



**Nicholson GeoSolutions LLC**

3433 East Lake Drive  
Centennial, CO 80121

June 15, 2016

Mr. Terry Pape  
HRM Resources II, LLC  
410 17<sup>th</sup> Street, Suite 1100  
Denver, CO 80202

**Subject: Landfarm Sampling Results for the Anderson No. 1 Lease,  
COGCC Remediation #9050**

Dear Terry:

Nicholson GeoSolutions LLC was retained by HRM Resources II LLC (HRM) to conduct soil sampling of the landfarm on the Anderson No. 1 lease, Washington County, Colorado. Sampling of the landfarm was conducted at the required rate of approximately one sample per 100 yards of material on May 25<sup>th</sup>, 2016. The landfarm was previously sampled on October 18<sup>th</sup>, 2015.

GPS mapping showed that the landfarm covers about 0.09 acres and contains an estimated 500 yards of material. A total of 5 discrete soil samples were collected at depths of approximately 12-16 inches. These samples were collected from approximately the same locations as those collected in October 2015. The extent of the landfarm cell and the locations of the samples are shown on Figure 1.

All samples were analyzed for Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), and BTEX (benzene, toluene, ethylbenzene, and xylenes) to evaluate compliance with the COGCC Table 910-1 standards and further treatment needs.

Table 1 provides a summary of the analytical results for the samples. The laboratory report is contained in Appendix A. For the May 2016 sampling event, the sum of the concentrations of gasoline, diesel, and motor oil range petroleum hydrocarbons (total petroleum hydrocarbons [TPH]) exceeded the COGCC standard of 500 mg/kg for four of the five samples and ranged from 406 mg/kg to 21,700 mg/kg.

**Table 1 Anderson No. 1 Landfarm Sample Results – May 25, 2016**

	Table 910-1 Standards	Anderson LF-1	Anderson LF-2	Anderson LF-3	Anderson LF-4	Anderson LF-5
TVPH – gasoline range	500 <sup>1</sup>	<b>12.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>
TEPH – diesel/motor oil range	500 <sup>1</sup>	<b>21,700</b>	<b>1,462</b>	<b>4,740</b>	<b>1,277</b>	406
benzene	0.17	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
toluene	85	<0.025	<0.025	<0.025	<0.025	<0.025
ethylbenzene	100	0.0982	<0.0025	<0.0025	<0.0025	<0.0025
xylene	175	0.179	<0.0075	<0.0075	<0.0075	<0.0075

<sup>1</sup>The standard is 500 for the combined total of TVPH and TEPH

Values in bold type exceed standards

All units in mg/kg except where indicated

Table 2 provides the TPH results for the October 18<sup>th</sup>, 2015 and May 25<sup>th</sup>, 2016 samples and the percent difference between the two samples at each sample location. TPH ranged from 368 mg/kg to 9,010 mg/kg for the October 2015 samples and from 406 mg/kg to 21,713 mg/kg for the May 2016 samples. The TPH concentration was lower for the May 2016 samples at two of the five sample locations and higher at the remaining three locations. The landfarm was reconstructed and thoroughly tilled since the last sampling event which may account for the erratic results.

**Table 2 Comparison of TPH Results, October 18, 2015 and May 25, 2016**

Sample Location	TPH (mg/kg) October 18, 2015	TPH (mg/kg) May 25, 2016	%Difference
Anderson-LF-1	7,525	21,713	188.5
Anderson-LF-2	368	1,462	297.3
Anderson-LF-3	1,652	4,740	186.9
Anderson-LF-4	1,925	1,277	-33.7
Anderson-LF-5	9,010	406	-95.5

Table 3 provides summary statistics for the two sampling events. The average TPH concentration for the five samples increased from 4,096 mg/kg to 5,920 mg/kg between October 18<sup>th</sup>, 2015 and May 25<sup>th</sup>, 2016. The median concentration dropped from 1,925 mg/kg to 1,462 mg/kg. Using the results provided above in Table 2, the average TPH increase for the overall landfarm was 44.5%.

**Table 3 Summary Statistics for the October 2015 and May 2016 Samples**

Sample Date	Minimum	Maximum	Average	Median	Average % Difference
Oct 18, 2015	368	9,010	4,096	1,925	
May 25, 2016	406	21,713	5,920	1,462	44.5

Using these data provides a negative biodegradation rate, a meaningless result. A biodegradation rate will be determined following the collection of the October 2016 samples.

Based on the analytical results, bioremediation of the TPH contained in the soils in the landfarm cells at the Anderson No. 1 lease may be occurring but the results so far are erratic. Additional treatment of the landfarm cells including tilling will be conducted prior to the next sampling event in October 2016.

Nicholson GeoSolutions LLC

A handwritten signature in blue ink, reading "DK Nicholson". The signature is fluid and cursive, with the initials "DK" being prominent and followed by the surname "Nicholson".

David K. Nicholson, P.G.  
Principal Geologist



**APPENDIX A**  
**Laboratory Report**



## HRM Resources, LLC - Denver, CO

Sample Delivery Group: L838258  
Samples Received: 05/27/2016  
Project Number:  
Description: HRM Landform Sampling

Report To: Dave Nicholson  
410 17th St., Ste. 1600  
Denver, CO 80202

Entire Report Reviewed By:



Mark W. Beasley  
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.



<b><sup>1</sup>Cp: Cover Page</b>	<b>1</b>
<b><sup>2</sup>Tc: Table of Contents</b>	<b>2</b>
<b><sup>3</sup>Ss: Sample Summary</b>	<b>3</b>
<b><sup>4</sup>Cn: Case Narrative</b>	<b>4</b>
<b><sup>5</sup>Sr: Sample Results</b>	<b>5</b>
ANDERSON-LF-1 L838258-01	5
ANDERSON-LF-2 L838258-02	6
ANDERSON-LF-3 L838258-03	7
ANDERSON-LF-4 L838258-04	8
ANDERSON-LF-5 L838258-05	9
<b><sup>6</sup>Qc: Quality Control Summary</b>	<b>10</b>
Volatile Organic Compounds (GC) by Method 8015/8021	10
Semi-Volatile Organic Compounds (GC) by Method 8015	12
<b><sup>7</sup>Gl: Glossary of Terms</b>	<b>13</b>
<b><sup>8</sup>Al: Accreditations &amp; Locations</b>	<b>14</b>
<b><sup>9</sup>Sc: Chain of Custody</b>	<b>15</b>





## ANDERSON-LF-1 L838258-01 Solid

Collected by  
Dave NicholsonCollected date/time  
05/25/16 13:20Received date/time  
05/27/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG876260	200	06/02/16 10:16	06/02/16 21:54	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG876834	5	06/03/16 17:35	06/04/16 23:54	BMB

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss

## ANDERSON-LF-2 L838258-02 Solid

Collected by  
Dave NicholsonCollected date/time  
05/25/16 13:25Received date/time  
05/27/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG876260	10	06/02/16 10:16	06/02/16 20:42	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG876834	5	06/03/16 17:35	06/05/16 00:17	BMB

<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc

## ANDERSON-LF-3 L838258-03 Solid

Collected by  
Dave NicholsonCollected date/time  
05/25/16 13:30Received date/time  
05/27/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG876260	20	06/02/16 10:16	06/02/16 21:40	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG876834	5	06/03/16 17:35	06/05/16 00:39	BMB

<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## ANDERSON-LF-4 L838258-04 Solid

Collected by  
Dave NicholsonCollected date/time  
05/25/16 13:35Received date/time  
05/27/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG876260	10	06/02/16 10:16	06/02/16 20:56	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG876834	5	06/03/16 17:35	06/05/16 01:01	BMB

## ANDERSON-LF-5 L838258-05 Solid

Collected by  
Dave NicholsonCollected date/time  
05/25/16 13:40Received date/time  
05/27/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG876260	1	06/02/16 10:16	06/02/16 19:00	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG876834	5	06/03/16 17:35	06/05/16 01:22	BMB





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.

Mark W. Beasley  
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



## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	06/04/2016 23:54	<a href="#">WG876834</a>
Toluene	ND		0.0250	5	06/04/2016 23:54	<a href="#">WG876834</a>
Ethylbenzene	0.0982		0.00250	5	06/04/2016 23:54	<a href="#">WG876834</a>
Total Xylene	0.179		0.00750	5	06/04/2016 23:54	<a href="#">WG876834</a>
TPH (GC/FID) Low Fraction	12.5		0.500	5	06/04/2016 23:54	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(FID)	98.5		59.0-128		06/04/2016 23:54	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(PID)	91.1		54.0-144		06/04/2016 23:54	<a href="#">WG876834</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	14600		800	200	06/02/2016 21:54	<a href="#">WG876260</a>
C28-C40 Oil Range	7100		800	200	06/02/2016 21:54	<a href="#">WG876260</a>
(S) o-Terphenyl	0.000	<a href="#">J7</a>	50.0-150		06/02/2016 21:54	<a href="#">WG876260</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	06/05/2016 00:17	<a href="#">WG876834</a>
Toluene	ND		0.0250	5	06/05/2016 00:17	<a href="#">WG876834</a>
Ethylbenzene	ND		0.00250	5	06/05/2016 00:17	<a href="#">WG876834</a>
Total Xylene	ND		0.00750	5	06/05/2016 00:17	<a href="#">WG876834</a>
TPH (GC/FID) Low Fraction	ND		0.500	5	06/05/2016 00:17	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(FID)	97.6		59.0-128		06/05/2016 00:17	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(PID)	89.4		54.0-144		06/05/2016 00:17	<a href="#">WG876834</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	921		40.0	10	06/02/2016 20:42	<a href="#">WG876260</a>
C28-C40 Oil Range	541		40.0	10	06/02/2016 20:42	<a href="#">WG876260</a>
(S) o-Terphenyl	73.8		50.0-150		06/02/2016 20:42	<a href="#">WG876260</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	06/05/2016 00:39	<a href="#">WG876834</a>
Toluene	ND		0.0250	5	06/05/2016 00:39	<a href="#">WG876834</a>
Ethylbenzene	ND		0.00250	5	06/05/2016 00:39	<a href="#">WG876834</a>
Total Xylene	ND		0.00750	5	06/05/2016 00:39	<a href="#">WG876834</a>
TPH (GC/FID) Low Fraction	ND		0.500	5	06/05/2016 00:39	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(FID)	99.7		59.0-128		06/05/2016 00:39	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(PID)	91.3		54.0-144		06/05/2016 00:39	<a href="#">WG876834</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	3030		80.0	20	06/02/2016 21:40	<a href="#">WG876260</a>
C28-C40 Oil Range	1710		80.0	20	06/02/2016 21:40	<a href="#">WG876260</a>
(S) o-Terphenyl	0.000	<a href="#">J7</a>	50.0-150		06/02/2016 21:40	<a href="#">WG876260</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	06/05/2016 01:01	<a href="#">WG876834</a>
Toluene	ND		0.0250	5	06/05/2016 01:01	<a href="#">WG876834</a>
Ethylbenzene	ND		0.00250	5	06/05/2016 01:01	<a href="#">WG876834</a>
Total Xylene	ND		0.00750	5	06/05/2016 01:01	<a href="#">WG876834</a>
TPH (GC/FID) Low Fraction	ND		0.500	5	06/05/2016 01:01	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(FID)	99.1		59.0-128		06/05/2016 01:01	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(PID)	91.8		54.0-144		06/05/2016 01:01	<a href="#">WG876834</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	737		40.0	10	06/02/2016 20:56	<a href="#">WG876260</a>
C28-C40 Oil Range	540		40.0	10	06/02/2016 20:56	<a href="#">WG876260</a>
(S) o-Terphenyl	71.5		50.0-150		06/02/2016 20:56	<a href="#">WG876260</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00250	5	06/05/2016 01:22	<a href="#">WG876834</a>
Toluene	ND		0.0250	5	06/05/2016 01:22	<a href="#">WG876834</a>
Ethylbenzene	ND		0.00250	5	06/05/2016 01:22	<a href="#">WG876834</a>
Total Xylene	ND		0.00750	5	06/05/2016 01:22	<a href="#">WG876834</a>
TPH (GC/FID) Low Fraction	ND		0.500	5	06/05/2016 01:22	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(FID)	98.6		59.0-128		06/05/2016 01:22	<a href="#">WG876834</a>
(S) a,a,a-Trifluorotoluene(PID)	91.9		54.0-144		06/05/2016 01:22	<a href="#">WG876834</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	242		4.00	1	06/02/2016 19:00	<a href="#">WG876260</a>
C28-C40 Oil Range	164		4.00	1	06/02/2016 19:00	<a href="#">WG876260</a>
(S) o-Terphenyl	51.2		50.0-150		06/02/2016 19:00	<a href="#">WG876260</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3141618-5 06/04/16 15:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000156	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID) 101			59.0-128	
(S) a,a,a-Trifluorotoluene(PID) 93.0			54.0-144	

<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

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

(LCS) R3141618-1 06/04/16 12:55 • (LCSD) R3141618-2 06/04/16 13:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0513	0.0491	103	98.1	70.0-130			4.52	20
Toluene	0.0500	0.0507	0.0481	101	96.2	70.0-130			5.23	20
Ethylbenzene	0.0500	0.0532	0.0509	106	102	70.0-130			4.55	20
Total Xylene	0.150	0.164	0.156	109	104	70.0-130			4.96	20
(S) a,a,a-Trifluorotoluene(FID)				101	101	59.0-128				
(S) a,a,a-Trifluorotoluene(PID)				103	103	54.0-144				

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

(LCS) R3141618-3 06/04/16 13:40 • (LCSD) R3141618-4 06/04/16 14:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.89	5.72	107	104	63.5-137			2.94	20
(S) a,a,a-Trifluorotoluene(FID)				102	102	59.0-128				
(S) a,a,a-Trifluorotoluene(PID)				111	111	54.0-144				

L838237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L838237-01 06/04/16 17:39 • (MS) R3141618-6 06/04/16 15:49 • (MSD) R3141618-7 06/04/16 16:11

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	0.0500	ND	0.221	0.207	88.3	82.8	5	49.7-127			6.44	23.5
Toluene	0.0500	ND	0.211	0.188	84.3	75.1	5	49.8-132			11.5	23.5
Ethylbenzene	0.0500	ND	0.210	0.173	83.9	69.2	5	40.8-141			19.3	23.8
Total Xylene	0.150	ND	0.657	0.549	87.6	73.2	5	41.2-140			17.9	23.7
(S) a,a,a-Trifluorotoluene(FID)					98.8	98.1		59.0-128				



L838237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L838237-01 06/04/16 17:39 • (MS) R3141618-6 06/04/16 15:49 • (MSD) R3141618-7 06/04/16 16:11

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
(S) a,a,a-Trifluorotoluene(PID)					100	98.7		54.0-144				

L838237-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L838237-01 06/04/16 17:39 • (MS) R3141618-8 06/04/16 16:33 • (MSD) R3141618-9 06/04/16 16:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	5.50	ND	20.4	19.2	74.2	69.8	5	28.5-138			6.16	23.6
(S) a,a,a-Trifluorotoluene(FID)					99.2	98.5		59.0-128				
(S) a,a,a-Trifluorotoluene(PID)					108	107		54.0-144				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3141377-1 06/02/16 16:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	90.6			50.0-150

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

(LCS) R3141377-2 06/02/16 16:34 • (LCSD) R3141377-3 06/02/16 16:49

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 %
C10-C28 Diesel Range	60.0	45.4	50.0	75.6	83.3	50.0-150			9.71	20
(S) o-Terphenyl				83.7	97.0	50.0-150				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



## Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

<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		

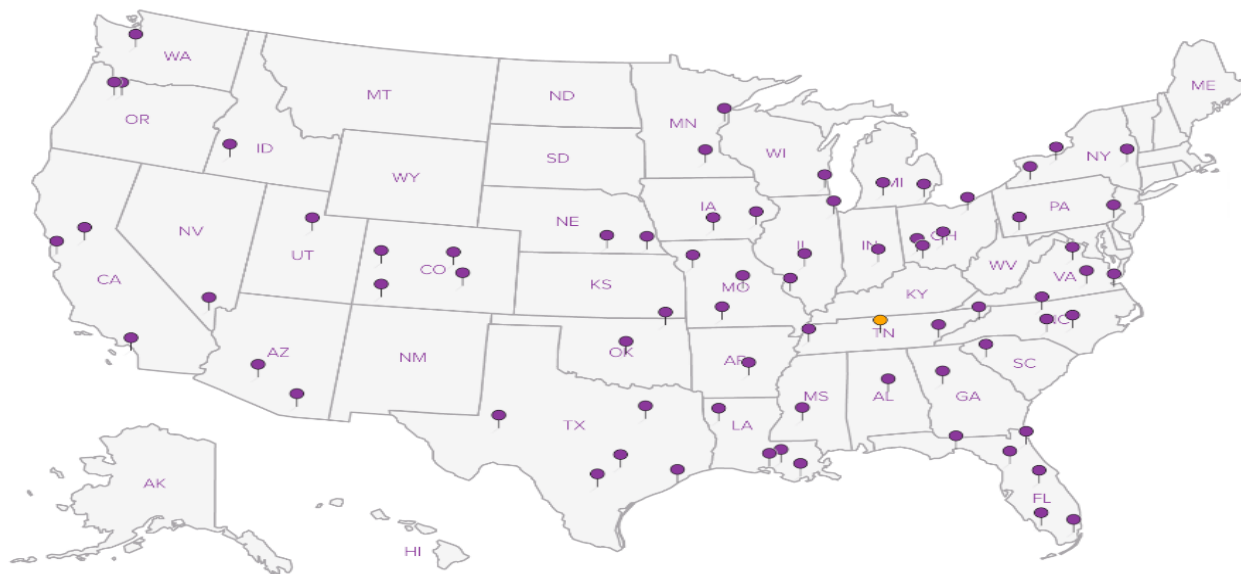
## Third Party & Federal Accreditations

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.**



Company Name/Address:

**Berry Petroleum Co.**1999 Broadway Suite 3700  
Denver, CO 80202

Billing Information:

~~Tom Hogelin~~ Terry Pope  
~~Linn Energy LLC~~ HRM Resources  
~~235 Callahan Ave~~ 410 17th St  
~~Parachute, CO 81635~~ Suite 1600, Denver CO 80202

Report to:

**Dave Nicholson**

Email To:

**dknicholson@q.com**

Project

Description: **HRM Landfarm Sampling**

City/State

Collected:

Phone: **303-601-2023**

Client Project #

Lab Project #

Fax:

~~BERPETDCG00306158~~

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

**Rush? (Lab MUST Be Notified)**

Date Results Needed

Same Day .....200%  
 Next Day .....100%  
 Two Day .....50%  
 Three Day .....25%

Email? ☐ No ☒ YesFAX? ☒ No ☐ YesNo.  
of  
CntrsPacked on Ice N ☒ Y ☐

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

Anderson-LF-1

SS

5/25

1320

2

Anderson-LF-2

SS

1

1325

2

Anderson-LF-3

SS

1

1330

2

Anderson-LF-4

SS

1

1335

2

Anderson-LF-5

SS

1

1340

2

SS

2

SS

2

SS

2

SS

2

SS

22

TEPH(8015)/Diesel &amp; Oil Range (1) 4oz Clear-No Pres

BTEX/TVPH (1) 4oz Clear - No Pres

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859

L # **6838258****C146**Acctnum: ~~BERPETDCG~~

Template:

Prelogin:

TSR:

Cooler:

Shipped Via:

Rem./Contaminant

Sample # (lab only)

-01

-02

-03

-04

-05

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

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Remarks:

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Samples returned via: ☐ UPS

Condition: \_\_\_\_\_ (lab use only)

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: \_\_\_\_\_ °C Bottles Received:

COC Seal Intact: ☐ Y ☐ N ☐ NA

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: \_\_\_\_\_ Time: \_\_\_\_\_

pH Checked:

NCF: