1R - 426-169

REPORTS

DATE:

7-12-12

Rice Environmental Consulting & Safety
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0000 4569 9590

July 12th, 2012

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

RE: **CAP Report and Termination Request**
Rice Operating Company – BD SWD System
BD B-29 (1R426-169): UL/B&C sec. 29 T21S R37E

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the BD Salt Water Disposal (SWD) system. 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.

Background and Previous Work

The site is located approximately 1.5 miles northwest of Eunice, New Mexico at UL/B&C sec. 29 T21S R37E as shown on the Site Location Map (Figure 1). Monitor well sampling at the site indicates that groundwater is located at 90 ft bgs.

The Amended Investigation and Characterization Plan (ICP) dated October 26th, 2007, gave background information and the results of borings conducted in September 2002 and December 2006 and monitor well installations conducted in late 2007 (MW-1 and MW-2). An ICP Report was submitted September 22nd, 2010 and approved by NMOCD on October 18th, 2010 in which ROC recommended installing an up-gradient monitor well at the site to further delineate groundwater. The up-gradient monitor well (MW-3) was installed on November 18th, 2010.

A Corrective Action Plan (CAP) was submitted to NMOCD on April 13th, 2011 and approved on June 9th, 2011. In the CAP, ROC proposed to excavate three areas to a depth of 4 – 5 feet and install and properly seat a 20-mil reinforced poly liner. The three excavated areas comprised 56% of the release area or about 57,000 sq ft. After the liner installation, the site would be seeded with a native vegetative mix. Re-vegetation of the site will also limit the downward migration of constituents to groundwater. Plants

capture water through their roots, thereby reducing the volume of water infiltrating below the root zone to groundwater.

On May 9th, 2011, ROC amended the CAP by adding an additional area to be excavated for liner installation. The fourth liner was located in the southeast corner of the release area. NMOCD approved the Amended CAP on June 9th, 2011.

A final addendum was submitted to NMOCD on March 19th, 2012. In the addendum, ROC noted a non-ROC fiberglass line running east to west through the center excavation. ROC proposed to remain 4 ft north and 4 ft south off this line for safety reasons. The approved liner would then be installed in two segments, split around the line (Figure 2). This addendum was approved by NMOCD of March 29th, 2012.

CAP Activities

Excavation for liner installation began on March 13th, 2012. The dimensions of each excavation are presented in Figure 2. The southeast excavation was excavated to 5 ft bgs and clean sand and caliche were imported to the site to serve as a padding for the liner and as backfill material. A sample of the caliche and sand was field tested for hydrocarbons and returned results of 4.1 ppm for the caliche and 8.6 ppm for the sand. The samples were then taken to a commercial laboratory for analysis of chlorides. The caliche returned a chloride result of 160 mg/kg and the sand returned a chloride result of 80 mg/kg. A six inch sad pad was installed at the base of the excavation to protect the liner from punctures. A 20-mil reinforced poly liner was properly seated at the base of the excavation and another six inch sand pad was installed over the liner. The excavation was then backfilled with two feet of caliche and compacted with a roller. The remaining two feet of the excavation was backfilled with sand to ground surface and contoured to the surrounding landscape.

The center excavation was completed in two sections, one north of the non-ROC fiberglass line and one south of the non-ROC fiberglass line. Both excavations were excavated to 5 ft bgs. A six inch sand pad was installed at the base of each excavation and a 20-mil reinforced poly liner was properly seated over the pad. A six inch sand pad was installed over the south liner and the excavation was backfilled with imported caliche to 2 ft bgs. The remaining two feet of the south excavation was backfilled with imported sand and contoured to the surrounding landscape. The excavation north of the fiberglass line was backfilled with imported sand to ground surface.

The two north liner installations were excavated as one. Imported sand was used as padding both below and above the liner to six inches. The imported sand was field tested for hydrocarbons and returned a result of 0.8 ppm. The sample was then taken to a commercial laboratory for chloride analysis which returned a result of non-detect. A 20-mil reinforced, L-shaped poly liner was properly seated into the excavation. The imported sand was then used to backfill the excavation to ground surface and to contour the excavation to the surrounding landscape. A total of 9,690 yards of excavated soil from all the excavations was disposed of at a NMOCD approved facility and a total of

8,470 yards of sand and caliche was imported to the site to pad the liners and serve a backfill material.

Soil amendments were added to the site and the site was seeded with a blend of native vegetation. Silt net fencing was placed around the excavations to maintain seed integrity.

Documentation of the CAP Activities can be found in Appendix A.

Groundwater

The monitor wells have been sampled quarterly since their installation (Figure 3). During the most recent sampling event on June 7th, 2012, MW-1 had a chloride reading of 352 mg/kg, MW-2 had a chloride reading of 368 mg/kg and MW-3 had a chloride reading of 260 mg/kg (Appendix B).

On October 11th, 2010, ROC submitted a Background Characterization Report for the BD Jct. P-30 (1R426-124) which was approved by NMOCD on October 21st, 2010 (Appendix C). The report detailed the analysis of chlorides and TDS in groundwater within a 5 mile radius of the Jct. P-30. Based on the regional characterization of background concentration for chlorides and TDS, it was determined that the Jct. P-30 average chloride reading of 346 mg/L and average TDS reading of 1,022 mg/L was indicative of background concentrations. Given that the B-29 site is less than a mile from the Jct. P-30 site, the regional background concentrations of chlorides and TDS apply to B-29 as well. Therefore, the chlorides in the B-29 wells are of background concentrations and show that the chlorides in the vadose zone have not affected groundwater.

ROC has completed the vadose zone remediation approved by NMOCD in the CAP. The NMOCD approved 20-mil reinforced liners will inhibit the further migration of chlorides through the vadose zone to groundwater. In addition, given the background concentrations of chlorides near 350 mg/L, the chloride values in the monitor wells indicate that the chlorides in the vadose zone have not affected groundwater. Therefore, ROC requests 'remediation termination' status of the regulatory file.

Upon NMOCD's approval of this report, the monitor wells (MW-1, MW-2, and MW-3) will be plugged and abandoned with a 1-3 % bentonite/concrete slurry with a three foot concrete cap.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,

JC. W

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

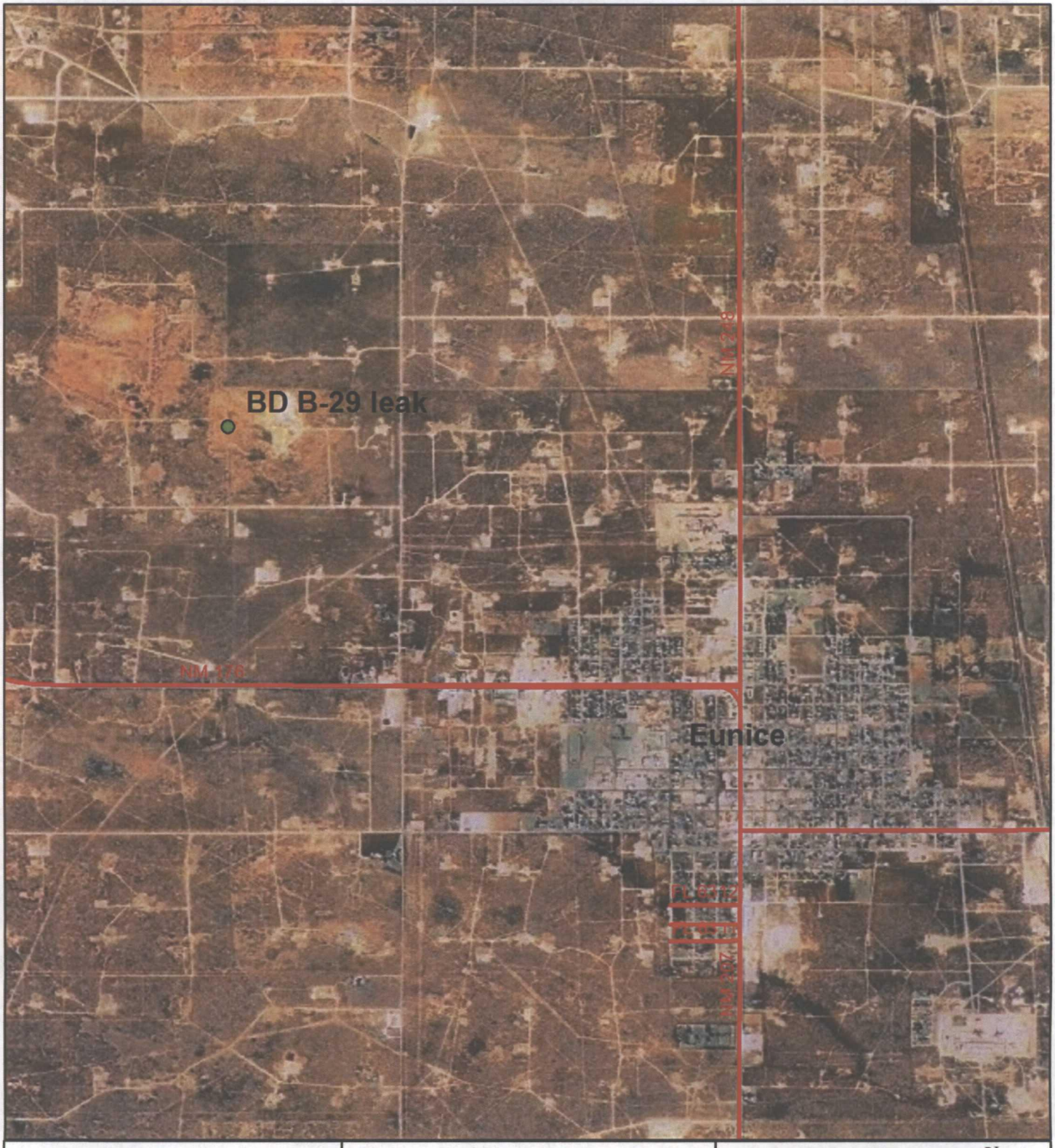
Attachments:

Figure 1 – Site Location Map
Figure 2 – NMOCD Approved Liner
Figure 3 – Monitor Well Sampling Data
Appendix A – CAP Activities Documentation
Appendix B – Monitor Well Sampling Lab
Appendix C – BD Jct. P-30 Background Characterization Report

Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

Site Location



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

BD B-29

LEGALS: UL/B&C SECTION 29
T-21-S R-37-E

NMOCD CASE #: 1R426-169

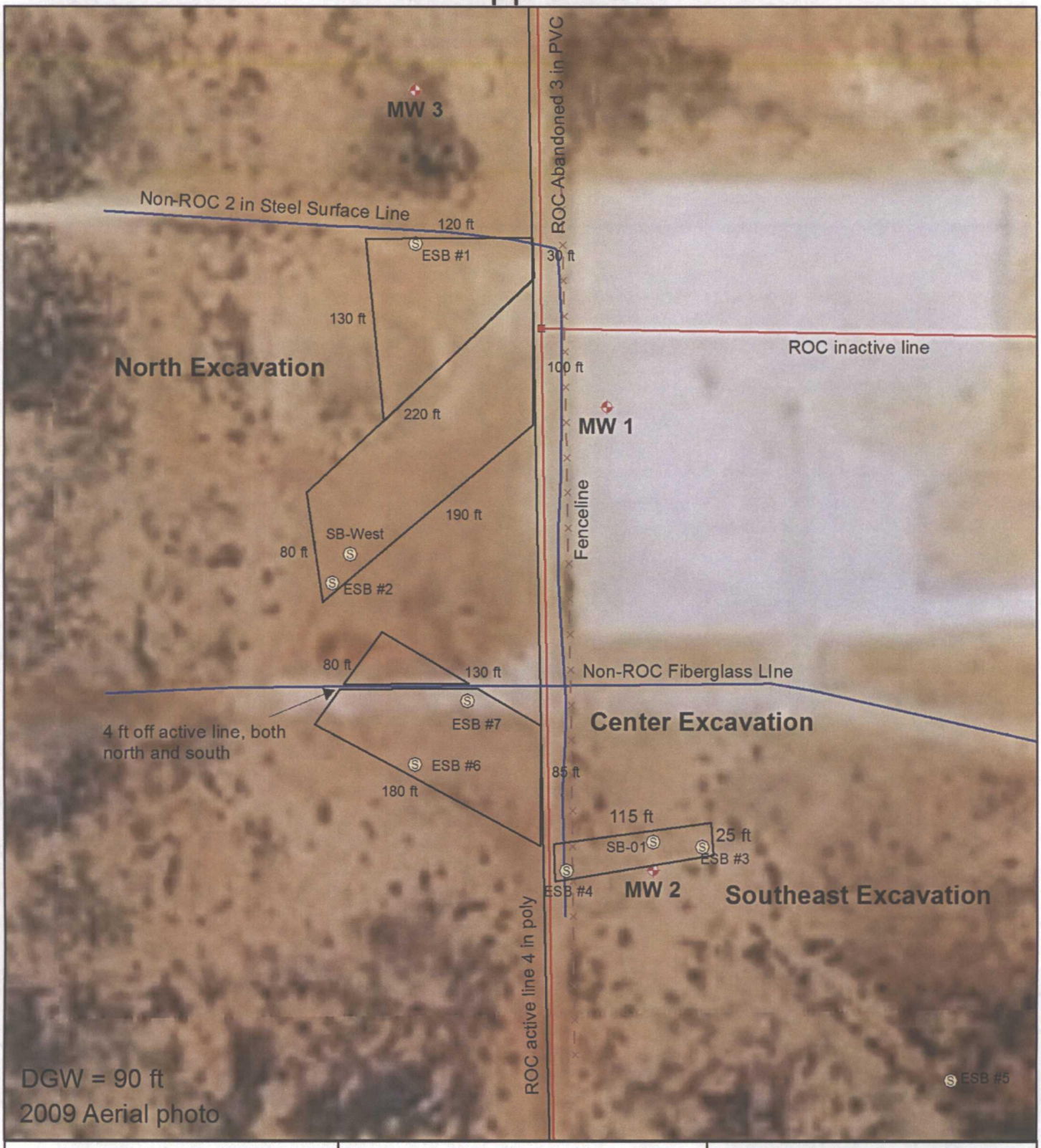
Figure 1

N
W E
S

0 0.2 0.4 0.8
Miles

Drawing date: 6/25/2012
Drafted by: Lara Weinheimer

NMOCD Approved Liners



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD B-29

LEGALS: UL/B sec. 29
T21S R37E

NMOCD Case #: 1R426-169

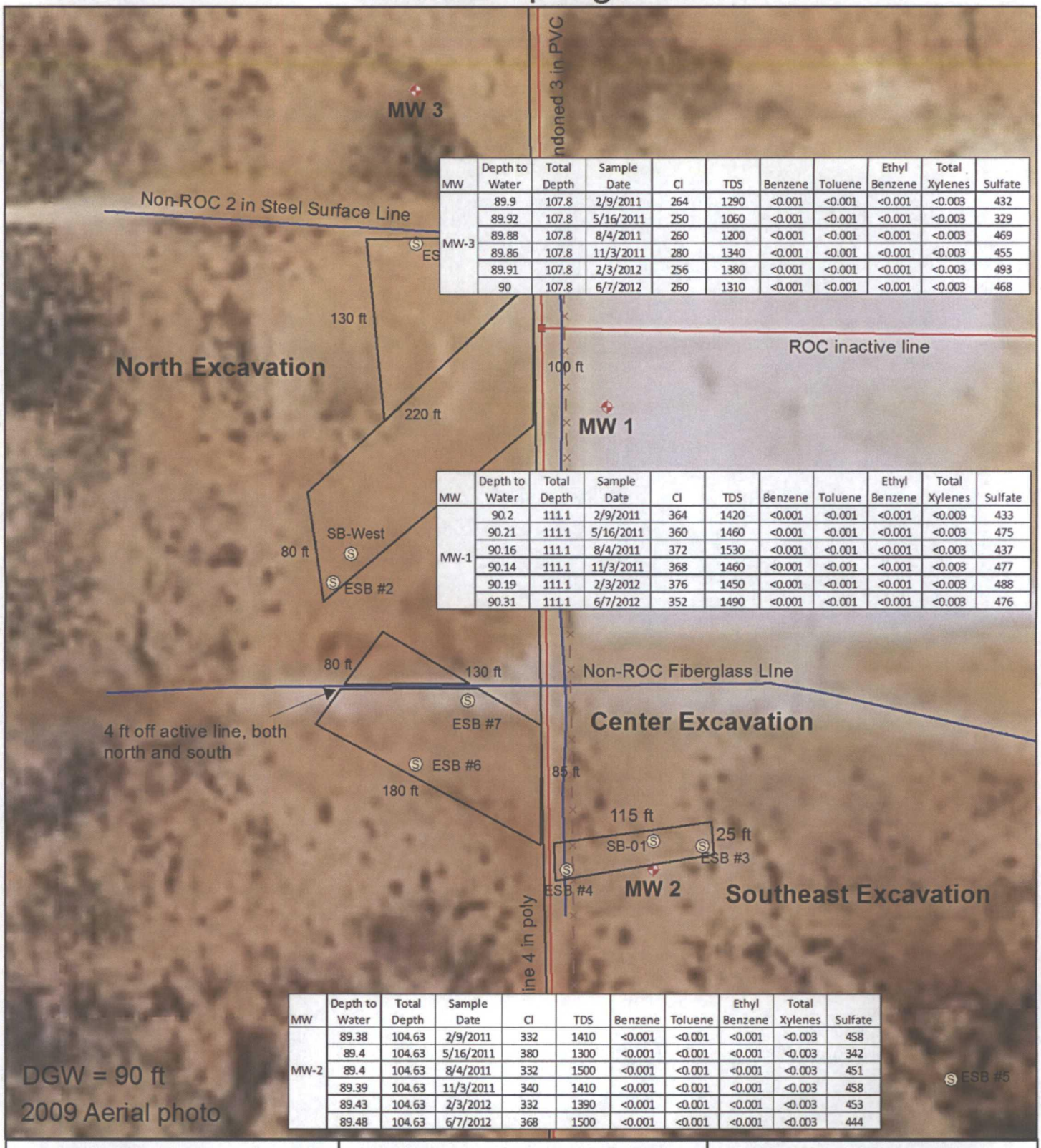
Figure 2

N W E S

0 37.5 75 150 Feet

Drawing date: 3-15-12
Drafted by: L Weinheimer

MW Sampling Data



MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-3	89.9	107.8	2/9/2011	264	1290	<0.001	<0.001	<0.001	<0.003	432
	89.92	107.8	5/16/2011	250	1060	<0.001	<0.001	<0.001	<0.003	329
	89.88	107.8	8/4/2011	260	1200	<0.001	<0.001	<0.001	<0.003	469
	89.86	107.8	11/3/2011	280	1340	<0.001	<0.001	<0.001	<0.003	455
	89.91	107.8	2/3/2012	256	1380	<0.001	<0.001	<0.001	<0.003	493
	90	107.8	6/7/2012	260	1310	<0.001	<0.001	<0.001	<0.003	468

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-1	90.2	111.1	2/9/2011	364	1420	<0.001	<0.001	<0.001	<0.003	433
	90.21	111.1	5/16/2011	360	1460	<0.001	<0.001	<0.001	<0.003	475
	90.16	111.1	8/4/2011	372	1530	<0.001	<0.001	<0.001	<0.003	437
	90.14	111.1	11/3/2011	368	1460	<0.001	<0.001	<0.001	<0.003	477
	90.19	111.1	2/3/2012	376	1450	<0.001	<0.001	<0.001	<0.003	488
	90.31	111.1	6/7/2012	352	1490	<0.001	<0.001	<0.001	<0.003	476

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
MW-2	89.38	104.63	2/9/2011	332	1410	<0.001	<0.001	<0.001	<0.003	458
	89.4	104.63	5/16/2011	380	1300	<0.001	<0.001	<0.001	<0.003	342
	89.4	104.63	8/4/2011	332	1500	<0.001	<0.001	<0.001	<0.003	451
	89.39	104.63	11/3/2011	340	1410	<0.001	<0.001	<0.001	<0.003	458
	89.43	104.63	2/3/2012	332	1390	<0.001	<0.001	<0.001	<0.003	453
	89.48	104.63	6/7/2012	368	1500	<0.001	<0.001	<0.001	<0.003	444

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD B-29

LEGALS: UL/B sec. 29
T21S R37E

NMOCD Case #: 1R426-169

Figure 3

N W E S

0 37.5 75 150 Feet

Drawing date: 6-26-12
Drafted by: L Weinheimer

Appendix A

CAP Activities Documentation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CARDINAL Laboratories

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

March 19, 2012

ZACH CONDER

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD B-29 LEAK

Enclosed are the results of analyses for samples received by the laboratory on 03/19/12 8:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

Received:	03/19/2012	Sampling Date:	03/16/2012
Reported:	03/19/2012	Sampling Type:	Soil
Project Name:	BD B-29 LEAK	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: IMPORTED BLOWSAND 8 PT COMP (H200670-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	03/19/2012	ND	400	100	400	7.69	

Sample ID: IMPORTED CALICHE 8 PT COMP (H200670-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	03/19/2012	ND	400	100	400	7.69	

Cardinal Laboratories *=Accredited Analyte

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

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: Rice	BILL TO
Project Manager: ZAC H Conder	P.O. #:
Address: 122 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 393-9174 Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD B-29 Leak	Phone #:
Sampler Name: Robert	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-
	Imported Blowsand Stockpile	C	1			✓							3-16-12		✓
	Imported Caliche Stockpile	C	1			✓							3-16-12		✓

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: Robert Conder	Date: 3/19/12 Time: 7:30	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus. - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	REMARKS:

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

RICE ENVIRONMENTAL CONSULTING AND SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
x	MODEL: PGM 7300	SERIAL NO: 590-001413
	MODEL: PGM 7300	SERIAL NO: 590-000508
	MODEL: PGM 7320	SERIAL NO: 592-903318
	MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HAL=248-100-1	EXPIRATION DATE: 7-192015
METER READING ACCURACY: 100	

ACCURACY : +/- 2%

PROJECT LOCATION	UNIT	SECTION	TOWN SHIP	RANGE
BD B-29 LEAK	B	29	T21S	R37E

SAMPLE ID	PID	SAMPLE ID	PID
IMPORTED BLOW SAND	8.6		
IMPORTED CALICHE	4.1		

I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE:	DATE: 3-16-2012

CARDINAL Laboratories

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

April 17, 2012

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD B-29 LEAK

Enclosed are the results of analyses for samples received by the laboratory on 04/12/12 8:02.

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 Operating Company
KATIE JONES
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	04/12/2012	Sampling Date:	04/11/2012
Reported:	04/17/2012	Sampling Type:	Soil
Project Name:	BD B-29 LEAK	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: IMPORTED SAND FROM WALLACH (H200840-01)

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	04/16/2012	ND	400	100	400	11.3	

Cardinal Laboratories *=Accredited Analyte

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

Celey D. Keene, Lab Director/Quality Manager

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	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD 13-29 Leak	Phone #:
Sampler Name: JKamolan	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					
H20088																									
-1	Imported sand from Mallard	G	1			✓					✓		4-11-12	10:20	✓										

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: 4-12-12 Time: 9:07	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
			Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date: Time:	Received By:	REMARKS: email results Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.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

RICE ENVIRONMENTAL CONSULTING AND SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.		MODEL: PGM 7300	SERIAL NO: 590-001413
		MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7320	SERIAL NO: 592-903318
	x	MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HAL-248-100-1	EXPIRATION DATE: 7-1-15
METER READING ACCURACY: 100.0 PPM	

ACCURACY : +/- 2%

PROJECT LOCATION	UNIT	SECTION	TOWN SHIP	RANGE
BD B-29 LEAK	B	29	21-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
IMPORTED BLOW SAND FROM WALLACH	0.8		

I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE:	DATE: 4/11/12

RICE ENVIRONMENTAL
RECS
CONSULTING & SAFETY, LLC

PO Box 5630
Hobbs, NM 88241
Phone: (575) 393-4411
Fax: (575) 393-0293

REVEGETATION FORM

1. General Information

Site name	BD B-29 Leak					
U/L	Section	Township	Range	County	Latitude	Longitude
B	29	21S	37E	Lea	32.455501°	103.185189°
Contact Name:	Bruce Baker					
Email:	bbaker@rice-ecs.com					
Site size:	55,800 square feet			Map detail of site attached ☐		
Additional information:						

2. Soils **Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site ☐	Bioremediated ☐	Imported ☒	Blended ☐	Depth (in):
Texture: **Sandy**	Describe soil & subsoil:	**Sandy soils with caliche subsoil**		
Soil prep methods:	Rip ☐ Depth(in):	Disc ☐ Depth (in):	Rollerpack ☐	
Date completed: **4/24/2012**				

3. Bioremediation

Fertilizer ☒	Hay ☐	Other ☒
Type: **Manure**		Describe: **750 lbs. Peat Moss, 300 lbs. Topsoil, 150 lbs. Restore Nhance**
Lbs/acre:		

4. Seeding **Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom seed mix ☒	Prescribed mix ☐	Seed mix name: **45 lbs. Lea County Mix, 33 lbs. Race Horse Oats**	Seeding date: **6/15/2012**
Broadcast ☒ Method: **Mechanical spreader/tiller**			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☐ Number of photos:	Observations: **Seed was tilled in to a depth of approximately 2 inches**		

5. Certification I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: **Eduardo Garcia**	Title: **Environmental Tech**	Date: **6/15/2012**
Signature: Eduardo Garcia		

BD B-29 leak (1R426-259)
Unit B, Section 29, T22S, R37E

Southeast excavation prior to excavation, facing east 3/12/12

Exporting soil, facing west 3/14/12

Southeast excavation completed, facing east 3/15/12

Installed bottom 6" sand pad, facing east 3/15/12

Installed 115' x 25', 20-mil reinforced plastic liner, facing east 3/15/12

Installing 6" sand pad above liner, facing east 3/15/12

Roller packing caliche in backfilled excavation, facing east 3/16/12

Backfilling 2' deep excavation with sand to ground surface, facing southeast 3/16/12

Excavation completed, facing east 3/19/12

Center excavation site (south of line) prior to excavation, facing south 3/19/12

Center excavation, facing northeast 3/23/12

Installed bottom 6" sand pad, facing east 3/26/12

Installed south portion of 85' x 180', 20-mil reinforced plastic liner, facing east 3/26/12

Installing 6" sand pad above liner, facing west 3/26/12

Backfilling site with caliche, facing west 3/27/12

Center excavation (north of line) prior to excavation, facing east 3/29/12

Excavating site, facing west 3/30/12

Installed bottom 6" sand pad, facing east 3/30/12

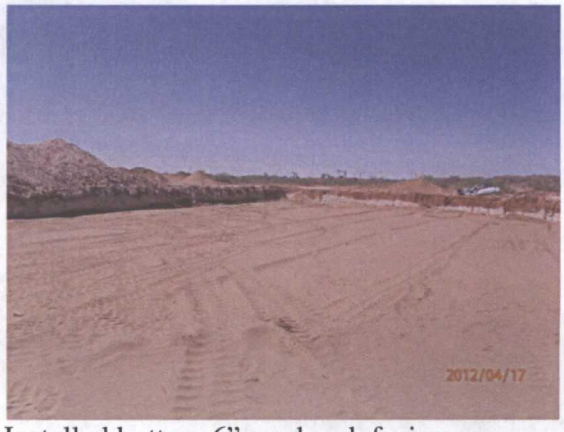
Installed north portion of 20-mil reinforced plastic liner, facing east 4/2/12

Backfilling excavation with imported sand, facing west 4/2/12

Excavation completed, facing northeast 4/3/12

North excavation prior to excavating, facing southwest 4/3/12

Excavating site, facing east 4/16/12



Installed bottom 6" sand pad, facing southwest 4/17/12

Installed 190' x 130', 20-mil reinforced L-shaped plastic liner, facing northeast 4/17/12

Installed 6" sand pad above liner, facing north 4/19/12

Backfilled north excavation, facing southeast 4/23/12

Sites completed, facing southeast 5/9/12

Spreading amendments, facing north 6/14/12

Seeding sites, facing east 6/15/12

Appendix B

Monitor Well Sampling Lab

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CARDINAL Laboratories

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

June 18, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD B-29 LEAK

Enclosed are the results of analyses for samples received by the laboratory on 06/11/12 13:33.

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 Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	06/11/2012	Sampling Date:	06/07/2012
Reported:	06/18/2012	Sampling Type:	Water
Project Name:	BD B-29 LEAK	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: MONITOR WELL #1 (H201303-01)

BTEX 8260B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	06/13/2012	ND	0.018	87.8	0.0200	7.09	
Toluene*	<0.001	0.001	06/13/2012	ND	0.019	94.6	0.0200	5.60	
Ethylbenzene*	<0.001	0.001	06/13/2012	ND	0.019	96.0	0.0200	7.67	
Total Xylenes*	<0.003	0.003	06/13/2012	ND	0.060	100	0.0600	7.05	

Surrogate: Dibromofluoromethane	*102 %*	*59.8-161*
Surrogate: Toluene-d8	*107 %*	*75.2-115*
Surrogate: 4-Bromofluorobenzene	*98.0 %*	*53.7-120*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**352**	4.00	06/14/2012	ND	100	100	100	0.00	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**476**	10.0	06/14/2012	ND	21.5	108	20.0	14.7	

TDS 160.1 mg/L **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1490**	5.00	06/12/2012	ND	220	91.7	240	1.74	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	06/11/2012	Sampling Date:	06/07/2012
Reported:	06/18/2012	Sampling Type:	Water
Project Name:	BD B-29 LEAK	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H201303-02)

BTEX 8260B mg/L Analyzed By: CMS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	06/13/2012	ND	0.018	87.8	0.0200	7.09	
Toluene*	<0.001	0.001	06/13/2012	ND	0.019	94.6	0.0200	5.60	
Ethylbenzene*	<0.001	0.001	06/13/2012	ND	0.019	96.0	0.0200	7.67	
Total Xylenes*	<0.003	0.003	06/13/2012	ND	0.060	100	0.0600	7.05	

Surrogate: Dibromofluoromethane	*103 %*	*59.8-161*
Surrogate: Toluene-d8	*107 %*	*75.2-115*
Surrogate: 4-Bromofluorobenzene	*93.0 %*	*53.7-120*

Chloride, SM4500Cl-B mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**368**	4.00	06/14/2012	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**444**	10.0	06/14/2012	ND	21.5	108	20.0	14.7	

TDS 160.1 mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1500**	5.00	06/12/2012	ND	220	91.7	240	1.74	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	06/11/2012	Sampling Date:	06/07/2012
Reported:	06/18/2012	Sampling Type:	Water
Project Name:	BD B-29 LEAK	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T21S R37E SEC29 B - LEA CTY., NM		

Sample ID: MONITOR WELL #3 (H201303-03)

BTEX 8260B mg/L Analyzed By: CMS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	06/13/2012	ND	0.018	87.8	0.0200	7.09	
Toluene*	<0.001	0.001	06/13/2012	ND	0.019	94.6	0.0200	5.60	
Ethylbenzene*	<0.001	0.001	06/13/2012	ND	0.019	96.0	0.0200	7.67	
Total Xylenes*	<0.003	0.003	06/13/2012	ND	0.060	100	0.0600	7.05	

Surrogate: Dibromofluoromethane	*103 %*	*59.8-161*
Surrogate: Toluene-d8	*107 %*	*75.2-115*
Surrogate: 4-Bromofluorobenzene	*91.6 %*	*53.7-120*

Chloride, SM4500Cl-B mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**260**	4.00	06/14/2012	ND	100	100	100	0.00	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**468**	10.0	06/14/2012	ND	21.5	108	20.0	14.7	

TDS 160.1 mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1310**	5.00	06/12/2012	ND	220	91.7	240	1.74	

Cardinal Laboratories *=Accredited Analyte

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

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name:	BILL TO Company:	PO#
RICE Operating Company	RICE Operating Company	
Project Manager:	**Address:** (Street, City, Zip)	
Hack Conder	122 W Taylor Street ~ Hobbs, New Mexico 88240	
Address: (Street, City, Zip)	**Phone#:**	**Fax#:**
122 W Taylor Street ~ Hobbs, New Mexico 88240	(575) 393-9174	(575)397-1471
Phone #:	**Fax #:**	
(575) 393-9174	(575) 397-1471	
Project #:	**Project Name:**	
	BD B-29 Leak	
Project Location:	**Sampler Signature:**	Rozanne Johnson (575)631-9310
T21S R37E Sec29 B ~ Lea County New Mexico		rozanne@valornet.com

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY #120303)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2012)	TIME	MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	3	X				2				1		6-7	12:55		X																X	X	X	
2	Monitor Well #2	G	3	X				2				1		6-7	10:30		X																X	X	X	
3	Monitor Well #3	G	3	X				2				1		6-7	8:20		X																X	X	X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rozanne Johnson	6/11/2012	13:31	Jodi Henson	6/11/12	1:33
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:

Phone Results		Yes		No	
Fax Results		Yes		No	Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com
lweinheimer@rice-ecs.com
kjones@riceswd.com
rozanne@valornet.com

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

#26

Appendix C

BD Jct. P-30 Background Characterization Report

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECEIPT NO. 7010 0290 0003 1264 9000

October 11, 2010

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

RE: **Background Characterization Report**
BD Jct. P-30 (1R0426-124)
T21S-R37E-Section 30, Unit Letter P, Lea County, New Mexico

Mr. Hansen:

As agent for Rice Operating Company (ROC), and in response to your email request on August 18, 2010, Trident Environmental is submitting this *Background Characterization Report* for the above-referenced site. Based on the characterization of background concentrations for chlorides and total dissolved solids (TDS), as described in more detail below, we have determined that groundwater at the site is representative of background conditions and therefore has not been impacted by the former junction box. However, ROC will develop a *Corrective Action Plan* to address the vadose zone and mitigate the potential for migration of chlorides and TDS from the vadose zone to groundwater. The CAP will include plans to excavate the affected area, install a liner, and re-establish vegetation.

Chloride and TDS Background Characterization

The most recent data (1990 – 1995) from the New Mexico Water and Infrastructure Data System (NMWAIDS) were used to determine the range of chloride concentrations within an approximate 5 mile radius of the site. Only chloride data is available; therefore, TDS concentrations were directly correlated to chloride levels using a conservative factor of 3. This data set resulted in 29 wells within all of T21S-R36E, T21S-R37E, T22S-R36E, and T22S-R37E. The mean (μ) and standard deviation (σ) were calculated from the data set from which an upper limit for background chloride concentration was conservatively estimated by adding two standard deviations to the mean ($\mu + 2\,\sigma$). Table 1 below summarizes the available data set and calculation results.

Table 1
Summary of Background Chloride Concentrations

Data obtained from NMWAIDS (Years: 1990-1995; Chlorides: 0 mg/L – 1,000 mg/L)

S	T	R	Formation	Date	Chlorides (mg/L)	Location (qtr/qtr)
23	21S	36E	OGALLALA	10/05/95	63	21S.36E.23.232311
1	21S	37E	OAL	10/04/95	174	21S.37E.01.242422
3	21S	37E	OAL	11/15/95	22	21S.37E.03.31221
4	21S	37E	OAL	10/03/95	174	21S.37E.04.412442
12	21S	37E	OAL	10/04/95	484	21S.37E.12.34341
13	21S	37E	OAL	06/21/90	75	21S.37E.13.13434
14	21S	37E	OAL	10/04/95	396	21S.37E.14.12410
26	21S	37E	OAL	11/15/95	128	21S.37E.26.32322
31	21S	37E	OAL	10/05/95	73	21S.37E.31.13311
36	21S	37E	OAL	10/04/95	288	21S.37E.36.34432
2	22S	36E	OGALLALA	10/06/95	476	22S.36E.02.442441
9	22S	36E	OGALLALA	10/17/95	268	22S.36E.09.341221
25	22S	36E	OGALLALA	10/11/95	44	22S.36E.25.43433A
35	22S	36E	OGALLALA	10/06/95	25	22S.36E.35.313224
5	22S	37E	OAL	10/05/95	54	22S.37E.05.21213
5	22S	37E	OGALLALA	10/04/95	128	22S.37E.05.341434
9	22S	37E	OGALLALA	10/05/95	456	22S.37E.09.313331
11	22S	37E	OAL	10/03/95	500	22S.37E.11.322414
13	22S	37E	null	10/03/95	376	22S.37E.13.22111
15	22S	37E	OGALLALA	10/05/95	262	22S.37E.15.333343
21	22S	37E	OAL	10/11/95	348	22S.37E.21.44223
25	22S	37E	OAL	10/04/95	180	22S.37E.25.123332
26	22S	37E	OAL	10/03/95	362	22S.37E.26.21231
28	22S	37E	OAL	10/04/95	120	22S.37E.28.31243
34	22S	37E	OAL	10/04/95	490	22S.37E.34.121344
36	22S	37E	null	10/04/95	314	22S.37E.36.14311

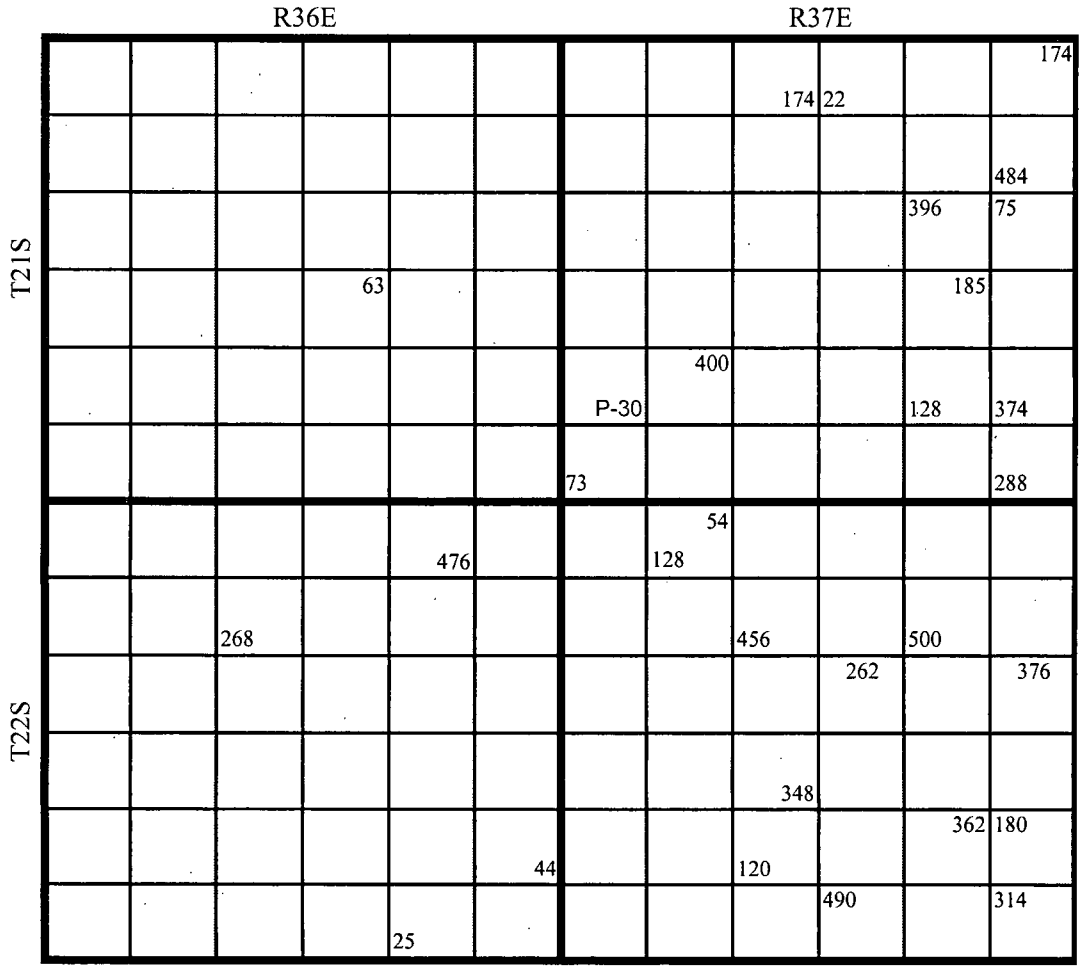
Mean (μ) =	249.6 mg/L
Standard Deviation (σ) =	160.3 mg/L
Mean + 2 SD = $\mu + 2\sigma$ =	570.2 mg/L

The chloride concentrations in Table 1 are also depicted in Figure 2. Based on the regional chloride concentration data in Table 1 above, a conservative upper limit for background chloride concentration is 570 mg/L. Since TDS data is not available an upper limit for background TDS was conservatively estimated at three times the chloride level (3 x 570.2 = 1,711 mg/L).

Figure 2

Regional Distribution of Chloride Concentrations

Data obtained from NMWAIDS (Years: 1990-1995; Chlorides: 0 mg/L – 1,000 mg/L)



Values in red type indicate chloride concentrations in (mg/L)

As shown in Table 2 below, five quarters of groundwater data at the site monitoring well (MW-1) indicate chloride and TDS levels well below the upper limit of background concentrations for the regional area. In addition, the average chloride and TDS concentrations in MW-1 are only marginally above the WQCC standard of 250 mg/L and 1,000 mg/L, respectively. Therefore, it has been concluded that chloride and TDS concentrations at the site are representative of background conditions, and the site has not been impacted by the former junction box.

Table 2
Summary of Site Chloride and TDS Concentrations

Monitoring Well	Sample Date	Depth to Groundwater (feet BTOC)	Chloride (mg/L)	TDS (mg/L)
MW-1	07/27/09	97.89	392	1,180
	10/16/09	97.86	364	1,130
	01/25/10	97.82	324	957
	04/22/10	97.77	280	811
	07/22/10	97.76	370	1,030
		Mean (μ) =	346	1,022

Chloride and TDS Background Characterization

The United States Geological Survey National Water Information System (USGS NWIS), New Mexico Water Rights Reporting System (NM WRRS) , and NM WAIDS, databases were reviewed to identify water wells within a mile of the site with historical chloride concentration data as summarized in Table 3 below. A site location map with these wells identified is shown in Figure 1.

Table 3
Summary of Chloride Concentrations within One-Mile Radius

Water Well or Sample ID	Distance from BD Jct P-30	S	T	R	Sample Date	TD (ft bgs)	Chloride (mg/L)
MW-1	0 ft	30	21S	37E	07/22/10	113	370
10155	2,500 ft NW	30	21S	37E	10/18/84	125	106
8849	3,800 ft SSW	31	21S	37E	07/09/90	115	95
9387	4,200 ft NE	29	21S	37E	07/09/90	130	400
12349	5,000 ft SE	32	21S	37E	10/26/65	115	140

Chloride concentrations in each well identified in Table 3 above and in Figure 1 are representative of background conditions. The nearest water well is located approximately 2,500 ft northwest of the site and is not a concern due to its upgradient location. The closest downgradient well from the site is located almost a mile (5,000 ft) southeast and is not a concern due to its long distance from the site. The remaining wells can not be affected by any activity at the site due to their distant cross-gradient locations and the prevailing southeast trending groundwater gradient direction.

TRIDENT ENVIRONMENTAL

0 1000 2000
Approximate Scale (Feet)

BD Jct. P-30 Site
T21S - R37E - Section 30, Unit P
RICE *Operating Company*

FIGURE 1

SITE LOCATION MAP

Conclusions and Recommendations

Based on the regional characterization of background concentrations for chlorides and TDS, we have determined that groundwater at the site is representative of background conditions and therefore has not been impacted by the former junction box. However, ROC will develop a *Corrective Action Plan* to address the vadose zone and mitigate the potential for migration of chlorides from the vadose zone to groundwater. The CAP will include plans to excavate the affected area, install a liner, and re-establish vegetation.

ROC is the service provider (agent) for the Blinebry Drinkard (BD) Salt Water Disposal System and has no ownership of any portion of the pipelines, wells, or facilities. The BD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. Environmental remediation projects of this magnitude require System Parties AFE approval and work begins as funds are received.

If you have any questions please call Hack Conder at 575-393-9174.

Sincerely,

Gilbert J. Van Deventer, REM, PG
Trident Environmental - Project Manager

cc: Hack Conder (Rice Operating Co., Hobbs NM)