

(MB) WG897721-4 08/11/16 13:40

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	1.60			

L852306-01 Original Sample (OS) • Duplicate (DUP)

(OS) L852306-01 08/11/16 13:40 • (DUP) WG897721-1 08/11/16 13:40

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	6050	6040	1	0.165		20

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

(LCS) WG897721-2 08/11/16 13:40 • (LCSD) WG897721-3 08/11/16 13:40

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	653	670	668	103	102	90.0-110			0.299	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3156347-3 08/12/16 01:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
(S) p-Terphenyl-d14	80.2			32.2-131
(S) Nitrobenzene-d5	55.1			22.1-146
(S) 2-Fluorobiphenyl	85.4			40.6-122

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

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

(LCS) R3156347-1 08/12/16 01:13 • (LCSD) R3156347-2 08/12/16 01:34

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 %
Benzo(a)anthracene	0.0800	0.0595	0.0628	74.4	78.5	46.7-125			5.33	20
Benzo(a)pyrene	0.0800	0.0581	0.0591	72.6	73.9	42.3-119			1.83	20
Benzo(b)fluoranthene	0.0800	0.0582	0.0639	72.7	79.9	43.6-124			9.41	20
Dibenz(a,h)anthracene	0.0800	0.0675	0.0710	84.3	88.8	44.8-133			5.15	20
(S) p-Terphenyl-d14				75.6	82.3	32.2-131				
(S) Nitrobenzene-d5				53.6	58.2	22.1-146				
(S) 2-Fluorobiphenyl				81.7	89.1	40.6-122				

L852096-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L852096-02 08/12/16 02:18 • (MS) R3156347-4 08/12/16 02:40 • (MSD) R3156347-5 08/12/16 03:01

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 %
Benzo(a)anthracene	0.0800	ND	0.0589	0.0513	73.6	64.1	1	18.3-136			13.8	24.6
Benzo(a)pyrene	0.0800	ND	0.0652	0.0569	81.6	71.2	1	16.9-135			13.6	25.2
Benzo(b)fluoranthene	0.0800	ND	0.0608	0.0515	76.0	64.4	1	10.0-134			16.5	30.9
Dibenz(a,h)anthracene	0.0800	ND	0.0651	0.0571	81.4	71.4	1	18.5-138			13.0	24.3
(S) p-Terphenyl-d14					77.0	68.0		32.2-131				
(S) Nitrobenzene-d5					54.3	48.6		22.1-146				
(S) 2-Fluorobiphenyl					82.6	73.5		40.6-122				



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
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.

Qualifier	Description
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The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc





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
Connecticut	PH-0197	North Carolina <sup>1</sup>	DW21704
Florida	E87487	North Carolina <sup>2</sup>	41
Georgia	NELAP	North Dakota	R-140
Georgia <sup>1</sup>	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 <sup>1</sup>	90010	South Dakota	n/a
Kentucky <sup>2</sup>	16	Tennessee <sup>14</sup>	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas <sup>5</sup>	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		

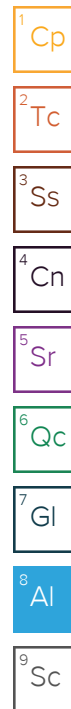
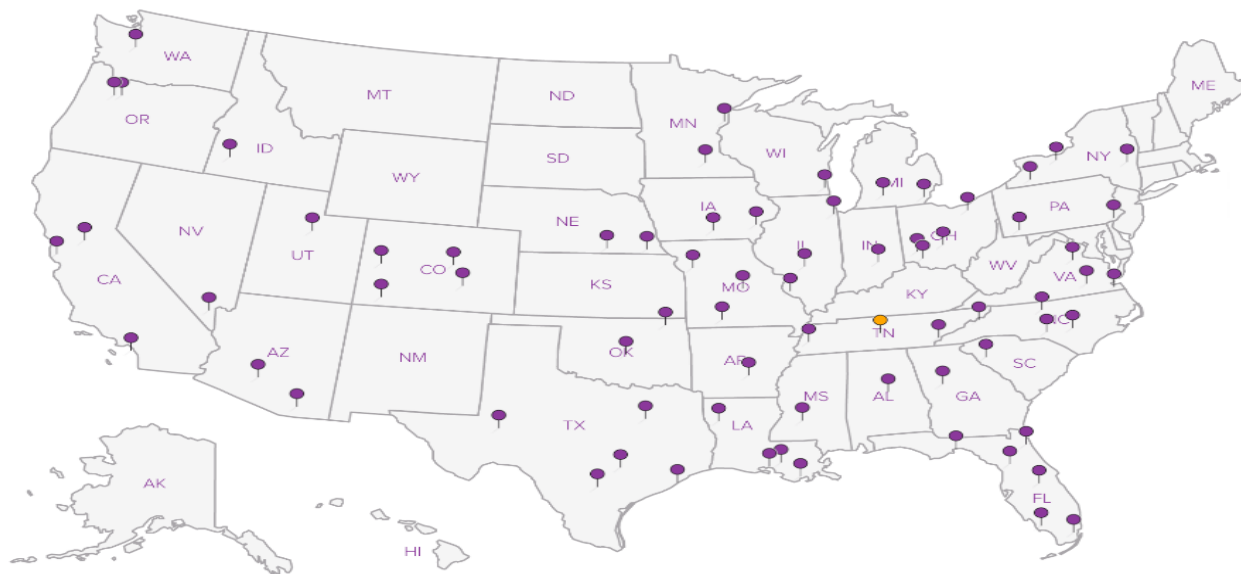
## Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>n/a</sup> 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.**



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YOUR LAB OF CHOICE

## Cooler Receipt Checklist

Client: HBLESCO SDG# 852706

Cooler Received/Opened On: 8/10/2016 By Nikki Farmer

Temperature Upon Receipt: 3.2 °C

(Signature)

Cooler Receipt Check List		
	Yes	No N/A
Were custody seals on outside of cooler and intact?		<input checked="" type="checkbox"/>
Were custody papers properly filled out (ink, signed, etc.)?	<input checked="" type="checkbox"/>	
Did all bottles arrive in good condition?	<input checked="" type="checkbox"/>	
Were correct bottles used for the analyses requested?	<input checked="" type="checkbox"/>	
Was sufficient amount of sample sent in each bottle?	<input checked="" type="checkbox"/>	
Were correct preservatives used?	<input checked="" type="checkbox"/>	
Were all applicable sample containers checked for preservation?	<input checked="" type="checkbox"/>	
(Any samples not in accepted pH range noted on COC.)		
If applicable, was an observable VOA headspace present?		
Non Conformance Generated? (If yes see attached NCF)		<input checked="" type="checkbox"/>



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Innovation

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