

# Remediation Summary Report Form

## General Information

This section provides general information about the operator and the site where the spill occurred.

Date: October 23, 2012

Client: LINN Energy

Site Name: JL Keel B 10

County: Eddy

State: NM

Site Coordinates Latitude: N32.85446  
Longitude: W103.88899

Property Owner: Federal

State Report No.: 2RP-1181

## Release Description and Assessment

The information below is related to the spill (Date, Type, Cause and Quantity) and the area impacted.

Date of Spill: 06/15/2012

Type of Spill:  Oil  Produced Water  Condensate  Other (Specify):

Cause of Spill:  Equipment Failure  Valve Failure  Line Rupture  Leaking Tank  Tank Overfill  
 Other (List):

### Other Contributing Factors or Comments:

Quantity Spilled: 2/14 bbls. Quantity Recovered: 0 bbls. Total Released: 2/14 bbls.

Method of Recovery:  Vacuum Truck  Other (Specify):

OCD Notified:  Yes  No C-141 Completed and Submitted:  Yes  No

Spill Area Impacted:  Inside Firewall  On Production Pad  In Pasture  In Cultivated Land  
 Other (List):

Total Square Footage Impacted: 900 Estimated Depth: 1-5' Volume (Cu. Yds): 140

Other Comments:

## Remediation Activity Summary

The following summarizes the activities used to remediate the spill.

Impacted soils above regulatory threshold levels were manually and mechanically excavated from the spill area and transported off-site to Lea Land Landfill.

However, there is still impacted soil at SP1. A soil boring was performed at SP1 to a depth of 15-16 ft. The delineation determined the chloride levels to be 965mg at 16ft. Additional excavation is not practical at this point due to, numerous flow lines that traverse through all parts of the excavation, which restricts any further excavation due to safety concerns.

As discussed in section 5 of the Corrective Action Plan dated June 22, 2012, LINN is proposing to apply a calcium amendment to the bottom of the excavation (gypsum) then backfill with clean compacted fill material to within 1.5 – 2ft of surface then complete the backfill with compatible soil which is conducive to growing vegetation. Using gypsum will effectively assist in ensuring that any residual chlorides in the bottom of the excavation will not migrate further and cause any adverse impact to the reclamation of the site.

Once the impacted soils were removed to acceptable levels, and the gypsum installed, the pasture area was backfilled with like materials and smoothed to grade, then seeded with a BLM mix #2 & #4. Water bars were installed to prevent wind and water erosion.

Analytical Summary

Results of analyses following remediation activities are as follows:

Summary of Remediation Sampling Analytical Results						
Total Petroleum Hydrocarbons - [TPH (mg/kg)] & Chlorides [Chl (mg/kg)]						
Sample #	Depth (ft)	Date	TPH C6-C10	TPH C10-C28	Total TPH	Chl
SP1 South Wall	1	7/23/12				32
SP1 West Wall	3	7/23/12				32
SP1 North Wall	2	7/23/12				16
SP1 Bottom	6	7/23/12				1920
SP2 Bottom	4	7/23/12				32
SP2 North Wall	3	7/23/12				16
SP2 South Wall	1	7/23/12				16
SP3 Bottom	4	7/23/12				32
SP3 North Wall	2	7/23/12				16
SP3 South Wall	2	7/23/12				16
SP4 Bottom	6	7/23/12				208
SP4 South Wall	3	7/23/12				16
SP4 East Wall	3	7/23/12				16
SP5 Bottom	2	7/23/12				928
SP5 West Wall	3	7/23/12				<16.0
SP5 South Wall	3	7/23/12				32
SP5 East Wall	3	7/23/12				<16.0
SP6 Bottom	2	7/25/12				400
SP6 South Wall	1	7/23/12				32
SP6 East Wall	1	7/23/12				112
SP6 West Wall	1	7/25/12				<16.0

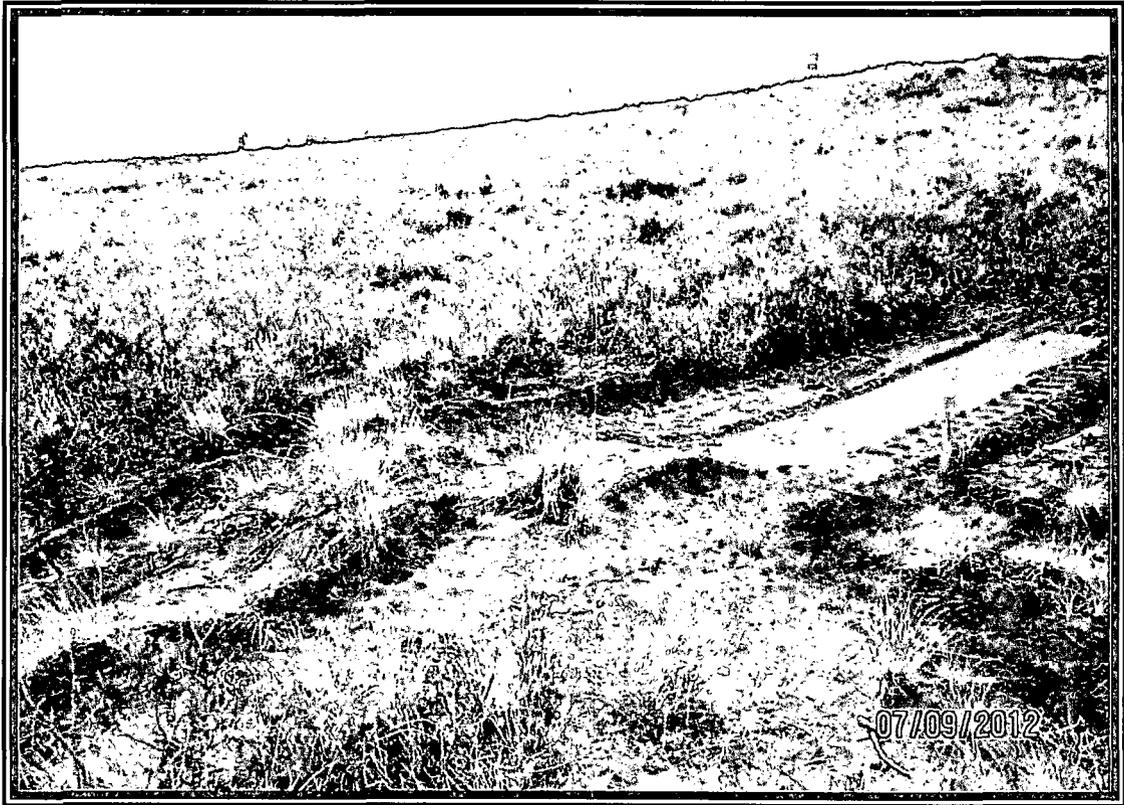
\* ND = Non-Detect; concentration below mg/kg.

A review of the analytical data indicated the sample is within the Oil Conservation Division (OCD) regulatory threshold limits. Based upon this information it has been determined that remediation of the site is complete. Copies of analytical reports, seed tickets, photographs, BLM closure and final C-141 are attached.

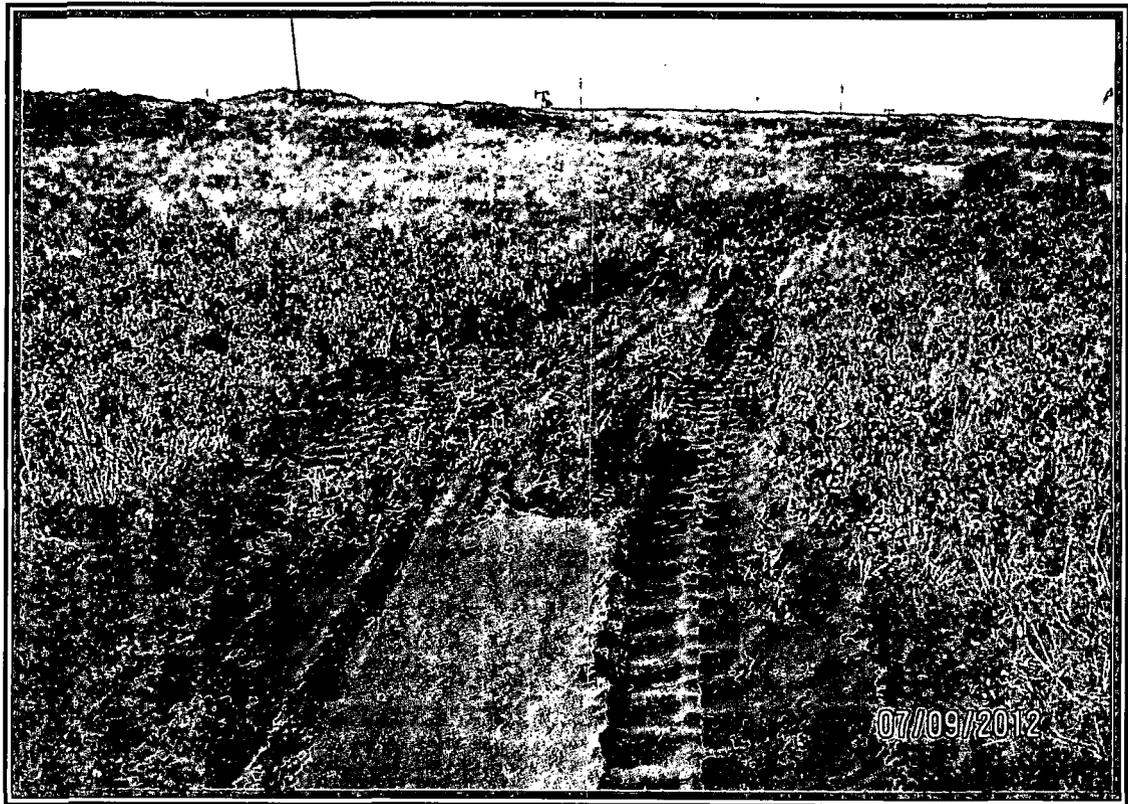
Prepared by:



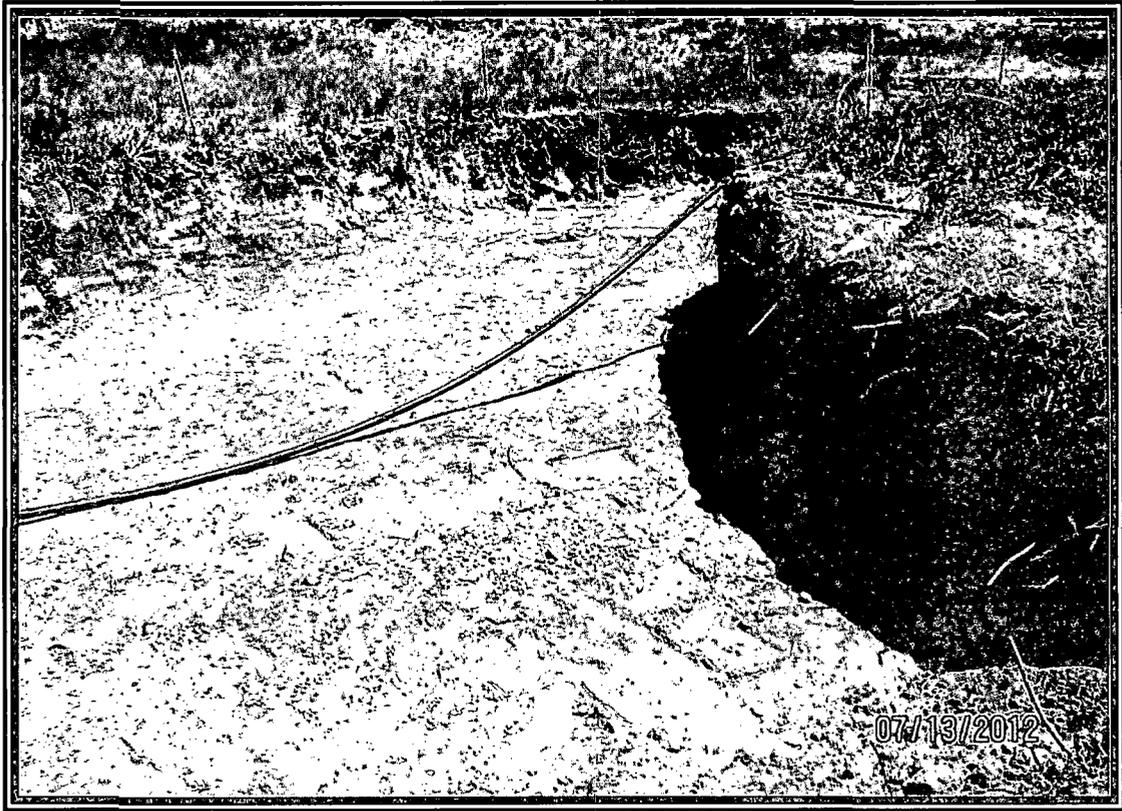
Kit Prichard  
Etech Environmental & Safety Solutions, Inc.



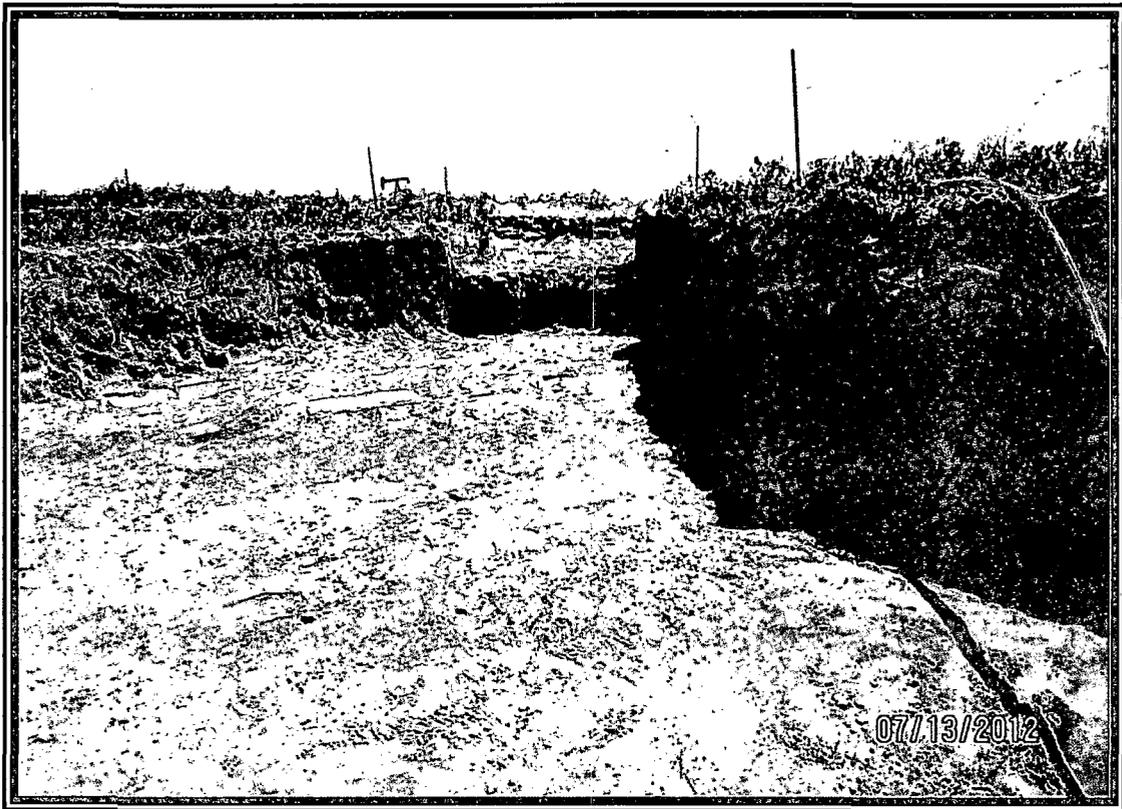
Spill area before excavation.



Spill area before excavation.



Spill area after excavation.



Spill area after excavation.



Spill area during backfill.



Spill area during backfill.

July 23, 2012

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: J. L. KEEL B #10

Enclosed are the results of analyses for samples received by the laboratory on 07/19/12 13:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/19/2012	Sampling Date:	07/19/2012
Reported:	07/23/2012	Sampling Type:	Soil
Project Name:	J. L. KEEL B #10	Sampling Condition:	** (See Notes)
Project Number:	253-3472-000	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: SP 1 S WALL 1' (H201656-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	448	112	400	3.64		

**Sample ID: SP 1 W WALL 3' (H201656-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	448	112	400	3.64		

**Sample ID: SP 1 N WALL 2' (H201656-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	448	112	400	3.64		

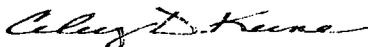
**Sample ID: SP 1 BOTTOM 6' (H201656-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1920	16.0	07/23/2012	ND	448	112	400	3.64		

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\* = Accredited Analyte

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Celest D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 07/19/2012  
 Reported: 07/23/2012  
 Project Name: J. L. KEEL B #10  
 Project Number: 253-3472-000  
 Project Location: EDDY COUNTY, NEW MEXICO

 Sampling Date: 07/19/2012  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: SP 2 BOTTOM 4' (H201656-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	448	112	400	3.64		

**Sample ID: SP 2 N 3' (H201656-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	448	112	400	3.64		

**Sample ID: SP 2 S 1' (H201656-07)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	448	112	400	3.64		

**Sample ID: SP 3 BOTTOM 4' (H201656-08)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	448	112	400	3.64		

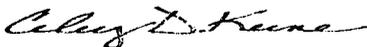
**Sample ID: SP 3 N 2' (H201656-09)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	448	112	400	3.64		

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/19/2012	Sampling Date:	07/19/2012
Reported:	07/23/2012	Sampling Type:	Soil
Project Name:	J. L. KEEL B #10	Sampling Condition:	** (See Notes)
Project Number:	253-3472-000	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: SP 3 S 2' (H201656-10)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 4 BOTTOM 6' (H201656-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 4 S WALL 3' (H201656-12)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 4 E WALL 3' (H201656-13)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	07/23/2012	ND	416	104	400	3.77		

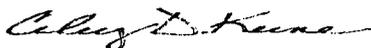
**Sample ID: SP 5 BOTTOM 2' (H201656-14)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	928	16.0	07/23/2012	ND	416	104	400	3.77		

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/19/2012	Sampling Date:	07/19/2012
Reported:	07/23/2012	Sampling Type:	Soil
Project Name:	J. L. KEEL B #10	Sampling Condition:	** (See Notes)
Project Number:	253-3472-000	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: SP 5 W WALL 3' (H201656-15)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 5 S WALL 3' (H201656-16)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 5 E WALL 3' (H201656-17)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 6 BOTTOM 2' (H201656-18)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1860	16.0	07/23/2012	ND	416	104	400	3.77		

**Sample ID: SP 6 S WALL 1' (H201656-19)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/23/2012	ND	416	104	400	3.77		

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/19/2012	Sampling Date:	07/19/2012
Reported:	07/23/2012	Sampling Type:	Soil
Project Name:	J. L. KEEL B #10	Sampling Condition:	** (See Notes)
Project Number:	253-3472-000	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: SP 6 E WALL 1' (H201656-20)**

Chloride, SM4500Cl-B	mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>112</b>	16.0	07/23/2012	ND	416	104	400	3.77	

**Sample ID: SP 6 W WALL 1' (H201656-21)**

Chloride, SM4500Cl-B	mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1330</b>	16.0	07/23/2012	ND	416	104	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

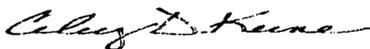
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>Etech Environmental</u>		<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>											
Project Manager: <u>Fred Holmes</u>		P.O. #:															
Address:		Company:															
City:	State:	Zip:	Attn:														
Phone #:	Fax #:		Address:														
Project #: <u>253-3472-000</u> Project Owner:		City:															
Project Name: <u>JL Keej B 10</u>		State: Zip:															
Project Location: <u>Eddy county</u>		Phone #:															
Sampler Name: <u>Terry Osborn</u>		Fax #:															
FOR LAB USE ONLY														Chlorides			
Lab I.D.	Sample I.D.	(GRAB OR (C)OMP.)	# CONTAINERS	MATRIX			PRESERV.			SAMPLING							
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME			
<u>H20110516</u>						<input checked="" type="checkbox"/>							<u>7-19-12</u>				
<u>1</u>	<u>SP1 S well 1'</u>																
<u>2</u>	<u>SP1 W well 3'</u>																
<u>3</u>	<u>SP1 N well 2'</u>																
<u>4</u>	<u>SP1 Bottom 6'</u>																
<u>5</u>	<u>SP2 Bottom 4'</u>																
<u>6</u>	<u>SP2 N 2'</u>																
<u>7</u>	<u>SP2 S 2'</u>																
<u>8</u>	<u>SP3 Bottom 4'</u>																
<u>9</u>	<u>SP3 N 2'</u>																
<u>10</u>	<u>SP3 S 2'</u>																

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Relinquished By: <u>Terry Osborn</u>	Date: <u>7-19-12</u>	Received By: <u>Jodi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <u>1:30</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:			
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other: <u>212</u>	Cool <input type="checkbox"/> Intact <input checked="" type="checkbox"/>	(Initials)		
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<u>JTB</u>		

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

Company Name: <u>Etech Environ Metals</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																							
Project Manager: <u>Fred Holmes</u>		P.O. #:		Chlorides																							
Address:		Company:																									
City: State: Zip:		Attn:																									
Phone #: Fax #:		Address:																									
Project #: <u>253-3472-000</u> Project Owner:		City:																									
Project Name: <u>JL Keel B io</u>		State: Zip:																									
Project Location: <u>Eddy county</u>		Phone #:																									
Sampler Name: <u>Terry Osborn</u>		Fax #:																									
FOR LAB USE ONLY																											
Lab I.D.	Sample I.D.	(GRAB OR (C)OMP. # CONTAINERS	MATRIX													PRESERV.	SAMPLING										
			GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	ACID/BASE ICE / COOL OTHER:	DATE	TIME																					
<u>H201056</u>					<u>7-19-12</u>																						
<u>11</u>	<u>SP4 Bottom 6'</u>																										
<u>12</u>	<u>SP4 S wall 3'</u>																										
<u>13</u>	<u>SP4 E wall 3'</u>																										
<u>14</u>	<u>SP5 bottom 2'</u>																										
<u>15</u>	<u>SP5 W wall 3'</u>																										
<u>16</u>	<u>SP5 S wall 3'</u>																										
<u>17</u>	<u>SP5 E wall 3'</u>																										
<u>18</u>	<u>SP6 bottom 2'</u>																										
<u>19</u>	<u>SP6 S wall 3'</u>																										
<u>20</u>	<u>SP6 E wall 1'</u>																										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <u>Terry Osborn</u>	Date: <u>7-19-12</u>	Received By: <u>Hodi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: <u>1:30</u>			Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
Time:				
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <u>HT</u>		

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#26



**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

Company Name: <u>Etech Environmental</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>											
Project Manager: <u>Fred Holmes</u>		P.O. #:													
Address:		Company:													
City:	State:	Zip:	Attn:												
Phone #:	Fax #:	Address:													
Project #:	Project Owner:		City:												
Project Name:		State:	Zip:												
Project Location:		Phone #:													
Sampler Name:		Fax #:													
FOR LAB USE ONLY															
Lab I.D.	Sample I.D.	(GIRAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV	SAMPLING	DATE	TIME							
<u>H201056</u>	<u>West well</u>			GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER	ACID/BASE: ICE / COOL OTHER		<u>7-19-12</u>								
<u>21</u>	<u>SP6</u>														

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Relinquished By: <u>[Signature]</u>	Date: <u>7-19-12</u>	Received By: <u>Jodi Nunson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <u>1:30</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:			
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<u>[Signature]</u>		

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

July 27, 2012

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: J. L. KEEL B #10

Enclosed are the results of analyses for samples received by the laboratory on 07/25/12 16:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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).

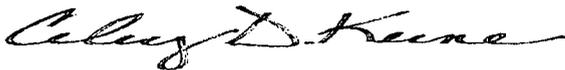
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	07/25/2012	Sampling Date:	07/25/2012
Reported:	07/27/2012	Sampling Type:	Soil
Project Name:	J. L. KEEL B #10	Sampling Condition:	** (See Notes)
Project Number:	253-3472-000	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NEW MEXICO		

**Sample ID: SP 6 BOTTOM 2' (H201719-01)**

Chloride, SM4500CI-B	mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	07/26/2012	ND	400	100	400	7.69	

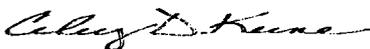
**Sample ID: SP 6 W WALL 1' (H201719-02)**

Chloride, SM4500CI-B	mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/26/2012	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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 SM4500Cl-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

---

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>Etech Environmental</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>															
Project Manager: <u>Fred Holmes</u>		P.O. #:																	
Address:		Company:																	
City:	State:	Zip:	Attn:																
Phone #:	Fax #:		Address:																
Project #: <u>253-</u>	Project Owner:		City:																
Project Name: <u>JL Keel B 10</u>			State: Zip:																
Project Location: <u>Eddy county</u>			Phone #:																
Sampler Name: <u>Terry Osborn</u>			Fax #:																
FOR LAB USE ONLY		(GRAB OR C)COMP. # CONTAINERS	MATRIX			PRESERV.		SAMPLING		Chlorides									
Lab I.D.	Sample I.D.		GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:										
<u>H201719</u>	<u>1 SP6 Bottom 2'</u> <u>2 SP6 w.w.a 4'</u>		✓	✓							<u>7/25/12</u>		✓						

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Relinquished By: <u>[Signature]</u>	Date: <u>7/25/12</u>	Received By: <u>Jodi Henson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No 'Add'l Phone #:
	Time: <u>4:10</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No 'Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: <u>Kit @ etech env. com</u>
	Time:		
Delivered By: (Circle One)	Sample Condition	CHECKED BY:	
Sampler - UPS - Bus - Other:	Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) <u>[Signature]</u>	

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#26



Etech Env.

Project JL Keel B 10

Project No. 253-3485-000

Date Started 9-20-12

Date Finished 9-20-12

<b>Bamert Seed Company</b>				
1897 CR 1018		Muleshoe, TX 79347		
806-272-5506		Texas Permit# 00905		
<i>BLM #2 BLEND</i>	<i>16 BAGS</i>	43593		
Description	Pure Seed	Germ	Dormant	Origin
VNS PLAINS BRISTLEGRASS ( <i>Setaria vulpseta</i> )	51.09%	22.00%	63.00%	TX
BEND SAND LOVEGRASS ( <i>Eragrostis trichodes</i> )	24.47%	89.00%	0.00%	TX
SAND DROPSEED VNS ( <i>Sporobolus cryptandrus</i> )	23.03%	76.00%	19.00%	
Purity: 98.58%	Inert Matter: 0.93%	Other Crop Seed: 0.39%	Weed Seed: 0.09%	
<i>JL Keel B 10</i>				
Noxious Weeds: None	Test Date: 04-2012	Net Wt: 25#		

Supervisor *Stephen M. Cole*

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised August 8, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: LINN Energy	Contact: Joe Hernandez
Address: 2130 W Bender Blvd. - Hobbs, NM	Telephone No.: 575-942-8675
Facility Name: JL Keel B 10	Facility Type: Injection Well

Surface Owner: Federal	Mineral Owner: Federal	API No.: 3001505110
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**LOCATION OF RELEASE**

Unit Letter B	Section 8	Township 17S	Range 31E	Feet from the 660	North/South Line North	Feet from the 1980	East/West Line East	County Eddy
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Latitude: N32.85446 Longitude: W103.88899

**NATURE OF RELEASE**

Type of Release: Produced Water / Oil	Volume of Release: 14 / 2	Volume Recovered: 0 / 0
Source of Release: Pipeline	Date and Hour of Occurrence: 06/15/2012 - 1730	Date and Hour of Discovery: 06/15/2012 - 1800
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher - OCD, Terry Gregston - BLM	
By Whom? Joe Hernandez	Date and Hour: 06/18/2012 - 1200	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*:

Describe Cause of Problem and Remedial Action Taken.\*: Pump #2 failure, reset pump, it failed to run. Line #5 pressure down, walked lines and found leak.

Describe Area Affected and Cleanup Action Taken.\* : 180ft x 5ft.

Impacted soils above regulatory threshold levels were manually and mechanically excavated from the spill area and transported off-site to Lea Land Landfill.

However, there is still impacted soil at SP1. A soil boring was performed at SP1 to a depth of 15-16 ft. The delineation determined the chloride levels to be 965mg at 16ft. Additional excavation is not practical at this point due to, numerous flow lines that traverse through all parts of the excavation, which restricts any further excavation due to safety concerns.

As discussed in section 5 of the Corrective Action Plan dated June 22, 2012, LINN is proposing to apply a calcium amendment to the bottom of the excavation (gypsum) then backfill with clean compacted fill material to within 1.5 – 2ft of surface then complete the backfill with compatible soil which is conducive to growing vegetation. Using gypsum will effectively assist in ensuring that any residual chlorides in the bottom of the excavation will not migrate further and cause any adverse impact to the reclamation of the site.

Once the impacted soils were removed to acceptable levels, and the gypsum installed, the pasture area was backfilled with like materials and smoothed to grade, then seeded with a BLM mix #2 & #4. Water bars were installed to prevent wind and water erosion.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Jose Hernandez	Approved by District Supervisor:		
Title: Foreman	Approval Date:	Expiration Date:	
E-mail Address: jhernandez@linneenergy.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: October 23, 2012	Phone: 575-738-1739		

\* Attach Additional Sheets If Necessary