ANALYTICAL REPORT

February 09, 2017

WPX Energy

Sample Delivery Group:	L887433
Samples Received:	02/02/2017
Project Number:	RMV 100-28 TANK LEAK
Description:	Terra Energy - RMV 100-28
Site:	TERRA RMV 100-28 TANK LEAK
Report To:	Mike Gardner 1058 County Road 215 Parachute, CO 81635

Entire Report Reviewed By:

Shane Gambill
Technical Service Representative

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BOTTOM 2' L887433-01 Solid

Collected by: Kris Rowe
Collected date/time: 02/01/17 11:06
Received date/time: 02/02/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG948977	1	02/03/17 13:38	02/04/17 01:41	LTB
Calculated Results	WG949104	1	02/03/17 10:22	02/06/17 17:24	ST
Mercury by Method 7471A	WG949041	1	02/02/17 18:54	02/03/17 09:33	TRB
Metals (ICP) by Method 6010B	WG948977	1	02/03/17 13:38	02/04/17 01:41	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG950856	1	02/09/17 12:24	02/09/17 16:31	CLG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG950850	1	02/09/17 12:23	02/09/17 14:11	DMG
Volatile Organic Compounds (GC) by Method 8015/8021	WG949639	1	02/03/17 08:48	02/06/17 18:06	JHH
Wet Chemistry by Method 3060A/7196A	WG949038	1	02/02/17 21:41	02/03/17 13:39	MHM
Wet Chemistry by Method 9045D	WG949375	1	02/06/17 11:31	02/06/17 12:00	MCG
Wet Chemistry by Method 9050AMod	WG950589	1	02/09/17 09:55	02/09/17 09:55	KK

BKGD 01 L887433-02 Solid

Collected by: Kris Rowe
Collected date/time: 02/01/17 11:34
Received date/time: 02/02/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948977	1	02/03/17 13:38	02/04/17 02:16	LTB

BKGD 02 L887433-03 Solid

Collected by: Kris Rowe
Collected date/time: 02/01/17 11:38
Received date/time: 02/02/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG948977	1	02/03/17 13:38	02/04/17 02:19	LTB

BKGD 03 L887433-04 Solid

Collected by: Kris Rowe
Collected date/time: 02/01/17 11:41
Received date/time: 02/02/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG949104	1	02/03/17 10:22	02/06/17 17:27	ST
Metals (ICP) by Method 6010B	WG948977	1	02/03/17 13:38	02/04/17 02:22	LTB
Wet Chemistry by Method 9045D	WG949375	1	02/06/17 11:31	02/06/17 12:00	MCG
Wet Chemistry by Method 9050AMod	WG950589	1	02/09/17 09:55	02/09/17 09:55	KK

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

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L887433-01	BOTTOM 2'	9045D
L887433-04	BKGD 03	9045D

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.16		1	02/06/2017 17:24	WG949104

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	7.29		2.00	1	02/04/2017 01:41	WG948977

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	02/03/2017 13:39	WG949038

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.87		1	02/06/2017 12:00	WG949375

Sample Narrative:

9045D L887433-01 WG949375: 7.87 at 19.3c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	1100		1	02/09/2017 09:55	WG950589

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	02/03/2017 09:33	WG949041

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.58		2.00	1	02/04/2017 01:41	WG948977
Barium	157		0.500	1	02/04/2017 01:41	WG948977
Cadmium	ND		0.500	1	02/04/2017 01:41	WG948977
Chromium	7.29		1.00	1	02/04/2017 01:41	WG948977
Copper	8.28		2.00	1	02/04/2017 01:41	WG948977
Lead	6.52		0.500	1	02/04/2017 01:41	WG948977
Nickel	8.30		2.00	1	02/04/2017 01:41	WG948977
Selenium	ND		2.00	1	02/04/2017 01:41	WG948977
Silver	ND		1.00	1	02/04/2017 01:41	WG948977
Zinc	32.2	O1	5.00	1	02/04/2017 01:41	WG948977

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0688		0.000500	1	02/06/2017 18:06	WG949639
Toluene	0.122		0.00500	1	02/06/2017 18:06	WG949639
Ethylbenzene	0.00599		0.000500	1	02/06/2017 18:06	WG949639
Total Xylene	0.0707		0.00150	1	02/06/2017 18:06	WG949639
TPH (GC/FID) Low Fraction	0.908		0.100	1	02/06/2017 18:06	WG949639

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*103*		*77.0-120*		*02/06/2017 18:06*	WG949639
(S) a,a,a-Trifluorotoluene(PID)	*105*		*75.0-128*		*02/06/2017 18:06*	WG949639

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	7.85		4.00	1	02/09/2017 14:11	WG950850
(S) o-Terphenyl	*67.3*		*18.0-148*		*02/09/2017 14:11*	WG950850

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	02/09/2017 16:31	WG950856
Acenaphthene	ND		0.00600	1	02/09/2017 16:31	WG950856
Acenaphthylene	ND		0.00600	1	02/09/2017 16:31	WG950856
Benzo(a)anthracene	ND		0.00600	1	02/09/2017 16:31	WG950856
Benzo(a)pyrene	ND		0.00600	1	02/09/2017 16:31	WG950856
Benzo(b)fluoranthene	ND		0.00600	1	02/09/2017 16:31	WG950856
Benzo(g,h,i)perylene	ND		0.00600	1	02/09/2017 16:31	WG950856
Benzo(k)fluoranthene	ND		0.00600	1	02/09/2017 16:31	WG950856
Chrysene	ND		0.00600	1	02/09/2017 16:31	WG950856
Dibenz(a,h)anthracene	ND		0.00600	1	02/09/2017 16:31	WG950856
Fluoranthene	ND		0.00600	1	02/09/2017 16:31	WG950856
Fluorene	ND		0.00600	1	02/09/2017 16:31	WG950856
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	02/09/2017 16:31	WG950856
Naphthalene	ND		0.0200	1	02/09/2017 16:31	WG950856
Phenanthrene	ND		0.00600	1	02/09/2017 16:31	WG950856
Pyrene	ND		0.00600	1	02/09/2017 16:31	WG950856
1-Methylnaphthalene	ND		0.0200	1	02/09/2017 16:31	WG950856
2-Methylnaphthalene	ND		0.0200	1	02/09/2017 16:31	WG950856
2-Chloronaphthalene	ND		0.0200	1	02/09/2017 16:31	WG950856
(S) p-Terphenyl-d14	*75.3*		*23.0-120*		*02/09/2017 16:31*	WG950856
(S) Nitrobenzene-d5	*70.2*		*14.0-149*		*02/09/2017 16:31*	WG950856
(S) 2-Fluorobiphenyl	*77.1*		*34.0-125*		*02/09/2017 16:31*	WG950856

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.71		2.00	1	02/04/2017 02:16	WG948977

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	6.05		2.00	1	02/04/2017 02:19	WG948977

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0729		1	02/06/2017 17:27	WG949104

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.55		1	02/06/2017 12:00	WG949375

Sample Narrative:

9045D L887433-04 WG949375: 7.55 at 19.2c

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	umhos/cm				
Specific Conductance	42.8		1	02/09/2017 09:55	WG950589

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.23		2.00	1	02/04/2017 02:22	WG948977

Method Blank (MB)

(MB) R3194717-1 02/03/17 13:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.64	2.00

L887240-02 Original Sample (OS) • Duplicate (DUP)

(OS) L887240-02 02/03/17 13:35 • (DUP) R3194717-4 02/03/17 13:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	1.80	1	0		20

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

(LCS) R3194717-2 02/03/17 13:32 • (LCSD) R3194717-3 02/03/17 13:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chromium,Hexavalent	56.9	58.8	60.0	103	105	80-120			2	20

L887410-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887410-01 02/03/17 13:36 • (MS) R3194717-5 02/03/17 13:38 • (MSD) R3194717-6 02/03/17 13:38

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	18.7	18.4	89	87	1	75-125			2	20

L887191-01 Original Sample (OS) • Duplicate (DUP)

(OS) L887191-01 02/06/17 12:00 • (DUP) WG949375-3 02/06/17 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.38	7.37	1	0.136		1

L887433-04 Original Sample (OS) • Duplicate (DUP)

(OS) L887433-04 02/06/17 12:00 • (DUP) WG949375-4 02/06/17 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.55	7.59	1	0.528		1

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

(LCS) WG949375-1 02/06/17 12:00 • (LCSD) WG949375-2 02/06/17 12:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.07	6.11	6.11	101	101	98.4-102			0.000	1

Method Blank (MB)

(MB) WG950589-1 02/09/17 09:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	3.53			

L887433-01 Original Sample (OS) • Duplicate (DUP)

(OS) L887433-01 02/09/17 09:55 • (DUP) WG950589-4 02/09/17 09:55

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	1100	1060	1	3.99		20

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

(LCS) WG950589-2 02/09/17 09:55 • (LCSD) WG950589-3 02/09/17 09:55

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	542	535	537	98.7	99.1	90.0-110			0.373	20

Method Blank (MB)

(MB) R3194667-1 02/03/17 09:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0028	0.0200

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

(LCS) R3194667-2 02/03/17 09:02 • (LCSD) R3194667-3 02/03/17 09:05

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 %
Mercury	0.300	0.270	0.270	90	90	80-120			0	20

L887443-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887443-07 02/03/17 09:08 • (MS) R3194667-4 02/03/17 09:10 • (MSD) R3194667-5 02/03/17 09:13

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.320	U	0.266	0.302	83	94	1	75-125			13	20

Method Blank (MB)

(MB) R3194866-1 02/04/17 01:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.65	2.00
Barium	U		0.17	0.500
Cadmium	U		0.07	0.500
Chromium	U		0.14	1.00
Copper	U		0.53	2.00
Lead	U		0.19	0.500
Nickel	U		0.49	2.00
Selenium	U		0.74	2.00
Silver	U		0.28	1.00
Zinc	U		0.59	5.00

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

(LCS) R3194866-2 02/04/17 01:36 • (LCSD) R3194866-3 02/04/17 01:38

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	103	102	103	102	80-120			1	20
Barium	100	106	104	106	104	80-120			2	20
Cadmium	100	105	102	105	102	80-120			2	20
Chromium	100	103	101	103	101	80-120			2	20
Copper	100	106	103	106	103	80-120			2	20
Lead	100	104	102	104	102	80-120			2	20
Nickel	100	104	103	104	103	80-120			2	20
Selenium	100	104	102	104	102	80-120			2	20
Silver	20.0	19.1	18.7	95	93	80-120			2	20
Zinc	100	102	100	102	100	80-120			2	20

L887433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887433-01 02/04/17 01:41 • (MS) R3194866-6 02/04/17 01:49 • (MSD) R3194866-7 02/04/17 01:51

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	4.58	110	105	105	101	1	75-125			4	20
Barium	100	157	282	281	124	124	1	75-125			0	20
Cadmium	100	ND	103	101	103	100	1	75-125			3	20
Chromium	100	7.29	106	103	99	96	1	75-125			3	20
Copper	100	8.28	115	111	107	103	1	75-125			4	20
Lead	100	6.52	111	107	105	101	1	75-125			4	20
Nickel	100	8.30	114	110	106	102	1	75-125			4	20

L887433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887433-01 02/04/17 01:41 • (MS) R3194866-6 02/04/17 01:49 • (MSD) R3194866-7 02/04/17 01:51

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 %
Selenium	100	ND	104	99.9	104	100	1	75-125			4	20
Silver	20.0	ND	19.1	18.6	95	93	1	75-125			2	20
Zinc	100	32.2	126	128	94	96	1	75-125			1	20

Method Blank (MB)

(MB) R3195344-5 02/06/17 13:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	0.000380	J	0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*110*			*75.0-128*

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

(LCS) R3195344-1 02/06/17 11:19 • (LCSD) R3195344-2 02/06/17 11:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0506	0.0515	101	103	71.0-121			1.79	20
Toluene	0.0500	0.0500	0.0503	100	101	72.0-120			0.550	20
Ethylbenzene	0.0500	0.0525	0.0530	105	106	76.0-121			1.07	20
Total Xylene	0.150	0.157	0.160	105	107	75.0-124			1.83	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*108*	*108*	*75.0-128*				

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

(LCS) R3195344-3 02/06/17 12:07 • (LCSD) R3195344-4 02/06/17 12:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.07	5.02	92.1	91.2	70.0-136			0.970	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*105*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*120*	*120*	*75.0-128*				

L887539-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887539-01 02/06/17 15:42 • (MS) R3195344-6 02/06/17 16:06 • (MSD) R3195344-7 02/06/17 16:30

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	0.428	0.445	90.0	93.7	9.5	10.0-146			3.99	29
Toluene	0.0500	ND	0.419	0.433	87.7	90.8	9.5	10.0-143			3.48	30
Ethylbenzene	0.0500	ND	0.444	0.463	93.5	97.6	9.5	10.0-147			4.27	31
Total Xylene	0.150	ND	1.35	1.41	95.0	99.0	9.5	10.0-149			4.12	30
(S) a,a,a-Trifluorotoluene(FID)					*105*	*105*		*77.0-120*				

L887539-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887539-01 02/06/17 15:42 • (MS) R3195344-6 02/06/17 16:06 • (MSD) R3195344-7 02/06/17 16:30

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 %
(S) a,a,a-Trifluorotoluene(PID)					*108*	*109*		*75.0-128*				

L887539-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887539-01 02/08/17 14:30 • (MS) R3195726-1 02/08/17 15:43 • (MSD) R3195726-2 02/08/17 16:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	8.46	8.40	16.2	16.1	9.5	10.0-147			0.710	30
(S) a,a,a-Trifluorotoluene(FID)					*108*	*108*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*111*	*111*		*75.0-128*				

Method Blank (MB)

(MB) R3195866-1 02/09/17 13:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*55.9*			*18.0-148*

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

(LCS) R3195866-2 02/09/17 13:49 • (LCSD) R3195866-3 02/09/17 14:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) High Fraction	60.0	42.7	49.0	71.2	81.7	50.0-150			13.8	20
(S) o-Terphenyl				*73.9*	*88.0*	*18.0-148*				

L887433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887433-01 02/09/17 14:11 • (MS) R3195866-4 02/09/17 14:22 • (MSD) R3195866-5 02/09/17 14:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) High Fraction	60.0	7.85	56.4	62.7	80.9	91.5	1	50.0-150			10.6	20
(S) o-Terphenyl					*83.8*	*82.3*		*18.0-148*				

Method Blank (MB)

(MB) R3195915-3 02/09/17 16:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) p-Terphenyl-d14	*79.2*			*23.0-120*
(S) Nitrobenzene-d5	*73.7*			*14.0-149*
(S) 2-Fluorobiphenyl	*76.3*			*34.0-125*

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

(LCS) R3195915-1 02/09/17 15:25 • (LCSD) R3195915-2 02/09/17 15:47

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 %
Anthracene	0.0800	0.0619	0.0623	77.3	77.8	50.0-125			0.610	20
Acenaphthene	0.0800	0.0660	0.0640	82.5	80.1	52.0-120			3.02	20
Acenaphthylene	0.0800	0.0673	0.0632	84.1	79.0	51.0-120			6.26	20
Benzo(a)anthracene	0.0800	0.0609	0.0577	76.1	72.2	46.0-121			5.33	20
Benzo(a)pyrene	0.0800	0.0548	0.0528	68.5	66.0	42.0-121			3.63	20
Benzo(b)fluoranthene	0.0800	0.0665	0.0667	83.1	83.4	42.0-123			0.380	20
Benzo(g,h,i)perylene	0.0800	0.0656	0.0657	82.0	82.1	43.0-128			0.190	20
Benzo(k)fluoranthene	0.0800	0.0628	0.0619	78.6	77.4	45.0-128			1.43	20
Chrysene	0.0800	0.0652	0.0616	81.5	77.1	48.0-127			5.64	20
Dibenz(a,h)anthracene	0.0800	0.0688	0.0673	85.9	84.1	43.0-132			2.16	20
Fluoranthene	0.0800	0.0653	0.0666	81.6	83.2	49.0-129			1.96	20

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

(LCS) R3195915-1 02/09/17 15:25 • (LCSD) R3195915-2 02/09/17 15:47

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 %
Fluorene	0.0800	0.0727	0.0700	90.8	87.4	50.0-120			3.81	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0670	0.0668	83.7	83.5	44.0-131			0.270	20
Naphthalene	0.0800	0.0625	0.0583	78.1	72.9	50.0-120			6.88	20
Phenanthrene	0.0800	0.0641	0.0649	80.1	81.1	48.0-120			1.26	20
Pyrene	0.0800	0.0633	0.0602	79.1	75.2	48.0-135			5.07	20
1-Methylnaphthalene	0.0800	0.0680	0.0639	85.0	79.8	52.0-122			6.30	20
2-Methylnaphthalene	0.0800	0.0658	0.0619	82.2	77.3	52.0-120			6.09	20
2-Chloronaphthalene	0.0800	0.0682	0.0639	85.3	79.9	50.0-120			6.50	20
(S) p-Terphenyl-d14				*80.0*	*77.9*	*23.0-120*				
(S) Nitrobenzene-d5				*79.8*	*81.1*	*14.0-149*				
(S) 2-Fluorobiphenyl				*87.5*	*87.1*	*34.0-125*				

L887433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L887433-01 02/09/17 16:31 • (MS) R3195915-4 02/09/17 16:53 • (MSD) R3195915-5 02/09/17 17:15

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 %
Anthracene	0.0800	ND	0.0555	0.0547	69.4	68.3	1	20.0-136			1.55	24
Acenaphthene	0.0800	ND	0.0570	0.0550	71.2	68.7	1	29.0-124			3.55	20
Acenaphthylene	0.0800	ND	0.0584	0.0568	73.0	71.0	1	35.0-120			2.81	20
Benzo(a)anthracene	0.0800	ND	0.0516	0.0519	64.5	64.9	1	13.0-132			0.580	27
Benzo(a)pyrene	0.0800	ND	0.0523	0.0526	65.3	65.7	1	14.0-138			0.600	27
Benzo(b)fluoranthene	0.0800	ND	0.0517	0.0518	63.7	63.8	1	10.0-129			0.120	31
Benzo(g,h,i)perylene	0.0800	ND	0.0540	0.0539	65.7	65.6	1	10.0-133			0.0900	30
Benzo(k)fluoranthene	0.0800	ND	0.0510	0.0512	63.8	64.0	1	15.0-131			0.360	27
Chrysene	0.0800	ND	0.0533	0.0525	65.9	64.8	1	15.0-137			1.54	25
Dibenz(a,h)anthracene	0.0800	ND	0.0561	0.0573	70.1	71.6	1	15.0-132			2.09	27
Fluoranthene	0.0800	ND	0.0577	0.0571	71.0	70.3	1	13.0-139			0.970	28
Fluorene	0.0800	ND	0.0592	0.0580	73.0	71.6	1	27.0-122			1.97	22
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0526	0.0534	65.8	66.7	1	11.0-133			1.44	29
Naphthalene	0.0800	ND	0.0602	0.0596	71.8	71.1	1	18.0-136			0.940	21
Phenanthrene	0.0800	ND	0.0564	0.0553	67.9	66.6	1	15.0-133			1.95	25
Pyrene	0.0800	ND	0.0524	0.0521	63.8	63.5	1	11.0-146			0.430	29
1-Methylnaphthalene	0.0800	ND	0.0644	0.0636	80.5	79.5	1	24.0-137			1.17	22
2-Methylnaphthalene	0.0800	ND	0.0629	0.0619	74.3	73.1	1	23.0-136			1.53	22
2-Chloronaphthalene	0.0800	ND	0.0590	0.0575	73.8	71.9	1	36.0-120			2.61	20
(S) p-Terphenyl-d14					*75.2*	*71.6*		*23.0-120*				
(S) Nitrobenzene-d5					*79.6*	*76.2*		*14.0-149*				
(S) 2-Fluorobiphenyl					*80.5*	*75.3*		*34.0-125*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
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 [1 4]	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		

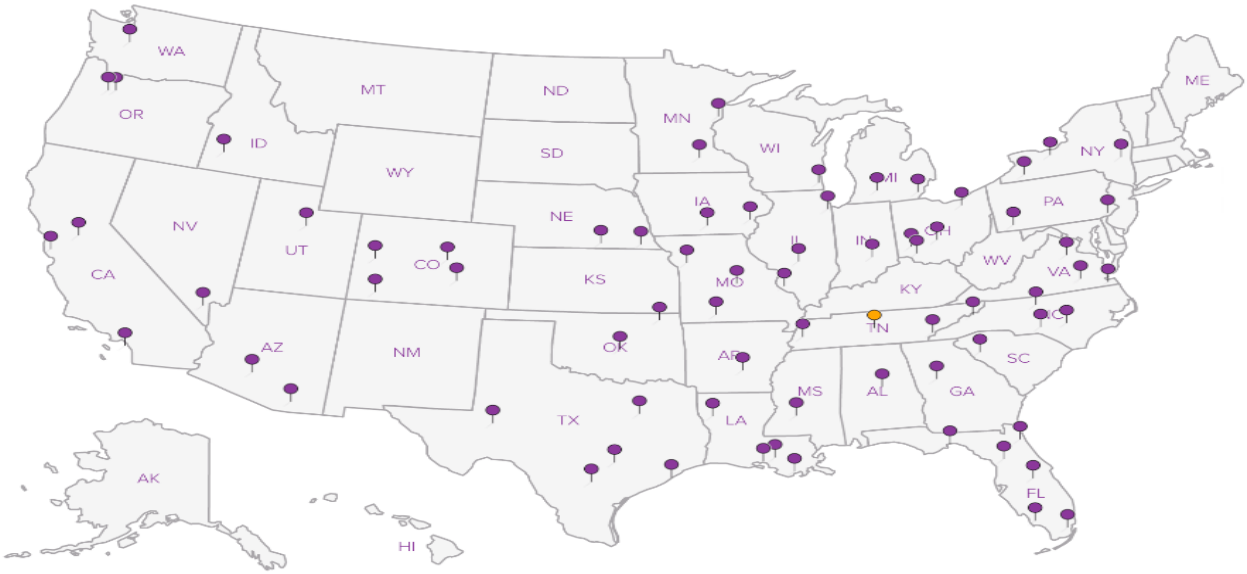
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address:
HRL Compliance Solutions
2385 F ½ Road
Grand Junction, CO 81505

Billing Information:
Terra Energy
1058 County Road 215
Parachute CO 81650
Quote #: WILPCO072016S

Report to: Kris Rowe & Mike Gardner

Email To: **KROWE@HRLCOMP.COM**

Project Description: Terra Energy - RMV 100-28

City/State Collected: **Colorado**

Phone: **970-243-3271**
Fax: **970-243-3280**

Client Project # RMV 100-28 Tank Leak

Lab Project #

Collected by (print): Casey Richardson

Site/Facility ID # **Terra RMV 100-28 Tank Le**

P.O. #

Collected by (signature): CRJ

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: 2/9/17

Email? ___No ✓Yes
FAX? ✓No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	DRO	GRO	PAH	910-1 Metals	SAR / EC / pH	Arsenic				Rem./Contaminant	Sample # (lab only)
Bottom @ 2'	Grab	SS	2'	2/1/17	1106	3	X	X	X	X	X	X						-01
BKGD 01	Grab	SS	6"	2/1/17	1134	1							X					-02
BKGD 02	Grab	SS	6"	2/1/17	1138	1							X					-03
BKGD 03	Grab	SS	6"	2/1/17	1141	2						X	X					-04

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1887433

F084

Template: **T97067**
Prelogin:
TSR: **Shane Gambill**
Cooler:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

6827110 29484

Hold #

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Condition: (lab use only) JW7 OK

Temp: 2.9 °C Bottles Received: 7

COC Seal Intact: ___Y ___N ✓NA

pH Checked: NCF:

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
CRJ	2.1.17	1700	
Relinquished by : (Signature)	Date: 2/1/17	Time: 1800	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Date: 2-2-17 Time: 900

ESC LAB SCIENCES
Cooler Receipt Form

Client: HRLCSCO	SDG#	L887433
Cooler Received/Opened On: 2/02 /17	Temperature:	2.9
Received By: Nadiar Yakob		
Signature: nadiar yakob		

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?			