

Terra Energy Partners

Sample Delivery Group: L1437161
Samples Received: 12/02/2021
Project Number: TEP-RIVER RANCH A
Description: Terra Energy Partners-River Ranch A-Riser Spill
Site: RISER SPILL-EXCAVATION
Report To: Mike Gardner & Kis Rowe
1058 County Road 215
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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Pace Analytical National

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¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

SAMPLE SUMMARY

EXC-SP1 L1437161-01 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:00

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:09	12/09/21 01:09	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1783552	1	12/02/21 19:18	12/03/21 09:20	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 14:36	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783550	1	12/03/21 03:44	12/03/21 13:51	WCR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 10:50	LEA	Mt. Juliet, TN

EXC-SP2 L1437161-02 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:15

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:12	12/09/21 01:12	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1786511	1	12/02/21 19:18	12/09/21 08:15	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 14:55	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783550	1	12/03/21 03:44	12/03/21 13:38	WCR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 11:07	LEA	Mt. Juliet, TN

EXC-SP3 L1437161-03 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:20

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:15	12/09/21 01:15	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1783552	1	12/02/21 19:18	12/03/21 10:09	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 15:14	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783550	1	12/03/21 03:44	12/03/21 14:05	WCR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 11:24	LEA	Mt. Juliet, TN

EXC-SP4 L1437161-04 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:30

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:18	12/09/21 01:18	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1786511	1	12/02/21 19:18	12/09/21 08:36	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 15:33	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783550	1	12/03/21 03:44	12/03/21 15:38	WCR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 15:27	LEA	Mt. Juliet, TN

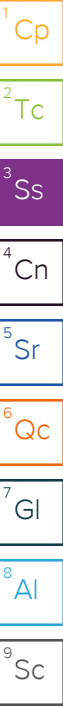
EXC-SP5 L1437161-05 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:40

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:21	12/09/21 01:21	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1783552	1	12/02/21 19:18	12/03/21 10:57	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 15:52	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783550	1	12/03/21 03:44	12/03/21 14:32	WCR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 11:42	LEA	Mt. Juliet, TN



SAMPLE SUMMARY

EXC-SP6 L1437161-06 Solid

Collected by
Kris Rowe

Collected date/time
11/30/21 10:50

Received date/time
12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 01:23	12/09/21 01:23	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1783552	1	12/02/21 19:18	12/03/21 11:21	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1784206	1	12/02/21 19:18	12/04/21 16:11	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1783877	1	12/03/21 18:23	12/04/21 02:00	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1783711	1	12/04/21 01:55	12/04/21 14:53	LEA	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

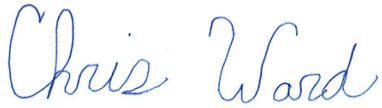
⁷Gl

⁸Al

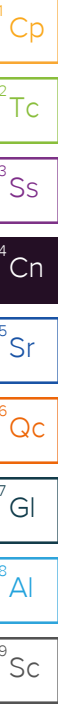
⁹Sc

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	5.70		1	12/09/2021 01:09	WG1784363

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	0.0817	J	0.0217	0.100	1	12/03/2021 09:20	WG1783552
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.6			77.0-120		12/03/2021 09:20	WG1783552

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	0.00178		0.000467	0.00100	1	12/04/2021 14:36	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 14:36	WG1784206
Toluene	0.00940	B	0.00130	0.00500	1	12/04/2021 14:36	WG1784206
1,2,4-Trimethylbenzene	0.00185	J	0.00158	0.00500	1	12/04/2021 14:36	WG1784206
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/04/2021 14:36	WG1784206
Xylenes, Total	0.00821		0.000880	0.00650	1	12/04/2021 14:36	WG1784206
(S) <i>Toluene-d8</i>	103			75.0-131		12/04/2021 14:36	WG1784206
(S) <i>4</i> -Bromofluorobenzene	106			67.0-138		12/04/2021 14:36	WG1784206
(S) <i>1,2</i> -Dichloroethane- <i>d4</i>	112			70.0-130		12/04/2021 14:36	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	4.62		0.769	4.00	1	12/03/2021 13:51	WG1783550
(S) <i>o</i> -Terphenyl	62.9			18.0-148		12/03/2021 13:51	WG1783550

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
1-Methylnaphthalene	0.00609	J	0.00449	0.0200	1	12/04/2021 10:50	WG1783711
2-Methylnaphthalene	0.00963	J	0.00427	0.0200	1	12/04/2021 10:50	WG1783711
(S) <i>p</i> -Terphenyl- <i>d14</i>	59.7			23.0-120		12/04/2021 10:50	WG1783711
(S) Nitrobenzene- <i>d5</i>	49.7			14.0-149		12/04/2021 10:50	WG1783711
(S) <i>2</i> -Fluorobiphenyl	59.1			34.0-125		12/04/2021 10:50	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.84		1	12/09/2021 01:12	WG1784363

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	0.0592	J	0.0217	0.100	1	12/09/2021 08:15	WG1786511
(S) a,a,a-Trifluorotoluene(FID)	105			77.0-120		12/09/2021 08:15	WG1786511

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	0.00176		0.000467	0.00100	1	12/04/2021 14:55	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 14:55	WG1784206
Toluene	0.00500	B J	0.00130	0.00500	1	12/04/2021 14:55	WG1784206
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	12/04/2021 14:55	WG1784206
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/04/2021 14:55	WG1784206
Xylenes, Total	0.0106		0.000880	0.00650	1	12/04/2021 14:55	WG1784206
(S) Toluene-d8	104			75.0-131		12/04/2021 14:55	WG1784206
(S) 4-Bromofluorobenzene	99.6			67.0-138		12/04/2021 14:55	WG1784206
(S) 1,2-Dichloroethane-d4	112			70.0-130		12/04/2021 14:55	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	2.18	J	0.769	4.00	1	12/03/2021 13:38	WG1783550
(S) o-Terphenyl	66.0			18.0-148		12/03/2021 13:38	WG1783550

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
1-Methylnaphthalene	U		0.00449	0.0200	1	12/04/2021 11:07	WG1783711
2-Methylnaphthalene	0.00832	J	0.00427	0.0200	1	12/04/2021 11:07	WG1783711
(S) p-Terphenyl-d14	76.1			23.0-120		12/04/2021 11:07	WG1783711
(S) Nitrobenzene-d5	53.8			14.0-149		12/04/2021 11:07	WG1783711
(S) 2-Fluorobiphenyl	69.0			34.0-125		12/04/2021 11:07	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	10.6		1	12/09/2021 01:15	WG1784363

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	0.107		0.0217	0.100	1	12/03/2021 10:09	WG1783552
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	95.4			77.0-120		12/03/2021 10:09	WG1783552

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	0.00339		0.000467	0.00100	1	12/04/2021 15:14	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 15:14	WG1784206
Toluene	0.0154	J	0.00130	0.00500	1	12/04/2021 15:14	WG1784206
1,2,4-Trimethylbenzene	0.00275	J	0.00158	0.00500	1	12/04/2021 15:14	WG1784206
1,3,5-Trimethylbenzene	0.00356	J	0.00200	0.00500	1	12/04/2021 15:14	WG1784206
Xylenes, Total	0.0202		0.000880	0.00650	1	12/04/2021 15:14	WG1784206
(S) Toluene-d8	103			75.0-131		12/04/2021 15:14	WG1784206
(S) 4-Bromofluorobenzene	101			67.0-138		12/04/2021 15:14	WG1784206
(S) 1,2-Dichloroethane-d4	114			70.0-130		12/04/2021 15:14	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	3.59	J	0.769	4.00	1	12/03/2021 14:05	WG1783550
(S) <i>o</i> -Terphenyl	56.8			18.0-148		12/03/2021 14:05	WG1783550

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
1-Methylnaphthalene	0.00480	J	0.00449	0.0200	1	12/04/2021 11:24	WG1783711
2-Methylnaphthalene	0.00791	J	0.00427	0.0200	1	12/04/2021 11:24	WG1783711
(S) <i>p</i> -Terphenyl-d14	57.2			23.0-120		12/04/2021 11:24	WG1783711
(S) Nitrobenzene-d5	47.1			14.0-149		12/04/2021 11:24	WG1783711
(S) 2-Fluorobiphenyl	52.5			34.0-125		12/04/2021 11:24	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	22.9		1	12/09/2021 01:18	WG1784363

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	0.386	V3	0.0217	0.100	1	12/09/2021 08:36	WG1786511
(S) a,a,a-Trifluorotoluene(FID)	94.1			77.0-120		12/09/2021 08:36	WG1786511

Sample Narrative:

L1437161-04 WG1786511: Previous run also had low IS/SURR recovery. Matrix effect.

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		0.000467	0.00100	1	12/04/2021 15:33	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 15:33	WG1784206
Toluene	0.00460	B J	0.00130	0.00500	1	12/04/2021 15:33	WG1784206
1,2,4-Trimethylbenzene	0.00436	J	0.00158	0.00500	1	12/04/2021 15:33	WG1784206
1,3,5-Trimethylbenzene	0.0176		0.00200	0.00500	1	12/04/2021 15:33	WG1784206
Xylenes, Total	0.0119		0.000880	0.00650	1	12/04/2021 15:33	WG1784206
(S) Toluene-d8	105			75.0-131		12/04/2021 15:33	WG1784206
(S) 4-Bromofluorobenzene	101			67.0-138		12/04/2021 15:33	WG1784206
(S) 1,2-Dichloroethane-d4	112			70.0-130		12/04/2021 15:33	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	54.7		0.769	4.00	1	12/03/2021 15:38	WG1783550
(S) o-Terphenyl	69.6			18.0-148		12/03/2021 15:38	WG1783550

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
1-Methylnaphthalene	0.0247		0.00449	0.0200	1	12/04/2021 15:27	WG1783711
2-Methylnaphthalene	0.0333		0.00427	0.0200	1	12/04/2021 15:27	WG1783711
(S) p-Terphenyl-d14	73.4			23.0-120		12/04/2021 15:27	WG1783711
(S) Nitrobenzene-d5	53.3			14.0-149		12/04/2021 15:27	WG1783711
(S) 2-Fluorobiphenyl	63.2			34.0-125		12/04/2021 15:27	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.69		1	12/09/2021 01:21	WG1784363

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	0.102		0.0217	0.100	1	12/03/2021 10:57	WG1783552
(S) a,a,a-Trifluorotoluene(FID)	95.4			77.0-120		12/03/2021 10:57	WG1783552

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		0.000467	0.00100	1	12/04/2021 15:52	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 15:52	WG1784206
Toluene	0.00312	B J	0.00130	0.00500	1	12/04/2021 15:52	WG1784206
1,2,4-Trimethylbenzene	0.00228	J	0.00158	0.00500	1	12/04/2021 15:52	WG1784206
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/04/2021 15:52	WG1784206
Xylenes, Total	0.0104		0.000880	0.00650	1	12/04/2021 15:52	WG1784206
(S) Toluene-d8	105			75.0-131		12/04/2021 15:52	WG1784206
(S) 4-Bromofluorobenzene	105			67.0-138		12/04/2021 15:52	WG1784206
(S) 1,2-Dichloroethane-d4	110			70.0-130		12/04/2021 15:52	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	3.64	J	0.769	4.00	1	12/03/2021 14:32	WG1783550
(S) o-Terphenyl	62.5			18.0-148		12/03/2021 14:32	WG1783550

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
1-Methylnaphthalene	0.00499	J	0.00449	0.0200	1	12/04/2021 11:42	WG1783711
2-Methylnaphthalene	0.00560	J	0.00427	0.0200	1	12/04/2021 11:42	WG1783711
(S) p-Terphenyl-d14	70.1			23.0-120		12/04/2021 11:42	WG1783711
(S) Nitrobenzene-d5	47.7			14.0-149		12/04/2021 11:42	WG1783711
(S) 2-Fluorobiphenyl	63.5			34.0-125		12/04/2021 11:42	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	13.0		1	12/09/2021 01:23	WG1784363

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	0.470		0.0217	0.100	1	12/03/2021 11:21	WG1783552
(S) a,a,a-Trifluorotoluene(FID)	96.9			77.0-120		12/03/2021 11:21	WG1783552

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		0.000467	0.00100	1	12/04/2021 16:11	WG1784206
Ethylbenzene	U		0.000737	0.00250	1	12/04/2021 16:11	WG1784206
Toluene	0.00592	B	0.00130	0.00500	1	12/04/2021 16:11	WG1784206
1,2,4-Trimethylbenzene	0.00500	J	0.00158	0.00500	1	12/04/2021 16:11	WG1784206
1,3,5-Trimethylbenzene	0.0142		0.00200	0.00500	1	12/04/2021 16:11	WG1784206
Xylenes, Total	0.0169		0.000880	0.00650	1	12/04/2021 16:11	WG1784206
(S) Toluene-d8	107			75.0-131		12/04/2021 16:11	WG1784206
(S) 4-Bromofluorobenzene	103			67.0-138		12/04/2021 16:11	WG1784206
(S) 1,2-Dichloroethane-d4	110			70.0-130		12/04/2021 16:11	WG1784206

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	48.6		0.769	4.00	1	12/04/2021 02:00	WG1783877
(S) o-Terphenyl	79.7			18.0-148		12/04/2021 02:00	WG1783877

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
1-Methylnaphthalene	0.0126	J	0.00449	0.0200	1	12/04/2021 14:53	WG1783711
2-Methylnaphthalene	0.0237		0.00427	0.0200	1	12/04/2021 14:53	WG1783711
(S) p-Terphenyl-d14	77.3			23.0-120		12/04/2021 14:53	WG1783711
(S) Nitrobenzene-d5	49.4			14.0-149		12/04/2021 14:53	WG1783711
(S) 2-Fluorobiphenyl	65.0			34.0-125		12/04/2021 14:53	WG1783711

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3738329-2 12/03/21 05:17

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)	98.9			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3738329-1 12/03/21 04:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.65	84.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.8	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3738793-2 12/09/21 07:44

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)	109			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3738793-1 12/09/21 05:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.32	115	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3737960-3 12/04/21 09:48

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	0.00170	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	105			75.0-131
(S) 4-Bromofluorobenzene	99.3			67.0-138
(S) 1,2-Dichloroethane-d4	109			70.0-130

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

(LCS) R3737960-1 12/04/21 08:34 • (LCSD) R3737960-2 12/04/21 08:52

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	0.141	0.135	113	108	70.0-123			4.35	20
Ethylbenzene	0.125	0.137	0.137	110	110	74.0-126			0.000	20
Toluene	0.125	0.127	0.125	102	100	75.0-121			1.59	20
1,2,4-Trimethylbenzene	0.125	0.117	0.125	93.6	100	70.0-126			6.61	20
1,3,5-Trimethylbenzene	0.125	0.121	0.123	96.8	98.4	73.0-127			1.64	20
Xylenes, Total	0.375	0.389	0.386	104	103	72.0-127			0.774	20
(S) Toluene-d8				103	103	75.0-131				
(S) 4-Bromofluorobenzene				100	100	67.0-138				
(S) 1,2-Dichloroethane-d4				111	112	70.0-130				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3736947-1 12/03/21 11:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	80.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3736947-2 12/03/21 11:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	38.6	77.2	50.0-150	
(S) o-Terphenyl			95.0	18.0-148	

L1436782-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1436782-21 12/03/21 14:58 • (MS) R3736947-3 12/03/21 15:11 • (MSD) R3736947-4 12/03/21 15:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	47.7	9.97	41.4	46.7	65.9	77.0	1	50.0-150			12.0	20
(S) o-Terphenyl					84.6	86.9		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3737060-1 12/03/21 23:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	86.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3737060-2 12/03/21 23:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	38.5	77.0	50.0-150	
(S) o-Terphenyl			93.1	18.0-148	

L1437444-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437444-01 12/03/21 23:58 • (MS) R3737060-3 12/04/21 00:12 • (MSD) R3737060-4 12/04/21 00:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	49.2	4.24	46.4	45.7	85.7	83.3	1	50.0-150			1.52	20
(S) o-Terphenyl					102	97.6		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3737641-2 12/04/21 10:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
(S) Nitrobenzene-d5	58.4			14.0-149
(S) 2-Fluorobiphenyl	80.2			34.0-125
(S) p-Terphenyl-d14	97.6			23.0-120

Laboratory Control Sample (LCS)

(LCS) R3737641-1 12/04/21 10:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1-Methylnaphthalene	0.0800	0.0600	75.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0575	71.9	50.0-120	
(S) Nitrobenzene-d5			69.4	14.0-149	
(S) 2-Fluorobiphenyl			86.3	34.0-125	
(S) p-Terphenyl-d14			95.6	23.0-120	

L1437293-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437293-12 12/04/21 16:19 • (MS) R3737641-3 12/04/21 16:37 • (MSD) R3737641-4 12/04/21 16:54

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	0.0784	U	0.0543	0.0519	69.3	67.2	1	10.0-142			4.52	28
2-Methylnaphthalene	0.0784	U	0.0506	0.0487	64.5	63.1	1	10.0-137			3.83	28
(S) Nitrobenzene-d5					43.7	42.9		14.0-149				
(S) 2-Fluorobiphenyl					68.5	67.7		34.0-125				
(S) p-Terphenyl-d14					84.8	82.7		23.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

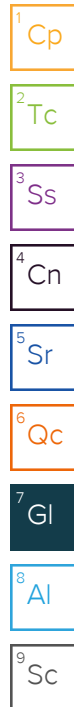
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.



ACCREDITATIONS & LOCATIONS

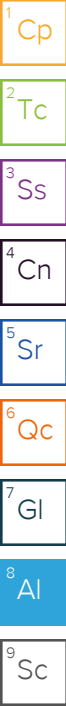
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


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				Analysis / Container / Preservative										Page <u>1</u> of <u>1</u>																																																																																																																																																																																																			
Report To: Mike Gardner & Kris Rowe				E-Mail: mgardner@terraep.com krowe@hrlcomp.com				<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">DRO/GRO</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTX / 1,2,4 Trimethylbenzene / 1,2,5 Trimethylbenzene</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">1-Methylnaphthalene</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">2-Methylnaphthalene</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">SAR</div> </div>										Pace Analytical® National Center for Testing & Innovation 9808 Loret Blvd Lenexa, KS 66219 Ph: 913-563-1407 Ph: 702-888-2153																																																																																																																																																																																																			
Project Description: Terra Energy Partners - River Ranch A - Riser Spill				City/State Collected: COLORADO														L# E027																																																																																																																																																																																																			
Phone: 970-243-3271 Fax: 970-243-4380		Client Project #: TEP - River Ranch A		Lab Project #		Acct #:												Template:																																																																																																																																																																																																			
Collected By: Kris Rowe		Site/Facility ID: Riser Spill - Excavation		P.O. #		Prelogin: PM: 824 - Chris Ward PB: <u>1437161</u>												Shipped Via: FedEx Ground																																																																																																																																																																																																			
Collected By (Signature): 		Rush ? (lab must be notified) Same Day----- (200%) * Next Day----- (100%) Two Day----- (50%) Three Day----- (25%)		Date Results Needed Quickest Rush Possible Email? <u> </u> No <u> </u> Yes Fax? <u> </u> No <u> </u> Yes		No. Of Cntrs		Rem/Contaminant		Sample #																																																																																																																																																																																																											
Immediately Packed on Ice N <u> </u> Y <u> </u>		Sample ID		Comp/Grab		Matrix*		Depth		Date		Time		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80		81		82		83		84		85		86		87		88		89		90		91		92		93		94		95		96		97		98		99		100	
EXC - SP 1		Grab		Soil																																																																																																																																																																																																																	

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