



03-Jul-2018

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

Re: **DOE 3-W-29 Land Farm**

Work Order: **18061979**

Dear Mike,

ALS Environmental received 1 sample on 29-Jun-2018 09:45 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 22.

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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Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Terra Energy Partners, LLC
Project: DOE 3-W-29 Land Farm
Work Order: 18061979

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>
18061979-01	DOE 3-W-29 Land Farm	Soil		6/28/2018 13:00	6/29/2018 09:45	<input type="checkbox"/>

Client: Terra Energy Partners, LLC**Project:** DOE 3-W-29 Land Farm**Work Order:** 18061979**Case Narrative**

Batch 120642, Method GRO_8015_S, Sample 18061979-01A: GRO surrogate recovery high due to matrix interference.

<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
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	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: 03-Jul-18

Client: Terra Energy Partners, LLC
Project: DOE 3-W-29 Land Farm
Sample ID: DOE 3-W-29 Land Farm
Collection Date: 6/28/2018 01:00 PM

Work Order: 18061979
Lab ID: 18061979-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	63		SW8015C		Prep: SW3546 6/29/18 14:15	Analyst: MEB
<i>Surr: 4-Terphenyl-d14</i>	52.6		5.0	mg/Kg-dry	1	6/30/2018 01:36 AM
			34-130	%REC	1	6/30/2018 01:36 AM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	140		SW8015D		Prep: SW5035 6/29/18 13:21	Analyst: MEB
<i>Surr: Toluene-d8</i>	125	S	5.1	mg/Kg	1	6/30/2018 04:55 AM
			71-123	%REC	1	6/30/2018 04:55 AM
MERCURY BY CVAA						
Mercury	0.019		SW7471B		Prep: SW7471 7/2/18 14:46	Analyst: RSH
			0.019	mg/Kg-dry	1	7/2/2018 02:30 PM
METALS ANALYSIS BY ICP						
Arsenic	12		SW846 6010C		Prep: SW3050B 6/29/18 13:12	Analyst: ABL
Barium	1,200		0.32	mg/Kg-dry	1	6/30/2018 06:17 AM
Cadmium	ND		0.32	mg/Kg-dry	1	7/2/2018 02:07 PM
Chromium	12		0.64	mg/Kg-dry	1	6/30/2018 06:17 AM
Copper	19		0.32	mg/Kg-dry	1	6/30/2018 06:17 AM
Lead	9.2		0.64	mg/Kg-dry	1	6/30/2018 06:17 AM
Nickel	11		0.32	mg/Kg-dry	1	6/30/2018 06:17 AM
Selenium	ND		0.32	mg/Kg-dry	1	6/30/2018 06:17 AM
Silver	ND		0.64	mg/Kg-dry	1	6/30/2018 06:17 AM
Zinc	50		0.32	mg/Kg-dry	1	6/30/2018 06:17 AM
SOLUBLE CATIONS FOR SAR						
Calcium	170		SW6020A		Prep: USDA Method 20B 7/3/18 10:22	Analyst: RH
Magnesium	84		5.0	mg/L	10	7/3/2018 12:12 PM
Sodium	300		2.0	mg/L	10	7/3/2018 12:12 PM
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	4.7		USDA H60 MET		Prep: USDA Method 20B 7/3/18 10:22	Analyst: RH
			0.010	none	1	7/3/2018
SEMI-VOLATILE ORGANIC COMPOUNDS						
Acenaphthene	ND		SW846 8270D		Prep: SW3546 6/29/18 14:15	Analyst: RM
Anthracene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Benzo(a)anthracene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Benzo(a)pyrene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Benzo(b)fluoranthene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Benzo(k)fluoranthene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Chrysene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Dibenzo(a,h)anthracene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Fluoranthene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM

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

ALS Group, USA

Date: 03-Jul-18

Client: Terra Energy Partners, LLC
Project: DOE 3-W-29 Land Farm
Sample ID: DOE 3-W-29 Land Farm
Collection Date: 6/28/2018 01:00 PM

Work Order: 18061979
Lab ID: 18061979-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Indeno(1,2,3-cd)pyrene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Naphthalene	0.055		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Pyrene	ND		0.042	mg/Kg-dry	1	6/29/2018 07:44 PM
Surr: 2-Fluorobiphenyl	52.7		20-140	%REC	1	6/29/2018 07:44 PM
Surr: 4-Terphenyl-d14	52.5		22-172	%REC	1	6/29/2018 07:44 PM
Surr: Nitrobenzene-d5	52.6		28-140	%REC	1	6/29/2018 07:44 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C	Prep: SW5035	6/29/18 14:13	Analyst: LSY
Benzene	ND		0.031	mg/Kg	1	6/29/2018 05:32 PM
Ethylbenzene	ND		0.031	mg/Kg	1	6/29/2018 05:32 PM
m,p-Xylene	0.10		0.061	mg/Kg	1	6/29/2018 05:32 PM
o-Xylene	0.17		0.031	mg/Kg	1	6/29/2018 05:32 PM
Toluene	ND		0.031	mg/Kg	1	6/29/2018 05:32 PM
Xylenes, Total	0.27		0.092	mg/Kg	1	6/29/2018 05:32 PM
Surr: 1,2-Dichloroethane-d4	107		70-130	%REC	1	6/29/2018 05:32 PM
Surr: 4-Bromofluorobenzene	102		70-130	%REC	1	6/29/2018 05:32 PM
Surr: Dibromofluoromethane	87.9		70-130	%REC	1	6/29/2018 05:32 PM
Surr: Toluene-d8	94.0		70-130	%REC	1	6/29/2018 05:32 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 MET	Prep: USDA Method 20B	7/3/18 10:22	Analyst: ED
Electrical Conductivity @ Saturation	2.8		0.10	mmhos/cm @2	20	7/3/2018 12:20 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	12		1.0	mg/Kg-dry	1	7/2/2018 06:15 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A	6/29/18 21:30	Analyst: MB
Chromium, Hexavalent	ND		1.0	mg/Kg-dry	1	7/2/2018 04:30 PM
MOISTURE			SW3550C			Analyst: NW
Moisture	1.1		0.050	% of sample	1	6/29/2018 05:15 PM
PH			SW9045D	Prep: EXTRACT	6/29/18 22:50	Analyst: NW
pH	8.01		0.100	s.u.	1	6/30/2018 08:00 PM

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120617** Instrument ID **GC8** Method: **SW8015C**

MBLK		Sample ID: DBLKS1-120617-120617				Units: mg/Kg		Analysis Date: 6/29/2018 07:16 PM		
Client ID:		Run ID: GC8_180629A			SeqNo: 5123477		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.017	0	3.33	0	60.6	34-130	0			

LCS		Sample ID: DLCSS1-120617-120617				Units: mg/Kg		Analysis Date: 6/29/2018 07:46 PM		
Client ID:		Run ID: GC8_180629A			SeqNo: 5123478		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	276.4	5.0	333	0	83	65-122	0			
<i>Surr: 4-Terphenyl-d14</i>	2.6	0	3.33	0	78.1	34-130	0			

MS		Sample ID: 18061945-01A MS					Units: mg/Kg		Analysis Date: 6/29/2018 08:44 PM		
Client ID:			Run ID: GC8_180629A			SeqNo: 5123480		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

DRO (C10-C28)	161.9	5.0	332.2	65.41	29.1	65-122	0			S
<i>Surr: 4-Terphenyl-d14</i>	1.912	0	3.322	0	57.6	34-130	0			

MSD		Sample ID: 18061945-01A MSD					Units: mg/Kg		Analysis Date: 6/29/2018 09:13 PM		
Client ID:			Run ID: GC8_180629A			SeqNo: 5123481		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

DRO (C10-C28)	132.2	5.0	330.8	65.41	20.2	65-122	161.9	20.2	30	S
<i>Surr: 4-Terphenyl-d14</i>	1.258	0	3.308	0	38	34-130	1.912	41.3	30	R

The following samples were analyzed in this batch:

18061979-01A

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120642** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-120642-120642				Units: µg/Kg-dry		Analysis Date: 6/30/2018 03:24 AM		
Client ID:		Run ID: GC9_180629B				SeqNo: 5122771		Prep Date: 6/29/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	5,000								
<i>Surr: Toluene-d8</i>	5396	0	5000		0	108	71-123	0		

LCS		Sample ID: LCS-120642-120642				Units: µg/Kg-dry		Analysis Date: 6/30/2018 02:23 AM		
Client ID:		Run ID: GC9_180629B				SeqNo: 5122770		Prep Date: 6/29/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	471900	5,000	500000		0	94.4	71-123	0		
<i>Surr: Toluene-d8</i>	5120	0	5000		0	102	71-123	0		

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120716** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-120716-120716				Units: mg/Kg		Analysis Date: 7/2/2018 02:16 PM		
Client ID:		Run ID: HG1_180702A				SeqNo: 5124009		Prep Date: 7/2/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.003083	0.020								J

LCS		Sample ID: LCS-120716-120716				Units: mg/Kg		Analysis Date: 7/2/2018 02:18 PM		
Client ID:		Run ID: HG1_180702A				SeqNo: 5124010		Prep Date: 7/2/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1617	0.020	0.1665	0	97.1	80-120	0			

MS		Sample ID: 18061978-01AMS				Units: mg/Kg		Analysis Date: 7/2/2018 02:26 PM		
Client ID:		Run ID: HG1_180702A				SeqNo: 5124013		Prep Date: 7/2/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1546	0.016	0.1343	0.02346	97.6	75-125	0			

MSD		Sample ID: 18061978-01AMSD				Units: mg/Kg		Analysis Date: 7/2/2018 02:28 PM		
Client ID:		Run ID: HG1_180702A				SeqNo: 5124014		Prep Date: 7/2/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1466	0.016	0.1337	0.02346	92.1	75-125	0.1546	5.3	35	

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120634** Instrument ID **ICP2** Method: **SW846 6010C**

Sample ID: MBLK-120634-120634				Units: mg/Kg			Analysis Date: 6/30/2018 03:28 AM			
Client ID:		Run ID: ICP2_180629A			SeqNo: 5121775		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	ND	0.50								
Chromium	0.0436	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	0.0605	0.25								J
Zinc	0.1225	0.50								J

LCS				Sample ID: LCS-120634-120634				Units: mg/Kg			Analysis Date: 6/30/2018 03:34 AM		
Client ID:			Run ID: ICP2_180629A				SeqNo: 5121776			Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Arsenic	4.93	0.25	5	0	98.6	80-120	0						
Barium	5.572	0.25	5	0	111	80-120	0						
Cadmium	5.152	0.50	5	0	103	80-120	0						
Chromium	5.492	0.25	5	0	110	80-120	0						
Copper	5.319	0.50	5	0	106	80-120	0						
Lead	5.088	0.25	5	0	102	80-120	0						
Nickel	5.272	0.25	5	0	105	80-120	0						
Selenium	5.002	0.50	5	0	100	80-120	0						
Silver	4.995	0.25	5	0	99.9	80-120	0						
Zinc	5.244	0.50	5	0	105	80-120	0						

MS				Sample ID: 18061903-01AMS			Units: mg/Kg		Analysis Date: 6/30/2018 04:36 AM		
Client ID:			Run ID: ICP2_180629A			SeqNo: 5121788		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	10.01	0.38	7.61	3.362	87.3	75-125	0				
Barium	1029	0.38	7.61	994	457	75-125	0			SO	
Cadmium	6.834	0.76	7.61	0.07677	88.8	75-125	0				
Chromium	21.39	0.38	7.61	12.96	111	75-125	0				
Copper	23.96	0.76	7.61	15.99	105	75-125	0				
Lead	13.6	0.38	7.61	8.036	73.1	75-125	0			S	
Nickel	19.9	0.38	7.61	13.82	80	75-125	0				
Selenium	6.697	0.76	7.61	0.2923	84.2	75-125	0				
Silver	7.496	0.38	7.61	-0.2269	101	75-125	0				
Zinc	53.67	0.76	7.61	46.61	92.8	75-125	0			O	

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120634** Instrument ID **ICP2** Method: **SW846 6010C**

MSD				Sample ID: 18061903-01AMSD			Units: mg/Kg		Analysis Date: 6/30/2018 04:43 AM		
Client ID:			Run ID: ICP2_180629A			SeqNo: 5121789		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	9.582	0.38	7.645	3.362	81.4	75-125	10.01	4.34	20		
Barium	812.6	0.38	7.645	994	-2370	75-125	1029	23.5	20	SRO	
Cadmium	6.705	0.76	7.645	0.07677	86.7	75-125	6.834	1.91	20		
Chromium	20.7	0.38	7.645	12.96	101	75-125	21.39	3.25	20		
Copper	23.8	0.76	7.645	15.99	102	75-125	23.96	0.704	20		
Lead	13.18	0.38	7.645	8.036	67.3	75-125	13.6	3.15	20	S	
Nickel	18.24	0.38	7.645	13.82	57.9	75-125	19.9	8.69	20	S	
Selenium	6.422	0.76	7.645	0.2923	80.2	75-125	6.697	4.19	20		
Silver	7.37	0.38	7.645	-0.2269	99.4	75-125	7.496	1.7	20		
Zinc	52.86	0.76	7.645	46.61	81.8	75-125	53.67	1.53	20	O	

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120763** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 18061979-01ADUP				Units: mg/L		Analysis Date: 7/3/2018 12:18 PM		
Client ID: DOE 3-W-29 Land Farm		Run ID: ICPMS3_180703A				SeqNo: 5126705		Prep Date: 7/3/2018		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	142.7	5.0	0	0	0	0-0	167	15.7		
Magnesium	77.99	2.0	0	0	0	0-0	83.7	7.07		
Sodium	286.5	2.0	0	0	0	0-0	300.3	4.71		

The following samples were analyzed in this batch:

18061979-01A

Batch ID: **120763** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 18061979-01ADUP				Units: none		Analysis Date: 7/3/2018		
Client ID: DOE 3-W-29 Land Farm		Run ID: SAR_180703A				SeqNo: 5126931		Prep Date: 7/3/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	4.79	0.010	0	0	0		4.735	1.16	50	

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120629** Instrument ID **SVMS6** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-120629-120629				Units: µg/Kg		Analysis Date: 6/29/2018 04:14 PM		
Client ID:		Run ID: SVMS6_180629A				SeqNo: 5124449		Prep Date: 6/29/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	42								
Anthracene	ND	42								
Benzo(a)anthracene	ND	42								
Benzo(a)pyrene	ND	42								
Benzo(b)fluoranthene	ND	42								
Benzo(k)fluoranthene	ND	42								
Chrysene	ND	42								
Dibenzo(a,h)anthracene	ND	42								
Fluoranthene	ND	42								
Fluorene	ND	42								
Indeno(1,2,3-cd)pyrene	ND	42								
Naphthalene	ND	42								
Pyrene	ND	42								
<i>Surr: 2-Fluorobiphenyl</i>	3103	0	3333	0	93.1	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	3498	0	3333	0	105	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	3504	0	3333	0	105	28-140	0			

LCS		Sample ID: SLCSS1-120629-120629				Units: µg/Kg		Analysis Date: 6/29/2018 04:29 PM		
Client ID:		Run ID: SVMS6_180629A				SeqNo: 5124450		Prep Date: 6/29/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1147	42	1333	0	86	40-140	0			
Anthracene	1442	42	1333	0	108	40-140	0			
Benzo(a)anthracene	1466	42	1333	0	110	40-140	0			
Benzo(a)pyrene	1408	42	1333	0	106	40-140	0			
Benzo(b)fluoranthene	1387	42	1333	0	104	40-140	0			
Benzo(k)fluoranthene	1320	42	1333	0	99	40-140	0			
Chrysene	1232	42	1333	0	92.4	40-140	0			
Dibenzo(a,h)anthracene	1251	42	1333	0	93.8	40-140	0			
Fluoranthene	1211	42	1333	0	90.8	40-140	0			
Fluorene	1254	42	1333	0	94.1	40-140	0			
Indeno(1,2,3-cd)pyrene	1547	42	1333	0	116	40-140	0			
Naphthalene	980.1	42	1333	0	73.5	40-140	0			
Pyrene	1289	42	1333	0	96.7	40-140	0			
<i>Surr: 2-Fluorobiphenyl</i>	2736	0	3333	0	82.1	20-140	0			
<i>Surr: 4-Terphenyl-d14</i>	2823	0	3333	0	84.7	22-172	0			
<i>Surr: Nitrobenzene-d5</i>	2673	0	3333	0	80.2	28-140	0			

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120629** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 1806807-10B MS			Units: µg/Kg		Analysis Date: 6/29/2018 04:44 PM	
Client ID:				Run ID: SVMS6_180629A			SeqNo: 5124451		Prep Date: 6/29/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1344	41	1326	0	101	40-140	0			H
Anthracene	1686	41	1326	0	127	40-140	0			H
Benzo(a)anthracene	1668	41	1326	0	126	40-140	0			H
Benzo(a)pyrene	1594	41	1326	0	120	40-140	0			H
Benzo(b)fluoranthene	1537	41	1326	0	116	40-140	0			H
Benzo(k)fluoranthene	1489	41	1326	0	112	40-140	0			H
Chrysene	1343	41	1326	0	101	40-140	0			H
Dibenzo(a,h)anthracene	1527	41	1326	0	115	40-140	0			H
Fluoranthene	1407	41	1326	0	106	40-140	0			H
Fluorene	1445	41	1326	0	109	40-140	0			H
Indeno(1,2,3-cd)pyrene	1516	41	1326	0	114	40-140	0			H
Naphthalene	1307	41	1326	0	98.6	40-140	0			H
Pyrene	1487	41	1326	0	112	40-140	0			H
Surr: 2-Fluorobiphenyl	3496	0	3315	0	105	20-140	0			
Surr: 4-Terphenyl-d14	3739	0	3315	0	113	22-172	0			
Surr: Nitrobenzene-d5	4498	0	3315	0	136	28-140	0			

MSD				Sample ID: 1806807-10B MSD			Units: µg/Kg		Analysis Date: 6/29/2018 04:59 PM	
Client ID:				Run ID: SVMS6_180629A			SeqNo: 5124452		Prep Date: 6/29/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1061	41	1295	0	81.9	40-140	1344	23.5	30	H
Anthracene	1392	41	1295	0	107	40-140	1686	19.1	30	H
Benzo(a)anthracene	1414	41	1295	0	109	40-140	1668	16.5	30	H
Benzo(a)pyrene	1317	41	1295	0	102	40-140	1594	19.1	30	H
Benzo(b)fluoranthene	1263	41	1295	0	97.5	40-140	1537	19.6	30	H
Benzo(k)fluoranthene	1303	41	1295	0	101	40-140	1489	13.3	30	H
Chrysene	1190	41	1295	0	91.8	40-140	1343	12.1	30	H
Dibenzo(a,h)anthracene	1304	41	1295	0	101	40-140	1527	15.8	30	H
Fluoranthene	1200	41	1295	0	92.7	40-140	1407	15.8	30	H
Fluorene	1198	41	1295	0	92.5	40-140	1445	18.7	30	H
Indeno(1,2,3-cd)pyrene	1405	41	1295	0	108	40-140	1516	7.64	30	H
Naphthalene	1080	41	1295	0	83.3	40-140	1307	19.1	30	H
Pyrene	1237	41	1295	0	95.5	40-140	1487	18.3	30	H
Surr: 2-Fluorobiphenyl	2780	0	3239	0	85.8	20-140	3496	22.8	0	
Surr: 4-Terphenyl-d14	3046	0	3239	0	94	22-172	3739	20.4	0	
Surr: Nitrobenzene-d5	4202	0	3239	0	130	28-140	4498	6.82	0	

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
 Work Order: 18061979
 Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: 120645 Instrument ID VMS9 Method: SW8260C

MBLK				Sample ID: MBLK-120645-120645				Units: µg/Kg-dry			Analysis Date: 6/29/2018 03:41 PM		
Client ID:			Run ID: VMS9_180629A				SeqNo: 5123322			Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Benzene	ND	30											
Ethylbenzene	ND	30											
m,p-Xylene	ND	60											
o-Xylene	ND	30											
Toluene	ND	30											
Xylenes, Total	ND	90											
Surr: 1,2-Dichloroethane-d4	1083	0	1000	0	108	70-130	0						
Surr: 4-Bromofluorobenzene	961	0	1000	0	96.1	70-130	0						
Surr: Dibromofluoromethane	939.5	0	1000	0	94	70-130	0						
Surr: Toluene-d8	977	0	1000	0	97.7	70-130	0						

LCS				Sample ID: LCS-120645-120645				Units: µg/Kg-dry			Analysis Date: 6/29/2018 02:55 PM			
Client ID:				Run ID: VMS9_180629A				SeqNo: 5123321			Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	1110	30	1000	0	111	75-125	0							
Ethylbenzene	1032	30	1000	0	103	75-125	0							
m,p-Xylene	1988	60	2000	0	99.4	80-125	0							
o-Xylene	1037	30	1000	0	104	75-125	0							
Toluene	1022	30	1000	0	102	70-125	0							
Xylenes, Total	3024	90	3000	0	101	75-125	0							
Surr: 1,2-Dichloroethane-d4	1040	0	1000	0	104	70-130	0							
Surr: 4-Bromofluorobenzene	1021	0	1000	0	102	70-130	0							
Surr: Dibromofluoromethane	1023	0	1000	0	102	70-130	0							
Surr: Toluene-d8	963	0	1000	0	96.3	70-130	0							

MS				Sample ID: 18061977-01A MS			Units: µg/Kg-dry		Analysis Date: 6/29/2018 09:53 PM		
Client ID:			Run ID: VMS9_180629A			SeqNo: 5123343		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1368	38	1273	61.73	103	75-125		0			
Ethylbenzene	1276	38	1273	8.909	99.6	75-125		0			
m,p-Xylene	2381	76	2545	50.91	91.6	80-125		0			
o-Xylene	1254	38	1273	0	98.5	75-125		0			
Toluene	1222	38	1273	122.8	86.4	70-125		0			
Xylenes, Total	3635	110	3818	51	93.9	75-125		0			
Surr: 1,2-Dichloroethane-d4	1364	0	1273	0	107	70-130		0			
Surr: 4-Bromofluorobenzene	1289	0	1273	0	101	70-130		0			
Surr: Dibromofluoromethane	1234	0	1273	0	97	70-130		0			
Surr: Toluene-d8	1210	0	1273	0	95.1	70-130		0			

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120645** Instrument ID **VMS9** Method: **SW8260C**

MSD				Sample ID: 18061977-01A MSD			Units: µg/Kg-dry		Analysis Date: 6/29/2018 10:08 PM		
Client ID:			Run ID: VMS9_180629A			SeqNo: 5123344		Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1377	38	1273	61.73	103	75-125	1368	0.649	30		
Ethylbenzene	1298	38	1273	8.909	101	75-125	1276	1.68	30		
m,p-Xylene	2445	76	2545	50.91	94	80-125	2381	2.64	30		
o-Xylene	1308	38	1273	0	103	75-125	1254	4.22	30		
Toluene	1292	38	1273	122.8	91.8	70-125	1222	5.52	30		
Xylenes, Total	3753	110	3818	51	96.9	75-125	3635	3.19	30		
Surr: 1,2-Dichloroethane-d4	1312	0	1273	0	103	70-130	1364	3.95	30		
Surr: 4-Bromofluorobenzene	1317	0	1273	0	103	70-130	1289	2.15	30		
Surr: Dibromofluoromethane	1217	0	1273	0	95.6	70-130	1234	1.4	30		
Surr: Toluene-d8	1240	0	1273	0	97.4	70-130	1210	2.44	30		

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120664** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-120664-120664				Units: s.u.			Analysis Date: 6/30/2018 08:00 PM										
Client ID:				Run ID: WETCHEM_180630I				SeqNo: 5121990			Prep Date: 6/29/2018		DF: 1								
Analyte		Result		PQL		SPK Val		SPK Ref Value		%REC		Control Limit		RPD Ref Value		%RPD		RPD Limit		Qual	

pH 3.94 0.10 4 0 98.5 90-110 0

DUP		Sample ID: 18061977-01A DUP					Units: s.u.		Analysis Date: 6/30/2018 08:00 PM		
Client ID:		Run ID: WETCHEM_180630I			SeqNo: 5121994		Prep Date: 6/29/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH 8.03 0.10 0 0 0 0-0 7.57 5.9 20

DUP				Sample ID: 18062032-01A DUP				Units: s.u.			Analysis Date: 6/30/2018 08:00 PM			
Client ID:				Run ID: WETCHEM_180630I				SeqNo: 5122000			Prep Date: 6/29/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH 6.9 0.10 0 0 0 0-0 6.9 0 20

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120673** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-120673-120673				Units: mg/Kg		Analysis Date: 7/2/2018 04:30 PM		
Client ID:		Run ID: WETCHEM_180702K		SeqNo: 5124493		Prep Date: 6/29/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

LCS		Sample ID: LCS-120673-120673				Units: mg/Kg		Analysis Date: 7/2/2018 04:30 PM		
Client ID:		Run ID: WETCHEM_180702K		SeqNo: 5124492		Prep Date: 6/29/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.22 1.0 5 0 84.4 80-120 0

MS		Sample ID: 18061977-01A MS				Units: mg/Kg		Analysis Date: 7/2/2018 04:30 PM		
Client ID:		Run ID: WETCHEM_180702K		SeqNo: 5124486		Prep Date: 6/29/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.753 1.0 5.155 0.08571 51.7 75-125 0 S

MS		Sample ID: 18061977-01A MSI				Units: mg/Kg		Analysis Date: 7/2/2018 04:30 PM		
Client ID:		Run ID: WETCHEM_180702K		SeqNo: 5124488		Prep Date: 6/29/2018		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2804 100 2720 0.08571 103 75-125 0

MSD		Sample ID: 18061977-01A MSD				Units: mg/Kg		Analysis Date: 7/2/2018 04:30 PM		
Client ID:		Run ID: WETCHEM_180702K		SeqNo: 5124487		Prep Date: 6/29/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2.781 1.0 5.208 0.08571 51.8 75-125 2.753 1.04 20 S

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **120763** Instrument ID **Titration 1** Method: **USDA H60 Metho**

DUP		Sample ID: 18061979-01ADUP				Units: mmhos/cm @25°		Analysis Date: 7/3/2018 12:20 PM		
Client ID: DOE 3-W-29 Land Farm			Run ID: TITRATOR 1_180703C			SeqNo: 5126282		Prep Date: 7/3/2018		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	2.6	0.10	0	0	0		2.795	7.25	50	

The following samples were analyzed in this batch:

18061979-01A

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

Client: Terra Energy Partners, LLC
Work Order: 18061979
Project: DOE 3-W-29 Land Farm

QC BATCH REPORT

Batch ID: **R239257** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R239257					Units: % of sample		Analysis Date: 6/29/2018 05:15 PM		
Client ID:			Run ID: MOIST_180629B			SeqNo: 5121953		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

LCS		Sample ID: LCS-R239257					Units: % of sample		Analysis Date: 6/29/2018 05:15 PM		
Client ID:			Run ID: MOIST_180629B			SeqNo: 5121952		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: 18061936-02A DUP				Units: % of sample			Analysis Date: 6/29/2018 05:15 PM			
Client ID:				Run ID: MOIST_180629B				SeqNo: 5121934			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 20.23 0.050 0 0 0 0-0 20.73 2.44 10

DUP				Sample ID: 18061936-03A DUP				Units: % of sample			Analysis Date: 6/29/2018 05:15 PM			
Client ID:				Run ID: MOIST_180629B				SeqNo: 5121936			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 15.51 0.050 0 0 0 0-0 15.17 2.22 10

The following samples were analyzed in this batch:

18061979-01A

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



ALS Laboratory Group

HOLLAND, Michigan 49424

Chain-of-Custody

Form 202r8

WORKORDER #

18061979

PROJECT NAME		DOE 3-W-29 land farm		SAMPLER		Mike Gardner		DATE		6/28/2018		PAGE		1 of 1	
PROJECT No.				SITE ID		DOE 3-W-29 land farm		TURNAROUND		RUSH - ASAP		DISPOSAL		By Lab or Return to Client	
COMPANY NAME		TEP Rocky Mountain LLC		BILL TO COMPANY		TEP Rocky Mountain LLC		COGCC 910-1 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		Parachure CO 81635									
PHONE				PHONE		970-263-2760									
FAX				FAX											
E-MAIL		mgardner@terraep.com		E-MAIL		mgardner@terraep.com; tgose@terraep.com									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC								
1	DOE 3-W-29 land farm	soil	6/28/2018	1:00 p.m.	2		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)
Charge to DOE 3-W-29 pad LOE SR2 4.0-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	6/28/2018	
RECEIVED BY <i>[Signature]</i>		6-28-18	1830
RELINQUISHED BY <i>[Signature]</i>		6-28-18	1830
RECEIVED BY <i>[Signature]</i>	Diana F. Shea	6/29/18	0945
RELINQUISHED BY			
RECEIVED BY			

Sample Receipt Checklist

Client Name: **TERRAENERGY**

Date/Time Received: **29-Jun-18 09:45**

Work Order: **18061979**

Received by: **DS**

Checklist completed by Diane Shaw 29-Jun-18
eSignature Date

Reviewed by: Chad Whelton 02-Jul-18
eSignature 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>4.0/4.0 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/29/2018 11:38:03 AM</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: