



Electronic Correspondence

August 27, 2014

Dr. Tomas Oberding  
State of New Mexico  
Oil Conservation Division  
1625 N. French Drive  
Hobbs, NM 88240  
[tomas.oberding@state.nm.us](mailto:tomas.oberding@state.nm.us)

Re: Corrective Action Plan  
LINN Energy, Mescalero Ridge Unit 35 Battery  
API No.: 30-025-20565  
Legal: Unit J- Sec 35 – T19S – R34E, Lea Co., NM  
GPS: 32.615815, -103.526638

Dear Tomas:

Etech Environmental & Safety Solutions, Inc. (Etech) is pleased to submit the following corrective action plan on the aforementioned site for your review and approval.

### **Scope of Work**

The scope of this project is for the remediation of a produced water/hydrocarbon impact. The spill was contained to the battery containment and the caliche road. Completion of remediation will involve the following actions:

1. Placement of a one-call for utility location.
2. Excavation of impacted soils as far as practicable or until the chloride levels are less than 1,000 mg/kg and/or hydrocarbon levels of less than 5,000 mg/kg are reached. A copy of the assessment map and the sample data are attached. Please note: The delineation data was collected from the lowest point in the impacted area where it was evident liquids had pooled. The assessment map includes the delineation data and the sampling points (SP's) that will be used to determine that the excavation has reached remediation objectives.
3. During the course of excavation soil samples will be screened on site to determine the progress of the remediation. Screening is achieved using a YSI chloride meter with a tolerance of +/- 6% which is the same tolerance as laboratory titration methods.
4. Once the screening determines the remediation objectives have been reached, confirmation samples will be collected from the bottom of the excavation to confirm that remediation goals have been reached. If the excavation depth is greater than 2 feet vertical, side wall samples will be collected as well.
5. If the results of analysis determine that the chloride levels are above regulatory threshold levels, additional excavation will be performed until the remediation objectives are met. It should be noted that due to the depth of the impact from the delineation, there may be

circumstance that arise where additional excavation is not practical. This includes reaching the limits of excavation with chlorides that are close to objective levels, safety issues such as the close proximity of equipment, or other site specific issues. In this event, it will be likely to install a liner or a layer of gypsum at the bottom of the excavation before backfilling.

6. Backfilling of the excavated area(s) will be achieved by placing clean fill similar to the existing material from the site to within 2 foot of the surface. The last two feet will be backfilled with top soil of similar configuration to the surrounding area and contoured to match the existing grade.
7. Where pad areas or interior areas of tank batteries are excavated, they will be backfilled to within 6 inches of surface then backfilled to grade with compacted caliche. Any firewalls or containment berms removed during remediation will be reinstalled.
8. The site will be seeded with a 50/50 mixture of BLM #2 and #4 seed. Seeding will take place when the seasonal conditions are conducive to maximizing the potential for seed germination. Actual seeding will be accomplished by broadcast or drilling; whichever is the most practical for the site.

### **Notifications and Special Conditions**

1. The OCD and BLM will be notified prior to the commencement of on-site operations.
2. The OCD and BLM will be notified prior to each sampling event to allow the opportunity to witness the sampling events. Splits will be made available if requested.
3. The OCD and BLM (if applicable) will be notified when the site is closed for final inspection prior to seeding.
4. A final report documenting the closure of the site will be submitted along with a final C-141.

Thank you for your assistance on this matter. Should you have any questions, require additional information, or have any additional stipulations for this site, please contact Mr. Brian Wall at (575) 738-1739 (Office) or via email at [bwall@linnenergy.com](mailto:bwall@linnenergy.com) or myself at (432) 563-2200 (office) or via email at [kit@etechenv.com](mailto:kit@etechenv.com).

Respectfully:

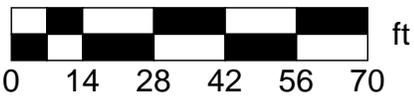


Kit Prichard  
Environmental Professional

cc: Jeffery Robertson, BLM Carlsbad District Office



Scale 1:450



1" = 37.5 ft

Data Zoom 17-7

LINN Energy  
MRU 35 Battery  
Sample Points Map



MN (7.2° E)

Data use subject to license.

© DeLorme. XMap® 8.

www.delorme.com



June 04, 2014

KIT PRICHARD

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: MRU 35 TB

Enclosed are the results of analyses for samples received by the laboratory on 05/28/14 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 ETECH Environmental & Safety Solutions, Inc.  
 KIT PRICHARD  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 1 2-3' (H401640-02)**

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2014	ND	2.12	106	2.00	0.844	
Toluene*	<0.050	0.050	05/30/2014	ND	2.11	106	2.00	1.26	
<b>Ethylbenzene*</b>	<b>0.083</b>	0.050	05/30/2014	ND	2.04	102	2.00	1.76	
Total Xylenes*	<0.150	0.150	05/30/2014	ND	6.39	106	6.00	1.82	
Total BTEX	<0.300	0.300	05/30/2014	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 131 % 89.4-126*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1060</b>	16.0	06/03/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/30/2014	ND	160	79.8	200	7.66	
<b>DRO &gt;C10-C28</b>	<b>215</b>	10.0	05/30/2014	ND	178	89.1	200	6.09	

*Surrogate: 1-Chlorooctane 81.5 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 93.0 % 63.6-154*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETECH Environmental & Safety Solutions, Inc.  
 KIT PRICHARD  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 2 5-6' (H401640-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/30/2014	ND	2.12	106	2.00	0.844		
Toluene*	<0.050	0.050	05/30/2014	ND	2.11	106	2.00	1.26		
Ethylbenzene*	<0.050	0.050	05/30/2014	ND	2.04	102	2.00	1.76		
Total Xylenes*	<0.150	0.150	05/30/2014	ND	6.39	106	6.00	1.82		
Total BTEX	<0.300	0.300	05/30/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>256</b>	16.0	06/03/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	05/30/2014	ND	160	79.8	200	7.66		
<b>DRO &gt;C10-C28</b>	<b>406</b>	10.0	05/30/2014	ND	178	89.1	200	6.09		

Surrogate: 1-Chlorooctane 90.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 KIT PRICHARD  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 3 3-4' (H401640-07)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2014	ND	2.12	106	2.00	0.844	
Toluene*	<0.050	0.050	05/30/2014	ND	2.11	106	2.00	1.26	
<b>Ethylbenzene*</b>	<b>0.052</b>	0.050	05/30/2014	ND	2.04	102	2.00	1.76	
Total Xylenes*	<0.150	0.150	05/30/2014	ND	6.39	106	6.00	1.82	
Total BTEX	<0.300	0.300	05/30/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 124 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>336</b>	16.0	06/03/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	06/02/2014	ND	202	101	200	2.27	
<b>DRO &gt;C10-C28</b>	<b>1150</b>	50.0	06/02/2014	ND	225	112	200	5.41	

Surrogate: 1-Chlorooctane 85.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 116 % 63.6-154

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\* = Accredited Analyte

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 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 4 3-4' (H401640-09)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/03/2014	ND	2.05	103	2.00	9.77		
Toluene*	<0.050	0.050	06/03/2014	ND	2.06	103	2.00	8.38		
Ethylbenzene*	<0.050	0.050	06/03/2014	ND	2.01	100	2.00	5.63		
Total Xylenes*	<0.150	0.150	06/03/2014	ND	5.99	99.8	6.00	6.95		
Total BTEX	<0.300	0.300	06/03/2014	ND						

Surrogate: Dibromofluoromethane 98.1 % 61.3-142

Surrogate: Toluene-d8 100 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.5 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>880</b>	16.0	06/03/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/02/2014	ND	202	101	200	2.27		
<b>DRO &gt;C10-C28</b>	<b>211</b>	10.0	06/02/2014	ND	225	112	200	5.41		

Surrogate: 1-Chlorooctane 89.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 103 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

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 KIT PRICHARD  
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 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 5 4-5' (H401640-12)**

<b>BTEX 8260B</b>		<b>mg/kg</b>		<b>Analyzed By: ms</b>						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/03/2014	ND	2.05	103	2.00	9.77		
Toluene*	<0.050	0.050	06/03/2014	ND	2.06	103	2.00	8.38		
Ethylbenzene*	<0.050	0.050	06/03/2014	ND	2.01	100	2.00	5.63		
Total Xylenes*	<0.150	0.150	06/03/2014	ND	5.99	99.8	6.00	6.95		
Total BTEX	<0.300	0.300	06/03/2014	ND						

Surrogate: Dibromofluoromethane 96.5 % 61.3-142

Surrogate: Toluene-d8 99.5 % 71.3-129

Surrogate: 4-Bromofluorobenzene 95.8 % 65.7-141

<b>Chloride, SM4500Cl-B</b>		<b>mg/kg</b>		<b>Analyzed By: AP</b>						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>288</b>	16.0	06/03/2014	ND	400	100	400	3.92		

<b>TPH 8015M</b>		<b>mg/kg</b>		<b>Analyzed By: MS</b>						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/02/2014	ND	202	101	200	2.27		
<b>DRO &gt;C10-C28</b>	<b>108</b>	10.0	06/02/2014	ND	225	112	200	5.41		

Surrogate: 1-Chlorooctane 97.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

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 KIT PRICHARD  
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 Fax To: (432) 563-2213

Received:	05/28/2014	Sampling Date:	05/28/2014
Reported:	06/04/2014	Sampling Type:	Soil
Project Name:	MRU 35 TB	Sampling Condition:	** (See Notes)
Project Number:	253-4926-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SP 6 5-6' (H401640-15)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/03/2014	ND	2.05	103	2.00	9.77		
Toluene*	<0.050	0.050	06/03/2014	ND	2.06	103	2.00	8.38		
Ethylbenzene*	<0.050	0.050	06/03/2014	ND	2.01	100	2.00	5.63		
Total Xylenes*	<0.150	0.150	06/03/2014	ND	5.99	99.8	6.00	6.95		
Total BTEX	<0.300	0.300	06/03/2014	ND						

Surrogate: Dibromofluoromethane 96.8 % 61.3-142

Surrogate: Toluene-d8 102 % 71.3-129

Surrogate: 4-Bromofluorobenzene 100 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>464</b>	16.0	06/03/2014	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/02/2014	ND	202	101	200	2.27		
DRO >C10-C28	<10.0	10.0	06/02/2014	ND	225	112	200	5.41		

Surrogate: 1-Chlorooctane 85.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.0 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- S-04            The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- ND             Analyte NOT DETECTED at or above the reporting limit
- RPD            Relative Percent Difference
- \*\*              Samples not received at proper temperature of 6°C or below.
- \*\*\*             Insufficient time to reach temperature.
- Chloride by SM450Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



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Celey D. Keene, Lab Director/Quality Manager



