

Terra Energy Partners Grand Valley Field Background Data	COGCC Table 915-1 Threshold (RSS Level)	Sample Locations														
		RG 12-14	C-240					C-240			Gov 399-1-2			Valve Can 13C		
		10/15/2019	10/23/2019					5/23/2017			6/28/2021			10/24/2018		
		Lab ID: 19101391	Lab ID: L1153332					Lab ID: L911596			Lab ID: 21062761			Lab ID: 18101692		
		BKGD 1 (SP 4)	BKGD 1	BKGD 2	BKGD 3	BKGD 4	BKGD 4	BKGD 1	BKGD 2	BKGD 3	BKGD 1	BKGD 2	BKGD 3	BKGD 1	BKGD 2	BKGD 3
ARSENIC	0.68	6.8	4.91	4.87	5.27	3.28	3.49	6.76	4.2	6	13.0	8.8	11	4.1	5.3	5.3
(average)		9.8	4.42					5.65			10.93			4.90		
ELECTRICAL CONDUCTIVITY (EC) (mmho/cm)	<4 mmhos/cm or x2 bkgd	1.0	0.0445	0.258	0.160	0.0787	1.02	0.103	-	-	12	9.9	0.89	1.5	-	-
pH	6 to 8.3	8.43	8.15	8.49	9.08	8.53	7.84	8.45	-	-	7.95	9.67	9.41	7.02	-	-
SODIUM ADSORPTION RATIO (SAR)	6	0.24	1.65	0.417	3.04	0.165	0.941	0.61	-	-	5.5	6.3	2.5	0.18	-	-

All restuls are reported in mg/kg, unless otherwise noted

Peak Arsenic Reading	13.0
Peak SAR	6.3
Peak EC	12
Peak pH	9.67



31-Oct-2018

Kris Rowe
HRL Compliance Solutions, Inc
2385 F 1/2 Road
Grand Junction, CO 81505

Re: **Terra Energy - Valve Can 13C Release**

Work Order: **18101692**

Dear Kris,

ALS Environmental received 5 samples on 25-Oct-2018 02:50 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

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RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Work Order: 18101692

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18101692-01	Pothole	Soil		10/24/2018 12:38	10/25/2018 14:50	<input type="checkbox"/>
18101692-02	Stockpile	Soil		10/24/2018 13:40	10/25/2018 14:50	<input type="checkbox"/>
18101692-03	BKGD 1	Soil		10/24/2018 13:05	10/25/2018 14:50	<input type="checkbox"/>
18101692-04	BKGD 2	Soil		10/24/2018 13:11	10/25/2018 14:50	<input type="checkbox"/>
18101692-05	BKGD 3	Soil		10/24/2018 13:17	10/25/2018 14:50	<input type="checkbox"/>

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Work Order: 18101692

Case Narrative

Batch 126919, Method CR6_7196_S, Sample 18101692-01A MSD: The RPD between the MS and MSD was outside the control limit for Hexavalent Chromium. The corresponding result in the parent sample should be considered estimated.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	

s.u. Standard Units

ALS Group, USA

Date: 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: Pothole
Collection Date: 10/24/2018 12:38 PM

Work Order: 18101692
Lab ID: 18101692-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3546 / 10/26/18		Analyst: RP
DRO (C10-C28)	U		3.6	6.2	mg/Kg-dry	1	10/26/2018 15:00
Surr: 4-Terphenyl-d14	84.5			33-111	%REC	1	10/26/2018 15:00
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/25/18		Analyst: RP
GRO (C6-C10)	U		3.1	7.5	mg/Kg	1	10/26/2018 03:23
Surr: Toluene-d8	89.2			71-123	%REC	1	10/26/2018 03:23
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/26/18		Analyst: RSH
Mercury	0.017	J	0.0020	0.020	mg/Kg-dry	1	10/29/2018 11:36
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 10/26/18		Analyst: ABL
Arsenic	6.8		0.11	0.43	mg/Kg-dry	1	10/27/2018 05:15
Barium	360		0.17	0.43	mg/Kg-dry	1	10/27/2018 05:15
Cadmium	0.10	J	0.041	0.85	mg/Kg-dry	1	10/27/2018 05:15
Chromium	18		0.024	0.43	mg/Kg-dry	1	10/27/2018 05:15
Copper	12		0.19	0.85	mg/Kg-dry	1	10/27/2018 05:15
Lead	7.7		0.090	0.43	mg/Kg-dry	1	10/27/2018 05:15
Nickel	9.3		0.17	0.43	mg/Kg-dry	1	10/27/2018 05:15
Selenium	0.35	J	0.24	0.85	mg/Kg-dry	1	10/27/2018 05:15
Silver	U		0.053	0.43	mg/Kg-dry	1	10/27/2018 05:15
Zinc	46		0.068	0.85	mg/Kg-dry	1	10/27/2018 05:15
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/29/18		Analyst: STP
Calcium	460		0.86	5.0	mg/L	10	10/29/2018 16:50
Magnesium	110		0.068	2.0	mg/L	10	10/29/2018 16:50
Sodium	410		0.34	2.0	mg/L	10	10/29/2018 16:50
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/29/18		Analyst: STP
Sodium Adsorption Ratio	4.5		0.010	0.010	none	1	10/29/2018
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 10/26/18		Analyst: KAW
Acenaphthene	U		6.0	8.3	µg/Kg-dry	1	10/26/2018 14:18
Anthracene	U		5.9	8.3	µg/Kg-dry	1	10/26/2018 14:18
Benzo(a)anthracene	U		7.2	8.3	µg/Kg-dry	1	10/26/2018 14:18
Benzo(a)pyrene	U		5.1	8.3	µg/Kg-dry	1	10/26/2018 14:18
Benzo(b)fluoranthene	U		6.2	8.3	µg/Kg-dry	1	10/26/2018 14:18
Benzo(k)fluoranthene	U		6.3	8.3	µg/Kg-dry	1	10/26/2018 14:18
Chrysene	U		6.7	8.3	µg/Kg-dry	1	10/26/2018 14:18
Dibenzo(a,h)anthracene	U		4.5	8.3	µg/Kg-dry	1	10/26/2018 14:18
Fluoranthene	U		4.0	8.3	µg/Kg-dry	1	10/26/2018 14:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: Pothole
Collection Date: 10/24/2018 12:38 PM

Work Order: 18101692
Lab ID: 18101692-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		6.0	8.3	µg/Kg-dry	1	10/26/2018 14:18
Indeno(1,2,3-cd)pyrene	U		5.8	8.3	µg/Kg-dry	1	10/26/2018 14:18
Naphthalene	U		5.3	8.3	µg/Kg-dry	1	10/26/2018 14:18
Pyrene	U		1.5	8.3	µg/Kg-dry	1	10/26/2018 14:18
Surr: 2-Fluorobiphenyl	75.8			44-107	%REC	1	10/26/2018 14:18
Surr: 4-Terphenyl-d14	86.7			52-123	%REC	1	10/26/2018 14:18
Surr: Nitrobenzene-d5	78.1			41-94	%REC	1	10/26/2018 14:18
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/25/18		Analyst: PM
Benzene	0.044	J	0.0077	0.045	mg/Kg	1	10/25/2018 18:21
Ethylbenzene	U		0.0095	0.045	mg/Kg	1	10/25/2018 18:21
m,p-Xylene	0.062	J	0.021	0.090	mg/Kg	1	10/25/2018 18:21
o-Xylene	0.022	J	0.017	0.045	mg/Kg	1	10/25/2018 18:21
Toluene	0.11		0.012	0.045	mg/Kg	1	10/25/2018 18:21
Xylenes, Total	0.084	J	0.039	0.14	mg/Kg	1	10/25/2018 18:21
Surr: 1,2-Dichloroethane-d4	101			70-130	%REC	1	10/25/2018 18:21
Surr: 4-Bromofluorobenzene	98.4			70-130	%REC	1	10/25/2018 18:21
Surr: Dibromofluoromethane	88.6			70-130	%REC	1	10/25/2018 18:21
Surr: Toluene-d8	96.3			70-130	%REC	1	10/25/2018 18:21
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/29/18		Analyst: EE
Electrical Conductivity @ Saturation	5.8		0.011	0.10	mmhos/cm @25°	20	10/30/2018 14:00
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: JJG
Chromium, Trivalent	18		0.39	1.3	mg/Kg-dry	1	10/30/2018 09:56
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/26/18		Analyst: JEB
Chromium, Hexavalent	U		0.38	1.2	mg/Kg-dry	1	10/26/2018 14:50
MOISTURE			Method: SW3550C				Analyst: RBS
Moisture	20		0.025	0.050	% of sample	1	10/25/2018 17:59
PH			Method: SW9045D		Prep: EXTRACT / 10/26/18		Analyst: RZM
pH	8.44		0.10	0.100	s.u.	1	10/29/2018 14:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: Stockpile
Collection Date: 10/24/2018 01:40 PM

Work Order: 18101692
Lab ID: 18101692-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3546 / 10/26/18		Analyst: RP
DRO (C10-C28)	U		3.5	6.1	mg/Kg-dry	1	10/26/2018 14:31
Surr: 4-Terphenyl-d14	79.3			33-111	%REC	1	10/26/2018 14:31
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/25/18		Analyst: RP
GRO (C6-C10)	U		3.1	7.3	mg/Kg	1	10/26/2018 03:52
Surr: Toluene-d8	94.3			71-123	%REC	1	10/26/2018 03:52
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/26/18		Analyst: RSH
Mercury	0.011	J	0.0019	0.019	mg/Kg-dry	1	10/29/2018 11:39
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 10/26/18		Analyst: ABL
Arsenic	4.7		0.11	0.41	mg/Kg-dry	1	10/27/2018 05:21
Barium	280		0.16	0.41	mg/Kg-dry	1	10/27/2018 05:21
Cadmium	U		0.039	0.81	mg/Kg-dry	1	10/27/2018 05:21
Chromium	25		0.023	0.41	mg/Kg-dry	1	10/27/2018 05:21
Copper	13		0.18	0.81	mg/Kg-dry	1	10/27/2018 05:21
Lead	11		0.086	0.41	mg/Kg-dry	1	10/27/2018 05:21
Nickel	11		0.16	0.41	mg/Kg-dry	1	10/27/2018 05:21
Selenium	0.34	J	0.23	0.81	mg/Kg-dry	1	10/27/2018 05:21
Silver	U		0.050	0.41	mg/Kg-dry	1	10/27/2018 05:21
Zinc	46		0.065	0.81	mg/Kg-dry	1	10/27/2018 05:21
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/29/18		Analyst: STP
Calcium	360		0.86	5.0	mg/L	10	10/29/2018 16:51
Magnesium	68		0.068	2.0	mg/L	10	10/29/2018 16:51
Sodium	190		0.34	2.0	mg/L	10	10/29/2018 16:51
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/29/18		Analyst: STP
Sodium Adsorption Ratio	2.4		0.010	0.010	none	1	10/29/2018
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 10/26/18		Analyst: KAW
Acenaphthene	U		5.9	8.2	µg/Kg-dry	1	10/26/2018 14:41
Anthracene	U		5.7	8.2	µg/Kg-dry	1	10/26/2018 14:41
Benzo(a)anthracene	U		7.0	8.2	µg/Kg-dry	1	10/26/2018 14:41
Benzo(a)pyrene	U		5.0	8.2	µg/Kg-dry	1	10/26/2018 14:41
Benzo(b)fluoranthene	U		6.1	8.2	µg/Kg-dry	1	10/26/2018 14:41
Benzo(k)fluoranthene	U		6.2	8.2	µg/Kg-dry	1	10/26/2018 14:41
Chrysene	U		6.6	8.2	µg/Kg-dry	1	10/26/2018 14:41
Dibenzo(a,h)anthracene	U		4.4	8.2	µg/Kg-dry	1	10/26/2018 14:41
Fluoranthene	U		3.9	8.2	µg/Kg-dry	1	10/26/2018 14:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: Stockpile
Collection Date: 10/24/2018 01:40 PM

Work Order: 18101692
Lab ID: 18101692-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		5.9	8.2	µg/Kg-dry	1	10/26/2018 14:41
Indeno(1,2,3-cd)pyrene	U		5.7	8.2	µg/Kg-dry	1	10/26/2018 14:41
Naphthalene	U		5.2	8.2	µg/Kg-dry	1	10/26/2018 14:41
Pyrene	U		1.5	8.2	µg/Kg-dry	1	10/26/2018 14:41
Surr: 2-Fluorobiphenyl	74.3			44-107	%REC	1	10/26/2018 14:41
Surr: 4-Terphenyl-d14	85.3			52-123	%REC	1	10/26/2018 14:41
Surr: Nitrobenzene-d5	74.0			41-94	%REC	1	10/26/2018 14:41
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/25/18		Analyst: PM
Benzene	U		0.0075	0.044	mg/Kg	1	10/25/2018 18:36
Ethylbenzene	U		0.0093	0.044	mg/Kg	1	10/25/2018 18:36
m,p-Xylene	U		0.021	0.088	mg/Kg	1	10/25/2018 18:36
o-Xylene	U		0.017	0.044	mg/Kg	1	10/25/2018 18:36
Toluene	U		0.012	0.044	mg/Kg	1	10/25/2018 18:36
Xylenes, Total	U		0.038	0.13	mg/Kg	1	10/25/2018 18:36
Surr: 1,2-Dichloroethane-d4	102			70-130	%REC	1	10/25/2018 18:36
Surr: 4-Bromofluorobenzene	98.4			70-130	%REC	1	10/25/2018 18:36
Surr: Dibromofluoromethane	89.4			70-130	%REC	1	10/25/2018 18:36
Surr: Toluene-d8	98.0			70-130	%REC	1	10/25/2018 18:36
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/29/18		Analyst: EE
Electrical Conductivity @ Saturation	3.7		0.011	0.10	mmhos/cm @25°	20	10/30/2018 14:00
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: JJG
Chromium, Trivalent	25		0.38	1.2	mg/Kg-dry	1	10/30/2018 09:56
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/26/18		Analyst: JEB
Chromium, Hexavalent	U		0.38	1.2	mg/Kg-dry	1	10/26/2018 14:50
MOISTURE			Method: SW3550C				Analyst: RBS
Moisture	19		0.025	0.050	% of sample	1	10/25/2018 17:59
PH			Method: SW9045D		Prep: EXTRACT / 10/26/18		Analyst: RZM
pH	7.64		0.10	0.100	s.u.	1	10/29/2018 14:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA**Date:** 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: BKGD 1
Collection Date: 10/24/2018 01:05 PM

Work Order: 18101692
Lab ID: 18101692-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 10/26/18		Analyst: ABL
Arsenic	4.1		0.14	0.55	mg/Kg-dry	1	10/27/2018 05:27
MOISTURE			Method: SW3550C				Analyst: RBS
Moisture	34		0.025	0.050	% of sample	1	10/25/2018 17:59

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA**Date:** 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: BKGD 2
Collection Date: 10/24/2018 01:11 PM

Work Order: 18101692
Lab ID: 18101692-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	5.3		0.13	0.51	mg/Kg-dry	1	10/27/2018 05:34
MOISTURE							
Moisture	26		0.025	0.050	% of sample	1	10/25/2018 17:59

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-Oct-18

Client: HRL Compliance Solutions, Inc
Project: Terra Energy - Valve Can 13C Release
Sample ID: BKGD 3
Collection Date: 10/24/2018 01:17 PM

Work Order: 18101692
Lab ID: 18101692-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	5.3		0.15	0.59	mg/Kg-dry	1	10/27/2018 05:40
SOLUBLE CATIONS FOR SAR							
Calcium	260		0.86	5.0	mg/L	10	10/29/2018 16:55
Magnesium	22		0.068	2.0	mg/L	10	10/29/2018 16:55
Sodium	11		0.34	2.0	mg/L	10	10/29/2018 16:55
SODIUM ADSORPTION RATIO							
Sodium Adsorption Ratio	0.18		0.010	0.010	none	1	10/29/2018
ELECTRICAL CONDUCTIVITY (SAR)							
Electrical Conductivity @ Saturation	1.5		0.011	0.10	mmhos/cm @25°	20	10/30/2018 14:00
MOISTURE							
Moisture	32		0.025	0.050	% of sample	1	10/25/2018 17:59
PH							
pH	7.02		0.10	0.100	s.u.	1	10/29/2018 14:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126854** Instrument ID **GC8** Method: **SW8015M**

MBLK		Sample ID: SMBLKS1-126854-126854				Units: mg/Kg		Analysis Date: 10/26/2018 03:30 PM		
Client ID:		Run ID: GC8_181026A				SeqNo: 5348613		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) U 5.0
 Surr: 4-Terphenyl-d14 2.914 0 3.33 0 87.5 33-111 0

LCS		Sample ID: SLCSS1-126854-126854				Units: mg/Kg		Analysis Date: 10/26/2018 03:59 PM		
Client ID:		Run ID: GC8_181026A				SeqNo: 5348616		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 315.8 5.0 333 0 94.8 58-111 0
 Surr: 4-Terphenyl-d14 2.761 0 3.33 0 82.9 33-111 0

MS		Sample ID: 18101692-02A MS				Units: mg/Kg		Analysis Date: 10/26/2018 04:28 PM		
Client ID: Stockpile		Run ID: GC8_181026A				SeqNo: 5348620		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 342 4.8 321.9 0 106 58-111 0
 Surr: 4-Terphenyl-d14 2.59 0 3.219 0 80.5 33-111 0

MSD		Sample ID: 18101692-02A MSD				Units: mg/Kg		Analysis Date: 10/26/2018 04:57 PM		
Client ID: Stockpile		Run ID: GC8_181026A				SeqNo: 5348621		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28) 327.5 4.8 320.9 0 102 58-111 342 4.34 30
 Surr: 4-Terphenyl-d14 2.778 0 3.209 0 86.6 33-111 2.59 7 30

The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126852** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-126852-126852				Units: µg/Kg-dry		Analysis Date: 10/26/2018 02:25 A		
Client ID:		Run ID: GC9_181025A				SeqNo: 5346042		Prep Date: 10/25/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
<i>Surr: Toluene-d8</i>	4703	0	5000	0	94.1	71-123	0			

LCS		Sample ID: LCS-126852-126852				Units: µg/Kg-dry		Analysis Date: 10/26/2018 01:27 A		
Client ID:		Run ID: GC9_181025A				SeqNo: 5346040		Prep Date: 10/25/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	490200	5,000	500000	0	98	71-123	0			
<i>Surr: Toluene-d8</i>	4786	0	5000	0	95.7	71-123	0			

MS		Sample ID: 18101692-02A MS				Units: µg/Kg-dry		Analysis Date: 10/26/2018 04:21 A		
Client ID: Stockpile		Run ID: GC9_181025A				SeqNo: 5346050		Prep Date: 10/25/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	828800	7,300	734600	0	113	71-123	0			
<i>Surr: Toluene-d8</i>	7388	0	7346	0	101	71-123	0			

MSD		Sample ID: 18101692-02A MSD				Units: µg/Kg-dry		Analysis Date: 10/26/2018 04:50 A		
Client ID: Stockpile		Run ID: GC9_181025A				SeqNo: 5346052		Prep Date: 10/25/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	843000	7,300	734600	0	115	71-123	828800	1.7	30	
<i>Surr: Toluene-d8</i>	7761	0	7346	0	106	71-123	7388	4.93	30	

The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126880** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-126880-126880				Units: mg/Kg		Analysis Date: 10/29/2018 11:01 A		
Client ID:		Run ID: HG1_181029A				SeqNo: 5350625		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-126880-126880				Units: mg/Kg		Analysis Date: 10/29/2018 11:03 A		
Client ID:		Run ID: HG1_181029A				SeqNo: 5350626		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.145 0.020 0.1665 0 87.1 80-120 0

MS		Sample ID: 18101599-01A MS				Units: mg/Kg		Analysis Date: 10/29/2018 11:10 A		
Client ID:		Run ID: HG1_181029A				SeqNo: 5350629		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1429 0.018 0.1535 0.03465 70.5 75-125 0 S

MSD		Sample ID: 18101599-01A MSD				Units: mg/Kg		Analysis Date: 10/29/2018 11:12 A		
Client ID:		Run ID: HG1_181029A				SeqNo: 5350630		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1189 0.018 0.1532 0.03465 55 75-125 0.1429 18.3 35 S

The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126892** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-126892-126892				Units: mg/Kg		Analysis Date: 10/27/2018 02:31 A		
Client ID:		Run ID: ICP2_181026A				SeqNo: 5348332		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.138	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	0.227	0.50								J

LCS		Sample ID: LCS-126892-126892				Units: mg/Kg		Analysis Date: 10/27/2018 02:37 A		
Client ID:		Run ID: ICP2_181026A				SeqNo: 5348333		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.965	0.25	5	0	99.3	80-120	0			
Barium	5.232	0.25	5	0	105	80-120	0			
Cadmium	5.413	0.50	5	0	108	80-120	0			
Chromium	5.349	0.25	5	0	107	80-120	0			
Copper	5.732	0.50	5	0	115	80-120	0			
Lead	5.394	0.25	5	0	108	80-120	0			
Nickel	5.548	0.25	5	0	111	80-120	0			
Selenium	5.03	0.50	5	0	101	80-120	0			
Silver	5.079	0.25	5	0	102	80-120	0			
Zinc	5.446	0.50	5	0	109	80-120	0			

MS		Sample ID: 18101602-22BMS				Units: mg/Kg		Analysis Date: 10/27/2018 03:59 A		
Client ID:		Run ID: ICP2_181026A				SeqNo: 5348346		Prep Date: 10/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	63.59	0.33	6.536	39.06	375	75-125	0			SO
Copper	76.82	0.65	6.536	66.9	152	75-125	0			SO
Silver	12.79	0.33	6.536	5.098	118	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126892** Instrument ID **ICP2** Method: **SW846 6010C**

MS				Sample ID: 18101602-22BMS			Units: mg/Kg		Analysis Date: 10/29/2018 07:21 PM		
Client ID:			Run ID: ICP2_181029A			SeqNo: 5351551		Prep Date: 10/26/2018		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	25.1	3.3	6.536	21.54	54.4	75-125	0			S	
Cadmium	6.863	6.5	6.536	0.8029	92.7	75-125	0				
Chromium	75.02	3.3	6.536	73.57	22.2	75-125	0			SO	
Lead	278.4	3.3	6.536	241	573	75-125	0			SO	
Nickel	5.725	3.3	6.536	21.61	-243	75-125	0			S	
Selenium	8.889	6.5	6.536	3.388	84.2	75-125	0				

MSD				Sample ID: 18101602-22BMSD				Units: mg/Kg			Analysis Date: 10/27/2018 04:05 A		
Client ID:			Run ID: ICP2_181026A			SeqNo: 5348347			Prep Date: 10/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Barium	55.7	0.33	6.553	39.06	254	75-125	63.59	13.2	20	SO			
Copper	77.83	0.66	6.553	66.9	167	75-125	76.82	1.31	20	SO			
Silver	13.49	0.33	6.553	5.098	128	75-125	12.79	5.33	20	SE			

MSD				Sample ID: 18101602-22BMSD			Units: mg/Kg		Analysis Date: 10/29/2018 07:27 PM		
Client ID:			Run ID: ICP2_181029A			SeqNo: 5351552		Prep Date: 10/26/2018		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	26.08	3.3	6.553	21.54	69.3	75-125	25.1	3.84	20	S	
Cadmium	6.815	6.6	6.553	0.8029	91.7	75-125	6.863	0.695	20		
Chromium	75.09	3.3	6.553	73.57	23.2	75-125	75.02	0.0887	20	SO	
Lead	311.4	3.3	6.553	241	1080	75-125	278.4	11.2	20	SO	
Nickel	11.99	3.3	6.553	21.61	-147	75-125	5.725	70.7	20	SR	
Selenium	8.65	6.6	6.553	3.388	80.3	75-125	8.889	2.72	20		

The following samples were analyzed in this batch:

18101692-01A	18101692-02A	18101692-03A
18101692-04A	18101692-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126994** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 18101692-02BDUP				Units: mg/L		Analysis Date: 10/29/2018 04:53 PM		
Client ID: Stockpile		Run ID: ICPMS3_181029A				SeqNo: 5352380		Prep Date: 10/29/2018		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	306.1	5.0	0	0	0	0-0	360.9	16.4		
Magnesium	58.32	2.0	0	0	0	0-0	67.96	15.3		
Sodium	165.7	2.0	0	0	0	0-0	193.3	15.4		

The following samples were analyzed in this batch:

18101692-01B	18101692-02B	18101692-05B
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Batch ID: **126994** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 18101692-02BDUP				Units: none		Analysis Date: 10/29/2018		
Client ID: Stockpile		Run ID: SAR_181029A				SeqNo: 5352913		Prep Date: 10/29/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	2.275	0.010	0	0	0		2.448	7.34	50	

The following samples were analyzed in this batch:

18101692-01B	18101692-02B	18101692-05B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126843** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK				Sample ID: SMBLKS1-126843-126843				Units: µg/Kg			Analysis Date: 10/26/2018 11:09 A			
Client ID:				Run ID: SVMS5_181026A				SeqNo: 5347057			Prep Date: 10/26/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Acenaphthene	U	6.7												
Anthracene	U	6.7												
Benzo(a)anthracene	U	6.7												
Benzo(a)pyrene	U	6.7												
Benzo(b)fluoranthene	U	6.7												
Benzo(k)fluoranthene	U	6.7												
Chrysene	U	6.7												
Dibenzo(a,h)anthracene	U	6.7												
Fluoranthene	U	6.7												
Fluorene	U	6.7												
Indeno(1,2,3-cd)pyrene	U	6.7												
Naphthalene	U	6.7												
Pyrene	U	6.7												
Surr: 2-Fluorobiphenyl	2457	0	3333	0	73.7	44-107	0							
Surr: 4-Terphenyl-d14	2735	0	3333	0	82.1	52-123	0							
Surr: Nitrobenzene-d5	2372	0	3333	0	71.2	41-94	0							

LCS				Sample ID: SLCSS1-126843-126843				Units: µg/Kg		Analysis Date: 10/26/2018 11:33 A	
Client ID:			Run ID: SVMS5_181026A			SeqNo: 5347058		Prep Date: 10/26/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	884.7	6.7	1333	0	66.4	55-101	0				
Anthracene	1175	6.7	1333	0	88.1	67-105	0				
Benzo(a)anthracene	1179	6.7	1333	0	88.5	68-105	0				
Benzo(a)pyrene	1164	6.7	1333	0	87.3	68-110	0				
Benzo(b)fluoranthene	1144	6.7	1333	0	85.8	65-110	0				
Benzo(k)fluoranthene	1121	6.7	1333	0	84.1	66-113	0				
Chrysene	1084	6.7	1333	0	81.3	68-108	0				
Dibenzo(a,h)anthracene	1039	6.7	1333	0	78	62-119	0				
Fluoranthene	1179	6.7	1333	0	88.4	67-106	0				
Fluorene	1027	6.7	1333	0	77	59-107	0				
Indeno(1,2,3-cd)pyrene	1115	6.7	1333	0	83.6	56-120	0				
Naphthalene	880	6.7	1333	0	66	46-98	0				
Pyrene	1263	6.7	1333	0	94.7	60-119	0				
Surr: 2-Fluorobiphenyl	1997	0	3333	0	59.9	44-107	0				
Surr: 4-Terphenyl-d14	2681	0	3333	0	80.4	52-123	0				
Surr: Nitrobenzene-d5	2167	0	3333	0	65	41-94	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126843** Instrument ID **SVMS5** Method: **SW846 8270D**

MS				Sample ID: 18101645-01A MS			Units: µg/Kg		Analysis Date: 10/26/2018 01:07 PM	
Client ID:		Run ID: SVMS5_181026A			SeqNo: 5347678		Prep Date: 10/26/2018		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	845.6	32	1271	0	66.5	55-101	0			
Anthracene	940.9	32	1271	0	74	67-105	0			
Benzo(a)anthracene	972.7	32	1271	0	76.5	68-105	0			
Benzo(a)pyrene	966.4	32	1271	83.97	69.4	68-110	0			
Benzo(b)fluoranthene	1005	32	1271	122.7	69.4	65-110	0			
Benzo(k)fluoranthene	893.3	32	1271	61.37	65.4	66-113	0			S
Chrysene	906	32	1271	0	71.3	68-108	0			
Dibenzo(a,h)anthracene	813.8	32	1271	0	64	62-119	0			
Fluoranthene	1005	32	1271	61.37	74.2	67-106	0			
Fluorene	890.1	32	1271	0	70	59-107	0			
Indeno(1,2,3-cd)pyrene	931.4	32	1271	93.66	65.9	56-120	0			
Naphthalene	791.5	32	1271	0	62.3	46-98	0			
Pyrene	1106	32	1271	77.51	80.9	60-119	0			
Surr: 2-Fluorobiphenyl	1850	0	3179	0	58.2	44-107	0			
Surr: 4-Terphenyl-d14	2317	0	3179	0	72.9	52-123	0			
Surr: Nitrobenzene-d5	1920	0	3179	0	60.4	41-94	0			

MSD				Sample ID: 18101645-01A MSD			Units: µg/Kg		Analysis Date: 10/26/2018 01:31 PM	
Client ID:		Run ID: SVMS5_181026A			SeqNo: 5347680		Prep Date: 10/26/2018		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	826.5	33	1312	0	63	55-101	845.6	2.28	30	
Anthracene	1020	33	1312	0	77.8	67-105	940.9	8.06	30	
Benzo(a)anthracene	1043	33	1312	0	79.5	68-105	972.7	6.97	30	
Benzo(a)pyrene	1043	33	1312	83.97	73.1	68-110	966.4	7.62	30	
Benzo(b)fluoranthene	1023	33	1312	122.7	68.7	65-110	1005	1.85	30	
Benzo(k)fluoranthene	947.9	33	1312	61.37	67.6	66-113	893.3	5.93	30	
Chrysene	951.1	33	1312	0	72.5	68-108	906	4.86	30	
Dibenzo(a,h)anthracene	895.4	33	1312	0	68.3	62-119	813.8	9.55	30	
Fluoranthene	1023	33	1312	61.37	73.3	67-106	1005	1.85	30	
Fluorene	898.7	33	1312	0	68.5	59-107	890.1	0.959	30	
Indeno(1,2,3-cd)pyrene	987.2	33	1312	93.66	68.1	56-120	931.4	5.82	30	
Naphthalene	731.4	33	1312	0	55.8	46-98	791.5	7.9	30	
Pyrene	1151	33	1312	77.51	81.9	60-119	1106	3.98	30	
Surr: 2-Fluorobiphenyl	1787	0	3279	0	54.5	44-107	1850	3.44	40	
Surr: 4-Terphenyl-d14	2502	0	3279	0	76.3	52-123	2317	7.68	40	
Surr: Nitrobenzene-d5	1794	0	3279	0	54.7	41-94	1920	6.78	40	

The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126851** Instrument ID **VMS9** Method: **SW8260C**

MBLK				Sample ID: MBLK-126851-126851				Units: µg/Kg-dry			Analysis Date: 10/26/2018 10:37 PM		
Client ID:			Run ID: VMS9_181026B				SeqNo: 5350673		Prep Date: 10/25/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Benzene	U	30											
Ethylbenzene	U	30											
m,p-Xylene	U	60											
o-Xylene	U	30											
Toluene	U	30											
Xylenes, Total	U	90											
Surr: 1,2-Dichloroethane-d4	1012	0	1000	0	101	70-130		0					
Surr: 4-Bromofluorobenzene	989	0	1000	0	98.9	70-130		0					
Surr: Dibromofluoromethane	869	0	1000	0	86.9	70-130		0					
Surr: Toluene-d8	972.5	0	1000	0	97.2	70-130		0					

LCS				Sample ID: LCS-126851-126851			Units: µg/Kg-dry		Analysis Date: 10/26/2018 09:52 PM		
Client ID:			Run ID: VMS9_181026B			SeqNo: 5350671		Prep Date: 10/25/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1060	30	1000	0	106	75-125	0				
Ethylbenzene	1052	30	1000	0	105	75-125	0				
m,p-Xylene	2166	60	2000	0	108	80-125	0				
o-Xylene	1105	30	1000	0	110	75-125	0				
Toluene	1016	30	1000	0	102	70-125	0				
Xylenes, Total	3272	90	3000	0	109	75-125	0				
Surr: 1,2-Dichloroethane-d4	1002	0	1000	0	100	70-130	0				
Surr: 4-Bromofluorobenzene	1028	0	1000	0	103	70-130	0				
Surr: Dibromofluoromethane	975.5	0	1000	0	97.6	70-130	0				
Surr: Toluene-d8	1004	0	1000	0	100	70-130	0				

MS				Sample ID: 18101692-02A MS				Units: µg/Kg-dry		Analysis Date: 10/30/2018 03:54 PM	
Client ID: Stockpile			Run ID: VMS9_181030A			SeqNo: 5353710		Prep Date: 10/25/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1541	44	1469	0	105	75-125	0				
Ethylbenzene	1480	44	1469	0	101	75-125	0				
m,p-Xylene	3041	88	2938	0	104	80-125	0				
o-Xylene	1526	44	1469	0	104	75-125	0				
Toluene	1384	44	1469	0	94.2	70-125	0				
Xylenes, Total	4568	130	4407	0	104	75-125	0				
Surr: 1,2-Dichloroethane-d4	1515	0	1469	0	103	70-130	0				
Surr: 4-Bromofluorobenzene	1482	0	1469	0	101	70-130	0				
Surr: Dibromofluoromethane	1407	0	1469	0	95.8	70-130	0				
Surr: Toluene-d8	1430	0	1469	0	97.4	70-130	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126851** Instrument ID **VMS9** Method: **SW8260C**

MSD				Sample ID: 18101692-02A MSD			Units: µg/Kg-dry		Analysis Date: 10/30/2018 04:09 PM	
Client ID: Stockpile				Run ID: VMS9_181030A			SeqNo: 5353711		Prep Date: 10/25/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1576	44	1469	0	107	75-125	1541	2.26	30	
Ethylbenzene	1565	44	1469	0	106	75-125	1480	5.55	30	
m,p-Xylene	3193	88	2938	0	109	80-125	3041	4.88	30	
o-Xylene	1567	44	1469	0	107	75-125	1526	2.61	30	
Toluene	1466	44	1469	0	99.8	70-125	1384	5.77	30	
Xylenes, Total	4760	130	4407	0	108	75-125	4568	4.13	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	1512	0	1469	0	103	70-130	1515	0.146	30	
<i>Surr: 4-Bromofluorobenzene</i>	1512	0	1469	0	103	70-130	1482	2.01	30	
<i>Surr: Dibromofluoromethane</i>	1372	0	1469	0	93.4	70-130	1407	2.54	30	
<i>Surr: Toluene-d8</i>	1444	0	1469	0	98.3	70-130	1430	0.971	30	

The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126919** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-126919-126919				Units: mg/Kg		Analysis Date: 10/26/2018 02:50 PM		
Client ID:		Run ID: WETCHEM_181026J		SeqNo: 5347772		Prep Date: 10/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent	0.46	1.0	0	0	0	0-0	0			J
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LCS		Sample ID: LCS-126919-126919				Units: mg/Kg		Analysis Date: 10/26/2018 02:50 PM		
Client ID:		Run ID: WETCHEM_181026J		SeqNo: 5347773		Prep Date: 10/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent	4.49	1.0	5	0	89.8	80-120	0			
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MS		Sample ID: 18101692-01A MS				Units: mg/Kg		Analysis Date: 10/26/2018 02:50 PM		
Client ID: Pothole		Run ID: WETCHEM_181026J		SeqNo: 5347775		Prep Date: 10/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent	3.52	1.0	5.102	0.198	65.1	75-125	0			S
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MS		Sample ID: 18101692-01A MSI				Units: mg/Kg		Analysis Date: 10/26/2018 02:50 PM		
Client ID: Pothole		Run ID: WETCHEM_181026J		SeqNo: 5347777		Prep Date: 10/26/2018		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent	2857	110	3236	0.198	88.3	75-125	0			
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MSD		Sample ID: 18101692-01A MSD				Units: mg/Kg		Analysis Date: 10/26/2018 02:50 PM		
Client ID: Pothole		Run ID: WETCHEM_181026J		SeqNo: 5347776		Prep Date: 10/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent	2.828	1.0	5.051	0.198	52.1	75-125	3.52	21.8	20	SR
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The following samples were analyzed in this batch:

18101692-01A	18101692-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126922** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-126922-126922				Units: s.u.			Analysis Date: 10/29/2018 02:08 PM				
Client ID:				Run ID: WETCHEM_181029G				SeqNo: 5350326			Prep Date: 10/26/2018			DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH 3.89 0.10 4 0 97.2 90-110 0

DUP				Sample ID: 18101537-08B DUP				Units: s.u.			Analysis Date: 10/29/2018 02:08 PM			
Client ID:				Run ID: WETCHEM_181029G				SeqNo: 5350328			Prep Date: 10/26/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH 7.51 0.10 0 0 0 0-0 7.41 1.34 20

DUP				Sample ID: 18101622-01A DUP				Units: s.u.		Analysis Date: 10/29/2018 02:08 PM			
Client ID:				Run ID: WETCHEM_181029G				SeqNo: 5350342		Prep Date: 10/26/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

pH 7.45 0.10 0 0 0 0-0 7.46 0.134 20

The following samples were analyzed in this batch:

18101692-01A	18101692-02A	18101692-05A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **126994** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 18101692-02BDUP				Units: mmhos/cm @25°		Analysis Date: 10/30/2018 02:00 PM		
Client ID: Stockpile		Run ID: WETCHEM_181030M				SeqNo: 5353262		Prep Date: 10/29/2018		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	3.222	0.10	0	0	0		3.718	14.3	50	

The following samples were analyzed in this batch:

18101692-01B	18101692-02B	18101692-05B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 18101692
Project: Terra Energy - Valve Can 13C Release

QC BATCH REPORT

Batch ID: **R247864** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R247864				Units: % of sample		Analysis Date: 10/25/2018 05:59 PM		
Client ID:		Run ID: MOIST_181025E		SeqNo: 5347572		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R247864				Units: % of sample		Analysis Date: 10/25/2018 05:59 PM		
Client ID:		Run ID: MOIST_181025E		SeqNo: 5347571		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 18101391-01A DUP				Units: % of sample		Analysis Date: 10/25/2018 05:59 PM		
Client ID:		Run ID: MOIST_181025E		SeqNo: 5347550		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 6.67 0.050 0 0 0 0-0 6.29 5.86 10

DUP		Sample ID: 18101602-08B DUP				Units: % of sample		Analysis Date: 10/25/2018 05:59 PM		
Client ID:		Run ID: MOIST_181025E		SeqNo: 5347556		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 33.85 0.050 0 0 0 0-0 34.11 0.765 10

The following samples were analyzed in this batch:

18101692-01A	18101692-02A	18101692-03A
18101692-04A	18101692-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

3352 128th Ave. Holland, MI 49424

TF: (800) 443-1511 PH: (616) 399-6070 FX: (616) 399-6185

Chain-of-Custody

Form 202r8

WORKORDER
#

18101692

PROJECT NAME		Terra Energy - Valve Can 13C Release		SAMPLER		Casey Richardson		DATE		10-24-18		PAGE		1 of 1		
PROJECT No.				SITE ID				TURNAROUND		24 HR		DISPOSAL		By Lab or Return to Client		
COMPANY NAME		HRL Compliance Solutions, Inc.		EDD FORMAT												
SEND REPORT TO		Kris Rowe, Mike Gardner		PURCHASE ORDER												
ADDRESS		2385 F 1/2 Road		BILL TO COMPANY		Terra Energy										
CITY / STATE / ZIP		Grand Junction, CO. 81505		INVOICE ATTN TO		Mike Gardner										
PHONE		970-243-3271		ADDRESS		1058 County Road 215										
FAX		970-243-3280		CITY / STATE / ZIP		Parachute, CO 81635										
E-MAIL		krowe@hrlcomp.com, mgardner@terraep.com		PHONE		970-263-2760										
				FAX												
				E-MAIL		mgardner@terraep.com										
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	DRO	GRO	BTEX	Metals (COGCC Table 910-1)	Semi-Vols - PAH	SAR	EC	pH	ARSENIC
1	POTHOLE	S	10-24-18	1238	3	8	II	X	X	X	X	X	X	X	X	
2	STOCKPILE	I		1340	3	I	I	X	X	X	X	X	X	X	X	
3	BKGD 1	I		1305	1	I	I									X
4	BKGD 2	I		1311	1	I	I									X
5	BKGD 3	I		1317	2	I	I						X	X	X	X

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)	
	x	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)

4.8°C SRZ
C

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	C. Richardson	Casey Richardson	10-24-18	1500
RECEIVED BY	MR	MR	10-24-18	1500
RELINQUISHED BY			10-24-18	1830
RECEIVED BY		KEITH WIEREN	10/25/18	1450
RELINQUISHED BY				
RECEIVED BY				

Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 25-Oct-18 14:50

Work Order: 18101692

Received by: KRW

Checklist completed by Keith Wurenga
eSignature

25-Oct-18
Date

Reviewed by: Chad Whelton
eSignature

26-Oct-18
Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.8/4.8 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>10/25/2018 2:57:20 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Terra Energy Partners Grand Valley Field Background Data	COGCC Table 915-1 Threshold (RSS Level)	Sample Locations														
		RG 12-14	C-240					C-240			Gov 399-1-2			Valve Can 13C		
		10/15/2019	10/23/2019					5/23/2017			6/28/2021			10/24/2018		
		Lab ID: 19101391	Lab ID: L1153332					Lab ID: L911596			Lab ID: 21062761			Lab ID: 18101692		
		BKGD 1 (SP 4)	BKGD 1	BKGD 2	BKGD 3	BKGD 4	BKGD 4	BKGD 1	BKGD 2	BKGD 3	BKGD 1	BKGD 2	BKGD 3	BKGD 1	BKGD 2	BKGD 3
ARSENIC	0.68	6.8	4.91	4.87	5.27	3.28	3.49	6.76	4.2	6	13.0	8.8	11	4.1	5.3	5.3
(average)		9.8	4.42					5.65			10.93			4.90		
ELECTRICAL CONDUCTIVITY (EC) (mmho/cm)	<4 mmhos/cm or x2 bkgd	1.0	0.0445	0.258	0.160	0.0787	1.02	0.103	-	-	12	9.9	0.89	1.5	-	-
pH	6 to 8.3	8.43	8.15	8.49	9.08	8.53	7.84	8.45	-	-	7.95	9.67	9.41	7.02	-	-
SODIUM ADSORPTION RATIO (SAR)	6	0.24	1.65	0.417	3.04	0.165	0.941	0.61	-	-	5.5	6.3	2.5	0.18	-	-

All restuls are reported in mg/kg, unless otherwise noted

Peak Arsenic Reading	13.0
Peak SAR	6.3
Peak EC	12
Peak pH	9.67



22-Oct-2019

Mike Gardner
Terra Energy Partners, LLC
1058 Country Rd 215
Parachute, CO 81635

Re: **RG 12-14-298**

Work Order: **19101391**

Dear Mike,

ALS Environmental received 4 samples on 17-Oct-2019 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Work Order: 19101391

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
19101391-01	SP-1: Composite near point of origin	Soil		10/15/2019 15:00	10/17/2019 09:30	<input type="checkbox"/>
19101391-02	SP-2: Composite from mid-point area	Soil		10/15/2019 15:00	10/17/2019 09:30	<input type="checkbox"/>
19101391-03	SP-3: Composite from terminus area	Soil		10/15/2019 15:00	10/17/2019 09:30	<input type="checkbox"/>
19101391-04	SP-4: Background	Soil		10/15/2019 15:00	10/17/2019 09:30	<input type="checkbox"/>

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Work Order: 19101391

Case Narrative

Batch 144154, Method GRO_8015_S, Samples 19101391-03A and -04A: One or more GRO surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is required.

Batch 144185, Method ICP_6020_S, Sample 19101391-04A MS/MSD: The MS/MSD recoveries were below the lower control limits for Arsenic, Chromium, Copper, Lead, and Nickel. The corresponding results in the parent sample may be biased low for these analytes.

Batch 144185, Method ICP_6020_S, Sample 19101391-04A MS/MSD: The MS/MSD recoveries were outside of the control limits for Barium and Zinc; however, the results in the parent sample are greater than 4x the spike amount. No qualification is required.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
°C	Degrees Celcius
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	

s.u. Standard Units

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-1: Composite near point of origin
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3550 / 10/17/19		Analyst: KB
DRO (C10-C28)	26		3.3	5.7	mg/Kg-dry	1	10/18/2019 09:17
Surr: 4-Terphenyl-d14	68.2			33-111	%REC	1	10/18/2019 09:17
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/17/19		Analyst: KB
GRO (C6-C10)	U		2.6	6.3	mg/Kg	1	10/17/2019 19:46
Surr: Toluene-d8	79.9			71-123	%REC	1	10/17/2019 19:46
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/18/19		Analyst: RSH
Mercury	0.015	J	0.0020	0.020	mg/Kg-dry	1	10/18/2019 11:46
METALS BY ICP-MS							
			Method: SW6020A		Prep: SW3050B / 10/17/19		Analyst: STP
Arsenic	3.2		0.054	0.45	mg/Kg-dry	1	10/18/2019 14:16
Barium	400		4.1	4.5	mg/Kg-dry	10	10/18/2019 14:36
Cadmium	0.086	J	0.027	0.18	mg/Kg-dry	1	10/18/2019 14:16
Chromium	23		0.20	0.45	mg/Kg-dry	1	10/18/2019 14:16
Copper	11		0.45	0.45	mg/Kg-dry	1	10/18/2019 14:16
Lead	13		0.21	0.45	mg/Kg-dry	1	10/18/2019 14:16
Nickel	15		0.23	0.45	mg/Kg-dry	1	10/18/2019 14:16
Selenium	U		0.41	0.45	mg/Kg-dry	1	10/18/2019 14:16
Silver	U		0.059	0.45	mg/Kg-dry	1	10/18/2019 14:16
Zinc	47		0.88	0.90	mg/Kg-dry	1	10/18/2019 14:16
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Calcium	41		2.5	5.0	mg/L	10	10/21/2019 12:45
Magnesium	6.9		0.50	2.0	mg/L	10	10/21/2019 12:45
Sodium	820		0.45	2.0	mg/L	10	10/21/2019 12:45
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Sodium Adsorption Ratio	31		0.010	0.010	none	1	10/21/2019
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)							
			Method: SW846 8270D		Prep: SW3546 / 10/18/19		Analyst: EEW
Acenaphthene	U		0.00091	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Anthracene	0.0042	J	0.0016	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Benzo(a)anthracene	0.014		0.0019	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Benzo(a)pyrene	0.011		0.0013	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Benzo(b)fluoranthene	0.016		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Benzo(k)fluoranthene	0.0061		0.0014	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Chrysene	0.013		0.00097	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Dibenzo(a,h)anthracene	U		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Fluoranthene	0.023		0.00087	0.0047	mg/Kg-dry	1	10/18/2019 12:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-1: Composite near point of origin
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	0.0062		0.0016	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Indeno(1,2,3-cd)pyrene	U		0.0017	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Naphthalene	0.0070		0.0020	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Pyrene	0.014		0.00078	0.0047	mg/Kg-dry	1	10/18/2019 12:47
Surr: 2-Fluorobiphenyl	101			20-140	%REC	1	10/18/2019 12:47
Surr: 4-Terphenyl-d14	81.5			22-172	%REC	1	10/18/2019 12:47
Surr: Nitrobenzene-d5	61.5			28-140	%REC	1	10/18/2019 12:47
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/17/19		Analyst: SJB
Benzene	U		0.0064	0.038	mg/Kg-dry	1	10/17/2019 19:42
Ethylbenzene	0.022	J	0.0079	0.038	mg/Kg-dry	1	10/17/2019 19:42
m,p-Xylene	U		0.050	0.075	mg/Kg-dry	1	10/17/2019 19:42
o-Xylene	U		0.015	0.038	mg/Kg-dry	1	10/17/2019 19:42
Toluene	U		0.010	0.038	mg/Kg-dry	1	10/17/2019 19:42
Xylenes, Total	U		0.050	0.11	mg/Kg-dry	1	10/17/2019 19:42
Surr: 1,2-Dichloroethane-d4	99.0			70-130	%REC	1	10/17/2019 19:42
Surr: 4-Bromofluorobenzene	99.7			70-130	%REC	1	10/17/2019 19:42
Surr: Dibromofluoromethane	89.6			70-130	%REC	1	10/17/2019 19:42
Surr: Toluene-d8	97.3			70-130	%REC	1	10/17/2019 19:42
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: QTN
Electrical Conductivity @ Saturation	4.6		0.011	0.10	mmhos/cm @25°	20	10/21/2019 14:51
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: RZM
Chromium, Trivalent	23		0.36	1.2	mg/Kg-dry	1	10/18/2019 15:55
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/18/19		Analyst: RZM
Chromium, Hexavalent	U		0.99	1.2	mg/Kg-dry	1	10/18/2019 14:47
MOISTURE			Method: SW3550C				Analyst: KTP
Moisture	15		0.10	0.10	% of sample	1	10/17/2019 16:00
PH			Method: SW9045D		Prep: EXTRACT / 10/17/19		Analyst: DNW
pH	9.40		0.10	0.100	s.u.	1	10/17/2019 13:00
Temperature	21.6		0.10	0.100	°C	1	10/17/2019 13:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-2: Composite from mid-point area
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3550 / 10/17/19		Analyst: KB
DRO (C10-C28)	14		3.3	5.8	mg/Kg-dry	1	10/18/2019 11:43
Surr: 4-Terphenyl-d14	73.0			33-111	%REC	1	10/18/2019 11:43
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/17/19		Analyst: KB
GRO (C6-C10)	U		2.9	6.8	mg/Kg	1	10/17/2019 20:15
Surr: Toluene-d8	85.8			71-123	%REC	1	10/17/2019 20:15
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/18/19		Analyst: RSB
Mercury	0.019	J	0.0021	0.021	mg/Kg-dry	1	10/18/2019 11:55
METALS BY ICP-MS							
			Method: SW6020A		Prep: SW3050B / 10/17/19		Analyst: STP
Arsenic	3.6		0.054	0.45	mg/Kg-dry	1	10/18/2019 14:18
Barium	530		4.2	4.5	mg/Kg-dry	10	10/18/2019 14:37
Cadmium	0.094	J	0.027	0.18	mg/Kg-dry	1	10/18/2019 14:18
Chromium	26		0.20	0.45	mg/Kg-dry	1	10/18/2019 14:18
Copper	12		0.45	0.45	mg/Kg-dry	1	10/18/2019 14:18
Lead	14		0.22	0.45	mg/Kg-dry	1	10/18/2019 14:18
Nickel	15		0.23	0.45	mg/Kg-dry	1	10/18/2019 14:18
Selenium	U		0.42	0.45	mg/Kg-dry	1	10/18/2019 14:18
Silver	0.064	J	0.060	0.45	mg/Kg-dry	1	10/18/2019 14:18
Zinc	47		0.89	0.90	mg/Kg-dry	1	10/18/2019 14:18
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Calcium	68		2.5	5.0	mg/L	10	10/21/2019 12:47
Magnesium	14		0.50	2.0	mg/L	10	10/21/2019 12:47
Sodium	470		0.45	2.0	mg/L	10	10/21/2019 12:47
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Sodium Adsorption Ratio	14		0.010	0.010	none	1	10/21/2019
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)							
			Method: SW846 8270D		Prep: SW3546 / 10/18/19		Analyst: EEW
Acenaphthene	U		0.00091	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Anthracene	U		0.0016	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Benzo(a)anthracene	U		0.0019	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Benzo(a)pyrene	U		0.0013	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Benzo(b)fluoranthene	U		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Benzo(k)fluoranthene	U		0.0014	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Chrysene	U		0.00097	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Dibenzo(a,h)anthracene	U		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Fluoranthene	U		0.00086	0.0047	mg/Kg-dry	1	10/18/2019 13:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-2: Composite from mid-point area
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0015	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Indeno(1,2,3-cd)pyrene	U		0.0017	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Naphthalene	U		0.0020	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Pyrene	U		0.00077	0.0047	mg/Kg-dry	1	10/18/2019 13:03
Surr: 2-Fluorobiphenyl	106			20-140	%REC	1	10/18/2019 13:03
Surr: 4-Terphenyl-d14	62.8			22-172	%REC	1	10/18/2019 13:03
Surr: Nitrobenzene-d5	56.1			28-140	%REC	1	10/18/2019 13:03
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/17/19		Analyst: SJB
Benzene	U		0.0070	0.041	mg/Kg-dry	1	10/17/2019 19:57
Ethylbenzene	0.011	J	0.0086	0.041	mg/Kg-dry	1	10/17/2019 19:57
m,p-Xylene	U		0.055	0.082	mg/Kg-dry	1	10/17/2019 19:57
o-Xylene	U		0.016	0.041	mg/Kg-dry	1	10/17/2019 19:57
Toluene	U		0.011	0.041	mg/Kg-dry	1	10/17/2019 19:57
Xylenes, Total	U		0.055	0.12	mg/Kg-dry	1	10/17/2019 19:57
Surr: 1,2-Dichloroethane-d4	99.2			70-130	%REC	1	10/17/2019 19:57
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	10/17/2019 19:57
Surr: Dibromofluoromethane	88.4			70-130	%REC	1	10/17/2019 19:57
Surr: Toluene-d8	96.7			70-130	%REC	1	10/17/2019 19:57
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: QTN
Electrical Conductivity @ Saturation	2.8		0.011	0.10	mmhos/cm @25°	20	10/21/2019 14:51
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: RZM
Chromium, Trivalent	26		0.36	1.2	mg/Kg-dry	1	10/18/2019 15:55
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/18/19		Analyst: RZM
Chromium, Hexavalent	U		0.99	1.2	mg/Kg-dry	1	10/18/2019 14:47
MOISTURE			Method: SW3550C				Analyst: KTP
Moisture	14		0.10	0.10	% of sample	1	10/17/2019 16:00
PH			Method: SW9045D		Prep: EXTRACT / 10/17/19		Analyst: DNW
pH	8.86		0.10	0.100	s.u.	1	10/17/2019 13:00
Temperature	21.5		0.10	0.100	°C	1	10/17/2019 13:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-3: Composite from terminus area
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3550 / 10/17/19		Analyst: KB
DRO (C10-C28)	28		3.3	5.8	mg/Kg-dry	1	10/18/2019 12:59
Surr: 4-Terphenyl-d14	69.6			33-111	%REC	1	10/18/2019 12:59
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/17/19		Analyst: KB
GRO (C6-C10)	U		2.7	6.5	mg/Kg	1	10/17/2019 20:44
Surr: Toluene-d8	162	S		71-123	%REC	1	10/17/2019 20:44
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/18/19		Analyst: RSB
Mercury	0.022		0.0021	0.021	mg/Kg-dry	1	10/18/2019 12:01
METALS BY ICP-MS							
			Method: SW6020A		Prep: SW3050B / 10/17/19		Analyst: STP
Arsenic	4.0		0.058	0.48	mg/Kg-dry	1	10/18/2019 14:20
Barium	370		4.4	4.8	mg/Kg-dry	10	10/18/2019 14:39
Cadmium	0.11	J	0.029	0.19	mg/Kg-dry	1	10/18/2019 14:20
Chromium	26		0.21	0.48	mg/Kg-dry	1	10/18/2019 14:20
Copper	12		0.48	0.48	mg/Kg-dry	1	10/18/2019 14:20
Lead	15		0.23	0.48	mg/Kg-dry	1	10/18/2019 14:20
Nickel	14		0.25	0.48	mg/Kg-dry	1	10/18/2019 14:20
Selenium	U		0.44	0.48	mg/Kg-dry	1	10/18/2019 14:20
Silver	U		0.063	0.48	mg/Kg-dry	1	10/18/2019 14:20
Zinc	45		0.94	0.96	mg/Kg-dry	1	10/18/2019 14:20
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Calcium	77		2.5	5.0	mg/L	10	10/21/2019 12:49
Magnesium	9.6		0.50	2.0	mg/L	10	10/21/2019 12:49
Sodium	480		0.45	2.0	mg/L	10	10/21/2019 12:49
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Sodium Adsorption Ratio	14		0.010	0.010	none	1	10/21/2019
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)							
			Method: SW846 8270D		Prep: SW3546 / 10/18/19		Analyst: EEW
Acenaphthene	U		0.00091	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Anthracene	U		0.0016	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Benzo(a)anthracene	U		0.0019	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Benzo(a)pyrene	U		0.0013	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Benzo(b)fluoranthene	U		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Benzo(k)fluoranthene	U		0.0014	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Chrysene	U		0.00096	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Dibenzo(a,h)anthracene	U		0.0011	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Fluoranthene	U		0.00086	0.0047	mg/Kg-dry	1	10/18/2019 13:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-3: Composite from terminus area
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0015	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Indeno(1,2,3-cd)pyrene	U		0.0017	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Naphthalene	U		0.0020	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Pyrene	U		0.00077	0.0047	mg/Kg-dry	1	10/18/2019 13:18
Surr: 2-Fluorobiphenyl	94.9			20-140	%REC	1	10/18/2019 13:18
Surr: 4-Terphenyl-d14	72.5			22-172	%REC	1	10/18/2019 13:18
Surr: Nitrobenzene-d5	59.4			28-140	%REC	1	10/18/2019 13:18
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/17/19		Analyst: SJB
Benzene	U		0.0066	0.039	mg/Kg-dry	1	10/17/2019 20:13
Ethylbenzene	U		0.0082	0.039	mg/Kg-dry	1	10/17/2019 20:13
m,p-Xylene	U		0.052	0.077	mg/Kg-dry	1	10/17/2019 20:13
o-Xylene	U		0.015	0.039	mg/Kg-dry	1	10/17/2019 20:13
Toluene	U		0.011	0.039	mg/Kg-dry	1	10/17/2019 20:13
Xylenes, Total	U		0.052	0.12	mg/Kg-dry	1	10/17/2019 20:13
Surr: 1,2-Dichloroethane-d4	101			70-130	%REC	1	10/17/2019 20:13
Surr: 4-Bromofluorobenzene	99.0			70-130	%REC	1	10/17/2019 20:13
Surr: Dibromofluoromethane	89.7			70-130	%REC	1	10/17/2019 20:13
Surr: Toluene-d8	97.3			70-130	%REC	1	10/17/2019 20:13
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: QTN
Electrical Conductivity @ Saturation	2.8		0.011	0.10	mmhos/cm @25°	20	10/21/2019 14:51
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: RZM
Chromium, Trivalent	26		0.36	1.2	mg/Kg-dry	1	10/18/2019 15:55
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/18/19		Analyst: RZM
Chromium, Hexavalent	U		1.0	1.2	mg/Kg-dry	1	10/18/2019 14:47
MOISTURE			Method: SW3550C				Analyst: KTP
Moisture	15		0.10	0.10	% of sample	1	10/17/2019 16:00
PH			Method: SW9045D		Prep: EXTRACT / 10/17/19		Analyst: DNW
pH	8.62		0.10	0.100	s.u.	1	10/17/2019 13:00
Temperature	21.3		0.10	0.100	°C	1	10/17/2019 13:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-4: Background
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015M		Prep: SW3550 / 10/17/19		Analyst: KB
DRO (C10-C28)	35		3.4	6.0	mg/Kg-dry	1	10/18/2019 13:28
Surr: 4-Terphenyl-d14	62.9			33-111	%REC	1	10/18/2019 13:28
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 10/17/19		Analyst: KB
GRO (C6-C10)	U		2.9	6.9	mg/Kg	1	10/17/2019 21:14
Surr: Toluene-d8	188	S		71-123	%REC	1	10/17/2019 21:14
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 10/18/19		Analyst: RSB
Mercury	0.019	J	0.0022	0.022	mg/Kg-dry	1	10/18/2019 12:03
METALS BY ICP-MS							
			Method: SW6020A		Prep: SW3050B / 10/17/19		Analyst: STP
Arsenic	6.8		0.054	0.45	mg/Kg-dry	1	10/18/2019 14:22
Barium	310		4.2	4.5	mg/Kg-dry	10	10/18/2019 14:41
Cadmium	0.15	J	0.027	0.18	mg/Kg-dry	1	10/18/2019 14:22
Chromium	27		0.20	0.45	mg/Kg-dry	1	10/18/2019 14:22
Copper	13		0.45	0.45	mg/Kg-dry	1	10/18/2019 14:22
Lead	22		0.22	0.45	mg/Kg-dry	1	10/18/2019 14:22
Nickel	15		0.24	0.45	mg/Kg-dry	1	10/18/2019 14:22
Selenium	U		0.42	0.45	mg/Kg-dry	1	10/18/2019 14:22
Silver	0.074	J	0.060	0.45	mg/Kg-dry	1	10/18/2019 14:22
Zinc	51		0.89	0.90	mg/Kg-dry	1	10/18/2019 14:22
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Calcium	200		2.5	5.0	mg/L	10	10/21/2019 12:52
Magnesium	16		0.50	2.0	mg/L	10	10/21/2019 12:52
Sodium	13		0.45	2.0	mg/L	10	10/21/2019 12:52
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: STP
Sodium Adsorption Ratio	0.24		0.010	0.010	none	1	10/21/2019
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)							
			Method: SW846 8270D		Prep: SW3546 / 10/18/19		Analyst: EEW
Acenaphthene	U		0.00094	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Anthracene	U		0.0016	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Benzo(a)anthracene	U		0.0020	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Benzo(a)pyrene	U		0.0013	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Benzo(b)fluoranthene	U		0.0012	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Benzo(k)fluoranthene	U		0.0014	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Chrysene	U		0.00099	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Dibenzo(a,h)anthracene	U		0.0011	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Fluoranthene	U		0.00089	0.0048	mg/Kg-dry	1	10/18/2019 13:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 22-Oct-19

Client: Terra Energy Partners, LLC
Project: RG 12-14-298
Sample ID: SP-4: Background
Collection Date: 10/15/2019 03:00 PM

Work Order: 19101391
Lab ID: 19101391-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0016	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Indeno(1,2,3-cd)pyrene	U		0.0017	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Naphthalene	U		0.0021	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Pyrene	U		0.00080	0.0048	mg/Kg-dry	1	10/18/2019 13:34
Surr: 2-Fluorobiphenyl	97.0			20-140	%REC	1	10/18/2019 13:34
Surr: 4-Terphenyl-d14	72.7			22-172	%REC	1	10/18/2019 13:34
Surr: Nitrobenzene-d5	54.3			28-140	%REC	1	10/18/2019 13:34
VOLATILE ORGANIC COMPOUNDS			Method: SW8260C		Prep: SW5035 / 10/17/19		Analyst: SJB
Benzene	U		0.0071	0.041	mg/Kg-dry	1	10/17/2019 20:29
Ethylbenzene	U		0.0087	0.041	mg/Kg-dry	1	10/17/2019 20:29
m,p-Xylene	U		0.055	0.083	mg/Kg-dry	1	10/17/2019 20:29
o-Xylene	U		0.016	0.041	mg/Kg-dry	1	10/17/2019 20:29
Toluene	U		0.011	0.041	mg/Kg-dry	1	10/17/2019 20:29
Xylenes, Total	U		0.055	0.12	mg/Kg-dry	1	10/17/2019 20:29
Surr: 1,2-Dichloroethane-d4	98.3			70-130	%REC	1	10/17/2019 20:29
Surr: 4-Bromofluorobenzene	97.8			70-130	%REC	1	10/17/2019 20:29
Surr: Dibromofluoromethane	88.4			70-130	%REC	1	10/17/2019 20:29
Surr: Toluene-d8	95.1			70-130	%REC	1	10/17/2019 20:29
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/21/19		Analyst: QTN
Electrical Conductivity @ Saturation	1.0		0.011	0.10	mmhos/cm @25°	20	10/21/2019 14:51
CHROMIUM, TRIVALENT			Method: CALCULATION				Analyst: RZM
Chromium, Trivalent	27		0.37	1.2	mg/Kg-dry	1	10/18/2019 15:55
CHROMIUM, HEXAVALENT			Method: SW7196A		Prep: SW3060A / 10/18/19		Analyst: RZM
Chromium, Hexavalent	U		1.0	1.2	mg/Kg-dry	1	10/18/2019 14:47
MOISTURE			Method: SW3550C				Analyst: KTP
Moisture	17		0.10	0.10	% of sample	1	10/17/2019 16:00
PH			Method: SW9045D		Prep: EXTRACT / 10/17/19		Analyst: DNW
pH	8.43		0.10	0.100	s.u.	1	10/17/2019 13:00
Temperature	21.5		0.10	0.100	°C	1	10/17/2019 13:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Terra Energy Partners, LLC
Work Order: 19101391
Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144179** Instrument ID **GC8** Method: **SW8015M**

MBLK		Sample ID: DBLKS1-144179-144179				Units: mg/Kg		Analysis Date: 10/18/2019 07:50 A		
Client ID:		Run ID: GC8_191017A				SeqNo: 5998834		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.688	0	3.33	0	80.7	33-111	0			

LCS		Sample ID: DLCSS1-144179-144179				Units: mg/Kg		Analysis Date: 10/18/2019 08:19 A		
Client ID:		Run ID: GC8_191017A				SeqNo: 5998835		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	313.8	5.0	333	0	94.2	58-111	0			
<i>Surr: 4-Terphenyl-d14</i>	2.343	0	3.33	0	70.4	33-111	0			

MS		Sample ID: 19101391-01A MS				Units: mg/Kg		Analysis Date: 10/18/2019 09:46 A		
Client ID: SP-1: Composite near point of origin		Run ID: GC8_191017A				SeqNo: 5998837		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	298.8	5.0	331	21.97	83.6	58-111	0			
<i>Surr: 4-Terphenyl-d14</i>	2.284	0	3.31	0	69	33-111	0			

MSD		Sample ID: 19101391-01A MSD				Units: mg/Kg		Analysis Date: 10/18/2019 10:15 A		
Client ID: SP-1: Composite near point of origin		Run ID: GC8_191017A				SeqNo: 5998838		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	309.4	5.0	331.6	21.97	86.7	58-111	298.8	3.48	30	
<i>Surr: 4-Terphenyl-d14</i>	2.345	0	3.316	0	70.7	33-111	2.284	2.64	30	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144154** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-144154-144154				Units: µg/Kg-dry		Analysis Date: 10/17/2019 06:18 P		
Client ID:		Run ID: GC9_191017B				SeqNo: 5998537		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4248	0	5000	0	85	71-123	0			

LCS		Sample ID: LCS-144154-144154				Units: µg/Kg-dry		Analysis Date: 10/17/2019 05:48 P		
Client ID:		Run ID: GC9_191017B				SeqNo: 5998536		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	485400	5,000	500000	0	97.1	71-123	0			
Surr: Toluene-d8	5722	0	5000	0	114	71-123	0			

MS		Sample ID: 19101319-07B MS				Units: µg/Kg-dry		Analysis Date: 10/17/2019 11:40 P		
Client ID:		Run ID: GC9_191017B				SeqNo: 5998547		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	672900	6,900	694200	0	96.9	71-123	0			
Surr: Toluene-d8	7092	0	6942	0	102	71-123	0			

MSD		Sample ID: 19101319-07B MSD				Units: µg/Kg-dry		Analysis Date: 10/18/2019 12:10 P		
Client ID:		Run ID: GC9_191017B				SeqNo: 5998548		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	767600	7,500	747400	0	103	71-123	672900	13.1	30	
Surr: Toluene-d8	8020	0	7474	0	107	71-123	7092	12.3	30	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144220** Instrument ID **HG4** Method: **SW7471B**

MBLK		Sample ID: MBLK-144220-144220				Units: mg/Kg		Analysis Date: 10/18/2019 11:40 A		
Client ID:		Run ID: HG4_191018A				SeqNo: 5998264		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.004583	0.020								J

LCS		Sample ID: LCS-144220-144220				Units: mg/Kg		Analysis Date: 10/18/2019 11:42 A		
Client ID:		Run ID: HG4_191018A				SeqNo: 5998265		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1741	0.020	0.1665		0	105	80-120	0		

MS		Sample ID: 19101391-02AMS				Units: mg/Kg		Analysis Date: 10/18/2019 11:57 A		
Client ID: SP-2: Composite from mid-point area		Run ID: HG4_191018A				SeqNo: 5998272		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1663	0.018	0.148	0.01608	101	75-125	0			

MSD		Sample ID: 19101391-02AMSD				Units: mg/Kg		Analysis Date: 10/18/2019 11:59 A		
Client ID: SP-2: Composite from mid-point area		Run ID: HG4_191018A				SeqNo: 5998273		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1682	0.018	0.1484	0.01608	102	75-125	0.1663	1.14	35	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
Work Order: 19101391
Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144185** Instrument ID **ICPMS4** Method: **SW6020A**

MBLK				Sample ID: MBLK-144185-144185			Units: mg/Kg		Analysis Date: 10/18/2019 02:13 P		
Client ID:			Run ID: ICPMS4_191018B			SeqNo: 5998878		Prep Date: 10/17/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	U	0.25									
Barium	U	0.25									
Cadmium	U	0.10									
Chromium	U	0.25									
Copper	U	0.25									
Lead	U	0.25									
Nickel	U	0.25									
Selenium	0.2354	0.25								J	
Silver	U	0.25									
Zinc	U	0.50									

LCS				Sample ID: LCS-144185-144185			Units: mg/Kg		Analysis Date: 10/18/2019 02:15 P		
Client ID:			Run ID: ICPMS4_191018B			SeqNo: 5998879		Prep Date: 10/17/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	5.013	0.25	5	0	100	80-120	0				
Barium	5.18	0.25	5	0	104	80-120	0				
Cadmium	5.201	0.10	5	0	104	80-120	0				
Chromium	5.309	0.25	5	0	106	80-120	0				
Copper	5.262	0.25	5	0	105	80-120	0				
Lead	5.214	0.25	5	0	104	80-120	0				
Nickel	5.172	0.25	5	0	103	80-120	0				
Selenium	5.059	0.25	5	0	101	80-120	0				
Silver	5.326	0.25	5	0	107	80-120	0				
Zinc	5.539	0.50	5	0	111	80-120	0				

MS				Sample ID: 19101391-04AMS			Units: mg/Kg		Analysis Date: 10/18/2019 02:24 P		
Client ID: SP-4: Background			Run ID: ICPMS4_191018B		SeqNo: 5998884		Prep Date: 10/17/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	10.37	0.36	7.163	6.123	59.3	75-125	0			S	
Cadmium	6.329	0.14	7.163	0.1383	86.4	75-125	0				
Chromium	28.58	0.36	7.163	25.29	46	75-125	0			S	
Copper	15.88	0.36	7.163	12.14	52.1	75-125	0			S	
Lead	20.57	0.36	7.163	17.71	40	75-125	0			S	
Nickel	18.41	0.36	7.163	14.92	48.8	75-125	0			S	
Selenium	6.693	0.36	7.163	0.4668	86.9	75-125	0				
Silver	6.339	0.36	7.163	0.07316	87.5	75-125	0				
Zinc	46.95	0.72	7.163	49.12	-30.3	75-125	0			SO	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: 144185 Instrument ID ICPMS4 Method: SW6020A

MS				Sample ID: 19101391-04AMS			Units: mg/Kg		Analysis Date: 10/18/2019 02:42 P		
Client ID: SP-4: Background			Run ID: ICPMS4_191018B			SeqNo: 5998894		Prep Date: 10/17/2019		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Barium	246.9	3.6	7.163	255.3	-117	75-125	0			SO	

MSD					Sample ID: 19101391-04AMSD		Units: mg/Kg		Analysis Date: 10/18/2019 02:26 P		
Client ID: SP-4: Background			Run ID: ICPMS4_191018B			SeqNo: 5998885		Prep Date: 10/17/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	10.34	0.37	7.429	6.123	56.7	75-125	11.56	11.2	20	S	
Cadmium	6.396	0.15	7.429	0.1383	84.2	75-125	6.998	8.99	20		
Chromium	29.19	0.37	7.429	25.29	52.4	75-125	32.8	11.7	20	S	
Copper	15.84	0.37	7.429	12.14	49.7	75-125	18.76	16.9	20	S	
Lead	20.17	0.37	7.429	17.71	33.1	75-125	19.39	3.93	20	S	
Nickel	18.24	0.37	7.429	14.92	44.8	75-125	22.19	19.5	20	S	
Selenium	6.831	0.37	7.429	0.4668	85.7	75-125	6.697	1.99	20		
Silver	6.471	0.37	7.429	0.07316	86.1	75-125	7.439	13.9	20		
Zinc	46.94	0.74	7.429	49.12	-29.4	75-125	55.56	16.8	20	SO	

MSD				Sample ID: 19101391-04AMSD				Units: mg/Kg		Analysis Date: 10/18/2019 02:44 P	
Client ID: SP-4: Background			Run ID: ICPMS4_191018B			SeqNo: 5998895		Prep Date: 10/17/2019		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Barium	248	3.7	7.429	255.3	-97.7	75-125	246.9	0.464	20	SO	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
Work Order: 19101391
Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144326** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 19101391-03ADUP				Units: mg/L		Analysis Date: 10/21/2019 12:50 P		
Client ID: SP-3: Composite from terminus area		Run ID: ICPMS3_191021A				SeqNo: 6001077		Prep Date: 10/21/2019		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	66.98	5.0	0	0	0	0-0	77.4	14.4		
Magnesium	8.154	2.0	0	0	0	0-0	9.595	16.2		
Sodium	384.8	2.0	0	0	0	0-0	477.2	21.4		

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Batch ID: **144326** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 19101391-03ADUP				Units: none		Analysis Date: 10/21/2019		
Client ID: SP-3: Composite from terminus area		Run ID: SAR_191021A				SeqNo: 6001031		Prep Date: 10/21/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	11.82	0.010	0	0	0		13.61	14.1	50	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: 144176 Instrument ID SVMS6 Method: SW846 8270D

MBLK		Sample ID: SBLKS1-144176-144176				Units: µg/Kg		Analysis Date: 10/18/2019 10:43 A		
Client ID:		Run ID: SVMS6_191018A				SeqNo: 5997882		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	4.2								
Anthracene	U	4.2								
Benzo(a)anthracene	U	4.2								
Benzo(a)pyrene	U	4.2								
Benzo(b)fluoranthene	U	4.2								
Benzo(k)fluoranthene	U	4.2								
Chrysene	U	4.2								
Dibenzo(a,h)anthracene	U	4.2								
Fluoranthene	U	4.2								
Fluorene	U	4.2								
Indeno(1,2,3-cd)pyrene	U	4.2								
Naphthalene	U	4.2								
Pyrene	U	4.2								
Surr: 2-Fluorobiphenyl	3014	0	3333	0	90.4	20-140	0			
Surr: 4-Terphenyl-d14	2645	0	3333	0	79.3	22-172	0			
Surr: Nitrobenzene-d5	2870	0	3333	0	86.1	28-140	0			

LCS		Sample ID: SLCSS1-144176-144176				Units: µg/Kg		Analysis Date: 10/18/2019 10:59 A		
Client ID:		Run ID: SVMS6_191018A				SeqNo: 5998712		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1163	4.2	1333	0	87.2	40-140	0			
Anthracene	1213	4.2	1333	0	91	40-140	0			
Benzo(a)anthracene	1269	4.2	1333	0	95.2	40-140	0			
Benzo(a)pyrene	1300	4.2	1333	0	97.5	40-140	0			
Benzo(b)fluoranthene	1266	4.2	1333	0	95	40-140	0			
Benzo(k)fluoranthene	1293	4.2	1333	0	97	40-140	0			
Chrysene	1199	4.2	1333	0	89.9	40-140	0			
Dibenzo(a,h)anthracene	1348	4.2	1333	0	101	40-140	0			
Fluoranthene	1108	4.2	1333	0	83.1	40-140	0			
Fluorene	1256	4.2	1333	0	94.2	40-140	0			
Indeno(1,2,3-cd)pyrene	1297	4.2	1333	0	97.3	40-140	0			
Naphthalene	1201	4.2	1333	0	90.1	40-140	0			
Pyrene	1239	4.2	1333	0	93	40-140	0			
Surr: 2-Fluorobiphenyl	3065	0	3333	0	91.9	20-140	0			
Surr: 4-Terphenyl-d14	2463	0	3333	0	73.9	22-172	0			
Surr: Nitrobenzene-d5	2748	0	3333	0	82.5	28-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: 144176 Instrument ID SVMS6 Method: SW846 8270D

MS				Sample ID: 19101216-04B MS		Units: µg/Kg		Analysis Date: 10/18/2019 11:14 A		
Client ID:			Run ID: SVMS6_191018A			SeqNo: 5998713		Prep Date: 10/18/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	960.7	4.1	1319	20.86	71.3	40-140		0		
Anthracene	1044	4.1	1319	17.61	77.8	40-140		0		
Benzo(a)anthracene	1398	4.1	1319	33.42	103	40-140		0		
Benzo(a)pyrene	2301	4.1	1319	0	174	40-140		0		S
Benzo(b)fluoranthene	1213	4.1	1319	0	91.9	40-140		0		
Benzo(k)fluoranthene	1432	4.1	1319	0	109	40-140		0		
Chrysene	849.3	4.1	1319	50.19	60.6	40-140		0		
Dibenzo(a,h)anthracene	635.8	4.1	1319	0	48.2	40-140		0		
Fluoranthene	1745	4.1	1319	119.1	123	40-140		0		
Fluorene	1101	4.1	1319	0	83.5	40-140		0		
Indeno(1,2,3-cd)pyrene	884.5	4.1	1319	0	67.1	40-140		0		
Naphthalene	965.4	4.1	1319	0	73.2	40-140		0		
Pyrene	1409	4.1	1319	103.6	99	40-140		0		
Surr: 2-Fluorobiphenyl	2317	0	3298	0	70.3	20-140		0		
Surr: 4-Terphenyl-d14	2460	0	3298	0	74.6	22-172		0		
Surr: Nitrobenzene-d5	1625	0	3298	0	49.3	28-140		0		

MSD				Sample ID: 19101216-04B MSD			Units: µg/Kg		Analysis Date: 10/18/2019 11:30 A		
Client ID:		Run ID: SVMS6_191018A			SeqNo: 5998714		Prep Date: 10/18/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	486.8	4.0	1282	20.86	36.4	40-140	960.7	65.5	30	SR	
Anthracene	560.1	4.0	1282	17.61	42.3	40-140	1044	60.3	30	R	
Benzo(a)anthracene	634.4	4.0	1282	33.42	46.9	40-140	1398	75.1	30	R	
Benzo(a)pyrene	804.3	4.0	1282	0	62.8	40-140	2301	96.4	30	R	
Benzo(b)fluoranthene	797.2	4.0	1282	0	62.2	40-140	1213	41.3	30	R	
Benzo(k)fluoranthene	658.6	4.0	1282	0	51.4	40-140	1432	74	30	R	
Chrysene	672.6	4.0	1282	50.19	48.6	40-140	849.3	23.2	30		
Dibenzo(a,h)anthracene	338.8	4.0	1282	0	26.4	40-140	635.8	61	30	SR	
Fluoranthene	830.4	4.0	1282	119.1	55.5	40-140	1745	71	30	R	
Fluorene	536.6	4.0	1282	0	41.9	40-140	1101	68.9	30	R	
Indeno(1,2,3-cd)pyrene	500.6	4.0	1282	0	39.1	40-140	884.5	55.4	30	SR	
Naphthalene	508.2	4.0	1282	0	39.7	40-140	965.4	62.1	30	SR	
Pyrene	608.8	4.0	1282	103.6	39.4	40-140	1409	79.3	30	SR	
Surr: 2-Fluorobiphenyl	1310	0	3204	0	40.9	20-140	2317	55.5	0		
Surr: 4-Terphenyl-d14	1151	0	3204	0	35.9	22-172	2460	72.5	0		
Surr: Nitrobenzene-d5	948.7	0	3204	0	29.6	28-140	1625	52.6	0		

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144184** Instrument ID **VMS9** Method: **SW8260C**

MBLK		Sample ID: MBLK-144184-144184				Units: µg/Kg-dry		Analysis Date: 10/17/2019 05:21 P		
Client ID:		Run ID: VMS9_191017A				SeqNo: 5997811		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30								
Ethylbenzene	U	30								
m,p-Xylene	U	60								
o-Xylene	U	30								
Toluene	U	30								
Xylenes, Total	U	90								
Surr: 1,2-Dichloroethane-d4	1000	0	1000	0	100	70-130	0			
Surr: 4-Bromofluorobenzene	997.5	0	1000	0	99.8	70-130	0			
Surr: Dibromofluoromethane	882	0	1000	0	88.2	70-130	0			
Surr: Toluene-d8	967.5	0	1000	0	96.8	70-130	0			

LCS		Sample ID: LCS-144184-144184				Units: µg/Kg-dry		Analysis Date: 10/17/2019 04:34 P		
Client ID:		Run ID: VMS9_191017A				SeqNo: 5997809		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1068	30	1000	0	107	75-125	0			
Ethylbenzene	1074	30	1000	0	107	75-125	0			
m,p-Xylene	2081	60	2000	0	104	80-125	0			
o-Xylene	1080	30	1000	0	108	75-125	0			
Toluene	1070	30	1000	0	107	70-125	0			
Xylenes, Total	3162	90	3000	0	105	75-125	0			
Surr: 1,2-Dichloroethane-d4	975	0	1000	0	97.5	70-130	0			
Surr: 4-Bromofluorobenzene	1010	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	998	0	1000	0	99.8	70-130	0			
Surr: Toluene-d8	1013	0	1000	0	101	70-130	0			

MS		Sample ID: 19101391-04A MS				Units: µg/Kg-dry		Analysis Date: 10/17/2019 10:49 P		
Client ID: SP-4: Background		Run ID: VMS9_191017A				SeqNo: 5997824		Prep Date: 10/17/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1302	43	1434	0	90.8	75-125	0			
Ethylbenzene	1446	43	1434	0	101	75-125	0			
m,p-Xylene	3469	86	2868	11.01	121	80-125	0			
o-Xylene	1497	43	1434	0	104	75-125	0			
Toluene	1488	43	1434	0	104	70-125	0			
Xylenes, Total	4966	130	4303	0	115	75-125	0			
Surr: 1,2-Dichloroethane-d4	1400	0	1434	0	97.6	70-130	0			
Surr: 4-Bromofluorobenzene	1511	0	1434	0	105	70-130	0			
Surr: Dibromofluoromethane	1375	0	1434	0	95.9	70-130	0			
Surr: Toluene-d8	1382	0	1434	0	96.4	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
Work Order: 19101391
Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144184** Instrument ID **VMS9** Method: **SW8260C**

MSD				Sample ID: 19101391-04A MSD			Units: µg/Kg-dry		Analysis Date: 10/17/2019 11:05 P	
Client ID: SP-4: Background				Run ID: VMS9_191017A			SeqNo: 5997825		Prep Date: 10/17/2019	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1244	44	1456	0	85.4	75-125	1302	4.52	30	
Ethylbenzene	1234	44	1456	0	84.8	75-125	1446	15.9	30	
m,p-Xylene	2670	87	2912	11.01	91.3	80-125	3469	26	30	
o-Xylene	1334	44	1456	0	91.6	75-125	1497	11.5	30	
Toluene	1211	44	1456	0	83.2	70-125	1488	20.5	30	
Xylenes, Total	4004	130	4368	0	91.7	75-125	4966	21.5	30	
Surr: 1,2-Dichloroethane-d4	1455	0	1456	0	100	70-130	1400	3.88	30	
Surr: 4-Bromofluorobenzene	1524	0	1456	0	105	70-130	1511	0.883	30	
Surr: Dibromofluoromethane	1417	0	1456	0	97.4	70-130	1375	3	30	
Surr: Toluene-d8	1404	0	1456	0	96.4	70-130	1382	1.61	30	

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
Work Order: 19101391
Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144129** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-144129-144129				Units: s.u.		Analysis Date: 10/17/2019 10:00 A		
Client ID:		Run ID: WETCHEM_191017N		SeqNo: 5994524		Prep Date: 10/17/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.96	0.10	4	0	99	90-110	0			

DUP				Sample ID: 19101280-02A DUP				Units: s.u.			Analysis Date: 10/17/2019 10:00 A			
Client ID:				Run ID: WETCHEM_191017N				SeqNo: 5994526			Prep Date: 10/17/2019		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		10.29	0.10	0	0	0	0-0	10.21	0.78	20				
Temperature		19.9	0.10	0	0	0		19.8	0.504					

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **144260** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-144260-144260				Units: mg/Kg		Analysis Date: 10/18/2019 02:47 P		
Client ID:		Run ID: WETCHEM_191018P		SeqNo: 5998935		Prep Date: 10/18/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

LCS		Sample ID: LCS-144260-144260				Units: mg/Kg		Analysis Date: 10/18/2019 02:47 P		
Client ID:		Run ID: WETCHEM_191018P		SeqNo: 5998936		Prep Date: 10/18/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.75 1.0 5 0 95 80-120 0

MS		Sample ID: 19101391-01A MS				Units: mg/Kg		Analysis Date: 10/18/2019 02:47 P		
Client ID: SP-1: Composite near point of origin		Run ID: WETCHEM_191018P		SeqNo: 5998939		Prep Date: 10/18/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.62 1.0 5 0.75 77.4 75-125 0

MS		Sample ID: 19101391-01A MSI				Units: mg/Kg		Analysis Date: 10/18/2019 02:47 P		
Client ID: SP-1: Composite near point of origin		Run ID: WETCHEM_191018P		SeqNo: 5998941		Prep Date: 10/18/2019		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1998 100 1979 0.75 101 75-125 0

MSD		Sample ID: 19101391-01A MSD				Units: mg/Kg		Analysis Date: 10/18/2019 02:47 P		
Client ID: SP-1: Composite near point of origin		Run ID: WETCHEM_191018P		SeqNo: 5998940		Prep Date: 10/18/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.88 1.0 5 0.75 82.6 75-125 4.62 5.47 20

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 19101391
 Project: RG 12-14-298

QC BATCH REPORT

Batch ID: **R273143** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R273143				Units: % of sample		Analysis Date: 10/17/2019 04:00 P		
Client ID:		Run ID: MOIST_191017D		SeqNo: 5997476		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.10

LCS		Sample ID: LCS-R273143				Units: % of sample		Analysis Date: 10/17/2019 04:00 P		
Client ID:		Run ID: MOIST_191017D		SeqNo: 5997475		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.10 100 0 100 98-102 0

DUP		Sample ID: 19101391-04A DUP				Units: % of sample		Analysis Date: 10/17/2019 04:00 P		
Client ID: SP-4: Background		Run ID: MOIST_191017D		SeqNo: 5997474		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 16.76 0.10 0 0 0 0-0 16.82 0.357 10

The following samples were analyzed in this batch:

19101391-01A	19101391-02A	19101391-03A
19101391-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER #

19101391

PROJECT NAME		RG 12-14-298 Produced Water Spill		SAMPLER		Mike Gardner		DATE		10/16/2019		PAGE		1 of 1	
PROJECT No.				SITE ID		RG 12-14-298		TURNAROUND		Rush		DISPOSAL		By Lab or Return to Client	
COMPANY NAME		TEP Rocky Mountain LLC		BILL TO COMPANY		TEP Rocky Mountain LLC		COGCC 910-1 - full list							
SEND REPORT TO		Mike Gardner		INVOICE ATTN TO		Mike Gardner, Tammy Gose									
ADDRESS				ADDRESS		1058 Co Rd 215									
CITY / STATE / ZIP				CITY / STATE / ZIP		Parachute, CO 81635									
PHONE				PHONE		970-263-2760									
FAX				FAX											
E-MAIL		mgardner@terraep.com krowe@hrcmp.com		E-MAIL		mgardner@terraep.com tgose@terraep.com									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC								
1	SP-1: Composite near point of origin	Soil	10/15/2019	3:00 p.m.	1 x 16 oz			X							
2	SP-2: Composite from mid-point area	Soil	10/15/2019	3:00 p.m.	1 x 16 oz			X							
3	SP-3: Composite from terminus area	Soil	10/15/2019	3:00 p.m.	1 x 16 oz			X							
4	SP-4: Background	Soil	10/15/2019	3:00 p.m.	1 x 16 oz			X							

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)
SR2 2.8°C @	<input checked="" type="checkbox"/> LEVEL II (Standard QC)
	<input type="checkbox"/> LEVEL III (Std QC + forms)
	<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)
	<input type="checkbox"/>
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035	

SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY <i>[Signature]</i>	Mike Gardner	10/16/2019	1500
RECEIVED BY <i>[Signature]</i>	N.M.	10/16/19	1500
RELINQUISHED BY <i>[Signature]</i>	N.M.	10/16/19	1830
RECEIVED BY <i>[Signature]</i>	Diane E. Shaw	10/17/19	0930
RELINQUISHED BY			
RECEIVED BY			

Sample Receipt Checklist

Client Name: **TERRAENERGY**

Date/Time Received: **17-Oct-19 09:30**

Work Order: **19101391**

Received by: **DS**

Checklist completed by Diane Shaw
eSignature

17-Oct-19
Date

Reviewed by: Chad Whelton
eSignature

18-Oct-19
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.8/2.8 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>10/17/2019 2:01:37 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



06-Jul-2021

Mike Gardner
Terra Energy Partners, LLC
1058 Country Rd 215
Parachute, CO 81635

Re: **Fed 399-2-1 Exc**

Work Order: **21062761**

Dear Mike,

ALS Environmental received 3 samples on 29-Jun-2021 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 13.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Alex J. Cszaszar

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Terra Energy Partners, LLC
Project: Fed 399-2-1 Exc
Work Order: 21062761

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
21062761-01	BKGD 1	Soil		6/28/2021 12:30	6/29/2021 10:30	<input type="checkbox"/>
21062761-02	BKGD 2	Soil		6/28/2021 12:45	6/29/2021 10:30	<input type="checkbox"/>
21062761-03	BKGD 3	Soil		6/28/2021 13:00	6/29/2021 10:30	<input type="checkbox"/>

Client: Terra Energy Partners, LLC**Project:** Fed 399-2-1 Exc**Work Order:** 21062761**Case Narrative**

Samples for the above noted Work Order were received on 06/29/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

All sample analyses achieved analytical criteria.

Client: Terra Energy Partners, LLC
Project: Fed 399-2-1 Exc
WorkOrder: 21062761

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	

ALS Group, USA

Date: 06-Jul-21

Client: Terra Energy Partners, LLC
Project: Fed 399-2-1 Exc
Sample ID: BKGD 1
Collection Date: 6/28/2021 12:30 PM

Work Order: 21062761
Lab ID: 21062761-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	13		Method: SW6010D 0.094	0.36	mg/Kg-dry	1	Analyst: DSC 7/1/2021 23:03
SOLUBLE CATIONS FOR SAR							
Calcium	1,200		Method: SW6020B 2.5	5.0	mg/L	10	Analyst: STP 7/2/2021 14:28
Magnesium	270		0.50	2.0	mg/L	10	7/2/2021 14:28
Sodium	790		1.8	2.0	mg/L	10	7/2/2021 14:28
SODIUM ADSORPTION RATIO							
Sodium Adsorption Ratio	5.5		Method: USDA H60 METHOD 20B 0.010	0.010	none	1	Analyst: STP 7/2/2021
ELECTRICAL CONDUCTIVITY (SAR)							
Electrical Conductivity @ Saturation	12		Method: USDA H60 METHOD 20B 0.011	0.10	mmhos/cm @25°C	20	Analyst: QTN 7/2/2021 13:54
MOISTURE							
Moisture	9.8		Method: SW3550C 0.10	0.10	% of sample	1	Analyst: CDG 7/1/2021 12:48
PH MEASURED IN SOIL PASTE							
pH @ Saturation	7.95		Method: USDA METHOD 20B 0.11	0.11	s.u.-dry	1	Analyst: QTN 7/2/2021 11:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jul-21

Client: Terra Energy Partners, LLC
Project: Fed 399-2-1 Exc
Sample ID: BKGD 2
Collection Date: 6/28/2021 12:45 PM

Work Order: 21062761
Lab ID: 21062761-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	8.8		Method: SW6010D 0.11	0.44	mg/Kg-dry	1	Prep: SW3050B / 7/1/21 Analyst: DSC 7/1/2021 23:09
SOLUBLE CATIONS FOR SAR							
Calcium	930		Method: SW6020B 2.5	5.0	mg/L	10	Prep: USDA Method 20B / 7/2/21 Analyst: STP 7/2/2021 14:29
Magnesium	200		0.50	2.0	mg/L	10	7/2/2021 14:29
Sodium	810		1.8	2.0	mg/L	10	7/2/2021 14:29
SODIUM ADSORPTION RATIO							
Sodium Adsorption Ratio	6.3		Method: USDA H60 METHOD 20B 0.010	0.010	none	1	Prep: USDA Method 20B / 7/2/21 Analyst: STP 7/2/2021
ELECTRICAL CONDUCTIVITY (SAR)							
Electrical Conductivity @ Saturation	9.9		Method: USDA H60 METHOD 20B 0.011	0.10	mmhos/cm @25°C	20	Prep: USDA Method 20B / 7/2/21 Analyst: QTN 7/2/2021 13:54
MOISTURE							
Moisture	24		Method: SW3550C 0.10	0.10	% of sample	1	Analyst: CDG 7/1/2021 12:48
PH MEASURED IN SOIL PASTE							
pH @ Saturation	9.67		Method: USDA METHOD 20B 0.13	0.13	s.u.-dry	1	Prep: USDA Method 20B / 7/2/21 Analyst: QTN 7/2/2021 11:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jul-21

Client: Terra Energy Partners, LLC
Project: Fed 399-2-1 Exc
Sample ID: BKGD 3
Collection Date: 6/28/2021 01:00 PM

Work Order: 21062761
Lab ID: 21062761-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	11		Method: SW6010D 0.11	0.40	mg/Kg-dry	1	Analyst: DSC 7/1/2021 23:14
SOLUBLE CATIONS FOR SAR							
Calcium	71		Method: SW6020B 2.5	5.0	mg/L	10	Analyst: STP 7/2/2021 14:31
Magnesium	11		0.50	2.0	mg/L	10	7/2/2021 14:31
Sodium	87		1.8	2.0	mg/L	10	7/2/2021 14:31
SODIUM ADSORPTION RATIO							
Sodium Adsorption Ratio	2.5		Method: USDA H60 METHOD 20B 0.010	0.010	none	1	Analyst: STP 7/2/2021
ELECTRICAL CONDUCTIVITY (SAR)							
Electrical Conductivity @ Saturation	0.89		Method: USDA H60 METHOD 20B 0.011	0.10	mmhos/cm @25°C	20	Analyst: QTN 7/2/2021 13:54
MOISTURE							
Moisture	15		Method: SW3550C 0.10	0.10	% of sample	1	Analyst: CDG 7/1/2021 12:48
PH MEASURED IN SOIL PASTE							
pH @ Saturation	9.41		Method: USDA METHOD 20B 0.12	0.12	s.u.-dry	1	Analyst: QTN 7/2/2021 11:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Terra Energy Partners, LLC
Work Order: 21062761
Project: Fed 399-2-1 Exc

QC BATCH REPORT

Batch ID: **179543** Instrument ID **ICP2** Method: **SW6010D**

MBLK		Sample ID: MBLK-179543-179543				Units: mg/Kg		Analysis Date: 7/1/2021 10:53 PM			
Client ID:		Run ID: ICP2_210701B				SeqNo: 7546245		Prep Date: 7/1/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.065	0.25								

LCS		Sample ID: LCS-179543-179543				Units: mg/Kg		Analysis Date: 7/1/2021 10:58 PM			
Client ID:		Run ID: ICP2_210701B				SeqNo: 7546246		Prep Date: 7/1/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.235	0.065	0.25	5	0	84.7	80-120	0			

MS		Sample ID: 21062790-02BMS				Units: mg/Kg		Analysis Date: 7/1/2021 11:29 PM			
Client ID:		Run ID: ICP2_210701B				SeqNo: 7546252		Prep Date: 7/1/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.386	0.087	0.33	6.684	0.9639	96.1	75-125	0			

MSD		Sample ID: 21062790-02BMSD				Units: mg/Kg		Analysis Date: 7/1/2021 11:34 PM			
Client ID:		Run ID: ICP2_210701B				SeqNo: 7546253		Prep Date: 7/1/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.505	0.087	0.33	6.676	0.9639	98	75-125	7.386	1.6	20	

The following samples were analyzed in this batch:

21062761-01A 21062761-02A 21062761-03A

Client: Terra Energy Partners, LLC
Work Order: 21062761
Project: Fed 399-2-1 Exc

QC BATCH REPORT

Batch ID: **179659** Instrument ID **ICPMS3** Method: **SW6020B**

DUP		Sample ID: 21062763-01BDUP				Units: mg/L		Analysis Date: 7/2/2021 02:34 PM			
Client ID:		Run ID: ICPMS3_210702A				SeqNo: 7548971		Prep Date: 7/2/2021		DF: 10	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	30.13	2.5	5.0	0	0	0	0-0	35.97	17.7		
Magnesium	7.021	0.5	2.0	0	0	0	0-0	8.458	18.6		
Sodium	109.7	1.8	2.0	0	0	0	0-0	125.6	13.5		

The following samples were analyzed in this batch:

21062761-01A 21062761-02A 21062761-03A

Batch ID: **179659** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 21062763-01BDUP				Units: none		Analysis Date: 7/2/2021			
Client ID:		Run ID: SAR_210702A				SeqNo: 7549004		Prep Date: 7/2/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	4.677	0.01	0.010	0	0	0		4.894	4.54	50	

The following samples were analyzed in this batch:

21062761-01A 21062761-02A 21062761-03A

Batch ID: **179659** Instrument ID **WETCHEM** Method: **USDA Method 20**

DUP		Sample ID: 21062763-01B DUP				Units: s.u.		Analysis Date: 7/2/2021 11:20 AM			
Client ID:		Run ID: WETCHEM_210702F				SeqNo: 7548439		Prep Date: 7/2/2021		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH @ Saturation	8.12	0.1	0.10	0	0	0	0-0	8	1.49	20	

DUP		Sample ID: 21062763-01B DUP				Units: mmhos/cm @25°		Analysis Date: 7/2/2021 01:54 PM			
Client ID:		Run ID: WETCHEM_210702G				SeqNo: 7548449		Prep Date: 7/2/2021		DF: 20	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Satu	0.992	0.011	0.10	0	0	0		1.038	4.53	50	

The following samples were analyzed in this batch:

21062761-01A 21062761-02A 21062761-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Terra Energy Partners, LLC
 Work Order: 21062761
 Project: Fed 399-2-1 Exc

QC BATCH REPORT

Batch ID: **R321215** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R321215				Units: % of sample			Analysis Date: 7/1/2021 12:48 PM		
Client ID:		Run ID: MOIST_210701A				SeqNo: 7546455			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.1	0.10								

LCS		Sample ID: LCS-R321215				Units: % of sample			Analysis Date: 7/1/2021 12:48 PM		
Client ID:		Run ID: MOIST_210701A				SeqNo: 7546454			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.1	0.10	100	0	100	98-102	0			

DUP		Sample ID: 21062625-01B DUP				Units: % of sample			Analysis Date: 7/1/2021 12:48 PM		
Client ID:		Run ID: MOIST_210701A				SeqNo: 7546434			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.95	0.1	0.10	0	0	0	0-0	10.95	0	10	

DUP		Sample ID: 21062625-11B DUP				Units: % of sample			Analysis Date: 7/1/2021 12:48 PM		
Client ID:		Run ID: MOIST_210701A				SeqNo: 7546445			Prep Date:		DF: 1
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.67	0.1	0.10	0	0	0	0-0	10.29	3.63	10	

The following samples were analyzed in this batch:

21062761-01A	21062761-02A	21062761-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.







WORKORDER
#

21062761

Form 202r8

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Krys Rowe	6/28/21	1500
RECEIVED BY		MIM	6-28-21	1500
RELINQUISHED BY		Keith L. Herencia	6-28-21	1830
RECEIVED BY		KEITH L. HERENCIA	6/29/21	1030
RELINQUISHED BY			Page 12 of 13	
RECEIVED BY				

Sample Receipt Checklist

Client Name: **TERRAENERGY**

Date/Time Received: **29-Jun-21 10:30**

Work Order: **21062761**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

29-Jun-21
Date

Reviewed by: Chad Whelton
eSignature

30-Jun-21
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.0/4.0 C</u>		<u>IR3</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/29/2021 3:53:00 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

October 28, 2019

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

HRL Compliance Solutions- CO

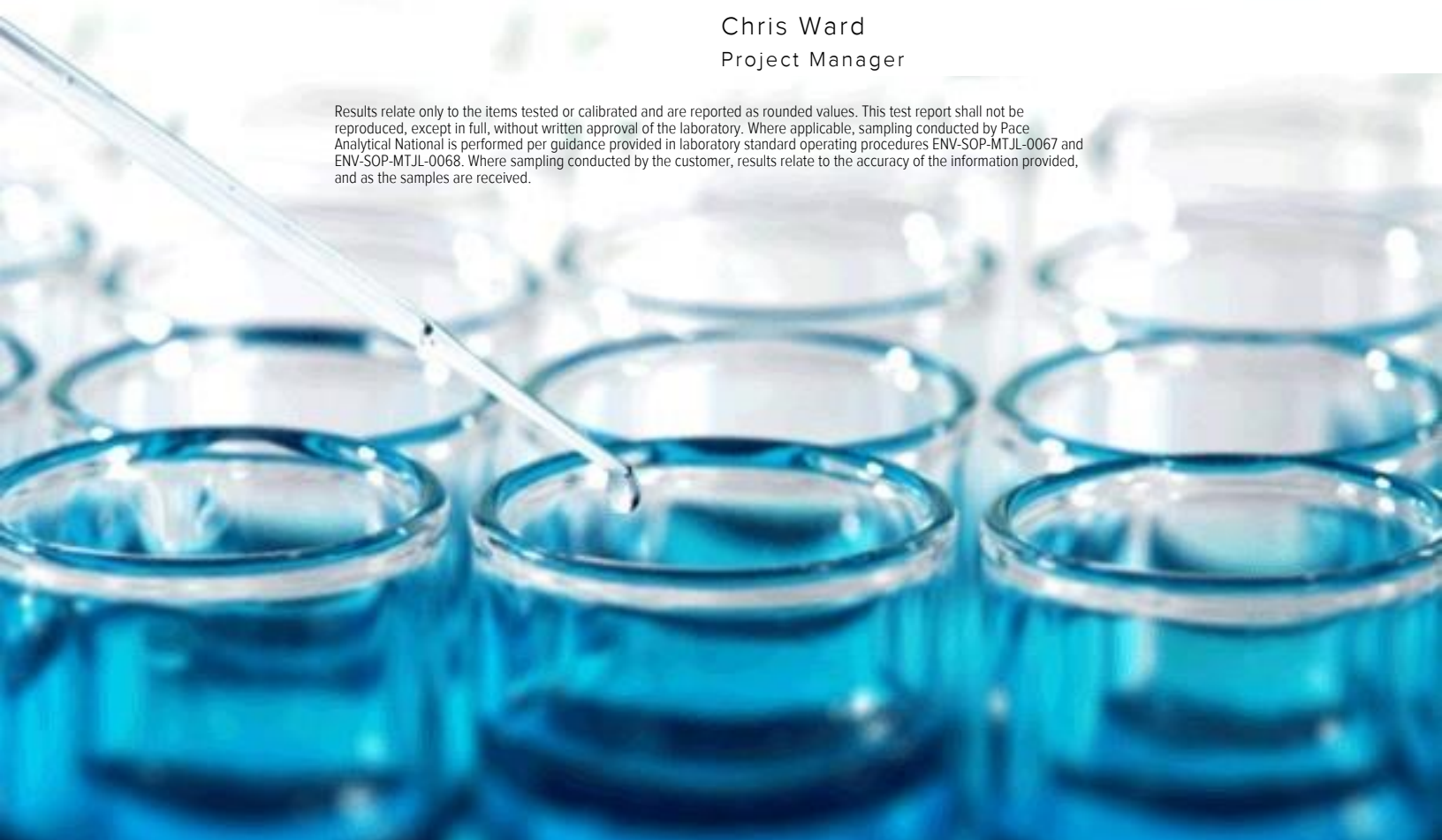
Sample Delivery Group: L1153332
Samples Received: 10/24/2019
Project Number: ELDER TRUCKING
Description: Elder Trucking - C-24M Spill - BKGDS
Site: URSA - C-24M PAD
Report To: Kris Rowe
2385 F ½ Road
Grand Junction, CO 81505

Entire Report Reviewed By:

Chris Ward

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.





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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



BKGD 1 L1153332-01 Solid

Collected by
Matt Smith

Collected date/time
10/23/19 12:00

Received date/time
10/24/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1369792	1	10/26/19 15:43	10/26/19 15:43	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1368917	1	10/24/19 20:48	10/24/19 22:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368866	1	10/24/19 18:03	10/24/19 21:58	AKA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1369673	1	10/25/19 15:08	10/26/19 11:07	TRB	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

BKGD 2 L1153332-02 Solid

Collected by
Matt Smith

Collected date/time
10/23/19 12:05

Received date/time
10/24/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1369792	1	10/26/19 15:46	10/26/19 15:46	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1368917	1	10/24/19 20:48	10/24/19 22:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368866	1	10/24/19 18:03	10/24/19 21:58	AKA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1369673	1	10/25/19 15:08	10/26/19 11:10	TRB	Mt. Juliet, TN

BKGD 3 L1153332-03 Solid

Collected by
Matt Smith

Collected date/time
10/23/19 12:20

Received date/time
10/24/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1369792	1	10/26/19 15:49	10/26/19 15:49	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1368917	1	10/24/19 20:48	10/24/19 22:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368866	1	10/24/19 18:03	10/24/19 21:58	AKA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1369673	1	10/25/19 15:08	10/26/19 11:12	TRB	Mt. Juliet, TN

BKGD 4 L1153332-04 Solid

Collected by
Matt Smith

Collected date/time
10/23/19 12:50

Received date/time
10/24/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1369792	1	10/27/19 11:40	10/27/19 11:40	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1368917	1	10/24/19 20:48	10/24/19 22:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368866	1	10/24/19 18:03	10/24/19 21:58	AKA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1369673	1	10/25/19 15:08	10/26/19 11:15	TRB	Mt. Juliet, TN

BKGD 5 L1153332-05 Solid

Collected by
Matt Smith

Collected date/time
10/23/19 12:40

Received date/time
10/24/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1369792	1	10/26/19 15:54	10/26/19 15:54	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1368917	1	10/24/19 20:48	10/24/19 22:27	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1368866	1	10/24/19 18:03	10/24/19 21:58	AKA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1369673	1	10/25/19 15:08	10/26/19 11:18	TRB	Mt. Juliet, TN

ACCOUNT:

HRL Compliance Solutions- CO

PROJECT:

ELDER TRUCKING

SDG:

L1153332

DATE/TIME:

10/28/19 10:05

PAGE:

3 of 16



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

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	1.65		1	10/26/2019 15:43	WG1369792

¹ Cp² Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.15	<u>T8</u>	1	10/24/2019 22:27	WG1368917

³ Ss⁴ Cn

Sample Narrative:

L1153332-01 WG1368917: 8.15 at 21.2C

⁵ Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	44.5		10.0	1	10/24/2019 21:58	WG1368866

⁶ Qc⁷ Gl

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg			
Arsenic	4.91		2.00	1	10/26/2019 11:07	WG1369673

⁸ Al⁹ Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.417		1	10/26/2019 15:46	WG1369792

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.49	<u>T8</u>	1	10/24/2019 22:27	WG1368917

Sample Narrative:

L1153332-02 WG1368917: 8.49 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	258		10.0	1	10/24/2019 21:58	WG1368866

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg			
Arsenic	4.87		2.00	1	10/26/2019 11:10	WG1369673

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.04		1	10/26/2019 15:49	WG1369792

¹ Cp² Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.08	T8	1	10/24/2019 22:27	WG1368917

³ Ss⁴ Cn

Sample Narrative:

L1153332-03 WG1368917: 9.08 at 20.3C

⁵ Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	160		10.0	1	10/24/2019 21:58	WG1368866

⁶ Qc⁷ Gl

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.27		2.00	1	10/26/2019 11:12	WG1369673

⁸ Al⁹ Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.165		1	10/27/2019 11:40	WG1369792

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	<u>T8</u>	1	10/24/2019 22:27	WG1368917

Sample Narrative:

L1153332-04 WG1368917: 8.53 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	78.7		10.0	1	10/24/2019 21:58	WG1368866

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg			
Arsenic	3.28		2.00	1	10/26/2019 11:15	WG1369673

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	0.941		1	10/26/2019 15:54	WG1369792

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.84	<u>T8</u>	1	10/24/2019 22:27	WG1368917

Sample Narrative:

L1153332-05 WG1368917: 7.84 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	1020		10.0	1	10/24/2019 21:58	WG1368866

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	mg/kg		mg/kg			
Arsenic	3.49		2.00	1	10/26/2019 11:18	WG1369673

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



L1153332-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1153332-01 10/24/19 22:27 • (DUP) R3464834-2 10/24/19 22:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.15	8.14	1	0.123		1

Sample Narrative:

OS: 8.15 at 21.2C

DUP: 8.14 at 20.2C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1153349-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1153349-01 10/24/19 22:27 • (DUP) R3464834-3 10/24/19 22:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	9.11	9.09	1	0.220		1

Sample Narrative:

OS: 9.11 at 21.1C

DUP: 9.09 at 20.2C

Laboratory Control Sample (LCS)

(LCS) R3464834-1 10/24/19 22:27

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 18.6C



Method Blank (MB)

(MB) R3464830-1 10/24/19 21:58

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1152986-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1152986-08 10/24/19 21:58 • (DUP) R3464830-3 10/24/19 21:58

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	525	521	1	0.765		20

L1153335-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1153335-01 10/24/19 21:58 • (DUP) R3464830-4 10/24/19 21:58

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	167	162	1	3.22		20

Laboratory Control Sample (LCS)

(LCS) R3464830-2 10/24/19 21:58

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	393	391	99.5	85.0-115	



Method Blank (MB)

(MB) R3465306-1 10/26/19 10:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

(LCS) R3465306-2 10/26/19 10:26 • (LCSD) R3465306-3 10/26/19 10:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	98.4	96.0	98.4	96.0	80.0-120			2.50	20

L1153795-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1153795-05 10/26/19 10:31 • (MS) R3465306-6 10/26/19 10:38 • (MSD) R3465306-7 10/26/19 10:41

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	9.31	100	104	90.7	94.5	1	75.0-125			3.79	20



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.
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

T8	Sample(s) received past/too close to holding time expiration.
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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National 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.

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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
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}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

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

Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



**Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form**

Client: <u>HR LSCO</u>		<u>L1153332</u>	
Cooler Received/Opened On: <u>10/24/19</u>		Temperature: <u>46</u>	
Received By: <u>Tristin Corson</u>			
Signature: <u>[Signature]</u>			
Receipt Check List			
	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

May 31, 2017

URSA Resources Group

Sample Delivery Group: L911596
Samples Received: 05/24/2017
Project Number: C240 BACKGROUND
Description: C240 - Background Samples
Site: C240
Report To: Dwayne Knudson
2385 F 1/2 Road
Grand Junction, CO 81505

Entire Report Reviewed By:



Shane Gambill

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
BKGD 1 L911596-01	5	
BKGD 2 L911596-02	6	⁴ Cn
BKGD 3 L911596-03	7	⁵ Sr
Qc: Quality Control Summary	8	
Wet Chemistry by Method 9045D	8	⁶ Qc
Wet Chemistry by Method 9050AMod	9	
Metals (ICP) by Method 6010B	10	⁷ Gl
Gl: Glossary of Terms	11	⁸ Al
Al: Accreditations & Locations	12	
Sc: Chain of Custody	13	⁹ Sc



BKGD 1 L911596-01 Solid

Collected by
Kris RoweCollected date/time
05/23/17 10:10Received date/time
05/24/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG983033	1	05/25/17 10:04	05/26/17 01:30	CCE
Wet Chemistry by Method 9045D	WG983353	1	05/27/17 10:10	05/27/17 11:02	MA
Wet Chemistry by Method 9050AMod	WG982864	1	05/25/17 10:31	05/25/17 10:31	KK
Metals (ICP) by Method 6010B	WG983217	1	05/25/17 13:49	05/26/17 00:26	CCE

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

BKGD 2 L911596-02 Solid

Collected by
Kris RoweCollected date/time
05/23/17 10:15Received date/time
05/24/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG983217	1	05/25/17 13:49	05/26/17 00:29	CCE

BKGD 3 L911596-03 Solid

Collected by
Kris RoweCollected date/time
05/23/17 10:20Received date/time
05/24/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG983217	1	05/25/17 13:49	05/26/17 00:31	CCE



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

Shane Gambill
Technical Service Representative

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	0.610		1	05/26/2017 01:30	WG983033

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	<u>T8</u>	1	05/27/2017 11:02	WG983353

Sample Narrative:

9045D L911596-01 WG983353: 8.45 at 21.9c

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	103		1	05/25/2017 10:31	WG982864

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.76		2.00	1	05/26/2017 00:26	WG983217



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.19		2.00	1	05/26/2017 00:29	WG983217

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.00		2.00	1	05/26/2017 00:31	WG983217

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



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

(LCS) WG983353-1 05/27/17 11:02 • (LCSD) WG983353-2 05/27/17 11:02

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.38	6.41	6.42	100	101	98.7-101			0.156	1

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) WG982864-1 05/25/17 10:31

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	2.68			

L911508-01 Original Sample (OS) • Duplicate (DUP)

(OS) L911508-01 05/25/17 10:31 • (DUP) WG982864-4 05/25/17 10:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	umhos/cm	umhos/cm		%		%
Specific Conductance	918	899	1	2.09		20

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

(LCS) WG982864-2 05/25/17 10:31 • (LCSD) WG982864-3 05/25/17 10:31

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	1070	1110	1090	104	102	90.0-110			1.82	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3221143-1 05/25/17 23:54

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Arsenic	U		0.65	2.00

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

(LCS) R3221143-2 05/25/17 23:57 • (LCSD) R3221143-3 05/25/17 23:59

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Arsenic	100	97.3	100	97	100	80-120			3	20

L911573-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L911573-01 05/26/17 00:02 • (MS) R3221143-6 05/26/17 00:10 • (MSD) R3221143-7 05/26/17 00:12

	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	%	%		%			%	%
Arsenic	100	4.91	101	104	96	99	1	75-125			3	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
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T8	Sample(s) received past/too close to holding time expiration.
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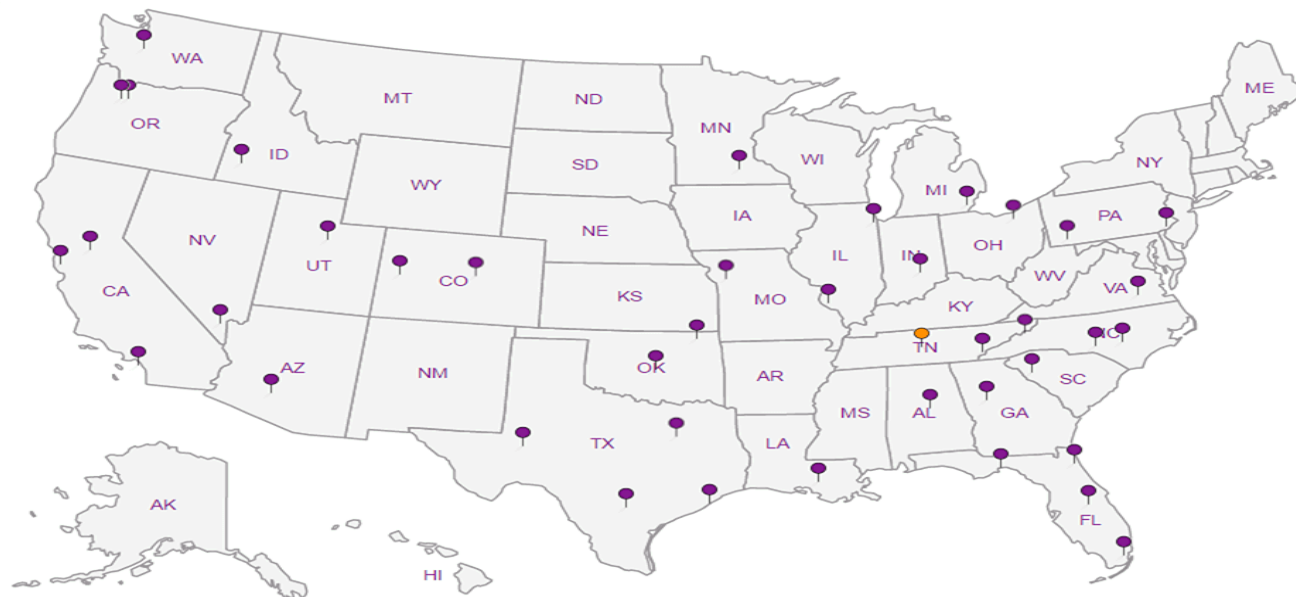
¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

¹Cp ${}^2\text{Tc}$ 3S_s ${}^4\text{Cn}$ ${}^5\text{Sr}$ ⁶Qc ${}^7\text{Gf}$ ${}^8\text{Al}$ ${}^9\text{Sc}$

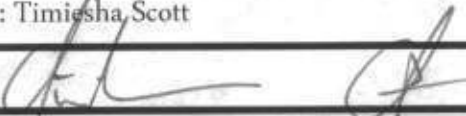
Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	IN00003		

Our Locations



ESC LAB SCIENCES Cooler Receipt Form

Client: <u>URSARCO</u>	SDG#	191186		
Cooler Received/Opened On: <u>5/24/17</u>	Temperature:	<u>1.9</u>		
Received by : Timiesha Scott				
Signature: 				
Receipt Check List		NP	Yes	No
COC Seal Present / Intact?		✓		
COC Signed / Accurate?			✓	
Bottles arrive intact?			✓	
Correct bottles used?			✓	
Sufficient volume sent?			✓	
If Applicable				
VOA Zero headspace?				
Preservation Correct / Checked?				