

## **LINN ENERGY**

2130 W. Bender Blvd.  
Hobbs, NM 88241  
Phone 575.738.1739

# Skelly Unit 22

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## Closure Report

2RP-1400

API No. 30-015-05141

Release Date: November 12<sup>th</sup>, 2012

Unit Letter J, Section 14, Township 17S, Range 31E

# Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241

Phone 575.393.2967

CERTIFIED MAIL

RETURN RECEIPT NO. 7008 1140 0001 3072 7513

**July 19<sup>th</sup>, 2013**

**Mr. Mike Bratcher**

New Mexico Energy, Minerals, & Natural Resources

Oil Conservation Division, Environmental Bureau – District 2

811 S. First St.

Artesia, New Mexico 88210

**RE: Termination Request**

**Linn Energy – Skelly Unit 22 (2RP-1400)**

**UL/J sec. 14 T17S R31E**

**API No. 30-015-05141**

Mr. Bratcher:

Linn Energy (Linn) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

## **Background and Previous Work**

On November 12<sup>th</sup>, 2012, an accidental discharge of produced water and oil from a ruptured fiberglass line occurred. The well head was shut in and a vacuum truck was called to clean up the standing fluid. A total of 16 barrels of produced water and 4 barrels of oil were released from the line. A total of 3 barrels of produced water and 2 barrels of oil were recovered by vacuum truck. An initial C-141 was submitted by Linn Energy on November 13<sup>th</sup>, 2012 (Appendix A). The site is located 4.5 miles west of Maljamar in unit letter 'J', sec. 14, T17S R31E in Eddy County, New Mexico. This site is in an area of no known groundwater.

On November 16<sup>th</sup>, 2012, RECS personnel were on site to initial work on the Skelly Unit 22 Injection Line. Soil samples were taken from the surface of the release and field tested for chlorides and hydrocarbons (Figure 1).

A Corrective Action Plan was submitted to NMOCD District 2 and BLM, which recommended that the release area be excavated to a maximum depth of 4 ft bgs or to a laboratory chloride level of 1,000 mg/kg. Final chloride and hydrocarbon samples would be taken to a commercial laboratory for analysis and the site would be backfilled with clean, imported soil. The site would then be seeded with a blend of native vegetation. The Corrective Action Plan was approved on May 2<sup>nd</sup>, 2013.

The site was excavated to 4 ft bgs and the excavated soil was disposed of at a NMOCD approved facility. The walls and bottom of the excavation were field tested for chlorides

and hydrocarbons and then sent to a commercial laboratory for analysis (Figure 2). The wall samples returned low chloride, TPH and BTEX results. The bottom sample returned low TPH and BTEX results but returned a chloride value of 6,400 mg/kg (Appendix B). Due to the high chloride reading at the bottom of the excavation, NMOCD District 2 requested that a vertical be installed to determine the vertical extent of contamination.

On June 4<sup>th</sup>, 2013, a vertical was installed in the center of the release area (Figure 3). The vertical was advanced to 11.5 ft where field data evidenced chloride levels below 250 mg/kg. The bottom two samples (11 ft and 11.5 ft) were taken to a commercial laboratory for analysis. The 11 ft sample returned a chloride value of 80 mg/kg and the 11.5 ft sample returned a chloride value of 128 mg/kg. GRO and DRO readings for both samples were non-detect (Appendix C).

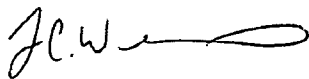
Based on this data, BLM gave permission to backfill the site on June 7<sup>th</sup>, 2013 and NMOCD District 2 gave permission to backfill the site on June 10<sup>th</sup>, 2013. The site was backfilled with clean, imported caliche up to 1.5 ft and the remainder of the excavation was backfilled with clean, imported top soil. The site was contoured to the surrounding location and was seeded on July 16<sup>th</sup>, 2013 using BLM mix #2.

Photo documentation of these activities can be found in Appendix D.

Due to the removal of impacted soils as approved by the Corrective Action Plan and given the lack of groundwater at the site, RECS, on behalf of Linn Energy, submits the final C-141 (Appendix E) and respectfully requests the closure of the regulatory file for this site.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 631-6432 if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'J.C.W.' followed by a stylized flourish.

Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

cc. Mike Burton, BLM

Attachments:

- Figure 1 – Initial Sampling Field Data
- Figure 2 – Excavation Sampling Data
- Figure 3 – Vertical Lab Sampling Data

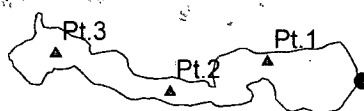
Appendix A – Initial C-141  
Appendix B – Excavation Sampling Laboratory Analyses  
Appendix C – Vertical Sampling Laboratory Analyses  
Appendix D – Photo Documentation  
Appendix E – Final C-141

# Figures

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948, Hobbs, NM 88241  
Phone 575.393.2967

# Initial Sampling Field Data

Pt. 3	Cl-	PID
Surface	4458	18.1



Pt. 1	Cl-	PID
Surface	14066	30.3

Pt. 2	Cl-	PID
Surface	3419	51.2

## Legend

▲ SAMPLE POINT

● WELLHEAD

□ STAIN IN PASTURE (2,251 SQ FT)

DGW = none  
Landowner = BLM

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## LINN SKELLY UNIT 22 INJECTION LINE AD

LEGALS: UL/J SEC 14  
T17S R31E  
EDDY COUNTY

## Figure 1

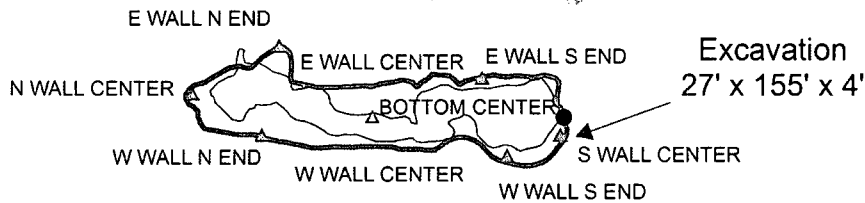


0 80 160  
Feet

GPS date: 11/16/2012 DH  
Drawing date: 11/19/2012  
Drafted by: A.C. Ruth

# Excavation Sampling Data

	CI-	GRO	DRO	B	T	E	X	BTEX
N Wall Center	<16	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
E Wall S End	48	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
E Wall N End	224	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
S Wall Center	112	<50	106	<0.05	0.05	<0.05	<0.15	<0.3
W Wall N End	<16	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
W Wall S End	32	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3
Bottom Center @ 4'	6400	<10	<10	<0.05	<0.05	<0.05	<0.15	<0.3



## Legend

- Δ FINAL SAMPLE POINTS
- WELLHEAD
- FINAL SCRAPE
- STAIN IN PASTURE (2,251 SQ FT)

DGW = none  
Landowner = BLM

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## LINN SKELLY UNIT 22 INJECTION LINE AD

LEGALS: UL/J SEC 14  
T17S R31E  
EDDY COUNTY

Figure 2

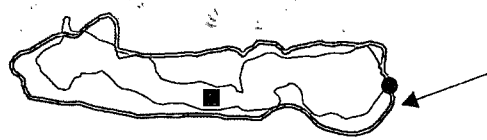


0 80 160  
Feet

GPS date: 5/16/13 DH  
Drawing date: 5/17/13  
Drafted by: L. Weinheimer

# Vertical Lab Sampling Data

Depth	CI-	PID	GRO	DRO
4.5'	3190	112.9		
5'	745	99.8		
5.5'	997	85.3		
6'	471	75.2		
6.5'	497	65.4		
7'	393	57.4		
7.5'	280	55.4		
8'	287	7.8		
8 1/2'	1178	0		
9'	579	0		
9 1/2'	195	0		
10'	284	0		
10 1/2'	296	0		
11'	80	0	<10	<10
11 1/2'	128	0	<10	<10



Excavation  
27' x 155' x 4'

## Legend

- VERTICAL CI- LAB DATA
- WELLHEAD
- FINAL SCRAPE
- STAIN IN PASTURE (2,251 SQ FT)

DGW = none  
Landowner = BLM

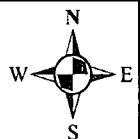
©2013 Microsoft Corporation/Mapbox.com



## LINN SKELLY UNIT 22 INJECTION LINE AD

LEGALS: UL/J SEC 14  
T17S R31E  
EDDY COUNTY

## Figure 3



0 80 160  
Feet

GPS date: 6/4/13 KL  
Drawing date: 6/7/13  
Drafted by: L. Weinheimer



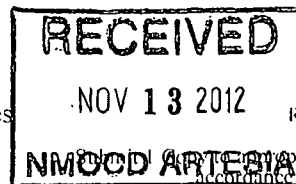
# Appendix A

Initial C-141

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

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  
Submit to appropriate District Office in accordance with 19.15.29 NMAC

### Release Notification and Corrective Action

Name of Company: Linn Operating <b>269324</b>		OPERATOR	<input checked="" type="checkbox"/> Initial Report <input type="checkbox"/> Final Report
Address: 2130 W. Bender Hobbs, NM 88240		Contact: Joe Hernandez	
Facility Name: Skelly Unit 22		Telephone No.: 575-738-1739	
		Facility Type: Injection	
Surface Owner: Federal		Mineral Owner: Federal	API No.: 3001505141

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	14	17S	31E	1980	South	1980	East	Eddy

Latitude: 32.8328085357084 Longitude: -103.838236969146

### NATURE OF RELEASE

Type of Release: Produced Water / Oil	Volume of Release: 16bbbls / 4bbbls	Volume Recovered: 3bbbls / 2bbbls
Source of Release: Fiberglass line	Date and Hour of Occurrence: 11/12/2012 7am	Date and Hour of Discovery: 11/12/2012 7:30am
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? Gary Wink	Date and Hour 11/13/2012 9:15am	
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.*: Checking wells noticed fluid at well head along side Chevron Loc. Skelly 672. Hole in fiberglass line. Close in well head at main header. Call vacuum truck.		
Describe Area Affected and Cleanup Action Taken.*: Area covered 150' x 12' 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 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 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 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: NOV 14 2012	Expiration Date:
E-mail Address: jhernandez@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 11/13/2012 Phone: 575-942-9492		

\* Attach Additional Sheets If Necessary

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

Dec. 14, 2012

2RP-1400

# Appendix B

## Excavation Sampling Laboratory Analyses

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967



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

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May 24, 2013

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: SKELLY UNIT INJECTION LINE

Enclosed are the results of analyses for samples received by the laboratory on 05/17/13 8:50.

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,

A handwritten signature in black ink that reads "Coley D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: SOUTH WALL CENTER (H301184-01)**

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	05/22/2013	ND	2.28	114	2.00	3.54	
<b>Toluene*</b>	<b>0.050</b>	0.050	05/22/2013	ND	2.05	103	2.00	3.17	
Ethylbenzene*	<0.050	0.050	05/22/2013	ND	2.22	111	2.00	2.97	
Total Xylenes*	<0.150	0.150	05/22/2013	ND	6.42	107	6.00	2.81	
Total BTX	<0.300	0.300	05/22/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 119 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: DW				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>112</b>	16.0	05/22/2013	ND	432	108	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	05/17/2013	ND	212	106	200	0.0761	
<b>DRO &gt;C10-C28</b>	<b>106</b>	50.0	05/17/2013	ND	210	105	200	1.98	

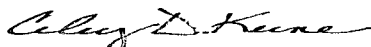
Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 125 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: W WALL N END CENTER (H301184-02)**

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	05/22/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/22/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/22/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/22/2013	ND	6.42	107	6.00	2.81		
Total BTEX	<0.300	0.300	05/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 117 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	05/22/2013	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761	
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98	

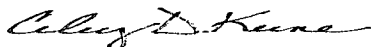
Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: W WALL S END CENTER (H301184-03)**

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	05/22/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/22/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/22/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/22/2013	ND	6.42	107	6.00	2.81		
Total BTEX	<0.300	0.300	05/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 116 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/22/2013	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761	
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98	

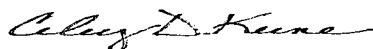
Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: E WALL N END CENTER (H301184-04)**

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	05/22/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/22/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/22/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/22/2013	ND	6.42	107	6.00	2.81		
Total BTEx	<0.300	0.300	05/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 116 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	05/22/2013	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761	
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98	

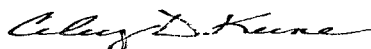
Surrogate: 1-Chlorooctane 102 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

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:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: E WALL S END CENTER (H301184-05)**

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	05/24/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/24/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/24/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/24/2013	ND	6.42	107	6.00	2.81		
Total BTEX	<0.300	0.300	05/24/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 114 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	05/22/2013	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761		
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98		

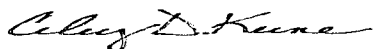
Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 105 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celest D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: N WALL CENTER (H301184-06)**

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	05/24/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/24/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/24/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/24/2013	ND	6.42	107	6.00	2.81		
Total BTEX	<0.300	0.300	05/24/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 112 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	05/22/2013	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761	
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98	

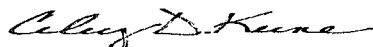
Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	05/17/2013	Sampling Date:	05/16/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: BOTTOM CENTER @ 4' (H301184-07)**

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	05/22/2013	ND	2.28	114	2.00	3.54		
Toluene*	<0.050	0.050	05/22/2013	ND	2.05	103	2.00	3.17		
Ethylbenzene*	<0.050	0.050	05/22/2013	ND	2.22	111	2.00	2.97		
Total Xylenes*	<0.150	0.150	05/22/2013	ND	6.42	107	6.00	2.81		
Total BTEX	<0.300	0.300	05/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 118 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6400	16.0	05/22/2013	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2013	ND	212	106	200	0.0761	
DRO >C10-C28	<10.0	10.0	05/17/2013	ND	210	105	200	1.98	

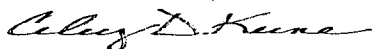
Surrogate: 1-Chlorooctane 95.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.4 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

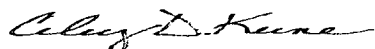
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient 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



**101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603**  
**(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020**

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: RECS						<b>BILL TO</b>								<b>ANALYSIS REQUEST</b>								
Project Manager: Bruce Baker						P.O. #:																
Address:						Company:																
City: State: NM Zip: 88240						Attn:																
Phone #: Fax #:						Address:																
Project #: Project Owner:						City:																
Project Name: Skelly unit injection line						State: Zip:																
Project Location:						Phone #:																
Sampler Name: Dakston Harris						Fax #:																
FOR LAB USE ONLY																						
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.	SAMPLING		Chlorides TPH 8015 M  BTEX  Texas TPH  Complete Cations/Anions  TDS									
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:								DATE	TIME	
H301184		G	1			✓				✓										5/16/13	10:00	
1	south wall center	G	1			✓				✓										✓	✓	✓
2	west wall north end center	G	1			✓				✓										✓	✓	✓
3	west wall south end center	G	1			✓				✓										✓	✓	✓
4	east wall north end center	G	1			✓				✓										✓	✓	✓
5	east wall south end center	G	1			✓				✓										✓	✓	✓
6	north wall center	G	1			✓				✓										✓	✓	✓
7	bottom center @4'	G	1			✓				✓			✓	✓	✓							
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Relinquished By: <i>Kab Harris</i>				Date: 5/17/13 Time: 10:50	Received By: <i>Jodi Benson</i>				Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:													
Relinquished By:				Date:	Received By:				Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:													
				Time:					REMARKS:  email results													
Delivered By: (Circle One)								Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				CHECKED BY: <i>[Signature]</i>				Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com						
Sampler - UPS - Bus - Other:																						

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54

# Appendix C

## Vertical Sampling Laboratory Analyses

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967



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

---

June 06, 2013

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: SKELLY UNIT INJECTION LINE

Enclosed are the results of analyses for samples received by the laboratory on 06/06/13 10:43.

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:**

 RICE ENVIRONMENTAL CONSULTING & SAFETY  
 BRUCE BAKER  
 112 W. TAYLOR  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	06/06/2013	Sampling Date:	06/05/2013
Reported:	06/06/2013	Sampling Type:	Soil
Project Name:	SKELLY UNIT INJECTION LINE	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

**Sample ID: VERTICAL @ 11' (H301317-01)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/06/2013	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/06/2013	ND	214	107	200	5.56		
DRO >C10-C28	<10.0	10.0	06/06/2013	ND	220	110	200	4.61		
Surrogate: 1-Chlorooctane	101 %	65.2-140								
Surrogate: 1-Chlorooctadecane	105 %	63.6-154								

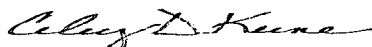
**Sample ID: VERTICAL @ 11 1/2' (H301317-02)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: DW					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	06/06/2013	ND	432	108	400	3.77		
TPH 8015M			mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/06/2013	ND	214	107	200	5.56		
DRO >C10-C28	<10.0	10.0	06/06/2013	ND	220	110	200	4.61		
Surrogate: 1-Chlorooctane										
	103 %	65.2-140								
Surrogate: 1-Chlorooctadecane										
	105 %	63.6-154								

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

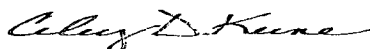
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received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

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>RECS</u>		<b>BILL-TO</b>		ANALYSIS REQUEST																								
Project Manager: <u>Bruce Baker</u>		P.O. #:																										
Address:		Company:																										
City: State: Zip:		Attn:																										
Phone #: Fax #:		Address:																										
Project #: Project Owner:		City:																										
Project Name:		State: Zip:																										
Project Location: <u>LINN Energy Skelly Injection Line</u>		Phone #:																										
Sampler Name: <u>Karanja Lewis</u>		Fax #:																										
FOR LAB USE ONLY	Lab I.D.	Sample I.D.	# CONTAINERS	MATRIX	PRESERV.	SAMPLING																						
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE/COOL	OTHER:	DATE	TIME														
	<u>H39317</u>																											
		<u>01 Vertical @ 11'</u>	<u>1</u>			<u>✓</u>				<u>✓</u>			<u>6-5-13</u>		<u>✓</u>	<u>✓</u>												
		<u>02 Vertical @ 11 1/2'</u>	<u>1</u>			<u>✓</u>				<u>✓</u>			<u>6-5-13</u>		<u>✓</u>	<u>✓</u>												
																	Please Rush											

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 any claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <u>[Signature]</u>	Date: <u>6/6/13</u>	Received By: <u>[Signature]</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <u>10:43</u>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: <u>Boeker</u> <u>L Weinheimer</u> <u>KLewis</u> <u>J Kamplain</u>	
	Time:		Email: <u>Please</u>	
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)	Please call Bo Baker with Verbal 631-5157	
Sampler - UPS - Bus - Other:	Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<u>col</u>		

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

# Appendix D

## Photo Documentation

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

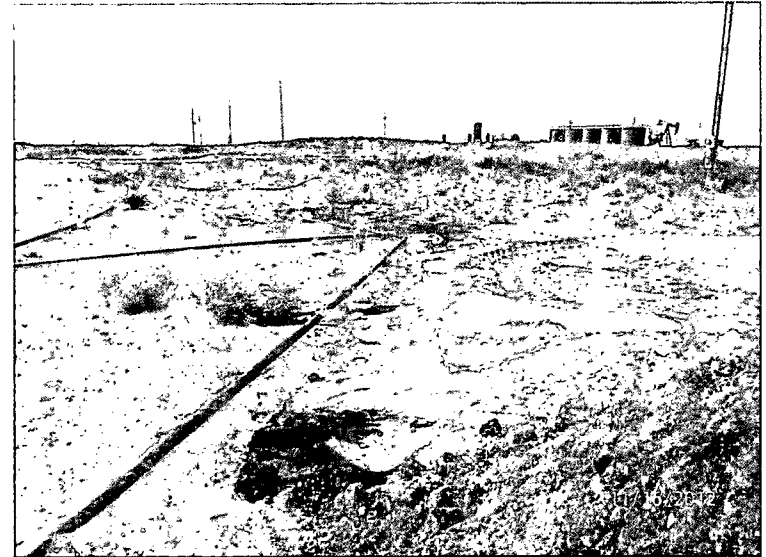
# Linn Skelly Unit 22 Injection Line AD

Unit Letter J, Section 14, T17S, R31E



Initial release area, facing west

11/16/12



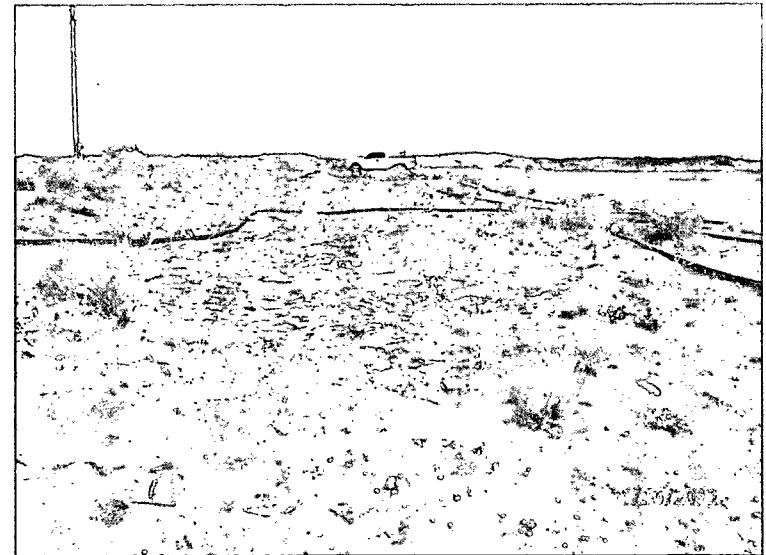
Initial release area, facing west

11/16/12



Initial release area, facing east

11/16/12



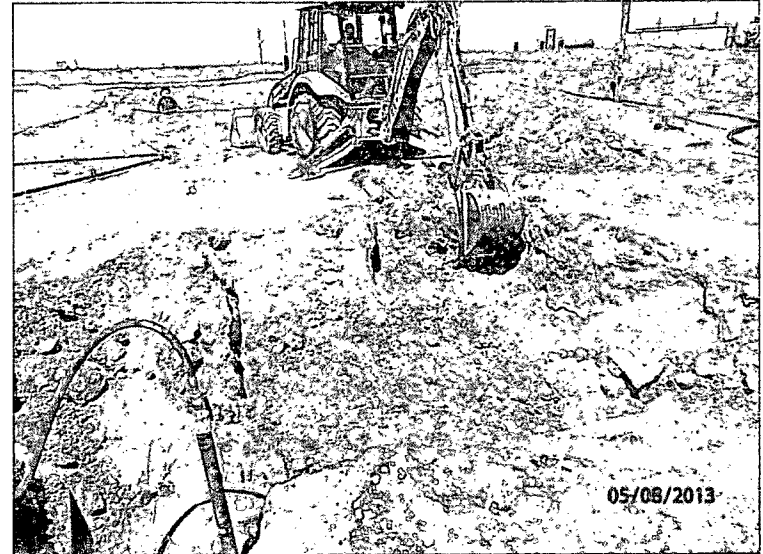
Initial release area, facing east

11/16/12



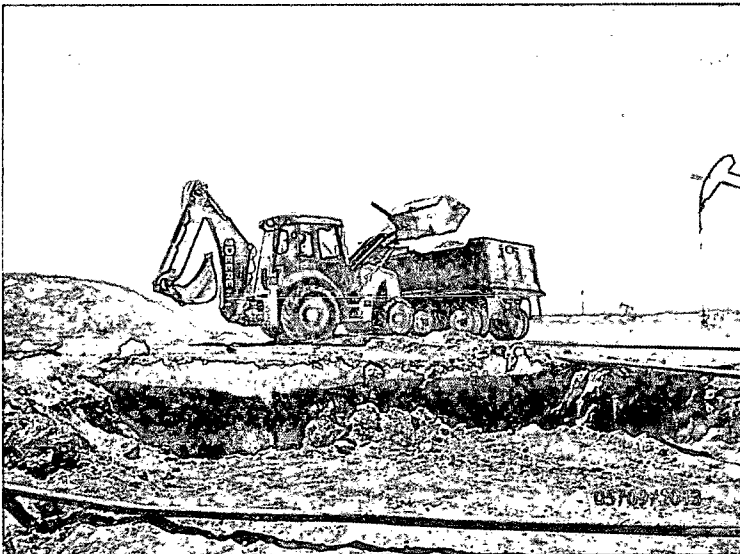
Spotting lines, facing north

5/8/13



Excavating site, facing north

5/8/13



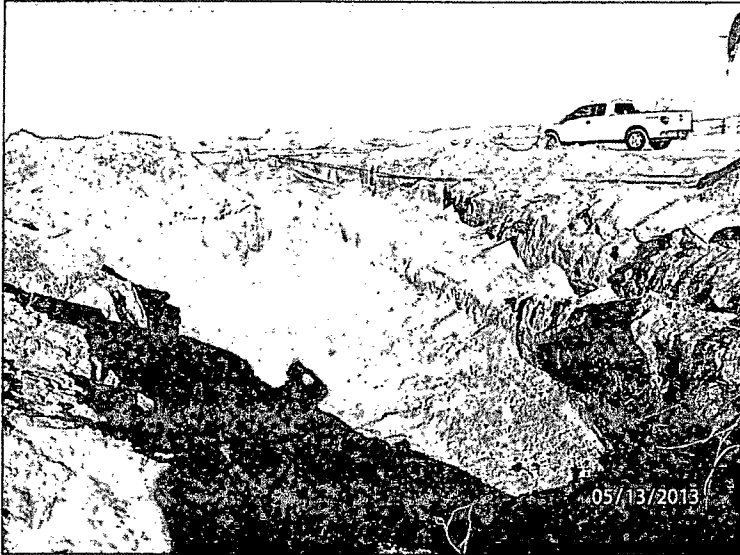
Exporting soil, facing west

5/9/13



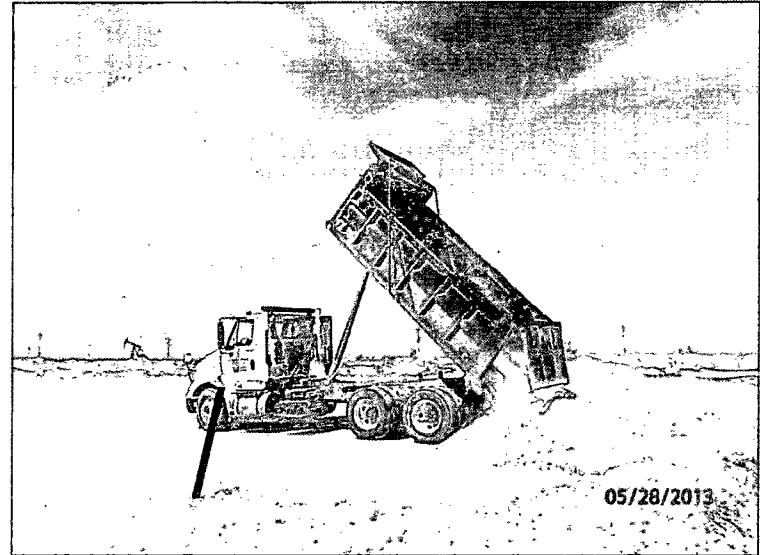
Final excavation, facing north

5/13/13



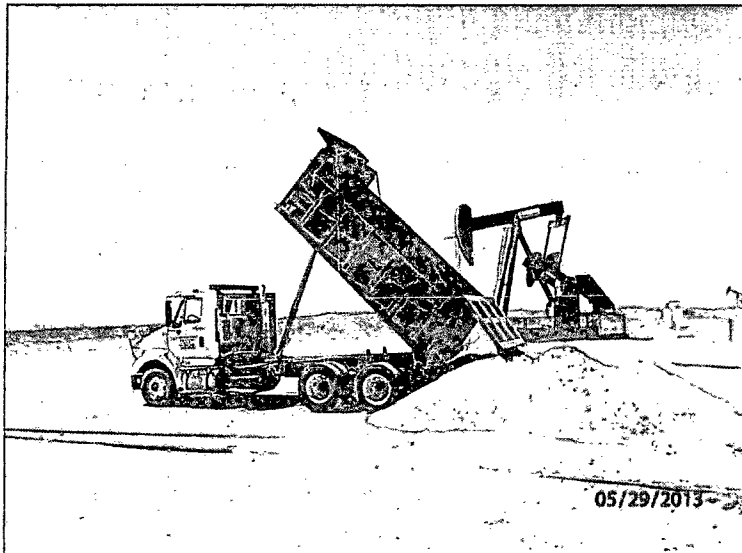
Final excavation, facing south

5/13/13



Importing caliche, facing southwest

5/28/13



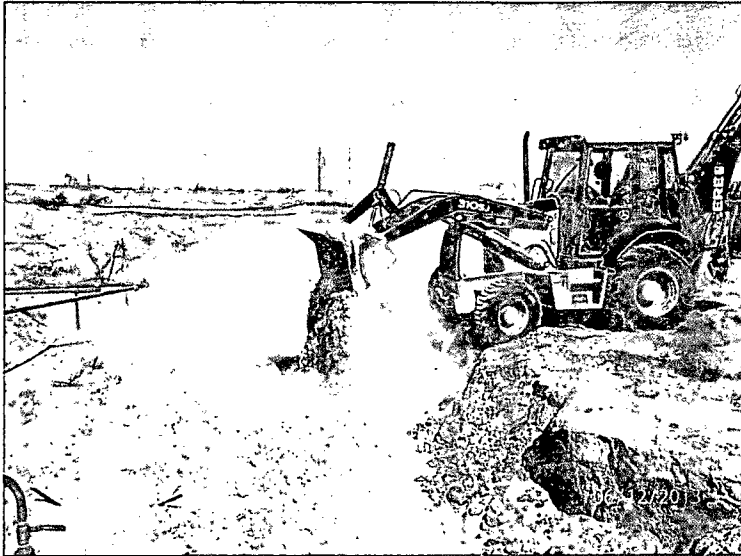
Importing sand, facing southwest

5/29/13



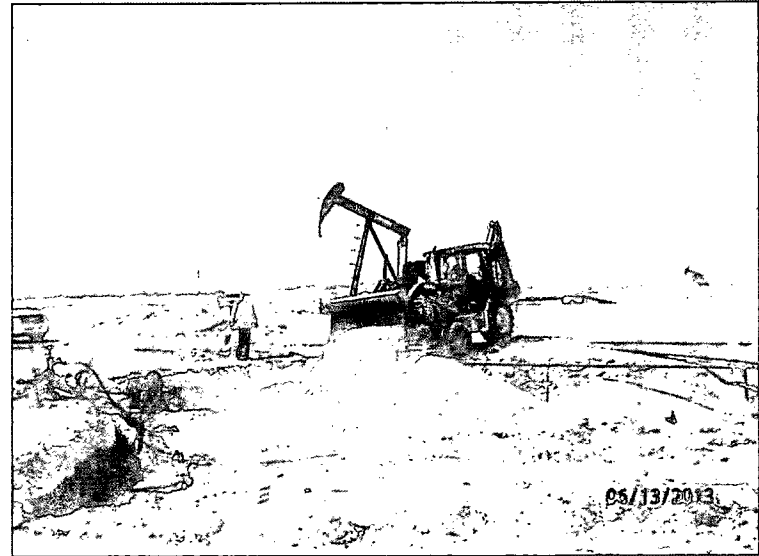
Vertical delineation, facing north

6/5/13



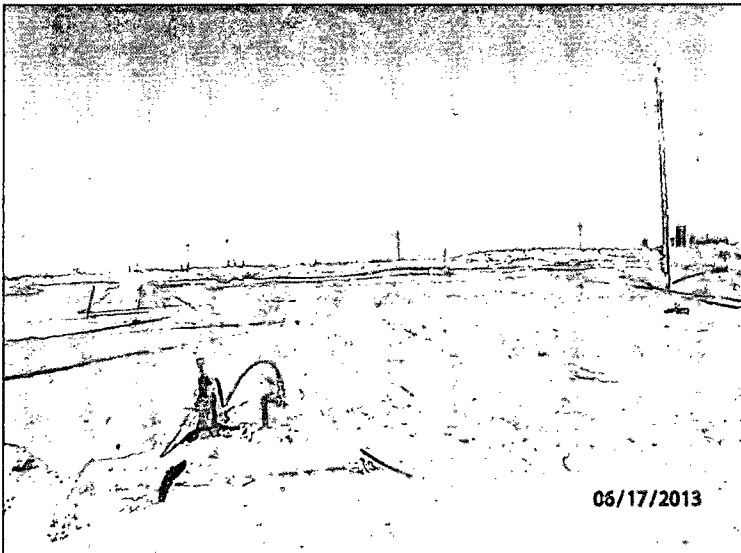
Backfilling with caliche, facing west

6/12/13



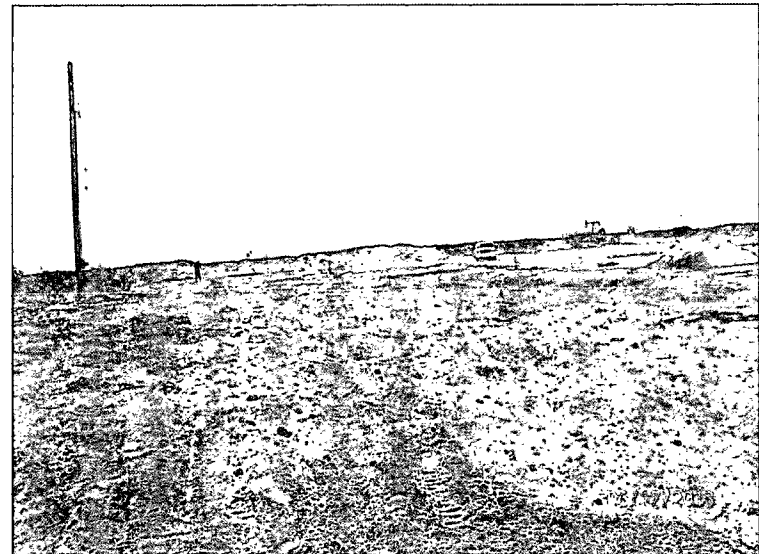
Backfilling with sand, facing south

6/13/13



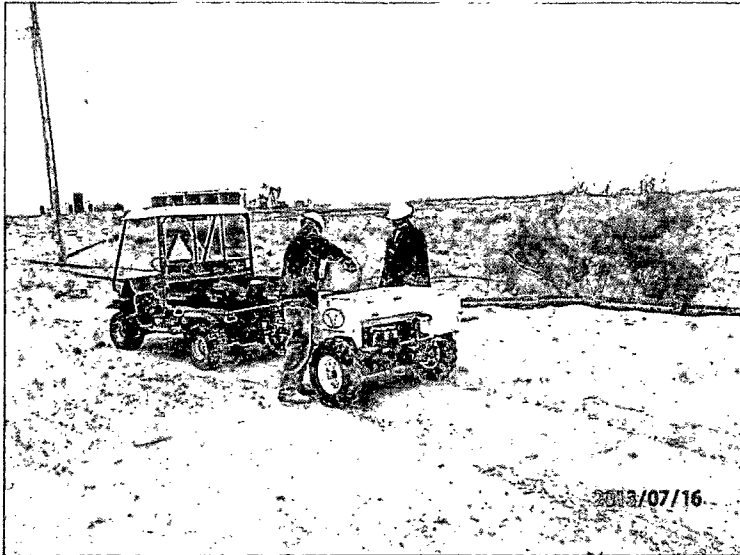
Site backfilled, facing west

6/17/13



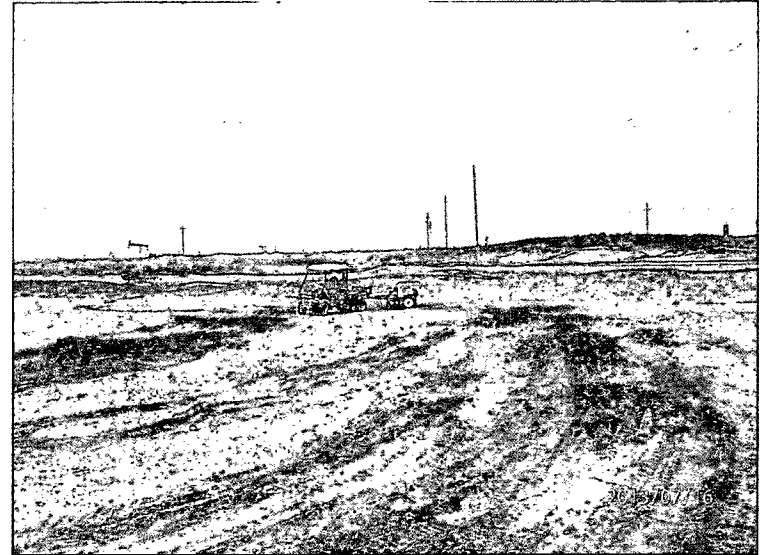
Site backfilled, facing southeast

6/17/13



Seeding site, facing northwest

7/16/13



Seeding site, facing west

7/16/13



# Appendix E

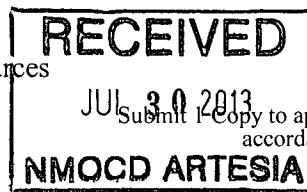
Final C-141

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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 August 8, 2011

### Release Notification and Corrective Action

#### OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	Linn Operating	Contact	Gary Wink
Address	2130 W. Bender Blvd. Hobbs, NM 88240	Telephone No.	(575) 738-1739
Facility Name	Skelly Unit 22	Facility Type	Injection
Surface Owner	Federal	Mineral Owner	Federal
		API No.	3001505141

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	14	17S	31E	1980	FSL	1980	FEL	Eddy

Latitude 32.832808535 Longitude -103.8382369

#### NATURE OF RELEASE

Type of Release	Produced water/Oil	Volume of Release	16 bbls/4 bbls	Volume Recovered	3 bbls/2 bbls
Source of Release	Fiberglass line	Date and Hour of Occurrence	11/12/12 7am	Date and Hour of Discovery	11/12/12 7:30 am
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher - NMOC; T. Gregston - BLM		
By Whom?	Gary Wink	Date and Hour	11/13/12 9:15 am		
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.\* Checking wells noticed fluid at well head alongside Chevron Loc. Skelly 672. Hole in fiberglass line. Closed in the well head at the main header and call for a vacuum truck.

Describe Area Affected and Cleanup Action Taken.\* A total of 2,251 sq ft of pasture was affected by the release. On November 16<sup>th</sup>, 2012, RECS personnel were on site to initial work on the Skelly Unit 22 Injection Line. Soil samples were taken from the surface of the release and field tested for chlorides and hydrocarbons. A Corrective Action Plan was submitted to NMOC District 2 and BLM, which was approved on May 2<sup>nd</sup>, 2013. The site was excavated to 4 ft bgs and the excavated soil was disposed of at a NMOC approved facility. The walls and bottom of the excavation were field tested for chlorides and hydrocarbons and then sent to a commercial laboratory for analysis. Due to the high chloride reading at the bottom of the excavation, NMOC District 2 requested that a vertical be completed to determine the vertical extent of contamination. On June 4<sup>th</sup>, 2013, a vertical was installed in the center of the release area. The vertical was advanced to 11.5 ft where field data evidenced chloride levels below 250 mg/kg. The bottom two samples (11 ft and 11.5 ft) were taken to a commercial laboratory for analysis. Based on this data, BLM gave permission to backfill the site on June 7<sup>th</sup>, 2013 and NMOC District 2 gave permission to backfill the site on June 10<sup>th</sup>, 2013. The site was backfilled with clean, imported caliche up to 1.5 ft and the remainder of the excavation was backfilled with clean, imported top soil. The site was contoured to the surrounding location and was seeded on July 16<sup>th</sup>, 2013 using BLM mix #2.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 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 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: <u>Mary W. Wink</u>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Gary Wink		Approved by Environmental Specialist:	
Title: Production Foreman		Approval Date:	Expiration Date:
E-mail Address: gawink@linenergy.com		Conditions of Approval:	
Date: <u>7/19/13</u> Phone: (575) 738-1739		Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary