



Electronic Correspondence

June 22, 2012

Mr. Mike Bratcher  
State of New Mexico  
Oil Conservation Division  
811 S. 1st Street  
Artesia, NM 88210  
[mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us)

Re: Corrective Action Plan  
LINN Energy, JL Keel B Well No. 10  
API No.: 30-015-05098  
Legal: I-17S-R31#, 1980 FSL & 660 FEL, Eddy Co., NM  
GPS: N32.85481, W103.88794  
Other: 625 feet west of the JL Keel B 12 next to the north side of the road

Dear Mike:

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. 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. Preliminary assessment data indicated the chlorides exceeded regulatory threshold levels to a depth of 16 feet where refusal was encountered. A copy of the assessment map and the screening 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.

PERMITTEE: Etech Env.  
 Name: Stephen McQuinn  
 Phone: 832-557-4957  
 Email: Steve@etechenv.com

Address: Etech Env.  
PO Box 8469  
Midland, TX 79708

**Section A: LOCATION**

Qtr:	Section:	Township:	Range:	County	State:	PMAS File #	District:	Diagram:
	8	T17S	R31E	Eddy	NM		PPN	6
Other Land Description:	Line Segment:	Eng. Station:	Easement Width:	Mile Post:	Latitude	Longitude		
	L.H.G.M.							

**Section B: DESCRIPTION OF ENCROACHMENT AND PERMITTED WORK OR FACILITY (attach diagram if necessary)**

Work Description: Excavation

Work Location: Site GPS N 32.85485  
W 103.88600

Encroachment Duration:

**Section C: IMPORTANT NOTICE!**

Excavation activity can damage pipelines resulting in the release of hazardous gases or liquids, which may cause serious injury or death to people, damage to property or the environment. To avoid damaging a pipeline:

1. Call the appropriate ONE CALL system(s) at least 48 hours before work begins.
2. Look for evidence of a pipeline, such as warning signs, aerial patrol markers, casing vents, and aboveground pipeline.
3. Never assume the location of the pipeline because:
  - It can change directions abruptly without aboveground physical evidence.
  - The depth can vary substantially in short distances.
  - More than one pipeline may be present.
4. Call Plains at the telephone number below for free line location service and on site assistance before ANY activity is performed on or near our easement.
5. Follow Plains SPECIFICATIONS on the back of this page, when performing work near a Plains pipeline(s).

**This Encroachment Permit is granted subject to the Conditions and Special Provisions shown below and strictly in accordance with the Specifications shown on the reverse side hereof.**

**Section D: CONDITIONS**

1. The Permit herein granted is subject to the existing rights of Plains.
2. Permittee will perform the Permitted Work or construct, maintain, relocate, and remove the Permitted Facility at no expense to Plains. Plains shall have the right to cut and remove any pavement or other surface structures or improvements now or hereafter located over or across a Plains pipeline, without prior notice or any obligation to repair, resurface or dispose of removed material, for the purpose of exercising any rights granted to Plains under the pipeline rights of way and easements.
3. Any work performed near the pipeline without the presence of a Plains representative will necessitate that the pipeline be exposed for inspection and needed repairs performed at the Permittee's or responsible party's cost.
4. This Permit shall be revocable by Plains in the event of Permittee's noncompliance with any requirements, conditions, or specifications of the Permit, upon notice given to Permittee and/or the Owner of the Permitted Facility.
5. PERMITTEE SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS PLAINS, ITS PARENT, ASSOCIATED AND AFFILIATED COMPANIES, THEIR AGENTS, EMPLOYEES, OFFICERS, DIRECTORS, INSURERS, SUCCESSORS AND ASSIGNS FROM AND AGAINST ANY LOSS, DAMAGE, CLAIM, SUIT LIABILITY, JUDGMENT AND EXPENSE (INCLUDING ATTORNEYS' FEES AND OTHER COSTS OF LITIGATION), AND ANY FINES, PENALTIES AND ASSESSMENTS ARISING OUT OF INJURY, DISEASE OR DEATH OF PERSONS (INCLUDING THAT OF THE EMPLOYEES OF PLAINS OR PERMITTEE OR THEIR CONTRACTORS AND SUBCONTRACTORS), DAMAGE TO OR LOSS OF ANY PROPERTY (INCLUDING THAT OF PLAINS OR PERMITTEE OR THEIR CONTRACTORS AND SUBCONTRACTORS), AND ANY ENVIRONMENTAL HARM, OR DAMAGES TO NATURAL RESOURCES, CAUSED BY, ARISING OUT OF OR RESULTING FROM, EITHER DIRECTLY OR INDIRECTLY, THE ACTIVITIES OF PERMITTEE AND ITS CONTRACTORS OR SUBCONTRACTORS IN THE CONSTRUCTION, OPERATION AND MAINTENANCE OF PERMITTEE'S PERMITTED FACILITY ACROSS PLAINS' PIPELINES AND ASSOCIATED RIGHTS-OF-WAY.
6. Permittee, at no cost to Plains, shall supply plans, surveys and drawings, if Plains deems necessary.
7. Plains maintains the right to cease permitted operations, if in the opinion of Plains, the conditions of the Permit are not being met, or if Permittee is not following safe operating, excavation activity, appropriate safety or traffic control procedures.
8. Plains reserves the right to alter the terms of this Permit at any time, provided that Permittee will be given a reasonable time to comply, at Permittee's expense, with any new requirements.
9. All Permitted Work or Facilities shall be constructed and maintained to comply with all laws and industry standards.
10. The permission herein granted by Plains is limited to its interest and authority in the subject land and Permittee acknowledges the possible obligation to obtain the required permission from other parties of interest or the Government. Plains permits this Facility only to the extent it may do so by law.
11. This Permit does not change or modify any provisions of Plains' existing right-of-way contracts or easements, unless such easements are required to be amended as a result of Permittee's encroachment. Permittee acknowledges that the granting of this Permit may require amendment of the existing right-of-way contract or easement to reflect a change in land use or land rights.
12. At no cost to Permittee, a Plains representative will erect temporary flags marking the pipeline location and shall be present during all active work periods to observe excavation or other construction activities near the pipeline. Permittee shall provide advance notice of a minimum of two (2) business days prior to any construction and to arrange for a Plains representative to be on site during work activities.
13. Permittee shall not modify or alter the Permitted Encroachment, nor construct or permit additional encroachments on the Right-of-Way, without Plains prior written consent.
14. The terms, conditions, and provisions contained herein shall be binding upon the parties hereto, their heirs, successors and assigns.

**Section E: SPECIAL PROVISIONS:**

Your local Plains contact is:  
Royce Heavington 575-441-0758  
 In Event of an Emergency Call: 1-800-708-5071  
 Plains Pipeline, L.P.  
 Submitted by: Mark A. Red  
 Office Location: DONNER CITY, TX  
 Date: 7-13-12

Permittee acknowledges that it has reviewed the Requirements, Conditions, Special Provisions and Specifications of this Permit and agrees to the terms thereof.  
 By: Etech Env.  
 Name: Stephen McQuinn  
 Title: Supervisor  
 Date: 7-13-12

1. **ALL PIPELINES, UTILITY LINES** and other underground facilities constructed across Plains owned or operated pipeline must be installed with a vertical separation of 24 inches or greater between structures. All facilities crossing a Plains pipeline shall be made of, or encased in, steel pipe with threaded or welded joints the entire width of Plains' right of way. Horizontal separations will be determined on a case-by-case basis. Electrical conduit and cables are excluded, please refer to paragraph 2. All work and cleanup will be conducted in a manner acceptable to Plains' on-site representative. All buried lines crossing the pipeline(s) must cross at an angle of not less than 45 degrees from the pipeline(s). Vinyl direct buried warning tapes shall be placed above the crossing line.
2. **ALL UNDERGROUND ELECTRICAL CABLES** shall be installed with a vertical separation of 24 inches or greater between structures, with all plans, work and cleanup conducted in a manner acceptable to Plains' on-site representative. Horizontal separation will be determined on a case-by-case basis. In addition, the electrical cable must be enclosed in conduit (steel or Schedule 80 PVC). It should be covered with red reinforced concrete with a minimum width of 6 inches on each side and above the conduit, for the entire width of Plains' right of way.
3. **ALL UNDERGROUND FIBER OPTIC CABLES** shall be installed with a vertical separation of 24 inches or greater between structures, with all plans, work and cleanup conducted in a manner acceptable to Plains' on-site representative. Horizontal separation will be determined on a case-by-case basis. In addition, the fiber optic cable must be enclosed in conduit (steel or Schedule 80 PVC). It should be covered with red reinforced concrete with a minimum width of 12 inches on each side and above the conduit, for the entire width of Plains' right of way.
4. **ALL PROPOSED ROADS, STREETS, OR DRIVEWAYS** shall be constructed with a minimum cover of 48 inches, including the sub-grade, as measured from the top of the Plains pipeline to the bottom of the pavement (road, street, or driveway) outlined below. If a Plains pipeline will require adjustment to accommodate a roadway, street, or driveway crossing, the cost of any such lowering or relocation shall be borne by the party or parties requesting the adjustment. With each request involving roads, streets, or driveways, Plains reserves the right to excavate to expose and inspect its pipeline(s) to determine the need for pipe replacement, full encasement, or heavy wall pipe. The cost of this activity will be at the expense of the requesting party.

**A. PIPELINE MINIMUM COVER REQUIREMENTS**

1. 48 inches from bottom of pavement under a road, street or driveway to the top of Plains' pipeline.
  2. 36 inches under all other surfaces to the top of Plains' pipeline.
- B.** Any concrete paving (other than for road, street or driveway crossings of a Plains pipeline) i.e. a parking lot should it be approved to be constructed over the Plains' pipeline by a Plains representative shall (a) be reinforced, (b) not exceed 4 inches in thickness, (c) be sectioned in 10 foot by 15 foot panels (15' dimension shall be perpendicular to the pipeline) with appropriate expansion joints, (d) containing lifting rings, and (e) conform to the minimum cover requirements stipulated above.
- C.** Plains shall have the right to cut and remove any pavement or other surface structures or improvements now or hereafter located over or across a Plains pipeline, without prior notice or any obligation to repair, replace, resurface or dispose of removed material, for the purpose of exercising any rights granted to Plains under the pipeline rights of way and easements. If Plains damages the Permitted Facility, Permittee shall, at Permittee's sole cost and expense, be responsible for the replacement of the Permitted Facility that was removed or damaged by Plains, and Plains shall not be required to pay any damages to Permittee.
- D.** APWA color coded vinyl warning tape (yellow) will be placed under the paved area along the route of each pipeline(s).
5. **ANY DRAINAGE DITCHES** shall be constructed with a minimum cover, and measured from the lowest point in the ditch, to the top of pipe as follows:
    1. Concrete lined - 12 inches.
    2. Unlined - 36 inches.

Any drainage canals shall be constructed with a minimum of 60 inches of cover below the ultimate flow line.
  6. **TEMPORARY (HAUL) ROAD** crossings shall be constructed with a minimum ground cover (as measured from the surface of the road to the top of the pipeline) of 5-feet. A temporary earthen berm may be constructed to meet this requirement.

Where it is necessary for heavy equipment to cross the pipeline, additional measures may be needed to effectively distribute the weight of such equipment, for example, installing additional cover, timber matting and/or a temporary bridge for passage over the pipeline.

7. **LAKES OR OTHER BODIES OF WATER** shall not be constructed over the pipeline or within the boundaries of the pipeline easement. Additionally, the surface cannot be developed or changed in any way that would cause rainwater or runoff to collect on the pipeline right-of-way.
8. **DRILLING OR BORING** shall require additional damage prevention measures, whether installing a crossing or otherwise conducting such operations within 25-feet of the pipeline. It is Plains' option whether peepholes or sheet piling be installed to an elevation lower than the pipeline, before drilling/boring to help ensure its protection. Plains requires continuous tracking of the drilling head as well as using a physical technique (such as probing) to ascertain the exact location of the head before it crosses the Plains pipeline. Plains may also require that the pipeline be exposed when near drill/bore entry or exit points.
9. **ABOVE GROUND LINE CROSSINGS.** All overhead wires shall maintain a minimum clearance of 20 feet from the surface of the ground to the location of the lines lowest sag point. All poles will maintain a minimum distance of 20 feet from any pipeline(s). All guy wires and footings are prohibited within the easement area without the prior written consent of Plains.
10. If Plains determines it is necessary to lower, encase or otherwise adjust a Plains pipeline because of the landowner's (developer's, etc.) construction activity, the landowner or developer shall reimburse Plains for the cost of lowering, encasement or other adjustments.
11. **Please notify the local Plains District Operations office at:**  
 \_\_\_\_\_ or the Land Department at 713-993-5207 at least two (2) business days prior to commencing any excavating or construction activity in the vicinity of any Plains pipeline. The National One Call law requires that the One Call System be notified at 811 before starting any excavation or construction activity. If you are unable to contact the above Plains representatives, please contact the Pipeline Control Center in Midland, Texas, and the information will be relayed.

Pipeline Control Center  
 24 hours: 1-800-708-5071

12. No excavating or construction activity shall be conducted within 25 feet of any Plains pipeline or related facility in the absence of a Plains representative. All plans that are submitted to Plains for approval shall have the three phone numbers above, along with the two (2) business days notice of commencement, imprinted on plans.
13. Any contractor, developer, geophysical entity etc., planning blasting operations within 500 feet of any Plains pipeline or facility shall submit a blasting plan to Plains for approval. This plan will include hole depth, diameter, spacing, burden, delay times, maximum charge weight per delay, sequence, explosive type and blast zone relative to the Plains pipeline or facility. Under NO circumstances will blasting or seismic shot holes be allowed within 100 feet of any Plains pipeline.
14. No signs, billboards, monuments, buildings, power poles, structures, manholes, parking lots, shrubbery, or trees shall be located within a Plains right of way and easement area so that the pipeline can be maintained without damaging these structures or being impeded by them.
15. No excavation shall be made on land adjacent to any Plains pipeline which will in any way impair, withdraw lateral support, cause subsidence, create the accumulation of water, or cause damage to the Plains pipeline right of way.
16. No fence shall be placed across a Plains right of way without written permission from Plains. If fences are permitted, 14-foot gates must be installed on the right of way, and keys to any installed locks shall be provided to Plains.
17. Side cutters shall be removed from the bucket of excavation equipment, and a bar shall be installed across the teeth during excavation in the vicinity of any Plains pipeline.
18. No paving is to be placed over any Plains right of way without prior written permission from Plains.
19. Any damage to existing Plains pipelines, facilities, pipeline insulation and/or coating, casing, markers and/or signs, test leads, vent pipes, fences, gates and/or any other associated pipeline apparatus resulting from the installation, construction, maintenance or operations of any third party facilities crossing Plains' pipelines shall be repaired to Plains' satisfaction or replaced at the sole cost and expense by the responsible party within 15 days after the damage has occurred.
20. All written requests should be supported with plans and forwarded to Plains Pipeline, L.P., as follows: 1) Attn: Land Department, 333 Clay Street, Suite 1600, Houston, Texas 77002, Direct: (713) 993-5207, Fax: (713) 648-4146, and  
 2) \_\_\_\_\_

Permittee Initials **SDM**

## Bratcher, Mike, EMNRD

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**From:** Kit Prichard <kit@etechemv.com>  
**Sent:** Tuesday, September 11, 2012 8:28 AM  
**To:** tgregsto@blm.gov; Bratcher, Mike, EMNRD  
**Cc:** Gary Wink; Ron Ragland; Joe Hernandez; Fred Holmes; Steve McGee  
**Subject:** JL Keel B 10 Backfill Request  
**Attachments:** JL Keel B 10 Backfill Request 081412.pdf

Dear Mike & Terry:

Attached is the excavation sampling results for the JL Keel B 10. However, there is still impacted soil at SP1 Bottom. 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. Please note the intervals of the samples collected were measured from the bottom of the excavation, not from ground level. Consequently, 6 feet needs to be added to the sample depth to get the true depth from surface. 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 migrate further vertically and not cause any adverse impact to the reclamation of the site.

As noted in the stipulations from the BLM, the reclamation of the site with regards to contouring and vegetation of the site will still apply.

Respectfully:

*Kit Prichard*

**Etech Environmental & Safety Solutions, Inc.**

P.O. Box 8469

Midland, Texas 79708-8469

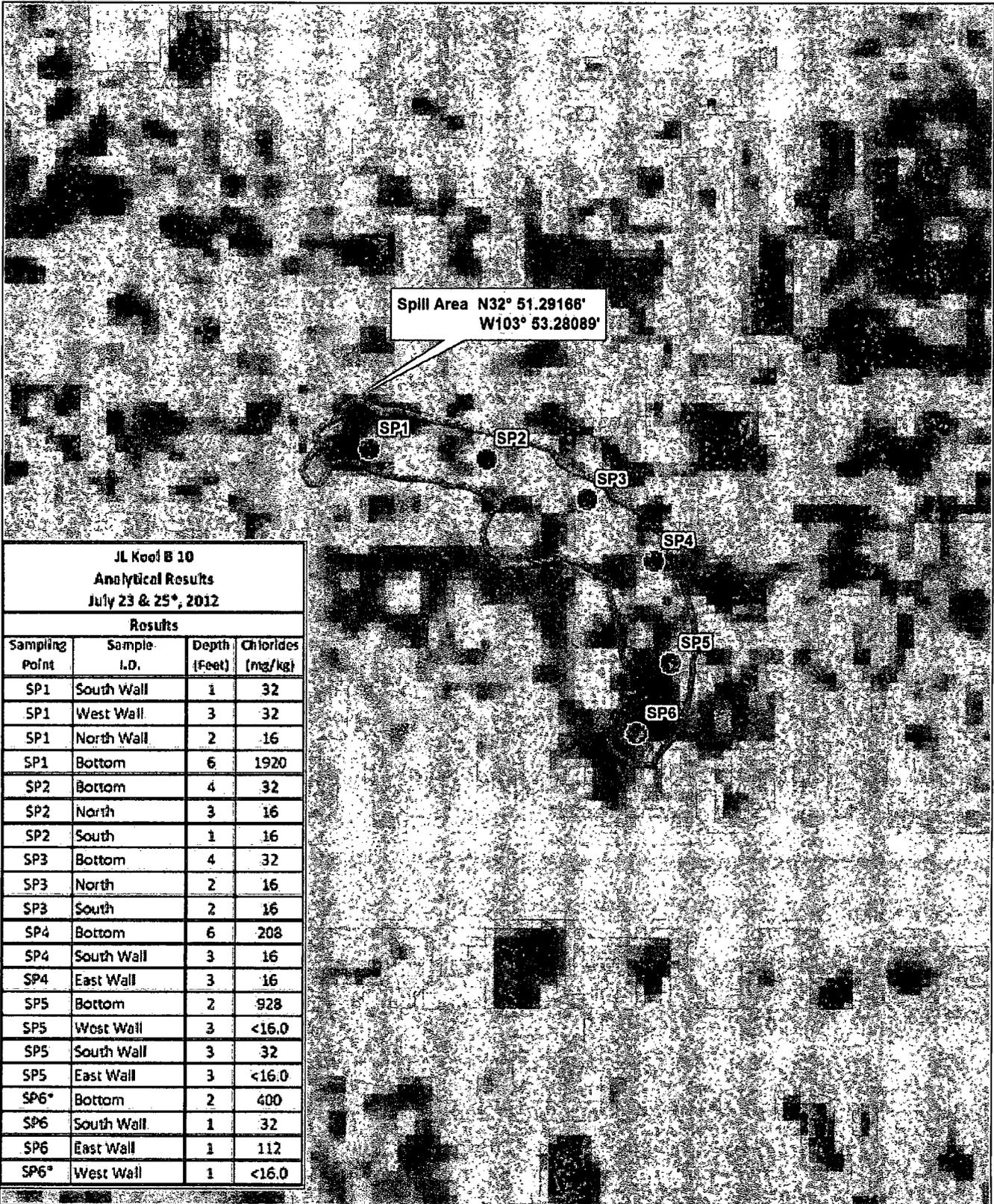
Phone: 432-563-2200

Fax: 432-563-2213

E-mail: [kit@etechemv.com](mailto:kit@etechemv.com)

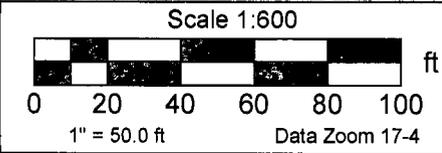
**CONFIDENTIAL**

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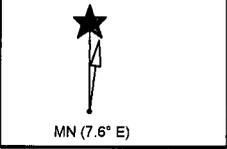


Spill Area N32° 51.29166'  
W103° 53.28089'

JL Keel B 10 Analytical Results July 23 & 25*, 2012			
Results			
Sampling Point	Sample I.D.	Depth (Feet)	Chlorides (mg/kg)
SP1	South Wall	1	32
SP1	West Wall	3	32
SP1	North Wall	2	16
SP1	Bottom	6	1920
SP2	Bottom	4	32
SP2	North	3	16
SP2	South	1	16
SP3	Bottom	4	32
SP3	North	2	16
SP3	South	2	16
SP4	Bottom	6	208
SP4	South Wall	3	16
SP4	East Wall	3	16
SP5	Bottom	2	928
SP5	West Wall	3	<16.0
SP5	South Wall	3	32
SP5	East Wall	3	<16.0
SP6*	Bottom	2	400
SP6	South Wall	1	32
SP6	East Wall	1	112
SP6*	West Wall	1	<16.0



LINN Energy - JL Keel B 10 Sample Points Clearance



Data use subject to license.

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www.delorme.com



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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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,

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.  
 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, 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 1 W WALL 3' (H201656-02)**

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 1 N WALL 2' (H201656-03)**

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 1 BOTTOM 6' (H201656-04)**

Chloride, SM4500CI-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		

Cardinal Laboratories

\* = 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 2 BOTTOM 4' (H201656-05)**

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 2 N 3' (H201656-06)**

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 2 S 1' (H201656-07)**

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 3 BOTTOM 4' (H201656-08)**

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		

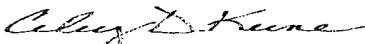
**Sample ID: SP 3 N 2' (H201656-09)**

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		

Cardinal Laboratories

\* = Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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, 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	416	104	400	3.77	

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

Chloride, SM4500Cl-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, 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	416	104	400	3.77	

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

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	416	104	400	3.77	

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

Chloride, SM4500Cl-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	

Cardinal Laboratories

\*=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, 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	416	104	400	3.77		

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

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	416	104	400	3.77		

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

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	416	104	400	3.77		

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

Chloride, SM4500Cl-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, 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	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
Chloride	112	16.0	07/23/2012	ND	416	104	400	3.77	

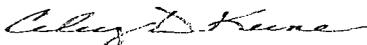
**Sample ID: SP 6 W WALL 1' (H201656-21)**

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

Cardinal Laboratories

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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 Environ Metal</u>		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																
Project Manager: <u>Fred Johnson</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 Keel B 10</u>													State:	Zip:					
Project Location:	<u>Eddy county</u>													Phone #:						
Sampler Name:	<u>Terry Osborn</u>			Fax #:	Chlorides															
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>11</u>	<u>SP4 Bottom 6'</u>																		<u>7-19-12</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 2'</u>																			
<u>20</u>	<u>SP6 E. wall 1'</u>																			

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Relinquished By: <u>Terry Osborn</u>	Date: <u>7-19-12</u>	Received By: <u>Ardi 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:	Cool <input type="checkbox"/> Intact <input checked="" type="checkbox"/>	(Initials)		
	No <input type="checkbox"/> Yes <input checked="" type="checkbox"/>	<u>TO</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: <i>Etech Environmental</i>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																	
Project Manager: <i>Fred Holmes</i>				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.		GRAB OR (COMP.)	# CONTAINERS	MATRIX				PRESERV.		SAMPLING		<i>Chlorides</i>											
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE												
<i>H201656</i>		<i>west well</i>				<input checked="" type="checkbox"/>							<i>7-19-12</i>												

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

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



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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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,

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.  
 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, SM4500Cl-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, 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	07/26/2012	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

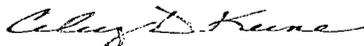
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported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

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\*=Accredited Analyte

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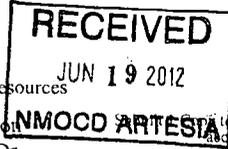
Celey D. Keene, Lab Director/Quality Manager



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

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



Form C-141  
Revised October 10, 2003

appropriate District Office in accordance with 19.15.29 NMAC

**Release Notification and Corrective Action**

nJMW 1217336844 OPERATOR  Initial Report  Final Report

Name of Company: Linn Operating 269324	Contact: Joe Hernandez
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739
Facility Name: Keel B 10	Facility Type: Injection
Surface Owner: Federal	Mineral Owner: Federal
API No.: 3001505110	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	8	17S	31E	660	North	1980	East	Eddy

Latitude: 32.85446 Longitude: -103.88899

**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 5:30pm	Date and Hour of Discovery: 06/15/2012 6pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? M. Bratcher - NM OCD / Terry Gregston - BLM	
By Whom? Joe Hernandez	Date and Hour 06/18/2012 12pm	
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.*: Drive to Injection plant doing daily routine and notice pump #2 failure, reset pump at control room and run about 2 min. and failed to run, walk around injection plant and check pressure on injection lines and notice line #5 pressure down, close valve and turned pump on again, walk injection lines and found leak.		
Describe Area Affected and Cleanup Action Taken.*: 180ft. L X 5ft. W Leak was found between Keel B #10 and Keel B #12 injection. Ran E and S to lease RD. Further remedial action pending.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC D 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 NMOC D 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, NMOC D 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:	OIL CONSERVATION DIVISION	
Printed Name: Joe Hernandez	Approved by District Supervisor:	Signed By:
Title: Production Foreman	Approval Date: JUN 21 2012	Expiration Date:
E-mail Address: jhernandez@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 06/19/2012	Phone: 575-942-9492	

\* Attach Additional Sheets If Necessary

Remediation per OCD Rules & Guidelines. **SUBMIT REMEDIATION PROPOSAL NOT LATER THAN:**

7/21/12

2RP-1181

## Bratcher, Mike, EMNRD

---

**From:** Gregston, Terry G <tgregsto@blm.gov>  
**Sent:** Tuesday, September 11, 2012 12:15 PM  
**To:** Kit Prichard; Bratcher, Mike, EMNRD  
**Cc:** Gary Wink; Ron Ragland; Joe Hernandez; Fred Holmes; Steve McGee  
**Subject:** RE: JL Keel B 10 Backfill Request

Gentlemen,

I have reviewed the attached closure request and I also contacted Kit Prichard about the soil boring results, which were not included in the attached plan. He is going to forward those numbers to both the OCD and the BLM in writing to put with the case file, but based on what he conveyed to me over the phone (gradual decrease in chloride levels down to closure at sample point 1), the BLM approves the excavation closure plan. Previous BLM requirements for surface reclamation on this location will apply.

Thank you,

**Terry Gregston**

Environmental Protection Specialist  
Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 88220  
Office (575) 234-5958  
Cell (575) 361-2635  
Fax (575) 234-5927

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---

**From:** Kit Prichard [<mailto:kit@etechnv.com>]  
**Sent:** Tuesday, September 11, 2012 8:28 AM  
**To:** Gregston, Terry G; [mike.bratcher@state.nm.us](mailto:mike.bratcher@state.nm.us)  
**Cc:** Gary Wink; Ron Ragland; Joe Hernandez; Fred Holmes; Steve McGee  
**Subject:** JL Keel B 10 Backfill Request

Dear Mike & Terry:

Attached is the excavation sampling results for the JL Keel B 10. However, there is still impacted soil at SP1 Bottom. 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. Please note the intervals of the samples collected were measured from the bottom of the excavation, not from ground level. Consequently, 6 feet needs to be added to the sample depth to get the true depth from surface. 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 migrate further vertically and not cause any adverse impact to the reclamation of the site.

As noted in the stipulations from the BLM, the reclamation of the site with regards to contouring and vegetation of the site will still apply.

Respectfully:

*Kit Prichard*

**Etech Environmental & Safety Solutions, Inc.**

P.O. Box 8469

Midland, Texas 79708-8469

Phone: 432-563-2200

Fax: 432-563-2213

E-mail: [kit@etechemv.com](mailto:kit@etechemv.com)

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**Bratcher, Mike, EMNRD**

---

**From:** Kit Prichard <kit@etechemv.com>  
**Sent:** Tuesday, September 11, 2012 12:26 PM  
**To:** tgregsto@blm.gov; Bratcher, Mike, EMNRD  
**Subject:** JL Keel B 10 Hand Auger Results  
**Attachments:** JL Keel B 10 Chloride Probe Field Analyses Log.pdf

Terry & Mike,

My apologies for not including the Hand Auger Results in the Backfill Request.

*Kit Prichard*

**Etech Environmental & Safety Solutions, Inc.**

P.O. Box 8469

Midland, Texas 79708-8469

Phone: 432-563-2200

Fax: 432-563-2213

E-mail: [kit@etechemv.com](mailto:kit@etechemv.com)

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