



LINN ENERGY

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

J.L. Keel A #10
(2RP-2142)

Termination Request

API No. 30-015-05098

Release Date: December 27th, 2013

Unit Letter I, Section 7, Township 17S, Range 31E

March XX, 2015

Mike Bratcher

New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District 2
811 S. First St.
Artesia, NM 88210

**RE: Termination Request
Linn Energy – J.L. Keel A #10 (2RP-2142)
UL/I sec. 7 T17S R31E
API No. 30-015-05098**

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

The site is located approximately 4.9 miles northeast of Loco Hills, New Mexico. Although the initial C-141 states that the release occurred in UL/I, the release area also included in UL/O &P sec. 7 T17S R31E. This site is in an area of no groundwater.

On December 27th, 2013, a release of produced water occurred from a fiberglass pipeline. A total of 200 barrels of produced water was released over 26,301 square feet of pasture land. None of the fluid was recovered. NMOCD and BLM were notified of the release on December 27th, 2013, and an initial C-141 was submitted to NMOCD and BLM for their approval. The initial C-141 was approved by NMOCD on January 8th, 2014 (Appendix A).

RECS personnel were on site beginning on December 31st, 2013 to assess the release. Seven points from within the release area were sampled at the surface and with depth. All samples were field tested for chlorides and organic vapors, and representative samples were taken to a commercial laboratory for analyses. Three soil bores were installed within the release on February 19th, 2014. The soil bores were installed over Verticals 1-3. As the bores were advanced, samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for analyses. SB-1 returned laboratory chloride readings of 64 mg/kg at 18 ft bgs and 112 mg/kg at 21 ft bgs. SB-2 returned laboratory chloride readings of 48 mg/kg at 24 and 27 ft bgs. SB-3 returned laboratory chloride readings of 176 mg/kg at 33 and 36 ft bgs. GRO, DRO and BTEX results were non-detect.

SB-4 was installed outside the release area to confirm that groundwater was not present at the site. The bore was installed to a depth of 105 ft bgs. At 103 ft bgs, red bed clay was encountered, which indicated the bottom of the aquifer. The bore was left open for over 48 hours. On February 25th, 2014, the bore was gauged to determine depth to groundwater, and no groundwater was discovered in the bore to a depth of 105 ft bgs.

On April 4th, 2014, a Corrective Action Plan (CAP) was submitted to NMOCD and BLM. The CAP stated that the area around Verticals 1-3 would be excavated to a depth of 4 ft bgs. Once the excavation was completed, the walls of the excavation would be sampled to confirm that laboratory chloride, GRO, DRO and BTEX readings were below regulatory standards. A 20-mil reinforced poly liner would be installed and key set into the base of the excavation. The remainder of the release site would be scraped down to 2 ft bgs. A bottom composite of the 2 ft scrape would be taken to a commercial laboratory to confirm that chloride, GRO, DRO and BTEX readings were below regulatory standards.

All excavated soils would be evaluated for use as backfill and any soils that did not meet regulatory standards would be disposed of at a NMOCD approved facility. Clean soil would be imported to the site to replace any soils taken for disposal. A sample of the blended backfill would be taken to a commercial laboratory for analysis to confirm that the constituents were below regulatory standards. The area would be backfilled and seeded with a blend of native vegetation.

BLM approved the CAP on April 8th, 2014, with the stipulation that all areas would have to be excavated to 4 ft bgs to achieve the BLM closure level of 1,000 ppm chlorides.

Corrective actions began at the site on May 28th, 2014. The release was excavated in four sections, each to a depth of 4 ft bgs (Figure 1 and Figure 2). Wall samples were taken from each of the four sections and field tested for chlorides and organic vapors. The samples were then sent to a commercial laboratory for analyses (Appendix C). Results of this analyses confirmed constituents below regulatory standards. A 20-mil, reinforced poly liner was seated and key set into the base of the Southeast, Northeast, and West excavations. A total of 2,580 yards of contaminated soil was taken to a NMOCD approved facility for disposal.

A request to backfill the site was sent to NMOCD and BLM on July 31st, 2014. Both parties approved the site to be backfilled on August 1st, 2014. A total of 2,592 yards of top soil were imported to the site to blend with the remaining soil to use as backfill. An 8 point composite sample of the blended soil was taken to a commercial laboratory for analysis and returned a chloride value of 368 mg/kg. GRO, DRO and BTEX readings returned values of non-detect. The site was backfilled with the blended soil. On October 30th, 2014, soil amendments were added to the disturbed areas and the site was seeded with LPC mix.

Photo documentation of all these activities can be found in Appendix C.

Given that Linn has completed all activities as stated in the approved CAP, Linn respectfully requests 'remediation termination' and site closure. A final C-141 can be found in Appendix D.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

A handwritten signature in black ink, appearing to read "J.C.W." followed by a long, sweeping horizontal line.

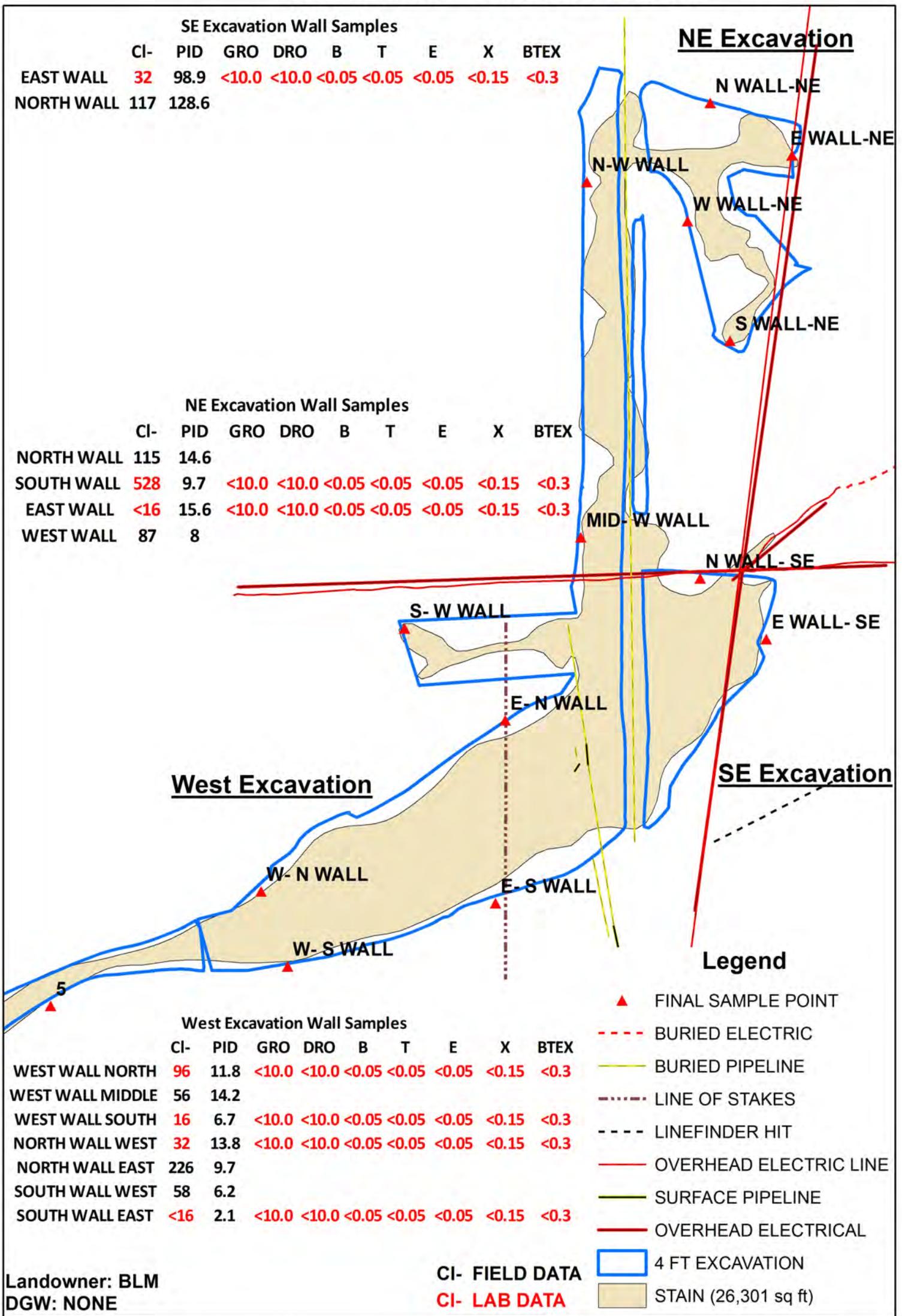
Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1–North Area Excavation Data
- Figure 2 – Excavation Data
- Appendix A – Initial C-141
- Appendix B – Corrective Action Labs
- Appendix C – Photo Documentation
- Appendix D – Final C-141

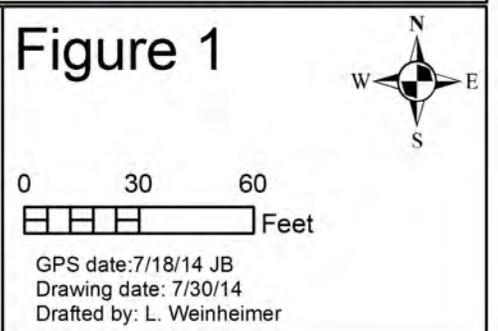
Figures

North Area Excavation Data



**LINN J.L.
KEEL A #10**

LEGALS: UL/I, O, P sec. 7
T-17-S R-31-E
EDDY COUNTY, NM



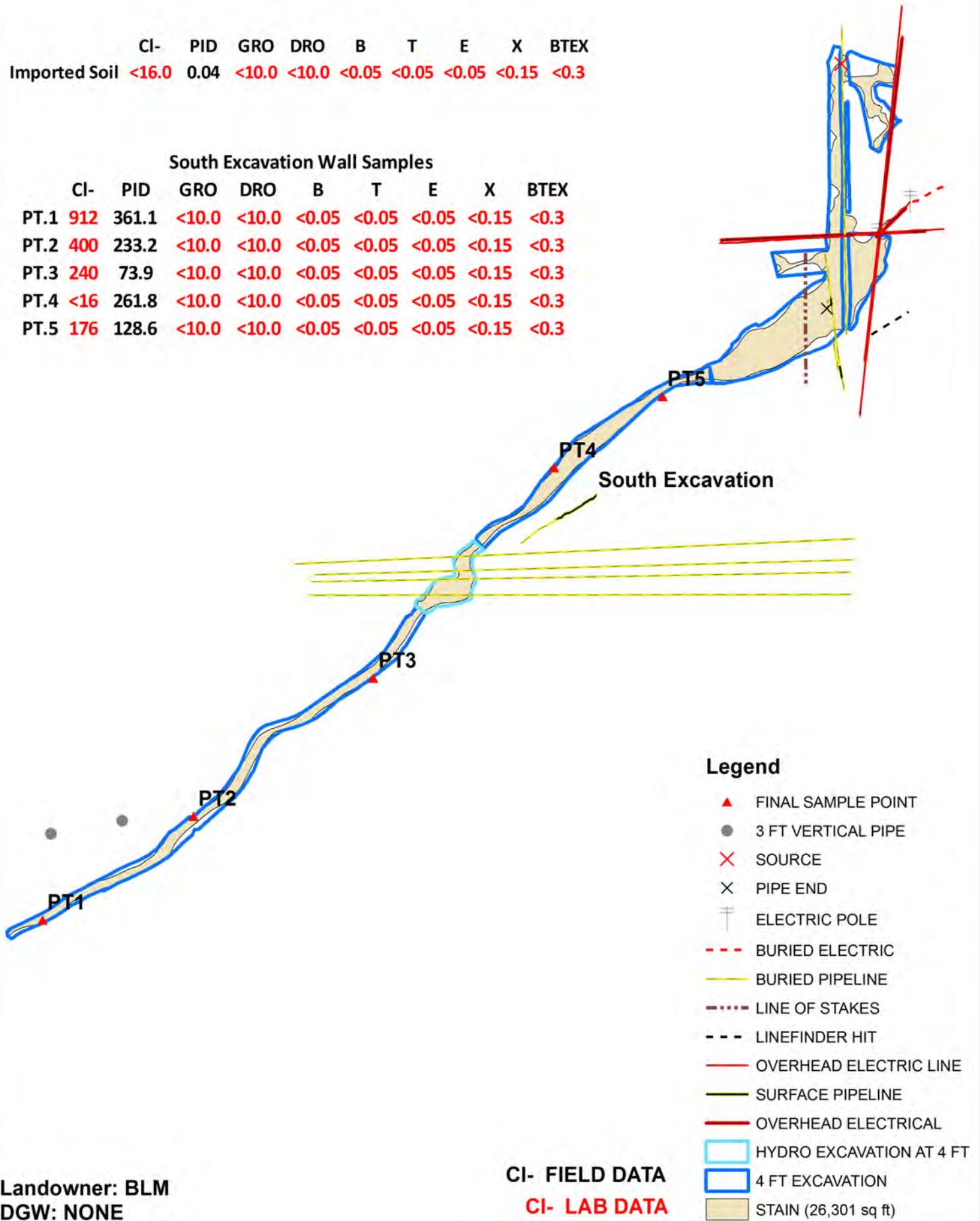
Excavation Data

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
8 Pt Composite Blended Backfill North	528	31.5	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
8 Pt Composite Blended Backfill South	368	14.8	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
Imported Soil	<16.0	0.04	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3

South Excavation Wall Samples

	CI-	PID	GRO	DRO	B	T	E	X	BTEX
PT.1	912	361.1	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.2	400	233.2	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.3	240	73.9	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.4	<16	261.8	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3
PT.5	176	128.6	<10.0	<10.0	<0.05	<0.05	<0.05	<0.15	<0.3



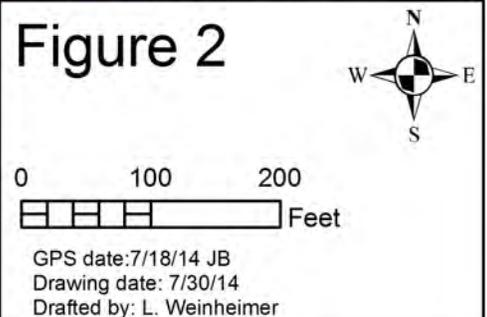
Landowner: BLM
DGW: NONE



**LINN J.L.
KEEL A #10**

LEGALS: UL/I, O, P sec. 7
T-17-S R-31-E
EDDY COUNTY, NM

Figure 2



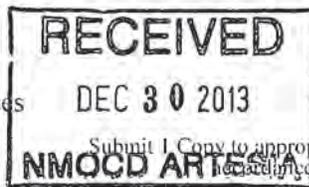
Appendix A

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

Release Notification and Corrective Action

njm / *1400848180* OPERATOR Initial Report Final Report

Name of Company: Linn Operating <i>269324</i>	Contact: Brian Wall
Address: 2130 W. Bender Hobbs, NM 88240	Telephone No.: 575-738-1739
Facility Name: J L Keel A #10	Facility Type: Injection
Surface Owner: Federal	Mineral Owner:
API No.: 30-015-05098	

LOCATION OF RELEASE

Unit Letter I	Section 07	Township 17S	Range 31E	Feet from the 1980	North/South Line South	Feet from the 660	East/West Line East	County Eddy
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Latitude: 32.84728 Longitude: -103.90176

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 200 bbls	Volume Recovered: 0
Source of Release: Fiberglass pipeline	Date and Hour of Occurrence: 12/27/2013 2:00pm	Date and Hour of Discovery: 12/27/2013 2:00pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Burton- BLM Mike Bratcher-NM OCD	
By Whom? Joe Hernandez	Date and Hour 12/27/2013 3:00pm	
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.*: Mario Hernandez, called me told me that line #3 at Keel West injection was going down on low discharge pressure. We went to chasing lines out to find leak, found leak 500 feet south of Keel A. #10 well. Shut line in. Waiting on one call to clear to repair and clean up spill.

Describe Area Affected and Cleanup Action Taken.*: Legals for spill are. 32.5045N 103.5410 W. Spill runs 300 feet south, 15 to 50 feet wide, then goes south west 1650 feet, 20 feet wide, legals at end of spill are. 32.5035 N 103.5421 W. @ fiber glass line blow in two pieces.

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

Signature: <i>Brian Wall</i>	OIL CONSERVATION DIVISION	
Printed Name: Brian Wall	Approved by District Supervisor	Signed By: <i>Mike Bratcher</i>
Title: Construction Foreman II	Approval Date: JAN 08 2014	Expiration Date:
E-mail Address: bwall@linenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/30/2013 Phone: 806-367-0645	Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION PROPOSAL NO LATER THAN:	

* Attach Additional Sheets If Necessary

FEBRUARY 8, 2014

2RP-2142

Appendix B

Corrective Action Labs

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



July 24, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/16/14 16:30.

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

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 "Celey 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/16/2014	Sampling Date:	07/16/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: IMPORTED SOIL (H402166-01)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72		
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	07/21/2014	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	07/18/2014	ND	186	92.8	200	2.31		
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32		

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 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

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



Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES
 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
 Project Manager: Laura Flores
 Address: _____ State: NM Zip: 88240
 City: Hobbs Fax #: _____
 Phone #: _____ Project Owner: _____
 Project #: _____
 Project Name: Linn Energy
 Project Location: St. Heat A-10
 Sampler Name: TOSHUA BALCOM

BILL TO
 P.O. #: _____
 Company: _____
 Attn: _____
 Address: _____
 City: _____
 State: _____ Zip: _____
 Phone #: _____
 Fax #: _____

Chlorides	TPH 8015 M	Complete Cations/Anions	TDS
	BTEX		
	Texas TPH		

FOR LAB USE ONLY

Lab I.D.
H402166

Sample I.D.
Imported Soil

(G)RAB OR (C)OMP. # CONTAINERS	MATRIX						PRESERV.	SAMPLING
	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	DATE	TIME
<u>1</u>			<input checked="" type="checkbox"/>				<u>7-16-14</u>	<u>2:40</u>
						ACID/BASE: <input checked="" type="checkbox"/>		
						ICE / COOL <input checked="" type="checkbox"/>		
						OTHER:		

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: _____ Date: 7-16-14
 Time: 4:30
 Received By: Jodi Henson
 Relinquished By: _____ Date: _____
 Time: _____
 Received By: _____
 Sample Condition
 Cool Intact
 No No
 CHECKED BY: JH
 (Initials)

Phone Result: Yes No Add'l Phone #: _____
 Fax Result: Yes No Add'l Fax #: _____
 REMARKS:
 email: hconder@riceswd.com; lflores@rice-ecs.com;
lweinheimer@rice-ecs.com; knorman@rice-ecs.com;
jkamplain@rice-ecs.com; sedwards@rice-ecs.com;
cursanic@rice-ecs.com
 Environmental Tech: Jbalcom @rice-ecs.com

Delivered By: (Circle One)
 Sampler - UPS - Bus - Other:

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476
#51



July 24, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/16/14 16:30.

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

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

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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.

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Celey D. Keene

Lab Director/Quality Manager

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 LAURA FLORES
 419 W. CAIN
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 Fax To: (575) 397-1471

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Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: BLENDED BACKFILL 8 PT COMP N END (H402167-01)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72		
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	528	16.0	07/21/2014	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	07/18/2014	ND	186	92.8	200	2.31		
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32		

Surrogate: 1-Chlorooctane 110 % 65.2-140
Surrogate: 1-Chlorooctadecane 116 % 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

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

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: <u>REGS</u>		BILL TO		ANALYSIS REQUEST																																																																																																																																																																																																																											
Project Manager: <u>Laura Flores</u>		P.O. #:		<table border="1"> <tr><td>Chlorides</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>TPH 8015 M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>BTEX</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Texas TPH</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Complete Cations/Anions</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>TDS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>										Chlorides																					TPH 8015 M																					BTEX																					Texas TPH																					Complete Cations/Anions																					TDS																																																																																																								
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Relinquished By:	Date: <u>7/16/14</u>	Received By: <u>Jodi Henson</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: <u>4:30</u>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:		email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com	
Delivered By: (Circle One)	Sample Condition	CHECKED BY: (Initials)	Environmental Tech: <u>Jbalcom</u> @rice-ecs.com	
Sampler - UPS - Bus - Other:	Cool - Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<u>JH</u>		

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

54



July 24, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/16/14 16:30.

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

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 "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" and "K".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/16/2014	Sampling Date:	07/16/2014
Reported:	07/24/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: BLENDED BACKFILL 8 PT COMP S END (H402168-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.41	120	2.00	2.72	
Toluene*	<0.050	0.050	07/23/2014	ND	2.20	110	2.00	3.49	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.45	122	2.00	4.14	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	7.86	131	6.00	4.44	
Total BTEX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	368	16.0	07/21/2014	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	07/18/2014	ND	186	92.8	200	2.31	
DRO >C10-C28	<10.0	10.0	07/18/2014	ND	201	101	200	5.32	

Surrogate: 1-Chlorooctane 108 % 65.2-140
Surrogate: 1-Chlorooctadecane 119 % 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



Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

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

Page 4 of 4

Company Name: RECJ		BILL TO		ANALYSIS REQUEST												
Project Manager: Laura Flores		P.O. #:		Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions TDS												
Address:		Company:														
City: Hobbs State: NM Zip: 88240		Attn:														
Phone #: Fax #:		Address:														
Project #: Project Owner:		City:														
Project Name: Lian Energy		State: Zip:														
Project Location: JL Med A-10		Phone #:														
Sampler Name: Jahus Belmont		Fax #:														
FOR LAB USE ONLY																
Lab I.D. H402168	Sample I.D. Blended Bedfill Spt. Camp South 6nd	(G)RAB OR (C)OMP. C1	# CONTAINERS 1												MATRIX GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	PRESERV. ACID/BASE: ICE / COOL OTHER:

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Relinquished By:	Date: 7-16-14	Received By: Jodi Henson	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Time: 4:30	Received By:	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No	CHECKED BY:	REMARKS: email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com Environmental Tech: J Belmont @rice-ecs.com	

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

#54



July 23, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/22/14 16:00.

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

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 "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" and "K".

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 1 (H402228-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	912	16.0	07/23/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 112 % 65.2-140
Surrogate: 1-Chlorooctadecane 124 % 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 2 (H402228-02)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	400	16.0	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 117 % 65.2-140

Surrogate: 1-Chlorooctadecane 128 % 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 3 (H402228-03)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 4 (H402228-04)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 115 % 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH 4' EXC PT. 5 (H402228-05)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 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	176	16.0	07/23/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958	

Surrogate: 1-Chlorooctane 116 % 65.2-140

Surrogate: 1-Chlorooctadecane 126 % 63.6-154

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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



Celey D. Keene, Lab Director/Quality Manager

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



CARDINAL LABORATORIES

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

Company Name: <u>RECS</u>		BILL TO				ANALYSIS REQUEST																				
Project Manager: <u>Laura Flores</u>		P.O. #:		Company:		Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS															
Address:		Attn:		Address:																						
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>		City:		City:																						
Phone #:		Fax #:		State:																						
Project #:		Project Owner:		Zip:																						
Project Name: <u>Linn Energy</u>		Phone #:		Fax #:																						
Project Location: <u>S.L. Med A-10</u>		Matrix:		Preserv.:																						
Sampler Name: <u>Joshua Balcom</u>		Groundwater:		Ice/Cool:																						
FOR LAB USE ONLY		Wastewater:		Other:																						
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>H402228</u>																										
<u>1</u>	<u>South 4' excavation Pt. 1</u>	<u>G</u>	<u>1</u>			<u>✓</u>					<u>✓</u>		<u>7-22-14</u>	<u>8:35</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>									
<u>2</u>	<u>South 7' excavation Pt. 2</u>	<u>G</u>	<u>1</u>			<u>✓</u>					<u>✓</u>		<u>8:40</u>	<u>8:40</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>									
<u>3</u>	<u>South 4' excavation Pt. 3</u>	<u>G</u>	<u>1</u>			<u>✓</u>					<u>✓</u>		<u>8:45</u>	<u>8:45</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>									
<u>4</u>	<u>South 4' excavation Pt. 4</u>	<u>G</u>	<u>1</u>			<u>✓</u>					<u>✓</u>		<u>8:50</u>	<u>8:50</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>									
<u>5</u>	<u>South 4' excavation Pt. 5</u>	<u>G</u>	<u>1</u>			<u>✓</u>					<u>✓</u>		<u>8:55</u>	<u>8:55</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>									

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Relinquished By: 	Date: <u>7-22-14</u>	Received By: <u>Jodi Henson</u>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: <u>4:00</u>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
Time:			email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:	Environmental Tech: <u>Jbalcom</u> @rice-ecs.com	
Sampler - UPS - Bus - Other:	Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	<u>JH</u>		

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

#54



July 23, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: J. L. KEEL A #10

Enclosed are the results of analyses for samples received by the laboratory on 07/22/14 16:00.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC N WALL WEST (H402229-01)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 118 % 65.2-140
Surrogate: 1-Chlorooctadecane 129 % 63.6-154

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* = Accredited Analyte

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Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC S WALL EAST (H402229-02)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 63.6-154

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Analytical Results For:

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 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC WEST WALL NORTH (H402229-03)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	96.0	16.0	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 106 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 63.6-154

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Analytical Results For:

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 LAURA FLORES
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 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: WEST 4' EXC WEST WALL SOUTH (H402229-04)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 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	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 98.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: SOUTH EAST 4' EXC EAST WALL (H402229-05)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95		
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35		
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99		
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88		
Total BTEX	<0.300	0.300	07/23/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 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	07/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/23/2014	ND	175	87.6	200	1.62		
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	195	97.6	200	0.958		

Surrogate: 1-Chlorooctane 107 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: NORTH EAST 4' EXC EAST WALL (H402229-06)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEX	<0.300	0.300	07/23/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500CI-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	07/23/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/23/2014	ND	192	96.1	200	8.16	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	208	104	200	6.40	

Surrogate: 1-Chlorooctane 127 % 65.2-140

Surrogate: 1-Chlorooctadecane 144 % 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
 LAURA FLORES
 419 W. CAIN
 HOBBS NM, 88240
 Fax To: (575) 397-1471

Received:	07/22/2014	Sampling Date:	07/22/2014
Reported:	07/23/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL A #10	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LINN ENERGY		

Sample ID: NORTH EAST 4' EXC SOUTH WALL (H402229-07)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/23/2014	ND	2.14	107	2.00	2.95	
Toluene*	<0.050	0.050	07/23/2014	ND	2.21	110	2.00	4.35	
Ethylbenzene*	<0.050	0.050	07/23/2014	ND	2.24	112	2.00	3.99	
Total Xylenes*	<0.150	0.150	07/23/2014	ND	6.85	114	6.00	4.88	
Total BTEX	<0.300	0.300	07/23/2014	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	07/23/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/23/2014	ND	192	96.1	200	8.16	
DRO >C10-C28	<10.0	10.0	07/23/2014	ND	208	104	200	6.40	

Surrogate: 1-Chlorooctane 135 % 65.2-140

Surrogate: 1-Chlorooctadecane 142 % 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

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



Celey D. Keene, Lab Director/Quality Manager

Appendix C

Photo Documentation

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

Linn J.L. Keel A #10
Unit Letter I, Section 7, T17S, R31E



Source of release, facing north 12/31/13



Initial release, facing southeast 12/31/13



Initial release area, facing northeast 12/31/13



Initial release area, facing east 12/31/13



Hand auguring for depth, facing northwest 1/2/14



Line spot with hydrovac, facing north 1/28/14



Installing vertical, facing north 1/30/14



Installing SB-1, facing east 2/19/14



Plugging SB-1 in total with bentonite 2/19/14



SB-1 completed, facing southeast 2/19/14



Drilling SB-2, facing northeast 2/19/14



Plugging SB-2 in total with bentonite 2/19/14



SB-2 completed, facing northeast 2/19/14



Drilling SB-3, facing southeast 2/19/14



Plugging SB-3 in total with bentonite 2/19/14



SB-3 completed, facing south 2/19/14



Drilling SB-4, facing east

2/19/14



Checking SB-4 for groundwater, facing northwest

2/25/14



Plugging SB-4, facing northwest

2/25/14



Completed SB-4, facing northwest

2/25/14



Importing caliche, facing southeast 5/21/14



Construction caliche road to site to facility excavation activities, facing south 5/21/14



Road completed, facing south 5/21/14



Beginning the excavation, facing southeast 5/28/14



Continuing to excavate to 4 ft, facing east 5/29/14



Exporting soil, facing south 6/2/14



Continuing to excavate to 4 ft, facing southeast 6/4/14



Hydro-excavating around buried lines, facing south-west 6/17/14



4 ft excavation completed, facing southeast 7/13/14



4 ft excavation completed, facing south 7/13/14



Digging trench to keyset liner, facing northwest 7/14/14



Trench for keyset completed, facing southwest 7/14/14



Trench for keyset completed, facing northeast 7/15/14



Importing soil, facing east 7/16/14



Installing 20-mil reinforced liner, facing south 7/28/14



Installing 20-mil reinforced liner, facing south 7/29/14



Liner installation completed, facing northeast 7/29/14



Liner installation completed, facing north 7/29/14



Liner installation completed, facing northwest 7/29/14



Key-setting liner, facing southeast 7/29/14



Backfilling site, facing north

8/5/14



Backfilling site, facing southwest

8/8/14



Installing 20-mil reinforced liner, facing west

8/13/14



Liner installation completed, facing east

8/13/14



Liner installation completed, facing west 8/13/14



Key-setting liner, facing northwest 8/13/14



Backfilling site, facing west 8/13/14



Backfilling site, facing south 8/14/14



Site backfilled, facing southwest

8/19/14



Site backfilled, facing southwest

8/19/14



Site backfilled, facing west

8/19/14



Backfilling site, facing east

8/21/14



Site backfilled, facing south

8/22/14



Scraping up caliche road, facing north

10/26/14



Spreading soil amendments, facing north

10/30/14



Disking in amendments, facing north

10/30/14



Seeding site, facing northeast 10/30/14



Seeding site, facing south 10/30/14



Raking in seed, facing south 10/30/14



Site completed, facing west 10/30/14



Site completed, facing north

10/30/14



Site completed, facing north

10/30/14

Appendix D

Final C-141

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