



Electronic Correspondence

November 7, 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 22  
API No.: 30-015-05082  
Legal: Unit L, Section 5, T17S, R31E, 1980 FSL, 660 FWL, Eddy Co., NM  
GPS: N32.8620, W103.8983

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. 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 / hand auger 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. Gary Wink at (575) 738-1739 (Office) or via email at [gawink@linenergy.com](mailto:gawink@linenergy.com) or myself at (432) 563-2200 (office) or via email at [kit@etechenv.com](mailto:kit@etechenv.com).

Respectfully:



Kit Prichard  
Environmental Professional

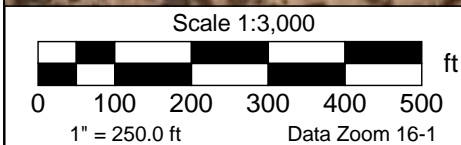
cc: Terry Gregston, BLM Carlsbad District Office



JL Keel B 22 Analytical Results October 9, 2012								
Sample Information			TPH Results (mg/kg)		BTEX Results (mg/L)			
Date	Sample I.D.	Depth (ft)	GRO	DRO	Benzene	Toluene	Ethylbenzene	Total Xylenes
10/09/12	HA 1	2-3	<10.0	466.0	<0.2	<0.2	<0.2	<0.6
10/09/12	HA 2	0-1	<10.0	<10.0	<0.2	<0.2	<0.2	<0.6
10/09/12	HA 4	0-1	<10.0	<10.0	<0.2	<0.2	<0.2	<0.6
10/09/12	HA 6	0-1	<10.0	<10.0	<0.2	<0.2	<0.2	<0.6
10/09/12	HA 6	4-5	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 8	1-2	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 10	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 10	4-5	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 11	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 11	11-12	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 12	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 12	9-10	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 13	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 13	8-9	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 14	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 14	6-7	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 15	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	HA 15	6-7	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	NHA1	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	NHA1	1-2	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	NHA2	0-1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15
10/09/12	NHA3	0-1	<50.0	<50.0	<0.05	<0.05	<0.05	<0.15

JL Keel B 22 Analytical Results October 9, 2012			
Date	Sample I.D.	Depth (Feet)	Chlorides (mg/kg)
10/9/2012	HA 1	2-3	5200
10/9/2012	HA 2	0-1	<16.0
10/9/2012	HA 4	0-1	32
10/9/2012	HA 6	0-1	16
10/9/2012	HA 6	4-5	128
10/9/2012	HA 8	1-2	16
10/9/2012	HA 10	0-1	128
10/9/2012	HA 10	4-5	720
10/9/2012	HA 11	0-1	16
10/9/2012	HA 11	11-12	<16.0
10/9/2012	HA 12	0-1	<16.0
10/9/2012	HA 12	9-10	<16.0
10/9/2012	HA 13	0-1	<16.0
10/9/2012	HA 13	8-9	<16.0
10/9/2012	HA 14	0-1	32
10/9/2012	HA 14	6-7	<16.0
10/9/2012	HA 15	0-1	16
10/9/2012	HA 15	6-7	<16.0
10/9/2012	NHA1	0-1	224
10/9/2012	NHA1	1-2	64
10/9/2012	NHA2	0-1	3640
10/9/2012	NHA3	0-1	592

JL Keel B 22 Analytical Results October 23, 2012			
Sample Point	Sample I.D.	Depth (Feet)	Chlorides (mg/kg)
SP1	Surface	0	5680
SP2	Surface	0	48
SP2	North Wall	2	448
SP2	South Wall	2	3680
SP3	Surface	0	64
SP4	Surface	0	64
SP4	North Wall	2	4120
SP4	South Wall	2	<16.0
SP5	Surface	0	<16.0
SP5	North Wall	1	<16.0
SP5	South Wall	1	640
SP6	Surface	0	<16.0
SP7	Surface	0	<16.0
SP8	Surface	0	<16.0
SP8	North Wall	1	<16.0
SP8	South Wall	1	816
SP9	Surface	0	<16.0
SP9	North Wall	1	432
SP9	South Wall	1	<16.0
SP10	Surface	0	<16.0
SP10	North Wall	1	<16.0
SP10	South Wall	1	864
SP11	Surface	0	<16.0
SP11	North Wall	2	<16.0
SP11	South Wall	2	272
SP12	Surface	0	<16.0
SP12	North Wall	2	<16.0
SP13	Surface	0	<16.0
SP13	West Wall	2	<16.0
SP14	Surface	0	<16.0
SP14	South Wall	2	<16.0
SP15	Surface	0	<16.0
SP15	East Wall	2	<16.0
SP16	Surface	0	48
NHS1	Surface	0	48
NHS2	Surface	0	3800
NHS3	Surface	0	384



LINN Energy  
JL Keel B 22  
Sample Points and Excavation Map



Data use subject to license.

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www.delorme.com

October 09, 2012

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: J L KEEL B #22

Enclosed are the results of analyses for samples received by the laboratory on 10/02/12 17:00.

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: 10/02/2012  
Reported: 10/09/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/02/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 1 2-3 (H202404-01)**

BTEX 8021B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	10/06/2012	ND	2.20	110	2.00	2.03	
Toluene*	<0.200	0.200	10/06/2012	ND	2.03	102	2.00	2.43	
Ethylbenzene*	<0.200	0.200	10/06/2012	ND	2.05	102	2.00	2.41	
Total Xylenes*	<0.600	0.600	10/06/2012	ND	6.04	101	6.00	2.51	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5200	16.0	10/05/2012	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	10/04/2012	ND	190	94.9	200	0.855	
DRO >C10-C28	466	10.0	10/04/2012	ND	186	93.1	200	1.39	

Surrogate: 1-Chlorooctane 90.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 101 % 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.  
 FRED HOLMES  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received:	10/02/2012	Sampling Date:	10/02/2012
Reported:	10/09/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 2 0-1 (H202404-02)**

BTEx 8021B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	10/06/2012	ND	2.20	110	2.00	2.03	
Toluene*	<0.200	0.200	10/06/2012	ND	2.03	102	2.00	2.43	
Ethylbenzene*	<0.200	0.200	10/06/2012	ND	2.05	102	2.00	2.41	
Total Xylenes*	<0.600	0.600	10/06/2012	ND	6.04	101	6.00	2.51	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

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	10/05/2012	ND	400	100	400	4.08		

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 93.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.6 % 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.  
 FRED HOLMES  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

 Received: 10/02/2012  
 Reported: 10/09/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/02/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HA 4 0-1 (H202404-03)**

BTEx 8021B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	10/06/2012	ND	2.20	110	2.00	2.03	
Toluene*	<0.200	0.200	10/06/2012	ND	2.03	102	2.00	2.43	
Ethylbenzene*	<0.200	0.200	10/06/2012	ND	2.05	102	2.00	2.41	
Total Xylenes*	<0.600	0.600	10/06/2012	ND	6.04	101	6.00	2.51	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

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	10/05/2012	ND	400	100	400	4.08	

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 92.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.7 % 63.6-154

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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: 10/02/2012  
 Reported: 10/09/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/02/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HA 6 0-1 (H202404-04)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	10/06/2012	ND	2.20	110	2.00	2.03	
Toluene*	<0.200	0.200	10/06/2012	ND	2.03	102	2.00	2.43	
Ethylbenzene*	<0.200	0.200	10/06/2012	ND	2.05	102	2.00	2.41	
Total Xylenes*	<0.600	0.600	10/06/2012	ND	6.04	101	6.00	2.51	

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

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	10/05/2012	ND	400	100	400	4.08	

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 88.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 87.5 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



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

Received: 10/02/2012  
Reported: 10/09/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/02/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 6 4-5 (H202404-05)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/08/2012	ND	2.03	101	2.00	14.6	
Toluene*	<0.050	0.050	10/08/2012	ND	1.81	90.7	2.00	13.8	
Ethylbenzene*	<0.050	0.050	10/08/2012	ND	1.79	89.7	2.00	14.3	
Total Xylenes*	<0.150	0.150	10/08/2012	ND	5.33	88.8	6.00	13.5	

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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
Chloride	128	16.0	10/08/2012	ND	400	100	400	4.08	

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 90.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 89.2 % 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.  
 FRED HOLMES  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

 Received: 10/02/2012  
 Reported: 10/09/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/02/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HA 8 1-2 (H202404-06)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/08/2012	ND	2.03	101	2.00	14.6	
Toluene*	<0.050	0.050	10/08/2012	ND	1.81	90.7	2.00	13.8	
Ethylbenzene*	<0.050	0.050	10/08/2012	ND	1.79	89.7	2.00	14.3	
Total Xylenes*	<0.150	0.150	10/08/2012	ND	5.33	88.8	6.00	13.5	

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	
Chloride	16.0	16.0	10/08/2012	ND	400	100	400	4.08		

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 91.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.0 % 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.  
 FRED HOLMES  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

 Received: 10/02/2012  
 Reported: 10/09/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/02/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HA 10 0-1 (H202404-07)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/08/2012	ND	2.03	101	2.00	14.6	
Toluene*	<0.050	0.050	10/08/2012	ND	1.81	90.7	2.00	13.8	
Ethylbenzene*	<0.050	0.050	10/08/2012	ND	1.79	89.7	2.00	14.3	
Total Xylenes*	<0.150	0.150	10/08/2012	ND	5.33	88.8	6.00	13.5	

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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
Chloride	128	16.0	10/08/2012	ND	400	100	400	4.08	

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 93.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.9 % 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.  
FRED HOLMES  
P. O. BOX 8469  
MIDLAND TX, 79708  
Fax To: (432) 563-2213

Received: 10/02/2012  
Reported: 10/09/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/02/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 10 4-5 (H202404-08)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/08/2012	ND	2.03	101	2.00	14.6	
Toluene*	<0.050	0.050	10/08/2012	ND	1.81	90.7	2.00	13.8	
Ethylbenzene*	<0.050	0.050	10/08/2012	ND	1.79	89.7	2.00	14.3	
Total Xylenes*	<0.150	0.150	10/08/2012	ND	5.33	88.8	6.00	13.5	

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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
Chloride	720	16.0	10/08/2012	ND	400	100	400	4.08	

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	10/05/2012	ND	203	101	200	0.901	
DRO >C10-C28	<10.0	10.0	10/05/2012	ND	204	102	200	3.59	

Surrogate: 1-Chlorooctane 95.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.8 % 63.6-154

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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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>E. Tech</u>		BILL TO		ANALYSIS REQUEST																							
Project Manager:		P.O. #:																									
Address:		Company:																									
City:		Attn:																									
Phone #:		Address:																									
Project #:		City:																									
Project Name: <u>TL Keel R 22</u>		State: Zip:																									
Project Location:		Phone #:																									
Sampler Name: <u>Terry Orsola</u>		Fax #:																									
FOR LAB USE ONLY						MATRIX		PRESERV.		SAMPLING																	
Lab I.D.	Sample I.D.	(GRAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME													
<u>H702404</u>	<u>4A1 2-3</u>																										
<u>1</u>	<u>HA2 0-1</u>																										
<u>2</u>	<u>HA4 0-1</u>																										
<u>3</u>	<u>HA6 0-1</u>																										
<u>4</u>	<u>HA6 4-5</u>																										
<u>5</u>	<u>HA8 1-2</u>																										
<u>6</u>	<u>HA10 0-1</u>																										
<u>7</u>	<u>HA10 4-5</u>																										
<u>8</u>																											

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Relinquished By: <u>Terry Orsola</u>	Date: <u>10-2-12</u>	Received By: <u>Godi Benson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <u>3:00</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 checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>	(Initials)		
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<u>GA</u>		

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

#26



October 12, 2012

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: J L KEEL B #22

Enclosed are the results of analyses for samples received by the laboratory on 10/05/12 14:50.

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:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 11 0-1' (H202436-01)**

BTEX 8021B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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
Chloride	16.0	16.0	10/09/2012	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	10/09/2012	ND	183	91.6	200	1.21	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93	

Surrogate: 1-Chlorooctane 95.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 96.7 % 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.  
FRED HOLMES  
P. O. BOX 8469  
MIDLAND TX, 79708  
Fax To: (432) 563-2213

Received: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 11 11-12' (H202436-02)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 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	
Chloride	<16.0	16.0	10/09/2012	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	10/09/2012	ND	183	91.6	200	1.21	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 102 % 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.  
 FRED HOLMES  
 P. O. BOX 8469  
 MIDLAND TX, 79708  
 Fax To: (432) 563-2213

Received: 10/05/2012  
 Reported: 10/12/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HA 12 0-1' (H202436-03)**

BTEx 8021B			mg/kg							
			Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20		
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64		
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82		
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76		

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	
Chloride	<16.0	16.0	10/09/2012	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	10/09/2012	ND	183	91.6	200	1.21		
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93		

Surrogate: 1-Chlorooctane 96.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 99.5 % 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.  
FRED HOLMES  
P. O. BOX 8469  
MIDLAND TX, 79708  
Fax To: (432) 563-2213

Received: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 12 9-10' (H202436-04)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	
Chloride	<16.0	16.0	10/09/2012	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	10/09/2012	ND	183	91.6	200	1.21	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93	

Surrogate: 1-Chlorooctane 92.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.8 % 63.6-154

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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: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 13 0-1' (H202436-05)**

BTX 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	
Chloride	<16.0	16.0	10/10/2012	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	10/09/2012	ND	183	91.6	200	1.21	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93	

Surrogate: 1-Chlorooctane 90.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.0 % 63.6-154

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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:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 13 8-9' (H202436-06)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	
Chloride	<16.0	16.0	10/10/2012	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	10/09/2012	ND	183	91.6	200	1.21	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	179	89.5	200	1.93	

Surrogate: 1-Chlorooctane 88.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.2 % 63.6-154

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

Received:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 14 0-1' (H202436-07)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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
Chloride	32.0	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 96.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.5 % 63.6-154

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

Received: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: HA 14 6-7' (H202436-08)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	
Chloride	<16.0	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 89.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.6 % 63.6-154

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

Received:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 15 0-1' (H202436-09)**

BTEx 8021B			mg/kg							
			Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20		
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64		
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82		
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76		

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	
Chloride	16.0	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44		
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09		

Surrogate: 1-Chlorooctane 86.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.4 % 63.6-154

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

Received:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: HA 15 6-7' (H202436-10)**

BTX 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	
Chloride	<16.0	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 88.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.3 % 63.6-154

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**Analytical Results For:**

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

 Received: 10/05/2012  
 Reported: 10/12/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/05/2012  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NHA1 0-1' (H202436-11)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 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
Chloride	224	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 90.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.7 % 63.6-154

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

Received: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: NHA1 1-2' (H202436-12)**

BTX 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 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	
Chloride	64.0	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 72.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 73.3 % 63.6-154

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

Received: 10/05/2012  
Reported: 10/12/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/05/2012  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: NHA2 0-1' (H202436-13)**

BTEx 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 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
Chloride	3640	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<10.0	10.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 91.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.6 % 63.6-154

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

Received:	10/05/2012	Sampling Date:	10/05/2012
Reported:	10/12/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: NHA 3 0-1' (H202436-14)**

BTX 8021B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/11/2012	ND	1.93	96.6	2.00	8.20	
Toluene*	<0.050	0.050	10/11/2012	ND	1.77	88.3	2.00	7.64	
Ethylbenzene*	<0.050	0.050	10/11/2012	ND	1.72	85.9	2.00	7.82	
Total Xylenes*	<0.150	0.150	10/11/2012	ND	5.23	87.2	6.00	7.76	

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 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
Chloride	592	16.0	10/10/2012	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	10/09/2012	ND	197	98.7	200	1.44	
DRO >C10-C28	<50.0	50.0	10/09/2012	ND	204	102	200	4.09	

Surrogate: 1-Chlorooctane 91.1 % 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

**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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---

Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: E tech				BILL TO				ANALYSIS REQUEST															
Project Manager:				P.O. #:																			
Address:				Company:																			
City:		State:		Zip:		Attn:																	
Phone #:		Fax #:		Address:																			
Project #:		Project Owner:		City:																			
Project Name: JL keel B 22				State: Zip:																			
Project Location:				Phone #:																			
Sampler Name: Terry Osborn				Fax #:																			
FOR LAB USE ONLY																							
Lab I.D.		Sample I.D.		(GRAB OR (COMP. # CONTAINERS		MATRIX		PRESERV		SAMPLING													
				# CONTAINERS		GROUNDWATER																	
						WASTEWATER																	
						SOIL																	
						OIL																	
						SLUDGE																	
						OTHER :																	
						ACID/BASE:																	
						ICE / COOL																	
						OTHER :																	
								DATE		TIME													
H202436		1 HA 11 0-1'								10-5-12		chlorides											
		2 HA 11 11-12'										BTEx											
		3 HA 12 0-1'										TPH											
		4 HA 12 9-10'																					
		5 HA 13 0-1'																					
		6 HA 13 8-9'																					
		7 HA 14 0-1'																					
		8 HA 14 6-7'																					
		9 HA 15 0-1'																					
		10 HA 15 6-7'																					
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Relinquished By: Terry Osborn				Date: 10-5-12		Received By: Jodi Henson				Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No				Add'l Phone #:									
				Time: 2:50						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				(Initials)													
						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				50													

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 398-2326



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

**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>[Signature]</u> Date: <u>10-5-12</u> Time: <u>2:50</u>		Received By: <u>[Signature]</u> Date: _____ Time: _____		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: _____ Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #: _____ REMARKS: _____	
Relinquished By: _____ Date: _____ Time: _____		Received By: _____ Date: _____ Time: _____			
Delivered By: (Circle One) Sampler - UPS - Bus - Other: _____		Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: (Initials) <u>[Signature]</u>	

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



October 25, 2012

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: J L KEEL B #22

Enclosed are the results of analyses for samples received by the laboratory on 10/23/12 16:30.

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:	10/23/2012	Sampling Date:	10/23/2012
Reported:	10/25/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP 1 SURFACE (H202586-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5680	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 2 SURFACE (H202586-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 2 N. WALL 2' (H202586-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 2 S. WALL 2' (H202586-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3680	16.0	10/25/2012	ND	416	104	400	0.00	

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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: 10/23/2012  
 Reported: 10/25/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 10/23/2012  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: SP 3 SURFACE (H202586-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 4 SURFACE (H202586-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 4 N. WALL 2' (H202586-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4120	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 4 S. WALL 2' (H202586-08)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 5 SURFACE (H202586-09)**

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	10/25/2012	ND	416	104	400	0.00		

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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: 10/23/2012  
Reported: 10/25/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/23/2012  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: SP 5 N. WALL 1' (H202586-10)**

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	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 5 S. WALL 1' (H202586-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 6 SURFACE (H202586-12)**

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	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 7 SURFACE (H202586-13)**

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	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 8 SURFACE (H202586-14)**

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	10/25/2012	ND	416	104	400	0.00	

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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: 10/23/2012  
Reported: 10/25/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/23/2012  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: SP 8 N. WALL 1' (H202586-15)**

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	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 8 S. WALL 1' (H202586-16)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 9 SURFACE (H202586-17)**

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	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 9 N. WALL 1' (H202586-18)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 9 S. WALL 1' (H202586-19)**

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	10/25/2012	ND	416	104	400	0.00	

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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: 10/23/2012  
 Reported: 10/25/2012  
 Project Name: J L KEEL B #22  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 10/23/2012  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: SP 10 SURFACE (H202586-20)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 10 N. WALL 1' (H202586-21)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 10 S. WALL 1' (H202586-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	864	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 11 SURFACE (H202586-23)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 11 N. WALL 2' (H202586-24)**

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	10/25/2012	ND	416	104	400	0.00		

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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: 10/23/2012  
Reported: 10/25/2012  
Project Name: J L KEEL B #22  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 10/23/2012  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: SP 11 S. WALL 2' (H202586-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 12 SURFACE (H202586-26)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 12 N WALL 2' (H202586-27)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 13 W. WALL 2' (H202586-28)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 14 SURFACE (H202586-29)**

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	10/25/2012	ND	416	104	400	0.00		

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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:	10/23/2012	Sampling Date:	10/23/2012
Reported:	10/25/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SP 14 S. WALL 2' (H202586-30)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 15 SURFACE (H202586-31)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 15 E. WALL 2' (H202586-32)**

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	10/25/2012	ND	416	104	400	0.00		

**Sample ID: SP 16 SURFACE (H202586-33)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: NHS 1 (H202586-34)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/25/2012	ND	416	104	400	0.00	

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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:	10/23/2012	Sampling Date:	10/23/2012
Reported:	10/25/2012	Sampling Type:	Soil
Project Name:	J L KEEL B #22	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: NHS 2 (H202586-35)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3800	16.0	10/25/2012	ND	416	104	400	0.00		

**Sample ID: NHS 3 (H202586-36)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	10/25/2012	ND	416	104	400	0.00	

**Sample ID: SP 13 SURFACE (H202586-37)**

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	10/25/2012	ND	416	104	400	0.00		

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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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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

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Relinquished By: <i>[Signature]</i>		Date: <i>10/23</i> Time: <i>4:30</i>		Received By: <i>Jodi Benson</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: _____ Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #: _____ REMARKS: _____	
Relinquished By: _____		Date: _____ Time: _____		Received By: _____			
Delivered By: (Circle One) Sampler - UPS - Bus - Other: <i>270</i>				Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) <i>[Signature]</i>	

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

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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <b>Etcch</b> Project Manager: <b>Fred Holmes</b> Address: _____ City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____ Project #: <b>253-2995-009</b> Project Owner: _____ Project Name: <b>JL Keel B22</b> Project Location: <b>Eddy county</b> Sampler Name: <b>Terry Osborn</b>		<b>BILL TO</b> P.O. #: <b>253-2995-000</b> Company: _____ Attn: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____		<b>ANALYSIS REQUEST</b>												
FOR LAB USE ONLY				(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX		PRESERV.		SAMPLING		Chlorides		
Lab I.D.	Sample I.D.			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE			TIME
<b>H202586</b>																
<b>21</b>	<b>SP10 N. wall 1)</b>												<b>10-23</b>			
<b>22</b>	<b>SP10 S. wall 1)</b>															
<b>23</b>	<b>SP11 SURFACE</b>															
<b>24</b>	<b>SP11 N. wall 2)</b>															
<b>25</b>	<b>SP11 S. wall 2)</b>															
<b>26</b>	<b>SP12 SURFACE</b>															
<b>27</b>	<b>SP12 N wall 2)</b>															
<b>28</b>	<b>SP13 W wall 2)</b>															
<b>29</b>	<b>SP14 SURFACE</b>															
<b>30</b>	<b>SP14 S. wall 2)</b>															

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Relinquished By: _____ Date: <b>10-23</b> Time: <b>4:30</b>		Received By: <b>Jodi Benson</b> Date: _____ Time: _____		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: _____ Add'l Fax #: _____		REMARKS: _____	
Relinquished By: _____ Date: _____ Time: _____		Received By: _____ Date: _____ Time: _____					

Delivered By: (Circle One) Sampler - UPS - Bus - Other: _____		Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) <b>JS</b>			
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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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(575) 393-2326 FAX (575) 393-2476

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## Chloride Probe Field Analysis Sheet

**Client:** LINN Energy  
**Site:** JL Keel B 22 **Project Number:** 253-2995-000  
**Technican:** Terry Osborn **Contaminant:** Chlorides  
**Instrument:** YSI Chloride Probe **Model/SN:** Pro 1030/114100517  
**Calibration Checks Good:** ☒ Yes ☐ No **Claibration Standard:** 250

Date	Sample I.D.	Milliliters of Sample Used	Dilution	Reading (mg/kg)	Final Result (mg/kg)	Notations
10/01/12	HA1 0-1'	10	5.00	383.00	1,915.00	
10/01/12	HA1 1-2'	10	5.00	213.00	1,065.00	
10/01/12	HA1 2-3'	10	5.00	795.00	3,975.00	Refusal
10/02/12	HA2 0-1'	10	5.00	6.00	30.00	Refusal
10/02/12	HA3 0-1'	10	5.00	32.00	160.00	Refusal
10/02/12	HA4 0-1'	10	5.00	7.00	35.00	Refusal
10/02/12	HA5 0-1	10	5.00	3.00	15.00	
10/02/12	HA5 1-2'	10	5.00	5.00	25.00	
10/02/12	HA5 2-3'	10	5.00	7.00	35.00	
10/02/12	HA5 3-4'	10	5.00	7.00	35.00	
10/02/12	HA5 4-5'	10	5.00	5.00	25.00	
10/02/12	HA5 5-6'	10	5.00	8.00	40.00	
10/02/12	HA5 6-7'	10	5.00	5.00	25.00	
10/02/12	HA5 7-8'	10	5.00	3.00	15.00	
10/02/12	HA5 8-9'	10	5.00	3.00	15.00	Refusal
10/02/12	HA6 0-1'	10	5.00	6.00	30.00	
10/02/12	HA6 1-2'	10	5.00	82.00	410.00	
10/02/12	HA6 2-3'	10	5.00	58.00	290.00	
10/02/12	HA6 3-4'	10	5.00	40.00	200.00	
10/02/12	HA6 4-5'	10	5.00	18.00	90.00	Refusal
10/02/12	HA7 0-1'	10	5.00	6.00	30.00	
10/02/12	HA7 1-2'	10	5.00	2.00	10.00	Refusal
10/02/12	HA8 0-1'	10	5.00	3.00	15.00	
10/02/12	HA8 1-2'	10	5.00	4.00	20.00	Refusal
10/02/12	HA9 0-1'	10	5.00	4.00	20.00	Refusal
10/02/12	HA10 0-1'	10	5.00	15.00	75.00	
10/02/12	HA10 1-2'	10	5.00	45.00	225.00	
10/02/12	HA10 2-3'	10	5.00	46.00	230.00	
10/02/12	HA10 3-4'	10	5.00	80.00	400.00	
10/02/12	HA10 4-5'	10	5.00	83.00	415.00	Refusal

## Chloride Probe Field Analysis Sheet

**Client:** LINN Energy  
**Site:** JL Keel B 22 **Project Number:** 253-2995-000  
**Technican:** Terry Osborn **Contaminant:** Chlorides  
**Instrument:** YSI Chloride Probe **Model/SN:** Pro 1030/114100517  
**Calibration Checks Good:** ☒ Yes ☐ No **Claibration Standard:** 250

Date	Sample I.D.	Milliliters of Sample Used	Dilution	Reading (mg/kg)	Final Result (mg/kg)	Notations
10/03/12	HA11 0-1'	10	5.00	5.00	25.00	
10/03/12	HA11 1-2'	10	5.00	5.00	25.00	
10/03/12	HA11 2-3'	10	5.00	4.00	20.00	
10/03/12	HA11 3-4'	10	5.00	3.00	15.00	
10/03/12	HA11 4-5'	10	5.00	4.00	20.00	
10/03/12	HA11 5-6'	10	5.00	3.00	15.00	
10/03/12	HA11 6-7'	10	5.00	2.00	10.00	
10/03/12	HA11 7-8'	10	5.00	1.00	5.00	
10/03/12	HA11 8-9'	10	5.00	4.00	20.00	
10/03/12	HA11 9-10'	10	5.00	5.00	25.00	
10/03/12	HA11 10-11'	10	5.00	3.00	15.00	
10/03/12	HA11 11-12'	10	5.00	3.00	15.00	Refusal
10/04/12	HA12 0-1'	10	5.00	3.00	15.00	
10/04/12	HA12 1-2'	10	5.00	2.00	10.00	
10/04/12	HA12 2-3'	10	5.00	2.00	10.00	
10/04/12	HA12 3-4'	10	5.00	3.00	15.00	
10/04/12	HA12 4-5'	10	5.00	4.00	20.00	
10/04/12	HA12 5-6'	10	5.00	2.00	10.00	
10/04/12	HA12 6-7'	10	5.00	3.00	15.00	
10/04/12	HA12 7-8'	10	5.00	2.00	10.00	
10/04/12	HA12 8-9'	10	5.00	2.00	10.00	
10/04/12	HA12 9-10'	10	5.00	2.00	10.00	Refusal
10/04/12	HA13 0-1'	10	5.00	4.00	20.00	
10/04/12	HA13 1-2'	10	5.00	5.00	25.00	
10/04/12	HA13 2-3'	10	5.00	3.00	15.00	
10/04/12	HA13 3-4'	10	5.00	2.00	10.00	
10/04/12	HA13 4-5'	10	5.00	4.00	20.00	
10/04/12	HA13 5-6'	10	5.00	3.00	15.00	
10/04/12	HA13 6-7'	10	5.00	3.00	15.00	
10/04/12	HA13 7-8'	10	5.00	3.00	15.00	
10/04/12	HA13 8-9'	10	5.00	4.00	20.00	Refusal



## Chloride Probe Field Analysis Sheet

**Client:** LINN Energy

**Site:** JL Keel B 22

**Technician:** Terry Osborn

**Instrument:** YSI Chloride Probe

Project Number: 253-2995-000

**Contaminant:** Chlorides

**Model/SN:** Pro 1030/114100517

**Calibration Checks Good:** ☒ Yes ☐ No

**Claibration Standard: 250**

[illegible]