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

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Linn Energy	Contact Gary Wink
Address 2130 W. Bender Blvd., Hobbs, NM 88240	Telephone No. (575) 738-1739 Ext. 1218
Facility Name Humphrey Queen Battery	Facility Type Battery Pipeline Release

Surface Owner R. Doom	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	3	25S	37E					Lea

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release	Volume Recovered
Source of Release Pipeline	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Describe Area Affected and Cleanup Action Taken.* A total of 7,853 sq ft of pasture was affected from the release. On December 11th, 2012, RECS personnel arrived at the site to begin work. Samples were taken from the surface throughout the release and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for analysis of and returned results of elevated chloride readings and low GRO and DRO readings. Three verticals were installed at the site to determine the depth of contamination. Vertical #1 was dug to a depth of 15 ft bgs, Vertical #2 was dug to a depth of 8 ft bgs and Vertical #3 was dug to 10 ft bgs where the backhoe encountered a hard rock stratum and could not continue. Sampling was conducted at regular intervals and the samples were field tested for chlorides and hydrocarbons. In all three verticals, chloride levels remained consistent to depth and PID readings were low. A soil bore was advanced at the site on February 15th, 2013 to delineate the vertical chloride contamination. A temporary monitor well was installed up-gradient of the site to determine if groundwater was present at the site. The bore was not sampled as it was installed except for lithology. Red bed clay was encountered at the depth of 50 ft bgs, which indicates the bottom of the aquifer. The bore was drilled another 25 ft into the red bed clay and left open for 48 hours to see if groundwater accumulated. ARC Environmental checked the bore for water accumulation on February 20th, 2013 and found no water to a depth of 70.58 ft. Additional vertical and augur samples were installed at the site in areas of little to no vegetation. Augur sample #2 and #3 were sampled at the surface and at 1 ft bgs and samples were taken to a commercial laboratory for analysis. Based on the sampling data, on May 27th, 2013, NMOCD District 1 verbally agreed that the site could be excavated to 4 ft bgs and a liner installed throughout the release area. The liner would provide an infiltration barrier that would inhibit the downward migration of chlorides to groundwater. Beginning on May 15th, 2013, three areas were excavated to 4 ft bgs (Figure 4). The excavated soil was disposed of at a NMOCD approved facility. The bottom of each excavation was padded with 6 inches of clean, imported sand to prevent the liner from punctures. A 20-mil reinforced poly liner was installed and properly seated throughout the three excavations. The excavations were then backfilled with the remainder of the clean, imported sand and contoured to the surrounding location.

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: Gary W. Wink	OIL CONSERVATION DIVISION
Printed Name: GARY W. WINK	Approved by Environmental Specialist: Geoffrey Leking
Title:	Approval Date: 10/10/13 Expiration Date: —
E-mail Address:	Conditions of Approval: — Attached ☐
Date: Phone:	IRP-10-13-2974

Environmental Specialist

* Attach Additional Sheets If Necessary

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

Humphrey Queen Battery Pipeline Leak

Closure Report

Unit Letter K, Section 3, Township 25S, Range 37E

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

June 24th, 2013

Mr. Geoff Leking
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

RE: **Termination Request**
Linn Energy – Humphrey Queen Battery Pipeline Leak
UL/K sec. 3 T25S R37E

Mr. Leking:

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 3.5 miles northeast of Jal, New Mexico at UL/K sec. 3 T25S R37E. NM OSE and BLM records indicated that groundwater will likely be encountered at a depth of approximately 76 +/- feet. However, a temporary monitor well installed at the site showed that no groundwater exists at the site.

On December 11th, 2012, RECS personnel arrived at the site to begin work. Samples were taken from the surface throughout the release and field tested for chlorides and hydrocarbons (Figure 1). Representative samples were taken to a commercial laboratory for analysis of and returned results of elevated chloride readings and low GRO and DRO readings (Appendix A).

Three verticals were installed at the site to determine the depth of contamination. Vertical #1 was dug to a depth of 15 ft bgs, Vertical #2 was dug to a depth of 8 ft bgs and Vertical #3 was dug to 10 ft bgs where the backhoe encountered a hard rock stratum and could not continue. Sampling was conducted at regular intervals and the samples were field tested for chlorides and hydrocarbons. In all three verticals, chloride levels remained consistent to depth and PID readings were low. A soil bore was advanced at the site on February 15th, 2013 to delineate the vertical chloride contamination (Figure 2). Samples were taken every five feet and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for analysis and returned chloride results of 3,840 mg/kg at the surface and 2,080 mg/kg at 55 ft bgs.

A temporary monitor well was installed up-gradient of the site to determine if groundwater was present. The bore was sampled only for lithology as it was being installed. Red bed clay was encountered at the depth of 50 ft bgs, which indicates the bottom of the aquifer. The bore was drilled another 25 ft into the red bed clay and left

open for over 48 hours to see if groundwater accumulated. ARC Environmental checked the bore for water accumulation on February 20th, 2013 and found no water to a depth of 70.58 ft (Appendix B).

Additional vertical and augur samples were installed at the site in areas of little to no vegetation (Figure 3). Augur sample #2 and #3 were sampled at the surface and at 1 ft bgs and samples were taken to a commercial laboratory for analysis. The chloride results returned values below 250 mg/kg (Appendix C). Augur sample #1, Vertical 1 and Vertical 2 were field tested only and returned elevated chloride levels.

Based on the sampling data, on May 27th, 2013, NMOCD District 1 verbally agreed that the site could be excavated to 4 ft bgs and a liner installed throughout the release area. The liner would provide an infiltration barrier that would inhibit the downward migration of chlorides to groundwater.

Beginning on May 15th, 2013, three areas were excavated to 4 ft bgs (Figure 4). The excavated soil was disposed of at a NMOCD approved facility. The bottom of each excavation was padded with 6 inches of clean, imported sand to prevent the liner from punctures. A 20-mil reinforced poly liner was installed and properly seated throughout the three excavations. The excavations were then backfilled with the remainder of the clean, imported sand and contoured to the surrounding location.

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

The impacted soils were removed to 4 ft bgs and 20-mil poly liners were installed throughout the release area that will inhibit the downward migration of chlorides. Therefore, Linn 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 the number below if you have any questions or wish to discuss the site.

Sincerely,

Bruce Baker

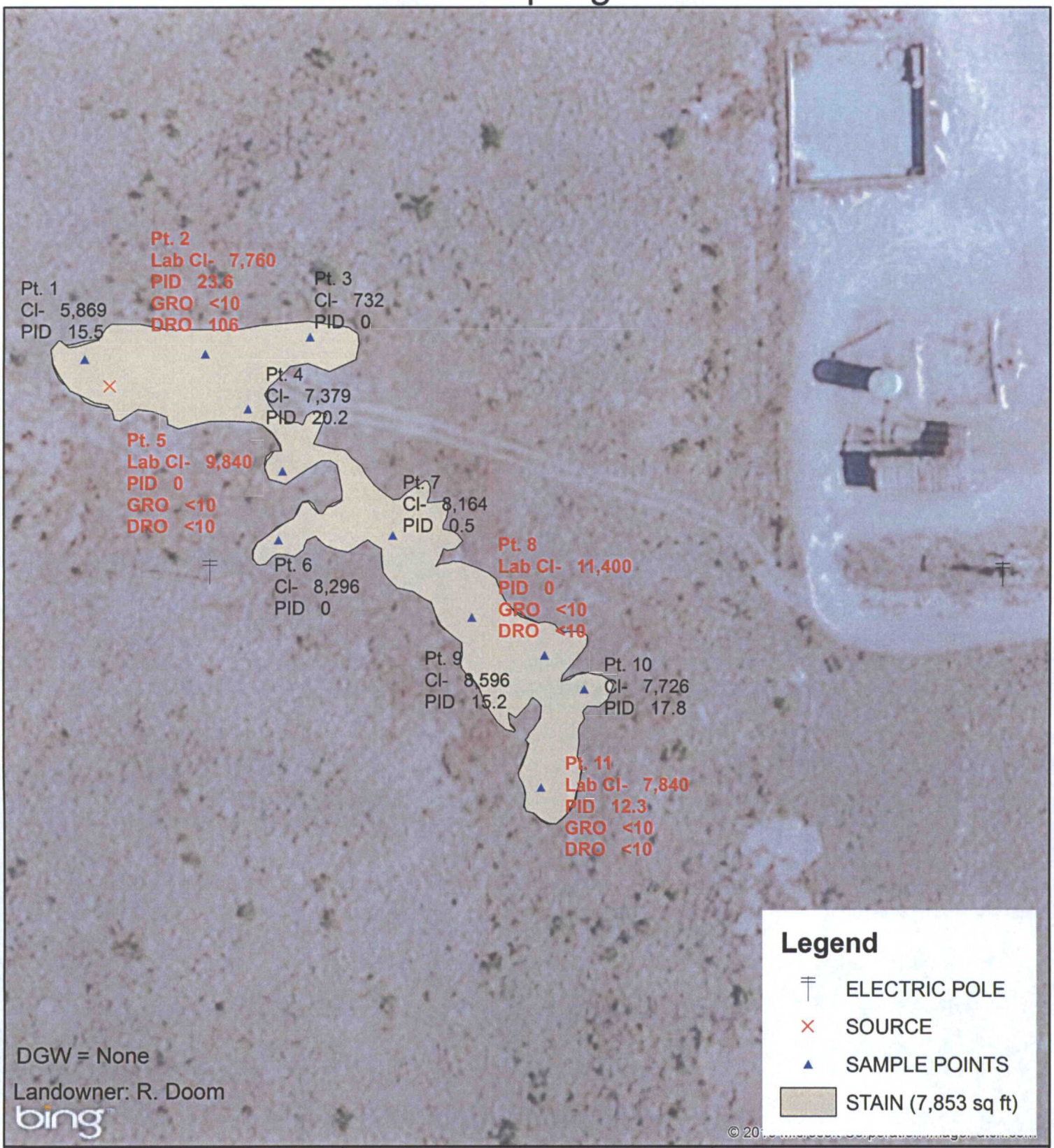
Bruce Baker
Project Manager
RECS
(575) 631-5157

Attachments:

- Figure 1 – Initial Sampling Data
- Figure 2 – Vertical, MW and SB Installation
- Figure 3 – Additional Vertical Samples and Augur Samples

Figure 4 – Final Excavations
Appendix A – Initial Sampling Laboratory Analyses
Appendix B – Soil Bore and MW Installation Documentation
Appendix C – Augur Laboratory Analyses
Appendix D – Photo Documentation
Appendix E – Final C-141

Initial Sampling Data



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

LINN HUMPHREY QUEEN BATTERY PIPELINE AD

LEGALS: UL/K sec. 3
T-25-S R-37-E
LEA COUNTY, NM

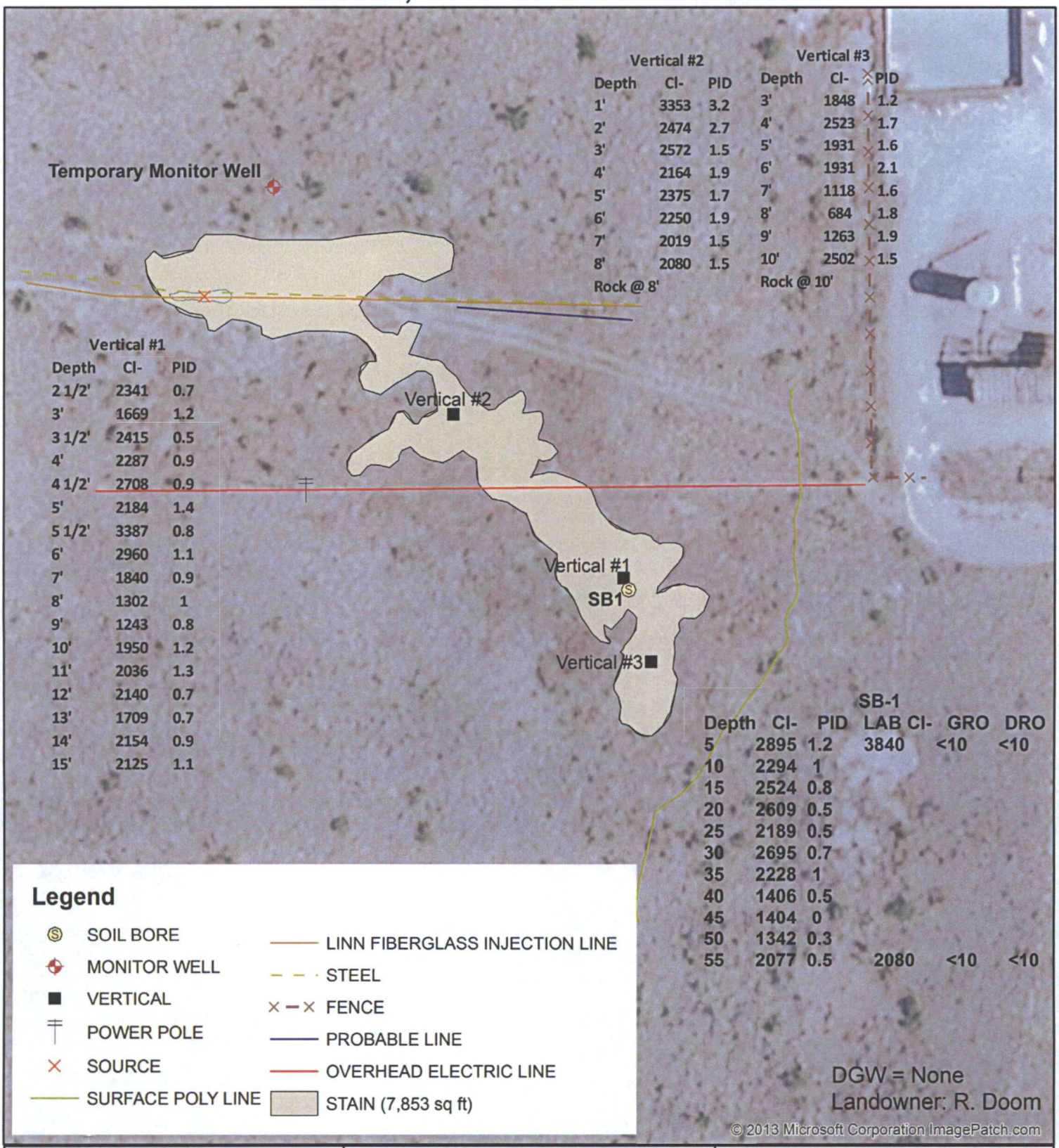
Figure 1

N W E S

0 60 120 Feet

GPS date: 12/11/12 DY
Drawing date: 12/18/12
Drafted by: L. Weinheimer

Vertical, MW and SB Installation



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

LINN HUMPHREY QUEEN BATTERY PIPELINE AD

LEGALS: UL/K sec. 3
T-25-S R-37-E
LEA COUNTY, NM

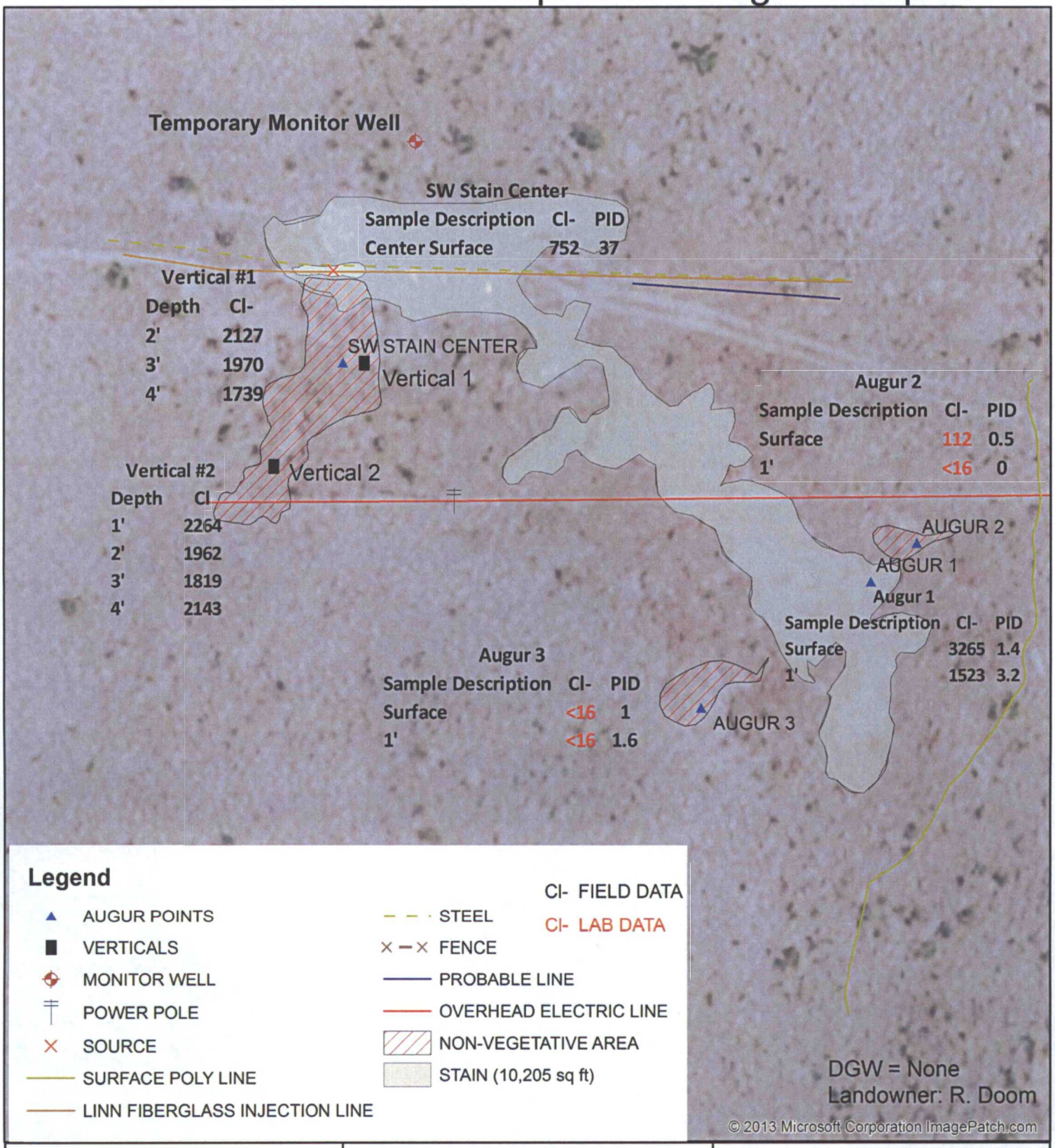
Figure 2

N W E S

0 60 120 Feet

GPS date: 12/11/12 DY, 2/18/2013 KN
Drawing date: 2/27/2013
Drafted by: L. Weinheimer, A.C.Ruth

Additional Vertical Samples and Augur Samples



Legend

- AUGUR POINTS
- VERTICALS
- MONITOR WELL
- POWER POLE
- SOURCE
- SURFACE POLY LINE
- LINN FIBERGLASS INJECTION LINE
- STEEL
- FENCE
- PROBABLE LINE
- OVERHEAD ELECTRIC LINE
- NON-VEGETATIVE AREA
- STAIN (10,205 sq ft)

Cl- FIELD DATA

Cl- LAB DATA

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

LINN HUMPHREY QUEEN BATTERY PIPELINE AD

LEGALS: UL/K sec. 3
T-25-S R-37-E
LEA COUNTY, NM

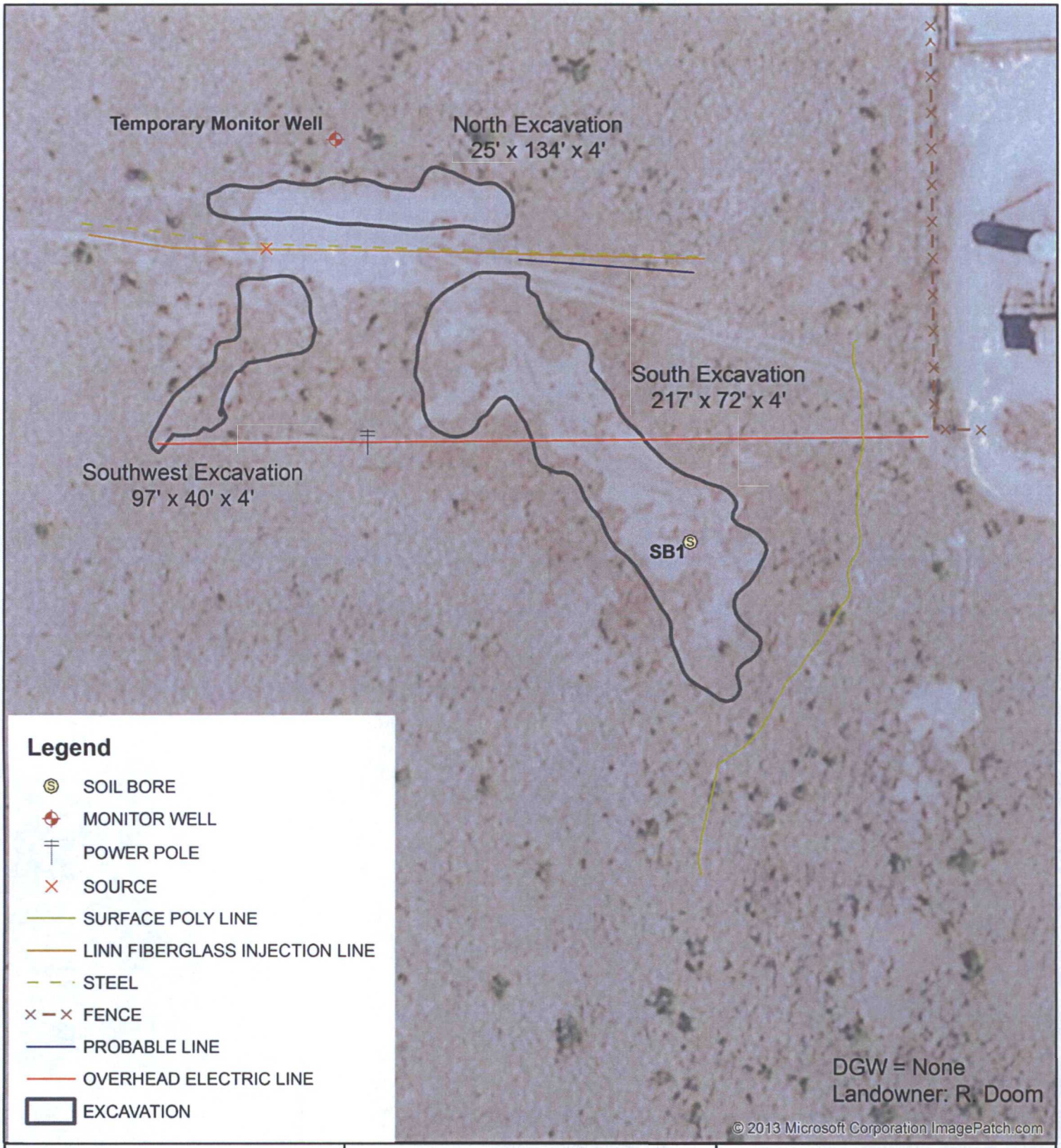
Figure 3

N W E S

0 50 100 Feet

GPS date: 5/23/13 CF
Drawing date: 5/24/13
Drafted by: L. Weinheimer

Final Excavations



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

LINN HUMPHREY QUEEN BATTERY PIPELINE AD

LEGALS: UL/K sec. 3
T-25-S R-37-E
LEA COUNTY, NM

Figure 4

N W E S

0 60 120 Feet

GPS date: 5/15/13 ZC
Drawing date: 5/16/13
Drafted by: L. Weinheimer

CARDINAL Laboratories

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

December 17, 2012

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: HUMPHREY QUEEN BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 12/11/12 16:55.

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.

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/11/2012	Sampling Date:	12/11/2012
Reported:	12/17/2012	Sampling Type:	Soil
Project Name:	HUMPHREY QUEEN BATTERY	Sampling Condition:	** (See Notes)
Project Number:	LINN ENERGY	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: PT 2 (H202978-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**7760**	16.0	12/14/2012	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	12/12/2012	ND	176	87.8	200	4.15	
DRO >C10-C28	**106**	10.0	12/12/2012	ND	190	95.1	200	4.50	

Surrogate: 1-Chlorooctane	*91.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*109 %*	*63.6-154*

Sample ID: PT 5 (H202978-05)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**9840**	16.0	12/14/2012	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	12/12/2012	ND	176	87.8	200	4.15	
DRO >C10-C28	<10.0	10.0	12/12/2012	ND	190	95.1	200	4.50	

Surrogate: 1-Chlorooctane	*86.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*98.5 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/11/2012	Sampling Date:	12/11/2012
Reported:	12/17/2012	Sampling Type:	Soil
Project Name:	HUMPHREY QUEEN BATTERY	Sampling Condition:	** (See Notes)
Project Number:	LINN ENERGY	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: PT 8 (H202978-08)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**11400**	16.0	12/14/2012	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	12/12/2012	ND	176	87.8	200	4.15	
DRO >C10-C28	<10.0	10.0	12/12/2012	ND	190	95.1	200	4.50	

Surrogate: 1-Chlorooctane	*85.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*97.1 %*	*63.6-154*

Sample ID: PT 11 (H202978-11)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**7840**	16.0	12/14/2012	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	12/12/2012	ND	176	87.8	200	4.15	
DRO >C10-C28	<10.0	10.0	12/12/2012	ND	190	95.1	200	4.50	

Surrogate: 1-Chlorooctane	*76.9 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*87.5 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

pg 1 of 2

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

Company Name: Linn Energy RECS		BILL TO	
Project Manager:		P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: Humphrey Queen Battery		Phone #:	
Sampler Name:		Fax #:	

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Cl-	TPH 8015
H202978-																
01	PT. 1	G	1			1					1		12/11/12	3:45	/	/
02	PT. 2	G	1			1					1		12/11/12	3:50	/	/
03	PT. 3	G	1			1					1		12/11/12	3:55	/	/
04	PT. 4	G	1			1					1		12/11/12	4:00	/	/
05	PT. 5	G	1			1					1		12/11/12	4:05	/	/
06	PT. 6	G	1			1					1		12/11/12	4:10	/	/
07	PT. 7	G	1			1					1		12/11/12	4:15	/	/
08	PT. 8	G	1			1					1		12/11/12	4:20	/	/
09	PT. 9	G	1			1					1		12/11/12	4:25	/	/
10	PT. 10	G	1			1					1		12/11/12	4:30	/	/

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: 12/11/12	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:55		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Bruce Baker Laura Zach Corder #1, 3, 4, 6, 7, 9, 10 cancel Hack Corder as per Laura. 12/12/12
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 8°C

Sample Condition: Cool ☐ Yes ☐ No — Intact ☑ Yes ☐ No

CHECKED BY: (Initials) cdk

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

#26

Samples just taken + brought to lab.

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

pg 2 of

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

Company Name: Linn Energy RECS	**BILL TO**
Project Manager:	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: Humphrey Queen Battery	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Cl-	TPH
H202978-11	PT. 11	G	1			1					1		12/11/12	4:35	—	—

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: 12/11/12	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 4:55	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS: Bruce Baker, Hack Conder, Zach Conder, Lara W
	Time:		

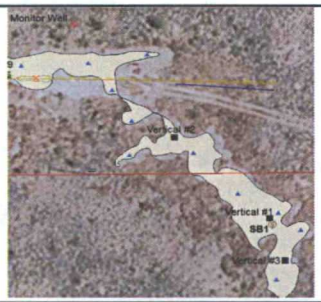
Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 8°C

Sample Condition: Cool ☐ Yes ☑ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) cdh

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

#76

Logger:	Kyle Norman		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** Linn Humphrey Queen Battery Pipeline — **Well ID:** SB-1
Start Date:	2/15/2013		
End Date:	2/15/2013		

Comments: SB-1 was located by Vertical #1. All samples were from cuttings.

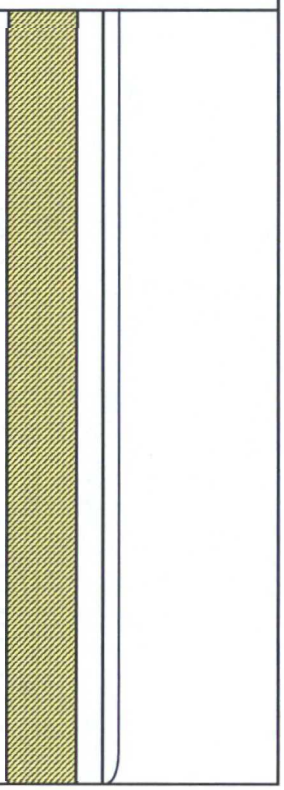
DRAFTED BY: L. Weinheimer

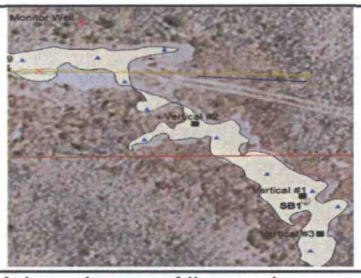
TD = 55 ft GW = None

Location: UL/K sec. 3 T-25-S R-37-E

Lat: 32°9'30.756"N **Long:** 103°9'10.833"W **County:** Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				NO SAMPLE		
SS						
				Tan Sand With Caliche		
5 ft	2895	Cl- 3840	1.2			
		GRO <10		Tan Sand With Little Caliche		
		DRO <10				
10 ft	2294		1.0			
				Reddish/Brown Sand		
15 ft	2524		0.8			
				Tanish/Brown Sand		
20 ft	2609		0.5			
25 ft	2189		0.5			
						bentonite seal
30 ft	2695		0.7			
				Tan Sand		
35 ft	2228		1.0			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Caliche With Sandstone Stringers		
40 ft	1406		0.5			
				Red Clayey Sand		
45 ft	1404		0.0			
50 ft	1342		0.3			
55 ft	2077	Cl- 2080	0.5			
		GRO <10				
		DRO <10				

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** Linn Humphrey Queen Battery Pipeline **Well ID:** Temp MW
Drilling Method:	Air rotary		
Start Date:	2/15/2013		
End Date:	2/15/2013		

Comments: MW-1 was located north of the release. All samples were from cuttings. No samples taken except for lithology.

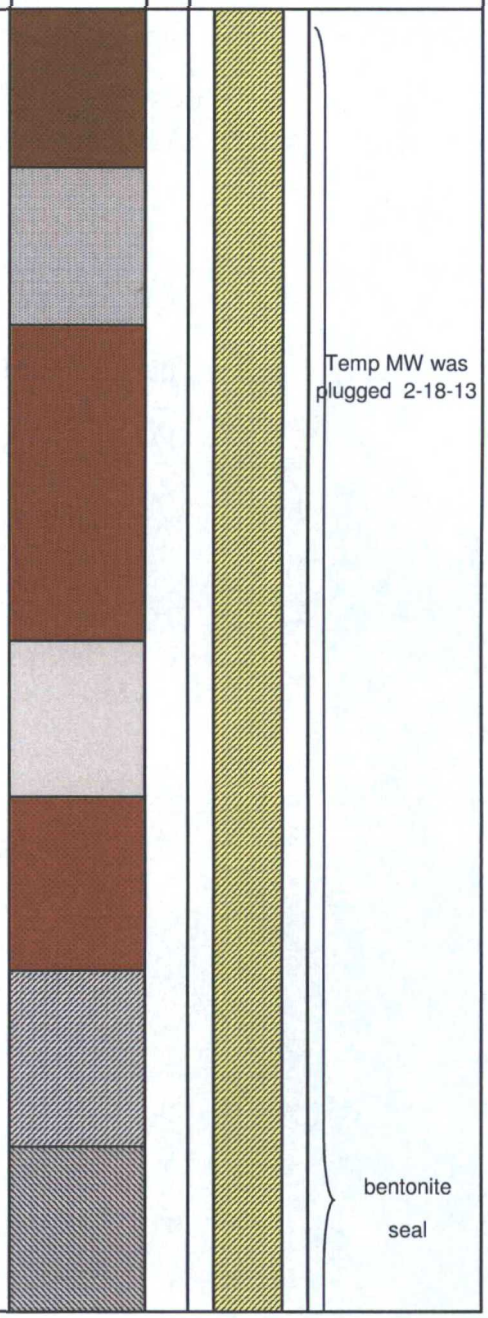
DRAFTED BY: L. Weinheimer

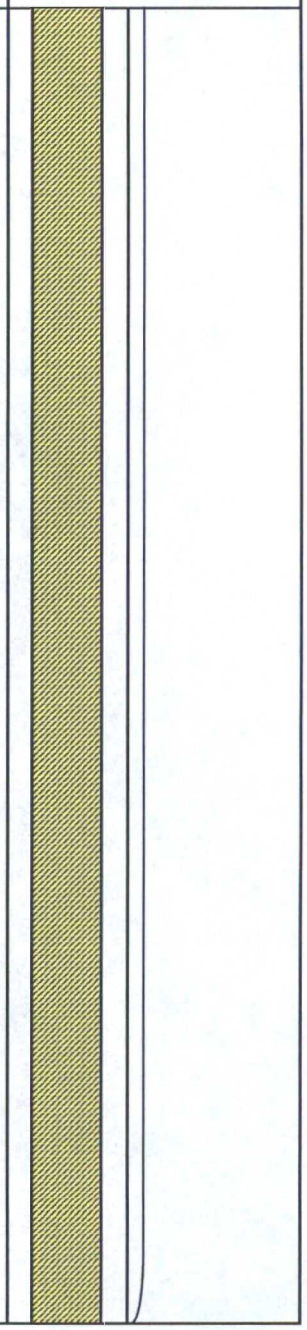
TD = 75 ft GW = None

Location: UL/K sec. 3 T-25-S R-37-E

Lat: 32°9'32.525"N **Long:** 103°9'12.639"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS				
				Tan Sand With Caliche
5 ft				
				Reddish/Brown Sand With Some Caliche
10 ft				
15 ft				
				Caliche
20 ft				
				Brownish/Red Sand
25 ft				
				Caliche With Some Sandstone
30 ft				
				Tan Sand With Some Sandstone
35 ft				



Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Red Sand With Some Sandstone		
40 ft						
45 ft						
				Brown Sand With Clay		
50 ft						
				Red Bed Clay		
55 ft						
60 ft						
65 ft						
70 ft						
				Yellow Clay		
75 ft						

CARDINAL Laboratories

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

February 27, 2013

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: HUMPHREY QUEEN BATTERY PIPELINE AD

Enclosed are the results of analyses for samples received by the laboratory on 02/20/13 15:45.

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.

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	02/20/2013	Sampling Date:	02/15/2013
Reported:	02/27/2013	Sampling Type:	Soil
Project Name:	HUMPHREY QUEEN BATTERY PIPELINE /	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1@ 5' (H300470-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3840**	16.0	02/25/2013	ND	416	104	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	02/26/2013	ND	184	91.9	200	12.5	
DRO >C10-C28	<10.0	10.0	02/26/2013	ND	178	88.8	200	14.1	

Surrogate: 1-Chlorooctane	*82.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*97.4 %*	*63.6-154*

Sample ID: SB 1 @ 55' (H300470-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2080**	16.0	02/25/2013	ND	416	104	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	02/26/2013	ND	184	91.9	200	12.5	
DRO >C10-C28	<10.0	10.0	02/26/2013	ND	178	88.8	200	14.1	

Surrogate: 1-Chlorooctane	*80.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*94.0 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

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*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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:	REC S	**BILL TO**	
Project Manager:	Bruce Baker	**P.O. #:**	
Address:		**Company:**	
City:	Hobbs **State:** NM **Zip:** 88240	**Attn:**	
Phone #:	**Fax #:**	**Address:**	
Project #:	**Project Owner:**	**City:**	
Project Name:		**State:** **Zip:**	
Project Location:	Hampshire Burro Battery B, Lea Co, NM	**Phone #:**	
Sampler Name:	Kyle Norman	**Fax #:**	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS					
H3804770																									
1	SB 1 @ 5'	G	1			✓					✓		2-15-13	334	✓	✓									
2	SB 1 @ 55'	G	1			✓					✓		2-15-13	930	✓	✓									

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Relinquished By:	**Date:** 2-20-13	**Received By:**	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Kyle N	**Time:** 3:45	Addi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	**Date:**	**Received By:**	**REMARKS:**
	Time:		email results: zconder@rice-ecs.com knorman@rice-ecs.com; lpena@riceswd.com kjones@riceswd.com; bbaker@rice-ecs.com; hconder@rice-ecs.com; lweinheimer@rice-ecs.com

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

Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

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

#26

Arc Environmental
P. O. Box 1772
Lovington, New Mexico 88260
(575) 631-9310
Rozanne Johnson ~ rozanne@valornet.com

February 20, 2013

Mr. Hack Conder
RICE Environmental Consulting and Safety
112 West Taylor
Hobbs, New Mexico 88240

Re: LINN Operating Humphrey Queen Battery Pipeline AD

Mr. Conder,

On Monday February 18, 2013 soil bore #1 at the Humphrey Queen Battery Pipeline AD, Lea County T25S, R37E, Sec 3 Unit Letter K was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water accumulation within the borehole at the total depth of 70.58 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Hack Conder
Bruce Baker
Katie Jones

CARDINAL Laboratories

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

May 30, 2013

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: HUMPHREY QUEEN BATTERY PIPELINE AD

Enclosed are the results of analyses for samples received by the laboratory on 05/28/13 11:25.

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.

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	05/28/2013	Sampling Date:	05/17/2013
Reported:	05/30/2013	Sampling Type:	Soil
Project Name:	HUMPHREY QUEEN BATTERY PIPELINE /	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: AUGER #2 SURFACE (H301254-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	05/29/2013	ND	432	108	400	0.00	

Sample ID: AUGER #2 @ 1' (H301254-02)

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	05/29/2013	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Lino	BILL TO	
Project Manager:	Gary Wink	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location:	Humphrey Queen Central Battery PL AD	Phone #:	
Sampler Name:	Zack	Fax #:	

ANALYSIS REQUEST: 0'

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST
H301254															
1	Auger Hole Surface	G	1			✓					✓		5-17-13		✓
2	Auger Hole @ 1'	G	1			✓					✓		5-17-13		✓

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: 5/20/13	Received By: Jodi Henson	
	Time: 11:25		
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: Email to Gary Wink, Lara Weinheimer, Bruce Baker, Zack Corder

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

3°C

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) AA

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

#54

CARDINAL Laboratories

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

May 24, 2013

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: LINN HUMPHREY QUEEN BATTERY PIPELINE AD

Enclosed are the results of analyses for samples received by the laboratory on 05/23/13 13:35.

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.

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	05/23/2013	Sampling Date:	05/23/2013
Reported:	05/24/2013	Sampling Type:	Soil
Project Name:	LINN HUMPHREY QUEEN BATTERY PIPEl	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: AUGER #3 5/23/2013 @ SURFACE (H301236-01)

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	05/24/2013	ND	432	108	400	0.00	

Sample ID: AUGER #3 5/23/2013 @ 1' (H301236-02)

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	05/24/2013	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Linn Energy Rice Environmental	BILL TO	P.O. #:	
Project Manager: Cory Walk Lara Weinheimer		Company:	
Address:		Attn:	
City: State: Zip:		Address:	
Phone #: Fax #:		City:	
Project #: Project Owner:		State: Zip:	
Project Name:		Phone #:	
Project Location: Linn Humphrey Queen Battery Pipeline AD		Fax #:	
Sampler Name: Chris Flores			

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chloride
H30173-6	3														
1	Auger # 3 5-23-2013 @ surface	G	1			X							5/23/2013		X
2	" 3 " @ 1'	G	1			X							/		X

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: 5-27-2013	Received By:	
	Time: 3:35		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other:	Cool: ☐ Yes ☐ No	(Initials)
	Intact: ☑ Yes ☐ No	

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:			

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

#511

Linn Humphrey Queen Pipeline AD

Unit Letter K, Section 3, T25S, R37E

Release source, facing east 12/11/12

Initial release area, facing east 12/11/12

Initial release area, facing east 12/11/12

Initial release area, facing north 12/11/12

Excavating, facing north 12/18/12

Excavating, facing north 12/19/12

Excavating, facing east 12/20/12

Exporting, facing northwest 12/20/12

Excavating, facing southwest 12/28/12

Excavating, facing west 12/28/12

Digging Vertical #1, facing north 12/31/12

Vertical #1, facing north 12/31/12

Exporting soil, facing east 1/2/13

Digging vertical #2, facing northwest 1/2/13

Digging vertical #3, facing northeast 1/2/13

Vertical #3 completed 1/2/13

Installing SB-1, facing west 2/15/13

Plugging SB-1 in total with bentonite 2/15/13

Completed SB-1, facing north 2/15/13

Installing Temp MW, facing east 2/15/13

Checking Temp MW for water, facing south 2/18/13

Plugging Temp MW in total with bentonite 2/18/13

Completed Temp MW, facing east 2/18/13

Excavating release area, facing southeast 5/15/13

Exporting soil, facing east 5/15/13

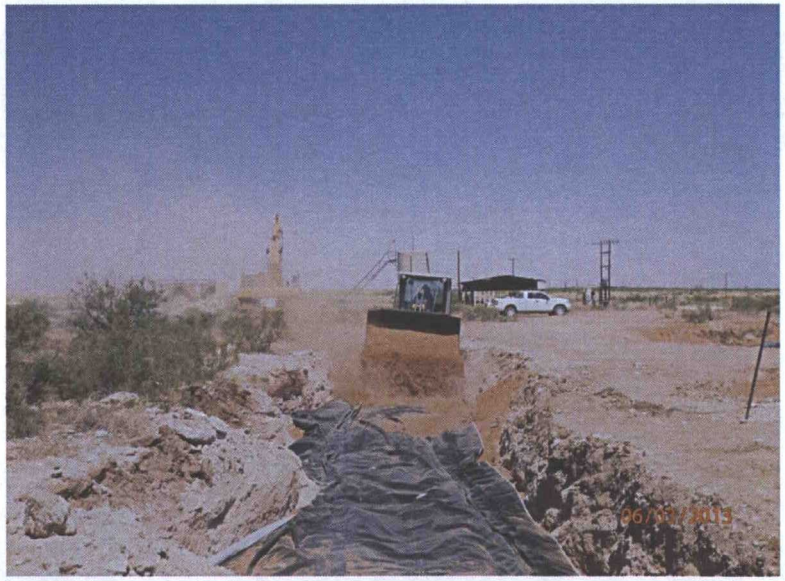
South scrape, facing southwest 5/22/13

Southwest scrape, facing northeast 5/22/13

Importing sand to pad liner, facing east 5/30/13

Installing south liner, facing northwest 6/3/13

Installing southwest liner, facing north 6/3/13



Installing north liner, facing east 6/3/13

Installing sand pad above south liner, facing N 6/3/13

Backfilling excavations, facing northeast 6/5/13

North scrape completed, facing east 6/10/13

South scrape completed, facing south 6/6/13

Southwest scrape completed, facing SW 6/11/13