BD Jt. P-14

2013

DISCLOSURE

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Blinebry-Drinkard (BD)	Jct. P-14	P	14	22S	37E	Lea	Eliminated		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER Irvin Boyd OTHER ___

Depth to Groundwater 94 feet NMOCD SITE ASSESSMENT RANKING SCORE: 10

Date Started 5/30/2012 Date Completed 8/21/2012 OCD Witness no

Soil Excavated 22 cubic yards Excavation Length 10 Width 5 Depth 12 feet

Soil Disposed None cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 5/31/2012 **Sample Depth** 12'

TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
SOURCE 12' GRAB		63.5	2710	4800

CHLORIDE FIELD TESTS		
LOCATION	DEPTH	mg/kg
background	6"	173
vertical delineation trench at junction (source)	4'	3343
	5'	4896
	6'	3671
	7'	3294
	8'	3677
	9'	4499
	10'	3707
	11'	4380
	12'	3304

General Description of Remedial Action: This junction box was eliminated during the pipeline replacement/upgrade program. After the former junction was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals, producing a 10x5x12 ft deep excavation. Chloride field tests performed on soil samples did not decrease with depth. On 6/5/2012, a 10x5 ft, 20-mil reinforced plastic liner was installed at 12 ft. bgs. The excavation was backfilled with clean imported soil to ground surface and contoured to the surrounding area. NMOCD was notified of potential groundwater impact on 3/27/2014.

Additional evaluation is **medium** priority.

Enclosures: site location map, area map, photos, lab results, cross-section diagram, chloride curve

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

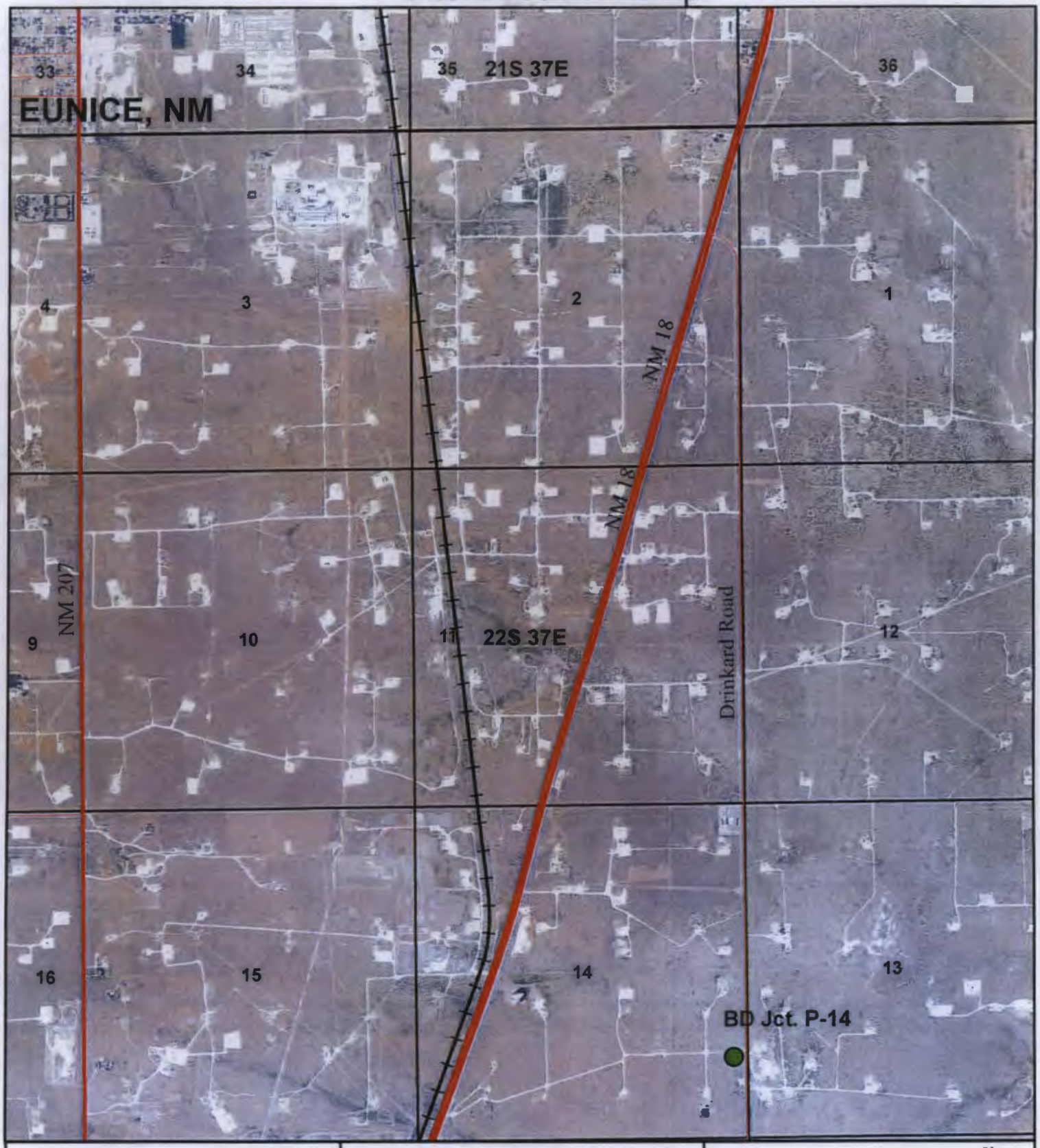
REPORT ASSEMBLED BY Laura Flores SIGNATURE Laura Flores COMPANY Rice Environmental Consulting & Safety

SITE SUPERVISOR Dustin Yarbrough SIGNATURE Not Available COMPANY Rice Environmental Consulting & Safety

PROJECT LEADER Kyle Norman SIGNATURE Kyle Norman DATE 3-27-2014

*This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

Site Location Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

BD Jct. P-14

UL/P SECTION 14
T-22-S R-37-E
LEA COUNTY, NM

N
W E
S

0 0.4 0.8
Miles

Drawing date: 3/27/14

Area Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

BD Jct. P-14

UL/P SECTION 14
T-22-S R-37-E
LEA COUNTY, NM

N
W E
S

0 0.1 0.2 Miles

Drawing date: 3/27/14
Drafted by: L. Flores

BD Jct. P-14

Unit Letter P, Section 14, T22S, R37E

Excavating site, facing south 5/31/2012

Collecting sample, facing north 6/1/2012

Installing 10'x5', 20-mil poly liner at 12' bgs, facing northeast 6/6/2012

Backfilling above the liner, facing east 8/21/2012

CARDINAL Laboratories

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

June 05, 2012

ZACH CONDER

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-14

Enclosed are the results of analyses for samples received by the laboratory on 06/01/12 15:35.

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,

Hope S. Moreno

Hope Moreno

Inorganic Technical Director

CARDINAL Laboratories

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

Analytical Results For:

Rice Operating Company
ZACH CONDER
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	06/01/2012	Sampling Date:	05/31/2012
Reported:	06/05/2012	Sampling Type:	Soil
Project Name:	BD P-14	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SOURCE @ 12' (H201237-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4800**	16.0	06/04/2012	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**63.5**	10.0	06/05/2012	ND	183	91.3	200	1.58	
DRO >C10-C28	**2710**	10.0	06/05/2012	ND	187	93.7	200	3.90	

Surrogate: 1-Chlorooctane	*96.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*170 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

Hope S. Moreno

Hope Moreno, Inorganic Technical Director

CARDINAL Laboratories

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

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
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

Hope S. Moreno

Hope Moreno, Inorganic Technical Director

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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:	RICE Operating
Project Manager:	Zach Conder
Address:	112 W. Taylor
City:	Hobbs
State:	NM
Zip:	88240
Phone #:	
Fax #:	
Project #:	
Project Owner:	
Project Name:	[illegible] BD P 14
Project Location:	
Sampler Name:	[illegible]

BILL TO

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

ANALYSIS REQUEST

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	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H201237-1	Source @ 12'	G	1			X					X		5/3/12	10:30						

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: 5/1/12	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
[illegible]	Time: 2:35	Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		email results Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; [illegible]

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

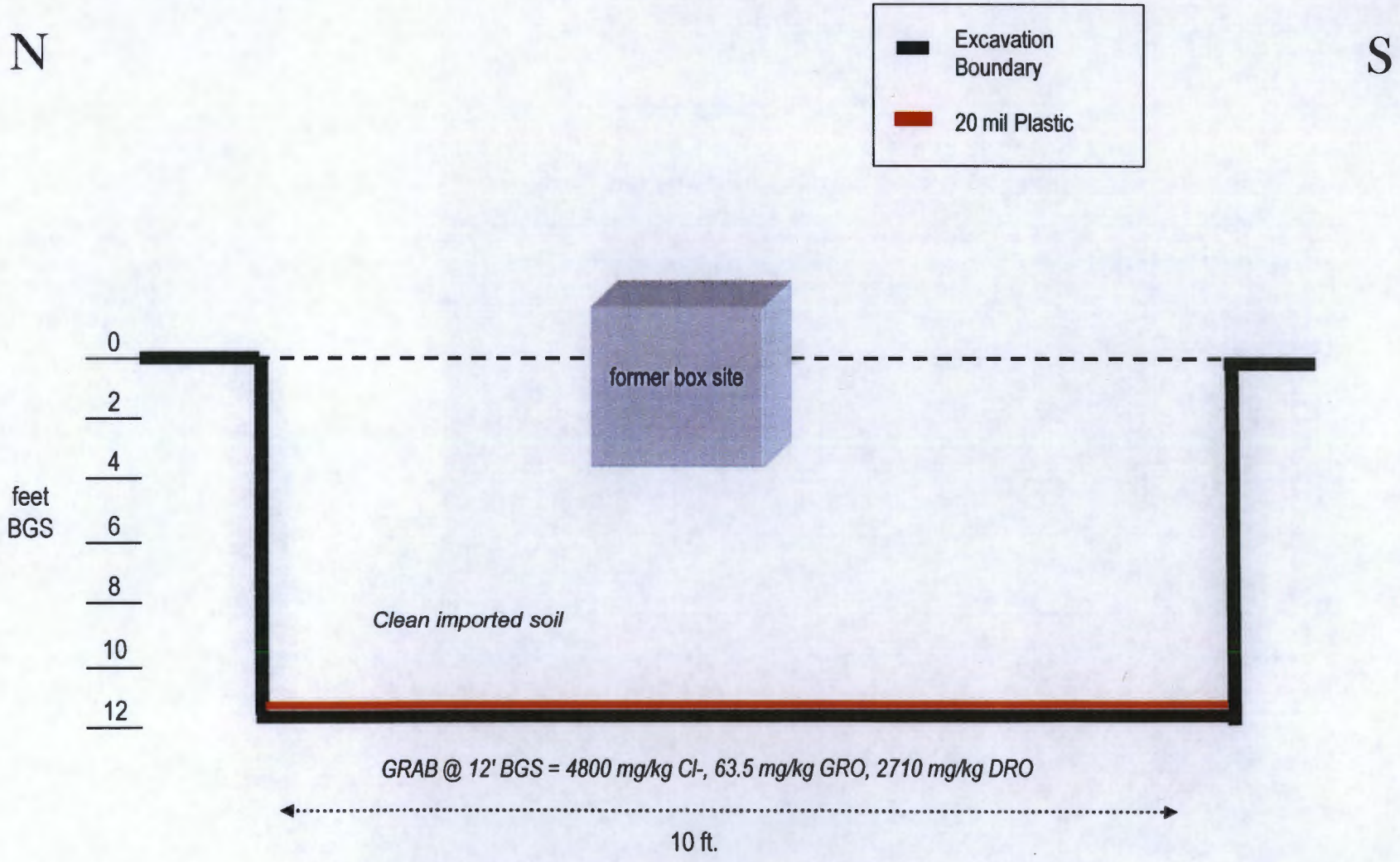
Sample Condition: Cool ☑ Yes ☐ No / Intact ☑ Yes ☐ No
CHECKED BY: (Initials)

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

#26

BD Jct. P-14
Unit 'P', Sec. 14, T22S, R37E

Excavation Cross-Section

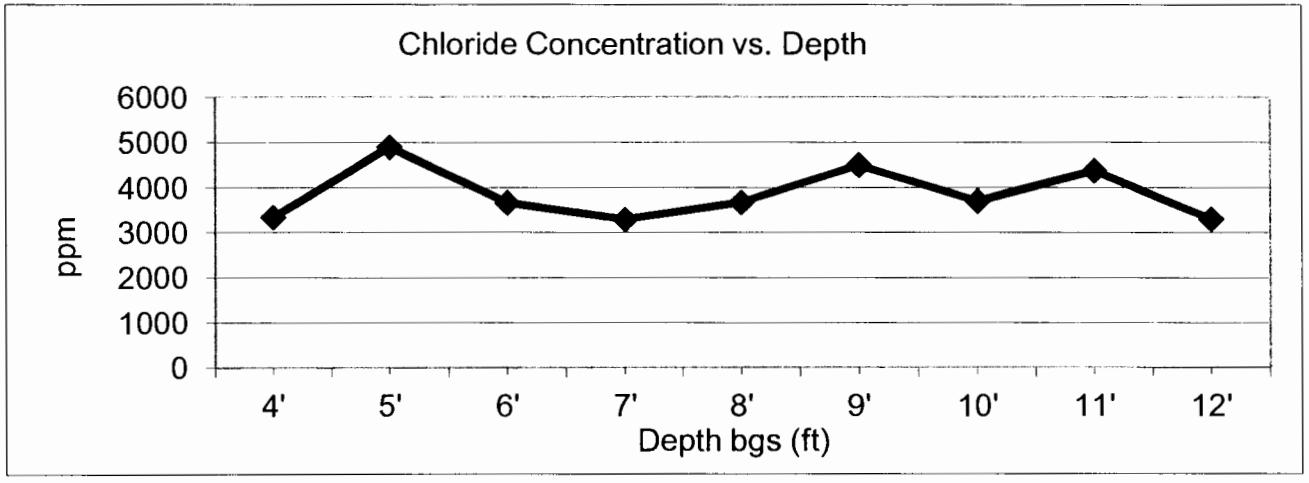


BD Jct. P-14

Unit 'P', Sec. 14, T22S, R37E

Backhoe samples at the junction (source)

Depth bgs (ft)	[Cl⁻] ppm
4'	3343
5'	4896
6'	3671
7'	3294
8'	3677
9'	4499
10'	3707
11'	4380
12'	3304



Groundwater = 94 ft

RICE *Operating Company*
122 West Taylor • Hobbs, New Mexico 88240
Phone: (575) 393-9174 • Fax: (575) 397-1471

April 1, 2014

Mr. Leonard Lowe
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: JUNCTION BOX UPGRADE REPORT for 2013
BD SWD SYSTEM
Lea County, New Mexico

Mr. Lowe:

Rice Operating Company (ROC) takes this opportunity to submit the Junction Box Upgrade results for the year 2013. Enclosed is a list of the completed junction boxes and their respective closure/disclosure dates. These boxes are located in the Blinebry-Drinkard (BD) Salt Water Disposal (SWD) System located in the vicinity of Eunice, New Mexico.

ROC completed 12 junction boxes in 2013. Junction box upgrades in 2014 will be conducted in conjunction with scheduled pipeline replacements.

Enclosed are the 2008 results (17 sites evaluated with 22 sampling locations) from the PID/BTEX study described in the NMOCD-approved Revised Junction Box Upgrade Work Plan (July 16, 2003). A third-party analysis, conducted by Peter Galusky, Jr. Ph.D. of Texerra, concluded from the data collected thus far that field-composited values tend to produce slightly higher BTEX numbers above the point at which BTEX concentrations become significant. This is likely due to the fact that BTEX is volatile and quickly biodegradable. This analysis was submitted to NMOCD on March 12, 2009. An appropriate number of sample sites could not be obtained to conduct a 2013 BTEX comparison analysis. Peter Galusky, Jr. Ph.D. of Texerra also compared ROC's 2013 chloride field tests to chloride laboratory analyses; the analysis is also enclosed. The study of this data continues to validate the accuracy of the chloride field tests employed by ROC.

ROC is the service provider (agent) for the BD SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Replacement/closure projects of this magnitude require System Party AFE approval and work begins as funds are received.

Thank you for your consideration of this Junction Box Upgrade Report for 2013.

RICE OPERATING COMPANY

Hack Conder
Environmental Manager

enclosures as stated

cc: SC, file, Mr. Geoffrey Leking
NMOCD, District I Office
1625 N. French Drive
Hobbs, NM 88240

Rice Operating Company
BD SWD System Junction Box Upgrade Project
2013 Completed Boxes

		Legal Description							
	Jct Box Name	Unit	Sec	T	R	Completion Date	OCD Assessment Score	Report Status	Case Number
1	G-29 EOL	G	29	22S	38E	1/7/2014	0	Disclosure	
2	Jct. G-31	G	31	22S	38E	1/7/2014	20	Disclosure	
3	JCT. M-29	M	29	22S	38E	11/1/2013	0	Disclosure	
4	JCT. N-29	N	29	22S	38E	9/11/2013	0	Disclosure	
5	JCT. N-30	N	30	22S	38E	8/19/2013	10	Disclosure	
6	O-29-1 VENT	O	29	22S	38E	7/26/2013	0	Disclosure	
7	O-30 VENT	O	30	22S	38E	11/6/2013	10	Disclosure	
8	Jct. P-14	P	14	22S	37E	8/21/2012	10	Disclosure	
9	J-29 Vent	J	29	22S	38E	n/a	0	Closure	
10	J-30 EOL	J	30	22S	38E	10/22/2013	10	Closure	
11	JCT. J-29	J	29	22S	38E	n/a	0	Closure	
12	M-28 EOL	M	28	22S	38E	11/5/2013	0	Closure	

L. Peter Galusky, Jr. Ph.D., P.G.
Texerra

505 N Big Spring, Suite 404 Midland, Texas 79701
Tel: 432-634-9257 E-mail: lpg@texerra.com

March 10th, 2009

Mr. Brad Jones
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: Comparison of Field versus Lab Compositing of BTEX soil samples
Rice Operating Company, Junction Box Upgrade Work Plan

Sent via Certified Mail w/ Return Receipt No. 7006 0100 0001 2438 3944

Dear Mr. Jones:

On behalf of Rice Operating Company (ROC) I am submitting the attached comparison and analysis of field versus laboratory soil compositing for soil BTEX samples. This is to address the question of whether it is better to mix multiple samples in the field or to do so in the laboratory in order to produce a composite, representative sample for analysis. This work was undertaken in support of ROC's Junction Box Upgrade Work Plan to ensure the quality of their field analysis program.

In brief, this work indicates that field compositing of soil samples generally gives rise to *slightly* higher BTEX values than does laboratory compositing of multiple samples. This is presumably due to the likelihood that field compositing and packaging of soil samples better preserves sample integrity. It would therefore appear that field compositing would represent the better method of procuring soil samples for subsequent analysis of BTEX.

Please call me if you have any questions or wish to discuss any of the details of this study.

ROC is the service provider (agent) for various Salt Water Disposal Systems (SWDs) and has no ownership of any portion of pipeline, well or facility. The SWD Systems that ROC operates are owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Copy: Rice Operating Company,
Edward Hansen (NMOCD) sent certified mail w/ return receipt
No. 7006 0100 0001 2438 3937
Attachment: As noted, above.

Rice Operating Company
Comparison of Field Compositing versus Laboratory Compositing of Soil BTEX Samples[1]

The careful mixing of multiple soil samples is critical in order to produce a representative, composite sample from a respective study area (such as a excavation face or bottom). Field technicians typically take four or five "grab" samples from excavation walls and/or bottom and send each of these to a laboratory for analysis of the composite, or mixed, sample. It would be far simpler, however, to composite such samples in the field. This study was undertaken to determine if field compositing produced results substantially different than laboratory compositing for the analysis of BTEX. Data were provided by Rice Operating Company encompassing 22 sampling locations over the period of 2004 through 2008.

A comparison of lab-composited soil samples versus field-composited soil samples revealed a close correspondence for total BTEX between the two methods (Figure 1).

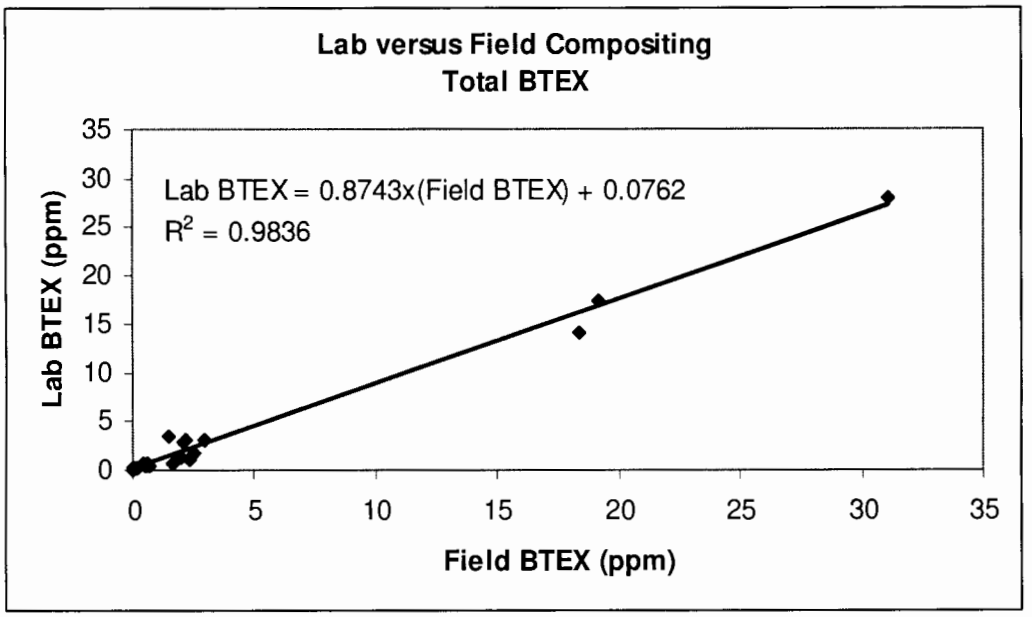


Figure 1 - Laboratory versus field-composited soil samples analyzed for BTEX.

The high R^2 value (0.9836) of the best-fit statistical regression line indicates a high degree of reliability in using the field-compositing method over the range of values observed. Below a "field-composited BTEX" value of 0.61 ppm the "lab-composited BTEX" values are slightly lower. However, above a field-composited BTEX value of 0.61 the lab-composited values run slightly lower. In other words, the field-composited values tended to produce slightly higher BTEX numbers above the point at which BTEX concentrations become significant.

There is a reason for this. BTEX is volatile and quickly biodegradable. The compositing and "packaging" of soil samples in the field minimize the handling and aeration that occur in the laboratory. Thus, field-composited soil samples lose less BTEX to evaporation and/or biodegradation prior to laboratory analysis. In other words, the field compositing and packaging of soil samples better preserves sample integrity, and for this reasons would appear to represent the better method of procuring soil samples for subsequent analysis of BTEX.

[1] Prepared 03-12-09 by L. Peter Galusky, Jr. of Texerra.

L. Peter Galusky, Jr. Ph.D., P.G.
Texerra LLC **20055 Laredo Lane Monument, CO 80132**
Tel: 719-339-6791 E-mail: lpg@texerra.com

March 25th, 2014

Mr. Leonard Lowe
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Re: Comparison of 2013 Laboratory versus Field Measured Soil Chloride Values
Rice Operating Company, Junction Box Upgrade Work Plan

Mr. Lowe:

The attached comparison and analysis of 2013 laboratory versus field measured soil chloride values is submitted in support of Rice Operating Company's (ROC's) Junction Box Upgrade Work Plan to ensure the quality of their field analysis program.

In brief, this work indicates that Rice's 2013 field chloride measurement efforts provided a reasonable qualitative approximation of the laboratory-measured (and presumed true) values.

ROC is the service provider (agent) for various Salt Water Disposal Systems (SWDs) and has no ownership of any portion of pipeline, well or facility. The SWD Systems that ROC operates are owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Please call me if you have any questions or wish to discuss this study.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Copy: Glenn VonGonten, NMOCD; Rice Operating Company
Attachment: As noted, above.

Rice Operating Company
Comparison of Laboratory to Field Measured Soil Chloride Concentrations
Based upon 2013 Field Data

A representative sample of 29 pairs of laboratory versus field measured soil chloride values was compared to determine how well field measurements matched laboratory measurements. It is assumed that laboratory measurements better represent the "true" values due to the controlled environment that a laboratory provides. A simple plot of the laboratory versus field measured soil chloride values is given below (Figure 1).

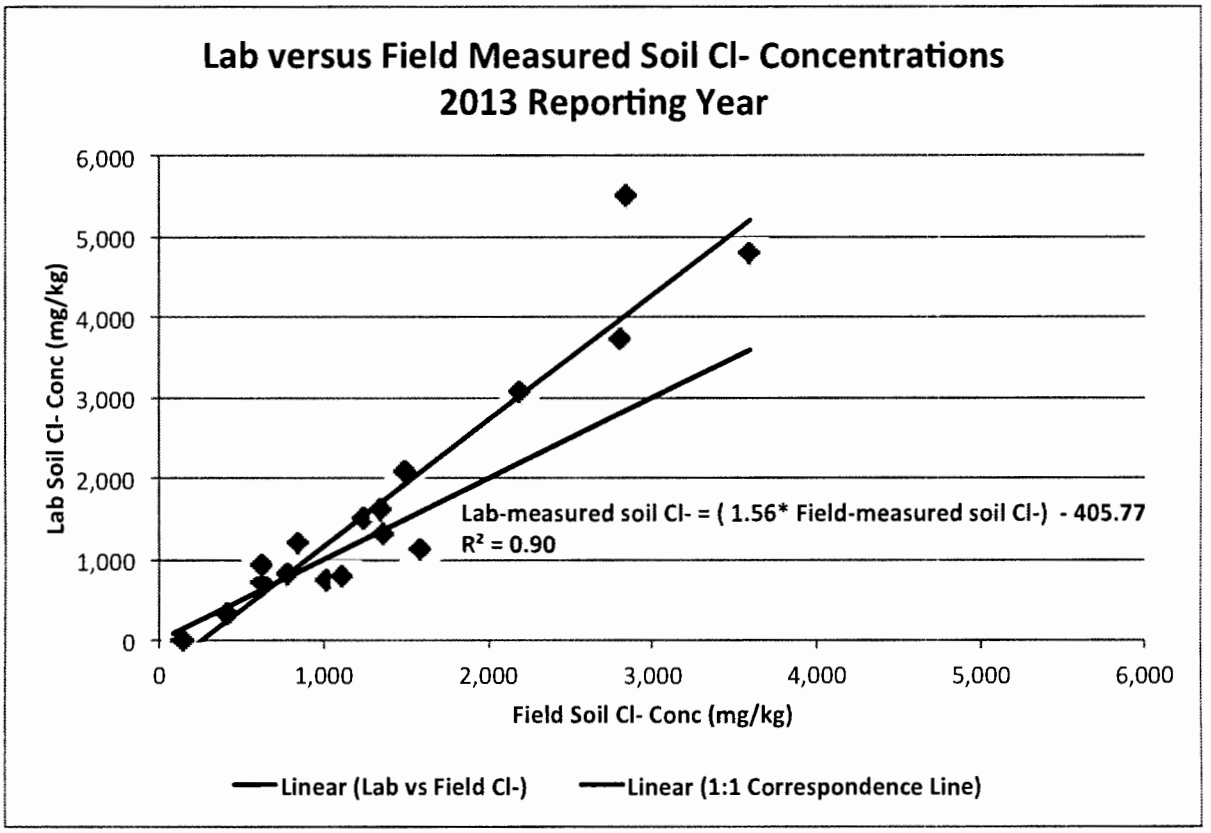


Figure 1 – Laboratory versus field measured soil chloride measurements (n = 29 paired sets).

A straight line fit to the data confirms a general linear trend over a wide range of soil chloride concentrations, and the R^2 value (0.90) indicates that field measurements provide a reliable approximation of laboratory-measured values. Based on the best-fit line of lab vs field measured values, field measured values overestimate lab measure values below a field measured value of 723 mg/kg and above this underestimate the lab-measured values. This is indicated in the graph where the (blue) best-fit line of lab vs field measured chlorides crosses the (black) line which would indicate a 1:1 correspondence.