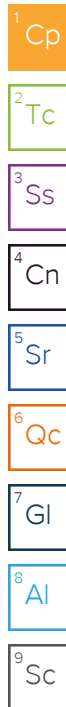


October 27, 2021



Terra Energy Partners

Sample Delivery Group: L1421320
Samples Received: 10/22/2021
Project Number: CONF. SAMPLING
Description: Terra Energy Partners - PA 12-28-695
Site: PA 12-28-695
Report To: Mike Gardner
1058 County Road 215
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

SL 1 L1421320-01 Solid

				Collected by Kris Rowe	Collected date/time 10/21/21 13:30	Received date/time 10/22/21 09:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1762575	1	10/26/21 18:42	10/26/21 18:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1762484	1	10/24/21 15:41	10/25/21 14:53	AMH	Mt. Juliet, TN

SL 2 L1421320-02 Solid

				Collected by Kris Rowe	Collected date/time 10/21/21 13:20	Received date/time 10/22/21 09:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1762575	1	10/26/21 18:45	10/26/21 18:45	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1763451	5	10/26/21 09:29	10/26/21 17:47	LD	Mt. Juliet, TN

SL 3 L1421320-03 Solid

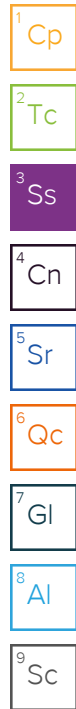
				Collected by Kris Rowe	Collected date/time 10/21/21 13:10	Received date/time 10/22/21 09:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1762575	1	10/26/21 18:48	10/26/21 18:48	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1762484	1	10/24/21 15:41	10/25/21 14:53	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1763451	5	10/26/21 09:29	10/26/21 17:50	LD	Mt. Juliet, TN

SL 4 L1421320-04 Solid

				Collected by Kris Rowe	Collected date/time 10/21/21 13:30	Received date/time 10/22/21 09:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1763451	5	10/26/21 09:29	10/26/21 17:54	LD	Mt. Juliet, TN

SL 5 L1421320-05 Solid

				Collected by Kris Rowe	Collected date/time 10/21/21 14:00	Received date/time 10/22/21 09:15
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1762575	1	10/26/21 18:51	10/26/21 18:51	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1762656	1	10/25/21 18:00	10/26/21 15:36	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1763101	1	10/24/21 02:30	10/25/21 02:10	GJA	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1762484	1	10/24/21 15:41	10/25/21 14:53	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1763460	1	10/26/21 09:44	10/26/21 19:17	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1762573	1	10/25/21 08:27	10/26/21 17:44	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1763451	5	10/26/21 09:29	10/26/21 17:31	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1763509	1	10/23/21 22:01	10/27/21 08:20	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1762616	1	10/23/21 22:01	10/24/21 18:13	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1762795	1	10/25/21 04:06	10/25/21 15:14	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1763616	1	10/26/21 16:45	10/26/21 22:54	AAT	Mt. Juliet, TN

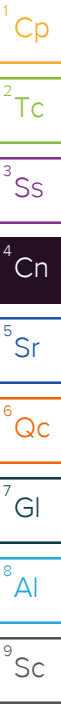


CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	34.8		1	10/26/2021 18:42	WG1762575

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	3600		10.0	1	10/25/2021 14:53	WG1762484

Sample Narrative:
L1421320-01 WG1762484: at 25C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	12.3		1	10/26/2021 18:45	WG1762575

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.8		0.100	1.00	5	10/26/2021 17:47	WG1763451

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Calculated Results

	Result	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Analyte					
Sodium Adsorption Ratio	2.81		1	10/26/2021 18:48	WG1762575

¹Cp

²Tc

Wet Chemistry by Method 9050AMod

	Result	<u>Qualifier</u>	RDL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	umhos/cm		umhos/cm			
Specific Conductance	679		10.0	1	10/25/2021 14:53	WG1762484

³Ss

⁴Cn

Sample Narrative:

L1421320-03 WG1762484: at 25C

⁵Sr

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis date / time	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg			
Arsenic	8.10		0.100	1.00	5	10/26/2021 17:50	WG1763451

⁶Qc

⁷Gl

⁸Al

⁹Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.93		0.100	1.00	5	10/26/2021 17:54	WG1763451

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.40		1	10/26/2021 18:51	WG1762575

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	10/26/2021 15:36	WG1762656

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	T8	1	10/25/2021 02:10	WG1763101

Sample Narrative:

L1421320-05 WG1763101: 8.45 at 20.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1190		10.0	1	10/25/2021 14:53	WG1762484

Sample Narrative:

L1421320-05 WG1762484: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	439	O1 V	0.0852	0.500	1	10/26/2021 19:17	WG1763460
Cadmium	0.455	J	0.0471	0.500	1	10/26/2021 19:17	WG1763460
Copper	18.6		0.400	2.00	1	10/26/2021 19:17	WG1763460
Lead	13.3		0.208	0.500	1	10/26/2021 19:17	WG1763460
Nickel	21.0		0.132	2.00	1	10/26/2021 19:17	WG1763460
Selenium	1.17	J	0.764	2.00	1	10/26/2021 19:17	WG1763460
Silver	U		0.127	1.00	1	10/26/2021 19:17	WG1763460
Zinc	47.3	O1	0.832	5.00	1	10/26/2021 19:17	WG1763460

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.614		0.0167	0.200	1	10/26/2021 17:44	WG1762573

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.6		0.100	1.00	5	10/26/2021 17:31	WG1763451

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.227		0.0217	0.100	1	10/27/2021 08:20	WG1763509
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	94.2			77.0-120		10/27/2021 08:20	WG1763509

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U	<u>J3</u>	0.000467	0.00100	1	10/24/2021 18:13	WG1762616
Toluene	U		0.00130	0.00500	1	10/24/2021 18:13	WG1762616
Ethylbenzene	U	<u>J3</u>	0.000737	0.00250	1	10/24/2021 18:13	WG1762616
Xylenes, Total	0.00379	<u>J</u>	0.000880	0.00650	1	10/24/2021 18:13	WG1762616
1,2,4-Trimethylbenzene	U	<u>J3</u>	0.00158	0.00500	1	10/24/2021 18:13	WG1762616
1,3,5-Trimethylbenzene	0.00300	<u>J</u>	0.00200	0.00500	1	10/24/2021 18:13	WG1762616
(S) Toluene-d8	112			75.0-131		10/24/2021 18:13	WG1762616
(S) 4-Bromofluorobenzene	93.5			67.0-138		10/24/2021 18:13	WG1762616
(S) 1,2-Dichloroethane-d4	97.7			70.0-130		10/24/2021 18:13	WG1762616

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	12.9		1.61	4.00	1	10/25/2021 15:14	WG1762795
C28-C36 Motor Oil Range	29.8		0.274	4.00	1	10/25/2021 15:14	WG1762795
(S) o-Terphenyl	79.6			18.0-148		10/25/2021 15:14	WG1762795

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	10/26/2021 22:54	WG1763616
Acenaphthene	U		0.00209	0.00600	1	10/26/2021 22:54	WG1763616
Acenaphthylene	U		0.00216	0.00600	1	10/26/2021 22:54	WG1763616
Benzo(a)anthracene	U		0.00173	0.00600	1	10/26/2021 22:54	WG1763616
Benzo(a)pyrene	U		0.00179	0.00600	1	10/26/2021 22:54	WG1763616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/26/2021 22:54	WG1763616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	10/26/2021 22:54	WG1763616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/26/2021 22:54	WG1763616
Chrysene	U		0.00232	0.00600	1	10/26/2021 22:54	WG1763616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/26/2021 22:54	WG1763616
Fluoranthene	U		0.00227	0.00600	1	10/26/2021 22:54	WG1763616
Fluorene	U		0.00205	0.00600	1	10/26/2021 22:54	WG1763616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/26/2021 22:54	WG1763616
Naphthalene	U		0.00408	0.0200	1	10/26/2021 22:54	WG1763616
Phenanthrene	U		0.00231	0.00600	1	10/26/2021 22:54	WG1763616
Pyrene	U		0.00200	0.00600	1	10/26/2021 22:54	WG1763616
1-Methylnaphthalene	U		0.00449	0.0200	1	10/26/2021 22:54	WG1763616
2-Methylnaphthalene	U		0.00427	0.0200	1	10/26/2021 22:54	WG1763616
2-Chloronaphthalene	U		0.00466	0.0200	1	10/26/2021 22:54	WG1763616
(S) p-Terphenyl-d14	81.8			23.0-120		10/26/2021 22:54	WG1763616
(S) Nitrobenzene-d5	46.1			14.0-149		10/26/2021 22:54	WG1763616
(S) 2-Fluorobiphenyl	61.7			34.0-125		10/26/2021 22:54	WG1763616

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3721492-1 10/26/21 12:27

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L1418643-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1418643-01 10/26/21 12:39 • (DUP) R3721492-3 10/26/21 12:45

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

L1420869-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1420869-01 10/26/21 14:13 • (DUP) R3721492-8 10/26/21 14:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	0.442	0.753	1	52.0	J P1	20

Laboratory Control Sample (LCS)

(LCS) R3721492-2 10/26/21 12:34

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	11.5	115	80.0-120	

L1418643-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1418643-02 10/26/21 12:50 • (MS) R3721492-4 10/26/21 12:55 • (MSD) R3721492-5 10/26/21 13:00

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	U	14.7	20.5	73.7	102	1	75.0-125	J6	J3	32.5	20

L1418643-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1418643-02 10/26/21 12:50 • (MS) R3721492-6 10/26/21 13:05

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	659	U	693	105	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1420481-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1420481-03 10/25/21 02:10 • (DUP) R3721032-2 10/25/21 02:10

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.81	8.82	1	0.113		1

Sample Narrative:

OS: 8.81 at 21.3C

DUP: 8.82 at 21.3C



L1420595-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1420595-04 10/25/21 02:10 • (DUP) R3721032-3 10/25/21 02:10

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	9.57	9.60	1	0.313		1

Sample Narrative:

OS: 9.57 at 21.1C

DUP: 9.6 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3721032-1 10/25/21 02:10

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 20.4C

Method Blank (MB)

(MB) R3720993-1 10/25/21 14:53

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

Sample Narrative:

BLANK: at 25C

L1420520-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1420520-04 10/25/21 14:53 • (DUP) R3720993-3 10/25/21 14:53

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1650	1660	1	0.726		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1420893-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1420893-01 10/25/21 14:53 • (DUP) R3720993-4 10/25/21 14:53

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	13.9	14.2	1	2.35		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3720993-2 10/25/21 14:53

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	274	102	85.0-115	

Sample Narrative:

LCS: at 25C

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3721758-1 10/26/21 19:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3721758-2 10/26/21 19:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	101	101	80.0-120	
Cadmium	100	94.7	94.7	80.0-120	
Copper	100	97.4	97.4	80.0-120	
Lead	100	96.2	96.2	80.0-120	
Nickel	100	97.7	97.7	80.0-120	
Selenium	100	98.5	98.5	80.0-120	
Silver	20.0	17.7	88.7	80.0-120	
Zinc	100	95.6	95.6	80.0-120	

L1421320-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1421320-05 10/26/21 19:17 • (MS) R3721758-5 10/26/21 19:26 • (MSD) R3721758-6 10/26/21 19:29

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 %
Barium	100	439	331	396	0.000	0.000	1	75.0-125	V	V	17.9	20
Cadmium	100	0.455	86.5	86.8	86.0	86.4	1	75.0-125			0.437	20
Copper	100	18.6	108	108	89.7	89.5	1	75.0-125			0.222	20
Lead	100	13.3	101	103	88.1	89.5	1	75.0-125			1.37	20
Nickel	100	21.0	108	109	87.1	88.1	1	75.0-125			0.903	20
Selenium	100	1.17	89.8	91.1	88.6	90.0	1	75.0-125			1.52	20
Silver	20.0	U	16.6	16.5	83.2	82.3	1	75.0-125			1.03	20
Zinc	100	47.3	124	128	77.2	80.5	1	75.0-125			2.61	20

Method Blank (MB)

(MB) R3721723-1 10/26/21 17:25

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R3721723-2 10/26/21 17:28 • (LCSD) R3721723-3 10/26/21 17:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.05	106	105	80.0-120			1.09	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3721611-1 10/26/21 17:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3721611-2 10/26/21 17:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	99.4	99.4	80.0-120	

L1421320-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1421320-05 10/26/21 17:31 • (MS) R3721611-5 10/26/21 17:41 • (MSD) R3721611-6 10/26/21 17:44

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 %
Arsenic	100	12.6	92.4	96.0	79.8	83.4	5	75.0-125			3.82	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3721908-3 10/27/21 03:40

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)	96.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3721908-1 10/27/21 02:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.71	85.6	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			94.7	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3721511-3 10/24/21 12:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	116			75.0-131
(S) 4-Bromofluorobenzene	98.4			67.0-138
(S) 1,2-Dichloroethane-d4	91.1			70.0-130

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

(LCS) R3721511-1 10/24/21 11:12 • (LCSD) R3721511-2 10/24/21 11:32

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	0.125	0.114	0.114	91.2	91.2	70.0-123			0.000	20
Ethylbenzene	0.125	0.116	0.119	92.8	95.2	74.0-126			2.55	20
Toluene	0.125	0.114	0.109	91.2	87.2	75.0-121			4.48	20
1,2,4-Trimethylbenzene	0.125	0.128	0.124	102	99.2	70.0-126			3.17	20
1,3,5-Trimethylbenzene	0.125	0.120	0.116	96.0	92.8	73.0-127			3.39	20
Xylenes, Total	0.375	0.379	0.357	101	95.2	72.0-127			5.98	20
(S) Toluene-d8				107	104	75.0-131				
(S) 4-Bromofluorobenzene				103	105	67.0-138				
(S) 1,2-Dichloroethane-d4				104	103	70.0-130				

L1421320-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1421320-05 10/24/21 18:13 • (MS) R3721511-4 10/24/21 20:10 • (MSD) R3721511-5 10/24/21 20:29

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	0.0625	U	0.0344	0.0512	55.0	81.9	1	10.0-149	J3		39.3	37
Ethylbenzene	0.0625	U	0.0340	0.0522	54.4	83.5	1	10.0-160	J3		42.2	38
Toluene	0.0625	U	0.0421	0.0567	67.4	90.7	1	10.0-156			29.6	38
1,2,4-Trimethylbenzene	0.0625	U	0.0468	0.0679	74.9	109	1	10.0-160	J3		36.8	36
1,3,5-Trimethylbenzene	0.0625	0.00300	0.0552	0.0759	83.5	117	1	10.0-160			31.6	38
Xylenes, Total	0.188	0.00379	0.128	0.182	66.1	94.8	1	10.0-160			34.8	38
(S) Toluene-d8					113	107		75.0-131				
(S) 4-Bromofluorobenzene					94.3	98.2		67.0-138				
(S) 1,2-Dichloroethane-d4					99.2	99.9		70.0-130				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R3720997-1 10/25/21 11:34

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-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	91.1			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3720997-2 10/25/21 11:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	40.2	80.4	50.0-150	
(S) o-Terphenyl			103	18.0-148	

L1421797-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1421797-01 10/25/21 14:33 • (MS) R3720997-3 10/25/21 14:47 • (MSD) R3720997-4 10/25/21 15:00

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 %
C10-C28 Diesel Range	48.6	U	38.2	39.3	78.6	79.4	1	50.0-150			2.84	20
(S) o-Terphenyl					89.4	90.8		18.0-148				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3721716-2 10/26/21 21:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	50.1			14.0-149
(S) 2-Fluorobiphenyl	66.1			34.0-125
(S) p-Terphenyl-d14	93.3			23.0-120

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Laboratory Control Sample (LCS)

(LCS) R3721716-1 10/26/21 21:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0511	63.9	50.0-126	
Acenaphthene	0.0800	0.0518	64.8	50.0-120	
Acenaphthylene	0.0800	0.0535	66.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0510	63.8	45.0-120	
Benzo(a)pyrene	0.0800	0.0454	56.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0460	57.5	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0480	60.0	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0480	60.0	49.0-125	
Chrysene	0.0800	0.0537	67.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0498	62.3	47.0-125	
Fluoranthene	0.0800	0.0543	67.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3721716-1 10/26/21 21:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0526	65.8	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0485	60.6	46.0-125	
Naphthalene	0.0800	0.0503	62.9	50.0-120	
Phenanthrene	0.0800	0.0514	64.3	47.0-120	
Pyrene	0.0800	0.0550	68.8	43.0-123	
1-Methylnaphthalene	0.0800	0.0532	66.5	51.0-121	
2-Methylnaphthalene	0.0800	0.0493	61.6	50.0-120	
2-Chloronaphthalene	0.0800	0.0492	61.5	50.0-120	
(S) Nitrobenzene-d5			58.8	14.0-149	
(S) 2-Fluorobiphenyl			74.6	34.0-125	
(S) p-Terphenyl-d14			95.6	23.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

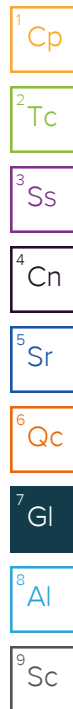
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

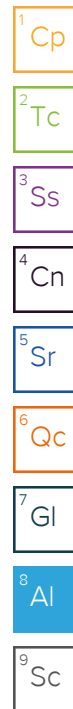
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Client: **HRL Compliance Solutions Inc.**
2385 F 1/2 RD
Grand Junction, CO 81505

Billing Info: **Terra Energy Partners**
Attn: Tammi Gose
1058 County Road 215
Parachute, CO 81650
Acct #: TERENGPCO

Report To: **Mike Gardner & Kris Rowe**

E-Mail: **mgardner@terraep.com**
krowe@hrlcomp.com

Project Description: **Terra Energy Partners - PA 12-28-695**

City/State Collected: **COLORADO**

Phone: **970-243-3271** Client Project #: **PA 12-28-695**

Fax: **970-243-4380** Conf. Sampling

Collected By: **Kris Rowe** Site/Facility ID: **PA 12-28-695** P.O. #

Collected By (Signature): *[Signature]* **Rush ? (lab must be notified)**

Same Day----- (200%)
 X Next Day----- (100%)
 Two Day----- (50%)
 Three Day----- (25%)

Date Results Needed
 Quickest Possible Rush

Email? ☐ No ☒ Yes
 Fax? ☒ No ☐ Yes

Immediately
 Packed on Ice N ☐ Y ☒

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. Of Cntrs
SL 1	Grab	Soil	0-6"	10/21/2021	13:30	1
SL 2	Grab	Soil	0-6"	10/21/2021	13:20	1
SL 3	Grab	Soil	0-6"	10/21/2021	13:10	1
SL 4	Grab	Soil	0-6"	10/21/2021	13:30	1
SL 5	Grab	Soil	0-6"	10/21/2021	14:00	3

Analysis / Container / Preservative									
COGCC Table 915-1	Arsenic	EC	SAR						
		X	X						
	X		X						
	X	X	X						
	X								
X									

Page 1 of 1

Pace Analytical®
 National Center for Testing & Innovation

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

L# **1421310**

Table #

Acct #:

Temp **J032**

Prelogin:
 PM: 824 - Chris Ward
 PB:

Shipped Via: FedEx Ground

Rem/Contaminant	Sample #
	01
	02
	03
	04
	05

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

Remarks: **5016 1232 2415**

pH _____ Temp _____
 Flow _____ Other _____

Relinquished by (Sign) *[Signature]* Date: **10/21/21** Time: **1630**

Relinquished by (Sign) *[Signature]* Date: **10/21/21** Time: **1730**

Relinquished by (Sign) *[Signature]* Date: _____ Time: _____

Received for lab by (Sign) **T. Robertson** Date: **10/22/21** Time: **915**

Samples Returned Via **UPS** ☐ **FedEx** ☐

Condition: (Lab Use)

COC Seal Intact ☒ Y ☐ N

pH Checked ☐ NCF: ☐