1R - 500

REPORTS

DATE:

9-26-13

Texerra LLC

20055 Laredo Ln, Monument, Colorado 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

September 26th, 2013

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

Re: **Rice Operating Company**
Groundwater Recovery
Corrective Action Plan (CAP) Progress Report & Termination Request
BD N-18 Below Grade Tanks (BGT) - East BGT and West BGT
NMOCD Case No. 1R-500 UL-N, Sec 18, T22S, R37E

Sent via E-mail and U.S. Certified Mail w/ Return Receipt No. 7007 2560 0001 9729 0737

Mr. Hansen,

This letter is to summarize remedial work completed for the Rice Operating Company (ROC) BD N-18 BGT project. This project is located approximately 4 miles southwest of Eunice.

Background

Rice Operating Company utilized Palmer of Texas to complete an integrity test of the two below-grade tanks at the BD N-18 SWD system in July 2009 and ROC completed a preliminary soils investigation in October 2009. The tanks were found to have integrity, and based on analysis of soils near and adjacent to the tanks, it was concluded that the hydrocarbon found in the excavated soils was from surface overflow rather than tank leakage.

Between October 5 and December 21, 2010, ROC personnel were onsite to oversee the installation of eight soil bores and three monitor wells (MW-1 through MW-3) located within, up and down gradient of the former tank location. These wells have been sampled on a quarterly basis since installation. Quarterly monitoring well sampling confirmed that an up- gradient source is contributing to the degradation of groundwater quality.

On July 1, 2011, ROC submitted a Corrective Action Plan (CAP) for the site and was approved by NMOCD on July 13, 2011. The CAP addressed elevated levels of chlorides within the soil which included placement of a barrier at 30 feet bgs, a second liner at 5 feet bgs, and importing caliche for pad repair. The former below grade tank location is still an active facility pad; therefore, seeding was not required. In addition, the CAP proposed a chloride mass removal from MW-1. NMOCD's approval required ROC to recalculate the amount of groundwater to be recovered (based on the chloride concentration in the recovered groundwater) on a bi-weekly basis; as well as, recover a sufficient amount of groundwater to remove the calculated amount of chloride as specified in the plan or to create a significant reduction in chloride concentration in the groundwater.

Beginning November 2011, the site was excavated to a depth of 27 ft bgs, where rock was encountered. A CAP Addendum was submitted to NMOCD requesting to install the liner at 27 ft bgs, which NMOCD approved on January 23, 2012. The bottom of the excavation was padded with six inches of blow sand, and a 98 ft x 98 ft liner was installed and properly seated. The liner was then padded with six inches of blow sand and the site was backfilled with blended soil to 5 feet bgs. At 5 feet bgs, a second 108 ft x 108 ft liner was installed with a blow sand pad below and above the liner. The remainder of the excavation was backfilled with blended soil. Clean caliche was imported to the site to complete backfill, contour the site to the surrounding area and repair the pad. ROC submitted a CAP Progress Report on March 6, 2012 and received NMOCD approval and Soil Closure on June 26, 2012.

Groundwater Recovery Efforts

Groundwater recovery began on June 7, 2012 from MW-1 and continued through early August 2013. During that time, 2,766 barrels of groundwater were extracted. A lab sample was collected each month and used to calculate the number of kilograms (kg) removed based on the volume of groundwater removed that month. The total chloride removed from MW-1 is 2,058 kg. A summary of the groundwater withdrawal and a lab result from each month is attached. ROC extracted the required 1,927 kg of chlorides from the groundwater as approved by NMOCD in the CAP.

ROC acknowledges they have met the requirements of 19.15.29 NMAC, and respectfully requests termination or similar closure status of the regulatory file (1R-500). ROC also acknowledges they have met the requirements of 19.15.17 NMAC, and requests termination or similar closure status for the east BGT and west BGT previously located at this site. Upon NMOCD approval, ROC will plug and abandon all three monitoring wells (MW-1, MW-2, and MW-3) with a 1-3% cement grout and 3 ft of cement at the surface.

Rice Operating Company (ROC) is the service provider (agent) for the BD Saltwater Disposal (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.

We appreciate your review of this report and your consideration of our request for termination. Please contact either myself or Rice Operating Company if you have any questions or need additional information.

Sincerely,

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

Copy: Rice Operating Company

Attachments:

Figures

- ✓ Site location map
- ✓ Survey of monitor well locations

Appendix A

- ✓ Summary of groundwater chloride withdrawals
- ✓ Monthly groundwater sample from MW-1

Appendix B

- ✓ East BGT C-144
- ✓ West BGT C-144

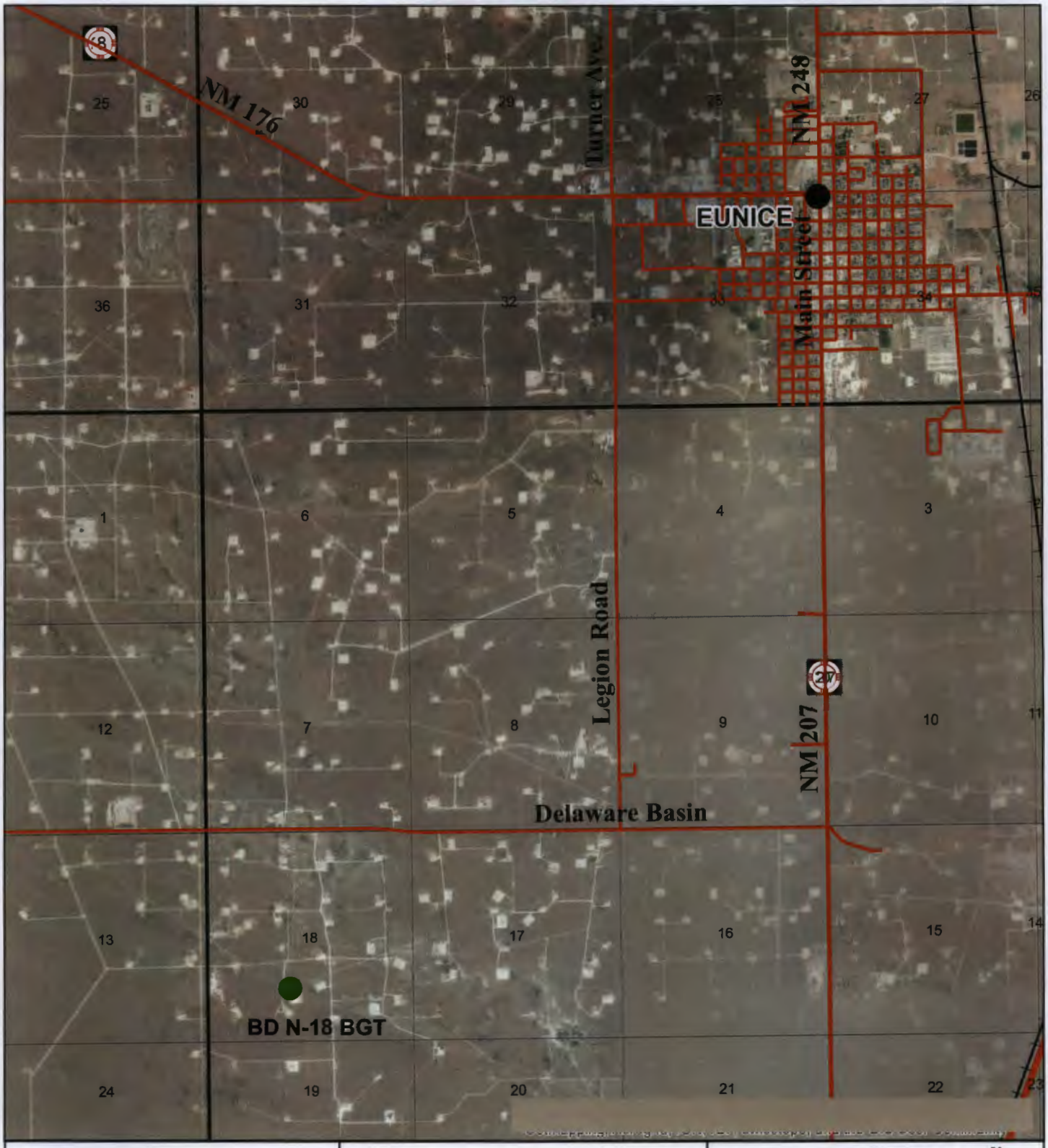
Appendix C

- ✓ East BGT and West BGT C-144 documentation

Appendix D

- ✓ Final C-141

SITE MAP



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD N-18 BGT

UL/ N SECTION 18
T22S - R37E
LEA COUNTY, NM

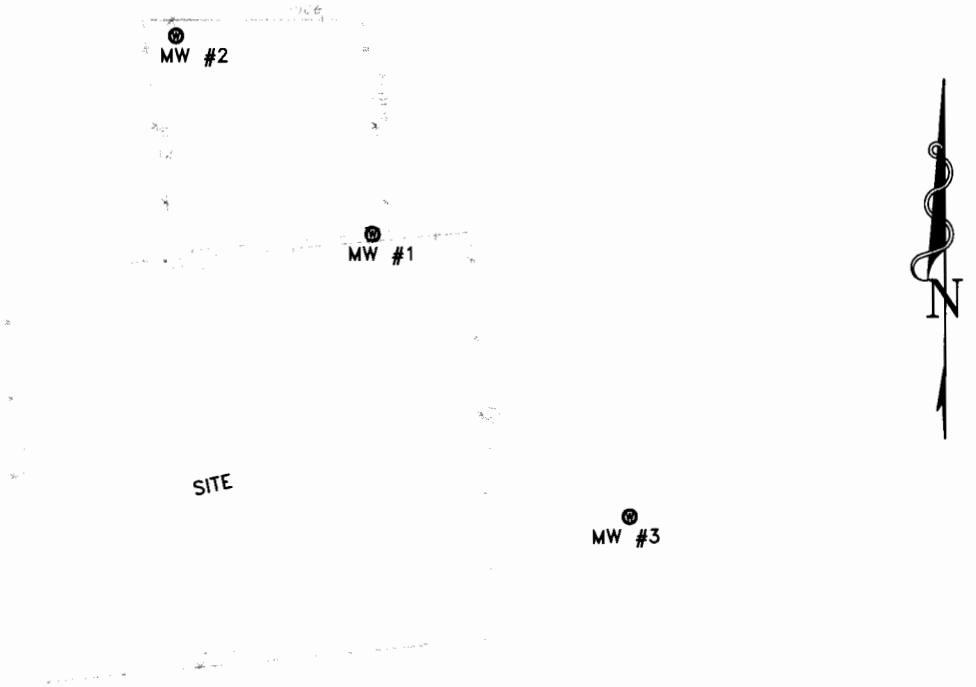
N
W E
S

0 0.5 1 Miles

Drawing date: 9-4-13
Drafted by: LS

SECTION 18, TOWNSHIP 22 SOUTH, RANGE 37 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

OWNER: STATE OF NEW MEXICO
LESSEE: MILLARD DECK, EST



NOTE:
ELEVATIONS ARE ON BLACK MARK
ON NORTH SIDE OF PVC CASING.

NEW MEXICO STATE PLANE COORDINATES (NAD83)

WELL	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEV. PVC	ELEV. CON	ELEV. GRND.
MW-1	506668.399	890250948	N.: 32°23'16.2"	W.: 103°12'10.8"	3423.82'	3421.73'	3421.5'
MW-2	506772.761	890143.492	N.: 32°23'17.2"	W.: 103°12'12.1"	3424.75'	3422.60'	3422.2'
MW-3	506519.399	890391.843	N.: 32°23'14.7"	W.: 103°12'09.2"	3421.51'	3419.22'	3418.9'

100 0 100 200 FEET

SCALE: 1" = 100'

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES NEW MEXICO No. 7977
TEXAS No. 5074

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

RICE OPERATING COMPANY

REF: BD N-18 BGT SITE

MONITOR WELLS LOCATED IN
SECTION 18, TOWNSHIP 22 SOUTH, RANGE 37 EAST,
N.M.P.M., LEA COUNTY, NEW MEXICO.

W.O. Number: 23954	Drawn By: K. GOAD		
Date: 03-15-2011	Disk: KJG – 23954MW.DWG	Survey Date: 03-14-2011	Sheet 2 of 2 Sheets

APPENDIX A

Groundwater Withdrawal Log
Monthly Lab Results

Rice Operating Company
BD N-18 BGT - Summary Record of Groundwater Chloride Removal

Month	Year	Groundwater Cl- Concentration (mg/L)	Groundwater Removed (bbls)	Chloride Removed (kg)
June	2012	5,400	344	295
July	2012	4,450	345	244
August	2012	5,100	263	213
September	2012	4,650	310	229
October	2012	3,950	270	170
April	2013	5,100	282	229
May	2013	5,300	402	339
June	2013	3,800	200	121
July	2013	4,050	140	90
August	2013	3,850	210	129
Total			**2,766**	**2,058**

CARDINAL Laboratories

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

June 26, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 06/21/12 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 Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	06/21/2012	Sampling Date:	06/21/2012
Reported:	06/26/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H201416-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**5400**	4.00	06/26/2012	ND	100	100	100	0.00	

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

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:	BILL TO
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location:	Phone #:
Sampler Name: Kyle Norman	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
H201416-1	[illegible]	C	1										6/4/12	[illegible]	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: 6/4/12	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 5:45	Addi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: 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
	Time:		
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

CARDINAL Laboratories

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

August 08, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 07/31/12 14:26.

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:	07/31/2012	Sampling Date:	07/26/2012
Reported:	08/08/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H201767-01)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/02/2012	ND	0.045	90.8	0.0500	2.52	
Toluene*	<0.001	0.001	08/02/2012	ND	0.047	94.2	0.0500	1.93	
Ethylbenzene*	<0.001	0.001	08/02/2012	ND	0.048	95.1	0.0500	3.25	
Total Xylenes*	<0.003	0.003	08/02/2012	ND	0.142	94.7	0.150	3.29	

Surrogate: 4-Bromofluorobenzene (PID *99.3 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**4450**	4.00	08/07/2012	ND	104	104	100	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**509**	10.0	08/06/2012	ND	23.6	118	20.0	3.84	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**7700**	5.00	08/01/2012	ND	227	94.6	240	2.32	

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:	07/31/2012	Sampling Date:	07/26/2012
Reported:	08/08/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #2 (H201767-02)

BTEX 8021B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/02/2012	ND	0.045	90.8	0.0500	2.52	
Toluene*	<0.001	0.001	08/02/2012	ND	0.047	94.2	0.0500	1.93	
Ethylbenzene*	<0.001	0.001	08/02/2012	ND	0.048	95.1	0.0500	3.25	
Total Xylenes*	<0.003	0.003	08/02/2012	ND	0.142	94.7	0.150	3.29	

Surrogate: 4-Bromofluorobenzene (PIL *98.7 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1340**	4.00	08/07/2012	ND	104	104	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**455**	10.0	08/06/2012	ND	23.6	118	20.0	3.84	

TDS 160.1 mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**3430**	5.00	08/01/2012	ND	227	94.6	240	2.32	

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:	07/31/2012	Sampling Date:	07/26/2012
Reported:	08/08/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #3 (H201767-03)

BTEX 8021B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/02/2012	ND	0.045	90.8	0.0500	2.52	
Toluene*	<0.001	0.001	08/02/2012	ND	0.047	94.2	0.0500	1.93	
Ethylbenzene*	<0.001	0.001	08/02/2012	ND	0.048	95.1	0.0500	3.25	
Total Xylenes*	<0.003	0.003	08/02/2012	ND	0.142	94.7	0.150	3.29	

Surrogate: 4-Bromofluorobenzene (PIL *99.3 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1640**	4.00	08/07/2012	ND	104	104	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**368**	10.0	08/06/2012	ND	23.6	118	20.0	3.84	

TDS 160.1 mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**3420**	5.00	08/01/2012	ND	235	97.9	240	2.17	

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

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: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: BD N-18 Below Grade Tank
Project Location: T22S R37E Sec18 N ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY) H20176	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 (1-1 Liter 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	Anions (Cl, SO4, CO3, HCO3)	Cations (Ca, Mg, Na, K)	Sulfates (SO4)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	3	X				2				1		7-26	11:15		X																X	X	X	
2.	Monitor Well #2	G	3	X				2				1		7-26	10:55		X																X	X	X	
3	Monitor Well #3	G	3	X				2				1		7-26	9:40		X																X	X	X	

Relinquished by: Rozanne Johnson	Date: 7-31-2012	Time: 14:15	Received by:
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff) 7-31-2012 14:20

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

REMARKS:

Email Results to: hconder@riceswd.com
rozanne@valornet.com

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

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

CHECKED BY: (Initials)

#26

CARDINAL Laboratories

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

August 22, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 08/16/12 15:40.

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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:	08/16/2012	Sampling Date:	08/16/2012
Reported:	08/22/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H201926-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**5100**	4.00	08/21/2012	ND	100	100	100	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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice	**BILL TO**
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD N Hkx	Phone #:
Sampler Name: Kyle Norman	Fax #:

ANALYSIS REQUEST: Chlorides, TPH 8015 M, BTEX, Texas TPH, Complete Cations/Anions, TDS

Lab I.D. (FOR LAB USE ONLY) H201926	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
1	MW-1	G	1	✓									[illegible]	[illegible]	✓					

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: [signature]	Date: [illegible] Time: 3:40	Received By: Jodi Henson	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) [initials]

REMARKS:
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

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

#26

CARDINAL Laboratories

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

September 27, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 09/19/12 15:50.

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

Received:	09/19/2012	Sampling Date:	09/19/2012
Reported:	09/27/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H202287-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**4650**	4.00	09/26/2012	ND	100	100	100	0.00	

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

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: Rice	**BILL TO**
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD N-18 Batt	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					
H202287																									
1	MW-1	C	1	✓									9-19-12	1:30	✓										

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: Kyle Norman	Date: 9-19-12 Time: 3:50	Received By: Jodi Henson	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: 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

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

#26

CARDINAL Laboratories

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

October 31, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 10/25/12 16:40.

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:	10/25/2012	Sampling Date:	10/23/2012
Reported:	10/31/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H202610-01)

BTEX 8021B mg/L **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/29/2012	ND	0.020	101	0.0200	3.82	
Toluene*	<0.001	0.001	10/29/2012	ND	0.022	110	0.0200	4.89	
Ethylbenzene*	<0.001	0.001	10/29/2012	ND	0.022	109	0.0200	5.48	
Total Xylenes*	<0.003	0.003	10/29/2012	ND	0.066	110	0.0600	5.90	
Total BTEX	<0.006	0.006	10/29/2012	ND					

Surrogate: 4-Bromofluorobenzene (PIL *109 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**3950**	4.00	10/29/2012	ND	100	100	100	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**456**	10.0	10/30/2012	ND	16.2	81.1	20.0	21.2	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**7070**	5.00	10/29/2012	ND	234	97.5	240	1.43	

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:	10/25/2012	Sampling Date:	10/23/2012
Reported:	10/31/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #2 (H202610-02)

BTEX 8021B mg/L **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/29/2012	ND	0.020	101	0.0200	3.82	
Toluene*	<0.001	0.001	10/29/2012	ND	0.022	110	0.0200	4.89	
Ethylbenzene*	<0.001	0.001	10/29/2012	ND	0.022	109	0.0200	5.48	
Total Xylenes*	<0.003	0.003	10/29/2012	ND	0.066	110	0.0600	5.90	
Total BTEX	<0.006	0.006	10/29/2012	ND					

Surrogate: 4-Bromofluorobenzene (PIL *108 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1240**	4.00	10/29/2012	ND	100	100	100	3.92	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**430**	10.0	10/30/2012	ND	16.2	81.1	20.0	21.2	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2960**	5.00	10/29/2012	ND	234	97.5	240	1.43	

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:	10/25/2012	Sampling Date:	10/23/2012
Reported:	10/31/2012	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #3 (H202610-03)

BTEX 8021B mg/L Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/29/2012	ND	0.020	101	0.0200	3.82	
Toluene*	<0.001	0.001	10/29/2012	ND	0.022	110	0.0200	4.89	
Ethylbenzene*	<0.001	0.001	10/29/2012	ND	0.022	109	0.0200	5.48	
Total Xylenes*	<0.003	0.003	10/29/2012	ND	0.066	110	0.0600	5.90	
Total BTEX	<0.006	0.006	10/29/2012	ND					

Surrogate: 4-Bromofluorobenzene (PIL *108 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1100**	4.00	10/29/2012	ND	100	100	100	3.92	

Sulfate 375.4 mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**331**	10.0	10/30/2012	ND	16.2	81.1	20.0	21.2	

TDS 160.1 mg/L Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2520**	5.00	10/29/2012	ND	234	97.5	240	1.43	

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

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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

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 N-18 Below Grade Tank	
Project Location:	**Sampler Signature:**	Rozanne Johnson (575)631-9310
T22S R37E Sec18 N ~ Lea County New Mexico		

LAB # (LAB USE ONLY)	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
1	Monitor Well #1	G	3	X				2				1		10-23	11:40
2	Monitor Well #2	G	3	X				2				1		10-23	11:25
3	Monitor Well #3	G	3	X				2				1		10-23	10:20

ANALYSIS REQUEST
(Circle or Specify Method No.)

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	Anions (Cl, SO4, CO3, HCO3)	Cations (Ca, Mg, Na, K)	Sulfates (SO4)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																	X	X	X	
	X																	X	X	X	
	X																	X	X	X	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rozanne Johnson	10/25/12	16:39	[signature]	10/25/12	4:40
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
[illegible]
rozanne@valornet.com

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

CARDINAL Laboratories

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

May 03, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 04/29/13 8:46.

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:	04/29/2013	Sampling Date:	04/25/2013
Reported:	05/03/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H301000-01)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/01/2013	ND	0.055	110	0.0500	5.58	
Toluene*	<0.001	0.001	05/01/2013	ND	0.049	98.2	0.0500	4.19	
Ethylbenzene*	<0.001	0.001	05/01/2013	ND	0.052	104	0.0500	5.63	
Total Xylenes*	<0.003	0.003	05/01/2013	ND	0.159	106	0.150	6.99	
Total BTEX	<0.006	0.006	05/01/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *103 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**5100**	4.00	04/29/2013	ND	108	108	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*	**466**	83.3	04/29/2013	ND	19.0	95.1	20.0	9.30	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**8040**	5.00	05/01/2013	ND	242	101	240	0.263	

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:	04/29/2013	Sampling Date:	04/25/2013
Reported:	05/03/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #2 (H301000-02)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/01/2013	ND	0.055	110	0.0500	5.58	
Toluene*	<0.001	0.001	05/01/2013	ND	0.049	98.2	0.0500	4.19	
Ethylbenzene*	<0.001	0.001	05/01/2013	ND	0.052	104	0.0500	5.63	
Total Xylenes*	<0.003	0.003	05/01/2013	ND	0.159	106	0.150	6.99	
Total BTEX	<0.006	0.006	05/01/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *103 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1340**	4.00	04/29/2013	ND	108	108	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*	**488**	83.3	04/29/2013	ND	19.0	95.1	20.0	9.30	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2920**	5.00	05/01/2013	ND	242	101	240	0.263	

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:	04/29/2013	Sampling Date:	04/25/2013
Reported:	05/03/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #3 (H301000-03)

BTEX 8021B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/01/2013	ND	0.055	110	0.0500	5.58	
Toluene*	<0.001	0.001	05/01/2013	ND	0.049	98.2	0.0500	4.19	
Ethylbenzene*	<0.001	0.001	05/01/2013	ND	0.052	104	0.0500	5.63	
Total Xylenes*	<0.003	0.003	05/01/2013	ND	0.159	106	0.150	6.99	
Total BTEX	<0.006	0.006	05/01/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *104 %* *89.5-126*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**1140**	4.00	04/29/2013	ND	108	108	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*	**517**	83.3	04/29/2013	ND	19.0	95.1	20.0	9.30	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**2620**	5.00	05/01/2013	ND	242	101	240	0.263	

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

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 # _____

Page ☐ of ☐

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: BD N-18 Below Grade Tank
Project Location: T22S R37E Sec18 N ~ Lea County New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY H301000)	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 (2013)	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	Anions (Cl, SO4, CO3, HCO3)	Cations (Ca, Mg, Na, K)	Sulfates (SO4)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
1	Monitor Well #1	G	3	X				2				1		4-25	10:40		X																X	X	X	
2	Monitor Well #2	G	3	X				2				1		4-25	9:20		X																X	X	X	
3	Monitor Well #3	G	3	X				2				1		4-25	10:20		X																X	X	X	

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Rozanne Johnson	Date: 4-29-2013	Time: 7:00	Received by: Amber Groce	Date: 4-29-2013	Time: 7:01	Phone Results ☐ Yes ☐ No
Relinquished by: Amber Groce	Date: 4-29-2013	Time: 8:45	Received By: (Laboratory Staff) Jodi Henson	Date: 4/29/13	Time: 8:46	Fax Results ☐ Yes ☐ No Additional Fax Number:

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

REMARKS:

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

#454

CARDINAL Laboratories

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

May 14, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 05/13/13 16:06.

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:	05/13/2013	Sampling Date:	05/13/2013
Reported:	05/14/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NI		

Sample ID: MONITOR WELL #1 (H301138-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**5300**	4.00	05/14/2013	ND	104	104	100	3.77	

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		BILL TO	
Project Manager: Hack Conder		P.O. #:	
Address:		Company:	
City: Hobbs	State: NM Zip: 88240	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: BD N-18 BGT		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							
H301138																											
1	MW-1	G	1	✓									5-13-13	2:00	✓												

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: Kyle Na	Date: 5-13-13 Time: 4:06	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 24°C	Sample Condition Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	

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

REMARKS:

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

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

#54

CARDINAL Laboratories

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

June 18, 2013

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 06/14/13 15:07.

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:	06/14/2013	Sampling Date:	06/14/2013
Reported:	06/18/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H301386-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**3800**	4.00	06/17/2013	ND	108	108	100	0.00	

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 / N-18	**Phone #:**	
Sampler Name:	Edward Cesareo	**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						
H30386-	BD/ N-18 BGT																									
01	MW-1	G	1	✓									6-14-13	12:30	✓											

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 consequental 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:** 6-14-13	**Received By:**	
	Time: 3:07p		
Relinquished By:	**Date:**	**Received By:**	
	Time:		

Phone Result:	☐ Yes	☑ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☑ No	**Add'l Fax #:**

REMARKS:

email results
hconder@rice-ecs.com; Lweinheimer@rice-ecs.com;
kjones@riceswd.com; Lpena@riceswd.com;
knorman@rice-ecs.com; ecesareo@rice-ecs.com

Delivered By: (Circle One)	**Sample Condition**	**CHECKED BY:**
Sampler - UPS - Bus - Other: 27.8°	Cool: ☐ Yes ☑ No — Intact: ☑ Yes ☐ No	(Initials)

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

#54

CARDINAL Laboratories

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

August 01, 2013

KYLE NORMAN

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 07/26/13 16:40.

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,

Mike Snyder

Organic Supervisor

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	07/26/2013	Sampling Date:	07/26/2013
Reported:	08/01/2013	Sampling Type:	Water
Project Name:	BD N-18 BGT	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	T22S R37E SEC 18 N ~ LEA COUNTY, NM		

Sample ID: MONITOR WELL #1 (H301772-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**4050**	4.00	07/31/2013	ND	104	104	100	3.92	

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder, Organic Supervisor

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

Mike Snyder, Organic Supervisor

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: ROC		BILL TO	
Project Manager: Kyle Norman		P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State: Zip:	
Project Location: BD V-18 MW		Phone #:	
Sampler Name: Kyle Schmaidt		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	C1-
H301772															
1	MW Sample		1		X								7-26-13	10:05	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: Kyle Schmaidt	Date: 7-26-13 Time: 4:40	Received By: Jodi Henson	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: hcondor@vice-ecs.com knorman@vice-ecs.com ickshmaidt@vice-ecs.com

† 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

August 12, 2013

KYLE NORMAN

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18

Enclosed are the results of analyses for samples received by the laboratory on 08/09/13 15:40.

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
KYLE NORMAN
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	08/09/2013	Sampling Date:	08/09/2013
Reported:	08/12/2013	Sampling Type:	Water
Project Name:	BD N-18	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: MW #1 (H301892-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**3850**	4.00	08/12/2013	ND	104	104	100	3.92	

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: ROC	**BILL TO**
Project Manager: Kyle Norman	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD N-18	Phone #:
Sampler Name: Kyle Schmaidt	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-
H13018 92															
1	BD N-18 MW #1	1	1	X									8-9-13	12:00	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 consequental 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: Kyle Schmaidt	Date: 8-9-13 Time: 3:40	Received By: Jodi Henson	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: hcondor@rice-ecs.com Knorman@rice-ecs.com lweinheimer@rice-ecs.com Sevans@riceswd.com Kschmaidt@rice-ecs.com

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

#54

APPENDIX B

BD N-18 East BGT C-144

BD N-18 West BGT C-144

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☐ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☒ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Rice Operating Company OGRID #:
Address: 122 West Taylor, Hobbs NM 88240
Facility or well name: BD N-18 EAST TANK
API Number: ~~none~~ 30-025-25616 OCD Permit Number: none
U/L or Qtr/Qtr N Section 18 Township 22S Range 37E County: Lea
Center of Proposed Design: Latitude 32° 23' 286" Longitude 103° 12' 186" NAD: ☒ 1927 ☐ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☐ Lined ☐ Unlined Liner type: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____ bbl Dimensions: L_____ x W_____ x D_____

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: ~~two~~ 400 bbl tanks ✓ Type of fluid: Produced Water
Tank Construction material: Fiberglass
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☒ Other Buried 4 feet below grade
Liner type: Thickness none mil ☐ HDPE ☐ PVC ☐ Other _____

5.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☐ Alternate. Please specify_____

7.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.3.103 NMAC

9.

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☒ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

11.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☒ Below-grade Tank ☐ Closed-loop System ☐ Alternative

Proposed Closure Method: ☒ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☒ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)
Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: Sundance Sevices Disposal Facility Permit Number: NM-01-0003

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?
☐ Yes (If yes, please provide the information below) ☐ No

Required for impacted areas which will not be used for future service and operations:
☒ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

18.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Hack Conder Title: Environmental Manager

Signature: [signature] Date: 12/12/08

e-mail address: hconder@riceswd.com Telephone: 575-393-3174

20.
OCD Approval: ☐ Permit Application (including closure plan) ☒ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: [signature] **Approval Date:** 1-13-09

Title: Hydrologist **OCD Permit Number:**

21.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ **Closure Completion Date:**

22.
Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: Disposal Facility Permit Number:

Disposal Facility Name: Disposal Facility Permit Number:

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

24.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

☒ Proof of Closure Notice (surface owner and division)
☐ Proof of Deed Notice (required for on-site closure)
☐ Plot Plan (for on-site closures and temporary pits)
☒ Confirmation Sampling Analytical Results (if applicable)
☐ Waste Material Sampling Analytical Results (required for on-site closure)
☒ Disposal Facility Name and Permit Number
☒ Soil Backfilling and Cover Installation
☒ Re-vegetation Application Rates and Seeding Technique
☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude Longitude NAD: ☐ 1927 ☐ 1983

25.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): HACK Conder Title: Environmental Manager

Signature: [signature] Date: 09/18/2013

e-mail address: hconder@riceswd.com Telephone: 575-631-6132

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☐ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☒ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Rice Operating Company OGRID #:
Address: 122 West Taylor, Hobbs NM 88240
Facility or well name: BD N-18 WEST TANK
API Number: ~~none~~ 30-025-25616 OCD Permit Number: none
U/L or Qtr/Qtr N Section 18 Township 22S Range 37E County: Lea
Center of Proposed Design: Latitude 32° 23' 286" Longitude 103° 12' 186" NAD: ☒1927 ☐ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☐ Lined ☐ Unlined Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____bbl Dimensions: L_____ x W_____ x D_____

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: ~~two~~ 400 bbl tanks Type of fluid: Produced Water
Tank Construction material: Fiberglass
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☒ Other Buried 4 feet below grade
Liner type: Thickness none mil ☐ HDPE ☐ PVC ☐ Other _____

5.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☐ Alternate. Please specify_____

7.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.3.103 NMAC

9.

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☒ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

11.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.

Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☒ Below-grade Tank ☐ Closed-loop System ☐ Alternative

Proposed Closure Method: ☒ Waste Excavation and Removal
- ☐ Waste Removal (Closed-loop systems only)
- ☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
  - ☐ In-place Burial ☐ On-site Trench Burial
- ☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☒ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: Sundance Sevices Disposal Facility Permit Number: NM-01-0003

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☒ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

18.

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)

☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Hack Conder Title: Environmental Manager

Signature: [signature] Date: 12/12/08

e-mail address: hconder@riceswd.com Telephone: 575-393-3174

20.
OCD Approval: ☐ Permit Application (including closure plan) ☒ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: [signature] **Approval Date:** 1-13-09

Title: Hydrologist **OCD Permit Number:**

21.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ **Closure Completion Date:**

22.
Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: Disposal Facility Permit Number:

Disposal Facility Name: Disposal Facility Permit Number:

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

24.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

☒ Proof of Closure Notice (surface owner and division)
☐ Proof of Deed Notice (required for on-site closure)
☐ Plot Plan (for on-site closures and temporary pits)
☒ Confirmation Sampling Analytical Results (if applicable)
☐ Waste Material Sampling Analytical Results (required for on-site closure)
☒ Disposal Facility Name and Permit Number
☒ Soil Backfilling and Cover Installation
☒ Re-vegetation Application Rates and Seeding Technique
☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude Longitude NAD: ☐ 1927 ☐ 1983

25.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Hack Conder Title: Environmental Manager

Signature: [signature] Date: 09/18/2013

e-mail address: hconder@riceswd.com Telephone: 575-631-6432

APPENDIX C

Closure Report Attachment Checklist:

☒ Proof of Closure Notice (surface owner and division)

11/14/11 ROC Work Schedule, Below Grade Tank Remediation Work Plan

☐ Proof of Deed Notice (required for on-site closure)

☐ Plot Plan (for on-site closures and temporary pits)

☒ Confirmation Sampling Analytical Results (if applicable)

Site Summary and CAP with NMOCD approval

CAP Addendum with NMOCD approval

Soil Bore Lab Results

☐ Waste Material Sampling Analytical Results (for on-site closure)

☒ Disposal Facility Name and Permit Number

Sundance Services Permit Number NM-01-0003

☒ Soil Backfilling and Cover Installation

Corrective Action Plan Progress Report with NMOCD approval

☒ Re-vegetation Application Rates and Seeding Technique

Email of ROC's intent to reclaim the lease pad upon abandonment

☒ Site Reclamation (Photo Documentation)

Corrective Action Plan Progress Report with NMOCD approval

From:	Zac Conder
To:	avilla@slo.state.nm.us; daniel.sanchez@state.nm.us; edwardj.hansen@state.nm.us; mharrison@slo.state.nm.us; wsonnamaker@slo.state.nm.us; GeoffreyR.Leking@state.nm.us
Cc:	Bruce Baker; Hack Conder; Israel Juarez; Jon Rampone; Katie Jones
Subject:	Work Schedule for the week of 11-14-11
Date:	Wednesday, November 16, 2011 4:35:14 PM
Attachments:	OCD 11-14-11 Work Schedule.xlsx

Please find the attached work schedule for this week. As field conditions may be unpredictable, please call ROC for verification of a more specific time frame for any particular site.

Zach Conder
Field Foreman
Rice Environmental Consulting & Safety
122 W. Taylor
Hobbs, NM 88240
Cell: (575)631-5075

RICE Operating Company

Work Schedule for Week of 11-14-2011

Day	System	Location	UL	Sec	T	R	GW	Driving Directions	Work Scheduled
11/14/2011	EME	G-9 EOL	G	9	20S	36E	35'	From Monument at the intersection of highways 8 and 322, take highway 322 WEST 3 miles to Childress Road. Turn RIGHT and follow Childress Road for 2.6 miles. Turn LEFT (SOUTH) and travel 0.15 miles. Tturn RIGHT (WEST) and travel 0.35 miles. Turn LEFT (SOUTH) and travel 0.75 miles. Turn RIGHT (WEST) onto a 2 track road and travel 0.2 miles to the end of the road, the site is on the right, immediately off of the road.	Junction box delineation
11/14/2011	EME	N-35 EOL	N	35	19S	36E	64'	From Monument at the intersection of Highways 8 and 322, go WEST on 322 for 3 miles to Childress Road. Turn RIGHT and go WEST on Childress Road for 1.2 miles, turn LEFT (SOUTH) on the lease road and go 250 feet, the location is to the EAST of the lease road 175 ft.	Junction box delineation
11/14/2011	EME	L-5 EOL	L	5	21S	36E	162'	From the intersection of Hwy 8 and Maddox Rd., go west on Maddox for 2.5 miles. Turn left on lease rd. for 1.5 miles. Turn left again for .2 of a mile. Turn right and go .5 of a mile. Turn left and go approx. 100 yards. Site is on the right hand side.	Junction box delineation
11/14/2011	EME	C-5 EOL	C	5	21S	36E	162'	From the intersection of Hwy 8 and Maddox Rd., go west on Maddox for 2.5 miles. Turn left on lease rd. for 1.5 miles. Turn left again for .3 of a mile. Turn left once more for approx. 40 yards. Site is on the right hand side.	Junction box delineation
11/14/2011	EME	Jct. K-8-1	K	8	20S	37E	30'	From the intersection of Hwy 8 and Jct. 322 in Monument, go south on Hwy 8 for 2.7 miles. Turn right and go west 0.5 miles to a 'Y' intersection. Take the left hand road and continue west for 0.1 miles. Turn left and go south 0.18 miles. The sites are located north of the tank battery.	Liner installation per CAP submitted to the NMOCD on July 15, 2011 and approved by the NMOCD on August 18, 2011
11/14/2011	EME	B-7	B	7	20S	37E	29'	From the intersection of Hwy 8 and Jct. 322 in Monument, go west on Jct. 322 for 2.6 miles to Maddox Road. Go south on Maddox Road for 1.6 miles to the Cooper 'B' Battery. Turn left and go east on the lease road for 0.5 miles to the site located on the south side of the road.	Liner installation per ICP Report and CAP submitted to the NMOCD on September 8, 2011 and approved by the NMOCD on September 28, 2011 and Plug and abandon MW-1 and MW-3 per the NMOCD approved ICP Report and CAP on 9/28/11
11/14/2011	EME	C-1 EOL	C	1	20S	36E	37'	From the intersection of Hwy 8 and Jct. 322 in Monument, go west on Jct. 322 2.9 miles to Brady Road. Turn left and go south on Brady Road for 0.4 miles. Turn right and follow the lease road for 0.1 miles. Continue through the cattle guard and stay on the lease road until you come to the Apache St. D. Battery. The former junction box site is on the east side of the battery.	Liner installation per CAP submitted to the NMOCD on July 21, 2011 and approved by the NMOCD on August 23, 2011

11/14/2011	**BD**	**N-18 BGT**	**N**	**18**	**22S**	**37E**	**101'**	From Eunice, go south on Main Street to Delaware Basin Rd. Turn right on Delaware Basin Rd and go west 2.4 miles. Turn left through the cattle guard and go south 0.6 miles. Turn right and go west 0.3 miles. Turn left and go south 0.1 miles. Turn left and continue to site.	Liner installation per CAP submitted to the NMOCD on July 1, 2011 and approved by the NMOCD on July 13, 2011
11/14/2011	**Hobbs**	**G-9 vent**	**G**	**9**	**19S**	**38E**	**28'**	From the intersection of Grimes and Stanolind Road in Hobbs, go west on Stanolind 0.4 miles. Turn left through the cattle guard and go south 0.1 miles to the second caliche road on the left. Turn left and go east 0.1 miles to a Y intersection. Take the right fork and go southeast through the pump jack pad. The site is 20 feet south of the edge of the pump jack pad.	Liner installation per CAP and CAP Addendum submitted to the NMOCD on July 19, 2011 and approved by the NMOCD on August 4, 2011

RICE *Operating Company*

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

January 26th, 2010

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

Re: BD N-18 SWD System - East and West Tanks
UL-N, Sec 18, T22S, R37E
Below-Grade Tank Remediation Work Plan

Sent via E-mail and U.S. Certified Mail w/ Return Receipt No.
7008 1140 0001 3072 4543

Mr. Hansen:

ROC submits this Below-Grade Tank Remediation Work Plan in reference to the NMOCD approved Modifications to the Closure Plan for the BD N-18 SWD facility. 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. Environmental projects of this magnitude require System Party AFE approval, and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission would be greatly appreciated.

For all such environmental projects, ROC will choose a path forward that:

- protects public health,
- provides the greatest net environmental benefit,
- complies with NMOCD Rules, and
- is supported by good science.

Background and Previous Work

The BD N-18 SWD facility is located approximately 4 miles southwest of Eunice, New Mexico. Over the course of 2009, ROC conducted an evaluation of the BD N-18 SWD facility to determine if past or continued operation of the below-grade tanks have or would pose a threat to groundwater quality. This work entailed a tank integrity evaluation conducted by Palmer of Texas, followed by a soil evaluation directed and overseen by Texerra on October 6th, 2009. This evaluation found that the tanks have integrity but that soil underneath and surrounding them were affected by residual chloride and petroleum hydrocarbons and further evaluation is warranted. On November 10, 2009, ROC subsequently submitted to NMOCD modifications to the Tank Closure Plan for this facility (attached). Among the work items specified in the (modified) Tank Closure Plan are an Investigation and Characterization Plan

(ICP) to evaluate soils beneath the existing below-grade tanks and a Tank Replacement Plan. These are given, below.

Proposed Work Elements

The purpose of the Work Plan is to determine if there is potential for groundwater degradation from residual soil hydrocarbons and/or chlorides. Key tasks are described below.

1. To fulfill the objective of removing and remediating two below-grade tanks at the N-18 SWD. A new salt water disposal terminal facility will be constructed in the SW corner of the existing easement (Figure 1). The N-18 facility currently handles 24,000 bpd of production water; the first step in remediating the BGT at this site is to construct the terminal facility. This will allow for a safe transition to the above ground tanks without any environmental impact. The new facility will have two fiberglass receiving tanks, one fiberglass overflow tank and one fiberglass unloading tank with the necessary plumbing and fittings. The tanks will be installed within a lined secondary containment. A facility pad will be extended and access road will be constructed. The gathering system pipeline will be connected to the new facility and placed into operation prior to removal of the BGT on site. The below grades tanks will be evaluated once removed from current location for beneficial use or disposal.
2. ROC will evaluate soils beneath the existing tanks (once they are removed from the site) to determine the depth-distribution of residual soil chlorides and petroleum hydrocarbons. If warranted, a groundwater monitor well will be installed to provide a direct measurement of potential groundwater impact.
3. Data will be analyzed in light of available hydro-geological information and the ICP report will be submitted to OCD for review.

If this work indicates a risk of impacting groundwater quality due to leakage from the existing SWD tanks then a Corrective Action Plan (CAP) will be developed and proposed to OCD. The objective of the CAP would be to protect groundwater quality as the site is returned to active use as an SWD facility.

Thank you for your consideration.

Sincerely,

Hack Conder
Environmental Manager

Attachments:
Figure 1
Modifications to Tank Closure Plan

Copy: Texerra

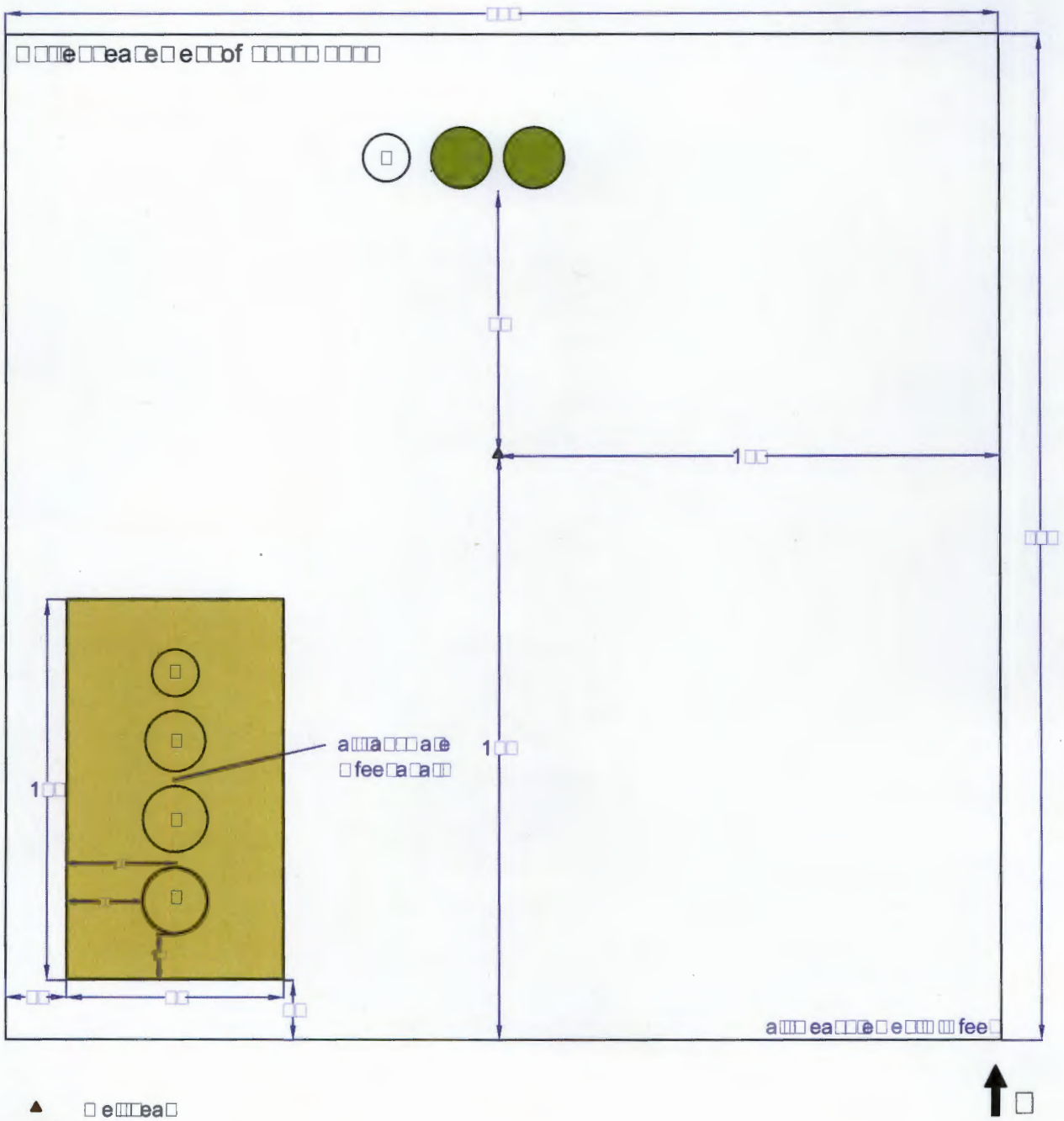

FIGURE 1

DISPOSAL FACILITY
BD SWD N-18
UL/N sec. 18 T22S R37E
LEA COUNTY, NEW MEXICO

RICE *Operating Company*

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

November 10th, 2009

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

RE: **Modifications to the Closure Plans**
Rice Operating Company – BD SWD System
BD N-18 SWD – East and West Tanks
UL-N, Sec 18, T22S, R37E

Mr. Hansen:

This letter and accompanying documentation are to serve as a modification to the C-144 forms and Closure Plans for the two below-grade tanks at the BD N-18 SWD facility.

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. Environmental projects of this magnitude require System Party AFE approval, and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission would be greatly appreciated.

Over the course of this past summer, Rice Operating Company conducted an evaluation of the BD N-18 SWD facility to determine if past or continued operation of the below-grade tanks have or would pose a threat to groundwater quality. This work entailed a tank integrity evaluation conducted by Palmer of Texas, followed by a soil evaluation directed and overseen by Texerra on October 6th, 2009. The results of these efforts are given as an attachment. In brief, it was found that the tanks have integrity but that the soils underneath and surrounding them were affected by residual chloride and petroleum hydrocarbons and that further evaluation is warranted.

In light of these facts Rice Operating Company (ROC) proposes the following modifications to the Closure Plans for both tanks (east and west) at this facility:

1. ROC will provide NMOCD with a plan for the replacement of the existing below-grade tanks with above-grade tanks by January 31st, 2010. This plan will include:
    a. An Investigation and Characterization Plan (ICP) to more fully determine the extent of soil contamination by chlorides or petroleum hydrocarbons exists.

b. Details regarding the layout and design of temporary above-grade replacement SWD tanks or permanent above-grade replacement SWD tanks on the existing caliche pad or on clean, compacted backfill in the optimal location within the existing BD N-18 SWD facility.
    i. Until the installation of temporary or permanent above-grade replacement SWD tanks, the existing tank excavations will be diked appropriately to prevent run-off water from entering the excavation.
    ii. Spoil piles from the current excavation will be stored on site with a facility dike surrounding. The spoil piles will be blended to a chloride concentration of 250 mg/kg or less and utilized for backfill of the existing excavation.

2. If significant contamination is found, ROC will work with NMOCD to develop and implement a Corrective Action Plan (CAP).
3. Following the completion of the ICP and CAP (if the latter is warranted) ROC will install the permanent above-grade tanks by December 31st, 2010. The temporary above-grade tanks will then be removed from the site.
4. ROC will continue to use this location as an active SWD facility until its eventual closure at some future date. Ecological restoration of the ground surface will not occur until the facility is ultimately closed.

We submit this information for your review and consideration.

Thank you.

Sincerely,

Hack Conder
Environmental Manager

Copy: Pete Galusky (Texerra)
Katie Jones (ROC)
file

Attachments: Report of tank integrity and soil testing.
C-144 forms.
Tank Closure Plans.

Rice Operating Company
BD N-18 SWD
Results of Tank Integrity and Soil Testing
10/30/09

Background and Scope

In follow-up to a June 8th, 2009 meeting with Brad Jones and Edward Hansen of NMOCD, Rice Operating Company (ROC) completed an integrity test of the two below-grade tanks at the BD N-18 SWD system and completed a preliminary soils investigation on October 12th, 2009. The purpose of this work was to determine if the past or continued operation of the below-grade tanks at this SWD facility poses a threat to groundwater quality.

The site is located approximately 4 miles southwest of Eunice, New Mexico (Figure 1). The depth to groundwater is believed to be greater than 100 ft.

Results

Palmer of Texas conducted a tank integrity test of the BD N-18 facilities in July of 2009 and found no evidence of leakage (Figure 2).

Rice Operating Company personnel subsequently took soil samples from beneath the tanks and from the soils excavated from around the tanks, analyzing them for chlorides and petroleum hydrocarbons. A soil sample was also collected from an apparently unaffected adjacent area to provide a natural "background" soil chloride measurement. Soil samples were taken from depths of approximately 2 to 3 ft using a hand-auger at an approximate angle of 45 degrees, boring below the lip of the tank at the approximate locations shown in Figure 3. Soil samples were composited to provide representative sample areas. This work was supervised by L. Peter Galusky, Jr. of Texerra[1].

The natural background soil chloride concentration, as measured from a sample taken in a grassy area adjacent to the facility was 194 ppm (as measured by field titration). The composite chloride concentration taken from multiple, representative points from the excavated soil material was 432 ppm. The composite soil chloride concentration taken from the east tank was 720 ppm and that from the west tank was 1,580 ppm. Soil hydrocarbon concentrations for gasoline range organics (GRO) and diesel range organics (DRO) were below laboratory detection limits (< 10 ppm) for both tank composite samples. Diesel range organics (DRO) measured 310 ppm in the excavated soil pile. These values are shown in Figure 3 and given in Figures 4 & 5. Recent photographs of the site are given in the Appendix.

The fact that the tanks have integrity and that hydrocarbons were only found in the excavated soil indicates that the source of all contaminants was from surface overflow rather than tank leakage.

---

[1] Contact: L. Peter Galusky, Jr. E-mail: lpg@texerra.com, Cell: 432-634-9257. Web: www.texerra.com .

These data indicate that the BD N-18 SWD location has been affected by SWD operations. Although the site likely does not pose an immediate threat to groundwater quality in the near term further evaluation is warranted.

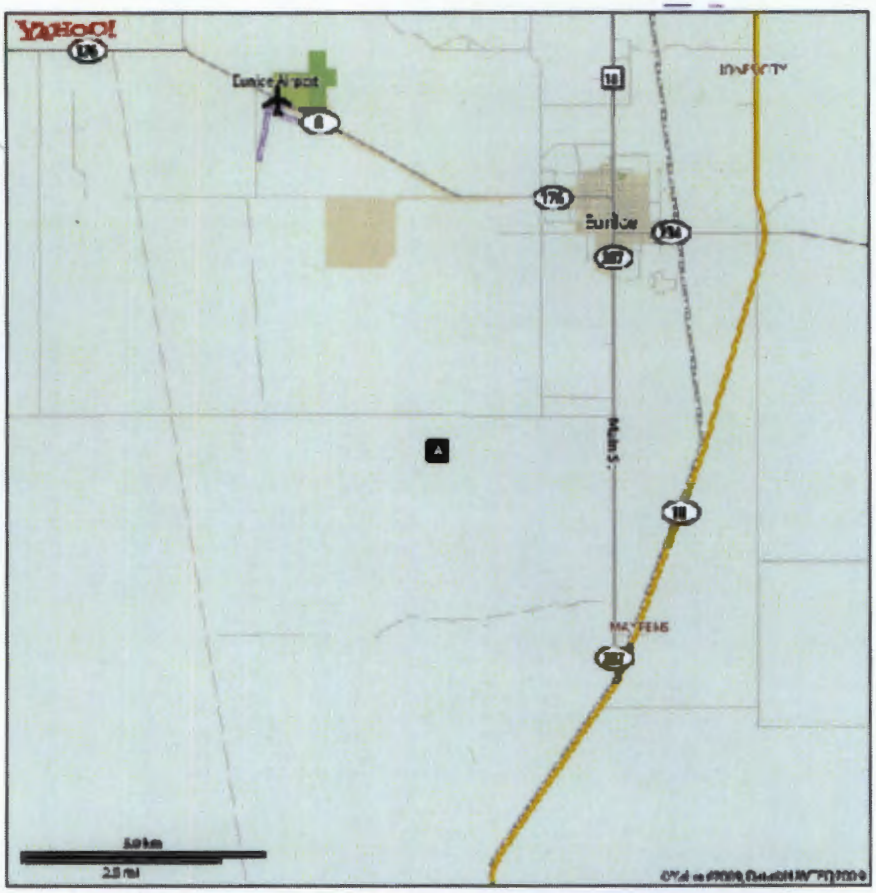

Figure 1 – BD N-18 SWD location (denoted by the letter "A").

PALMER OF TEXAS

RECEIVED

7-16-09

Buck Condra
Vice Operating
122 W. Taylor
Hobbs, NM 88240

Re: Tank Inspections

Buck, we have inspected 500 bbl, 20' dia x 8' tall fiberglass tanks as they sit at the following locations finding no water leaks on the top and sidewalls and no evidence of leaks on the bottom:

EMS SWD #G-6
Justis SWD #2-12
Blinebery Drinkard Unit #N-18

Please let me know if you have further questions.

Thank you,

Kenny Scudder

PALMER OF TEXAS - P.O. Box 1069 - Andrews, Texas 79714 - 1-800-367-4550

Figure 2 – Results of tank-integrity inspection at BD N-18.

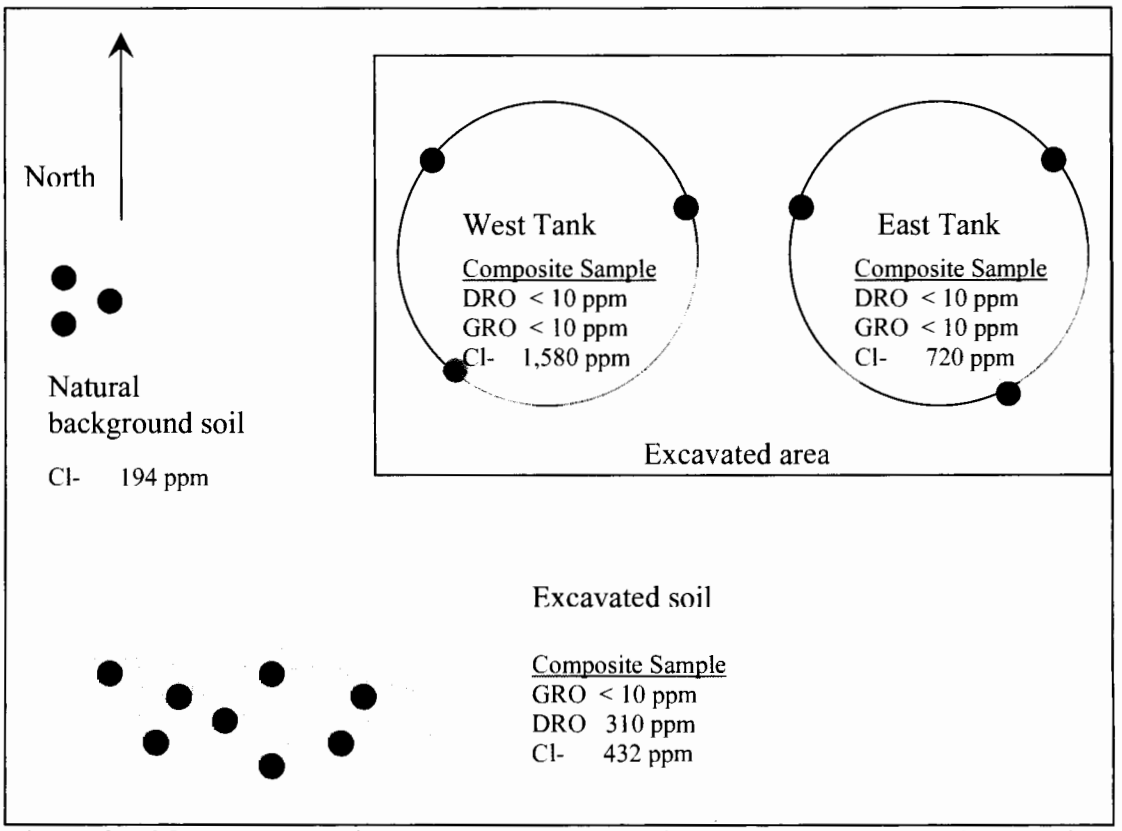

Figure 3 – BD N-18 approximate soil sampling locations and laboratory results. Map is not to scale. Drawing is not to scale.

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 10/09/09
Reporting Date: 10/12/09
Project Owner: NOT GIVEN
Project Name: EAST TANK B.D. N-18 WELL
Project Location: B.D. N-18 WELL

Sampling Date: 10/08/09
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: AB/HM

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE		10/12/09	10/12/09	10/09/09
H18457-1	EAST TANK 3FT. BOTTOM COMPOSIT @ 3FT.	<10.0	<10.0	720
H18426-4**	SPOIL PILE 8 PT. COMPOSITE	<10.0	310	432
Quality Control		506	543	500
True Value QC		500	500	500
% Recovery		101	109	100
Relative Percent Difference		8.7	1.9	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-Cl B
*Analysis performed on a 1:4 w:v aqueous extract. Reported on wet weight.
**GRO/DRO analyzed on 10/08/09 and Chloride on 10/07/09.

Chemist

10/12/09
Date

H18457 TCL RICE

Figure 4 –East tank and spoil pile composite soil lab test results.

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 10/09/09
Reporting Date: 10/12/09
Project Owner: NOT GIVEN
Project Name: WEST TANK B.D. N-18 WELL
Project Location: B.D. N-18 WELL

Sampling Date: 10/08/09
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: AB/HM

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE		10/12/09	10/12/09	10/09/09
H18458-1	WEST TANK 3FT. BOTTOM COMPOSITE @ 3FT.	<10.0	<10.0	1,580
H18426-4**	SPOIL PILE 8 PT. COMPOSITE	<10.0	310	432
Quality Control		506	543	500
True Value QC		500	500	500
% Recovery		101	109	100
Relative Percent Difference		8.7	1.9	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-Cl B
*Analysis performed on a 1:4 w:v aqueous extract. Reported on wet weight.
**GRO/DRO analyzed on 10/08/09 and Chloride on 10/07/09.

Chemist

Date

H18458 TCL RICE

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Figure 5 –West tank and spoil pile composite soil lab test results.

APPENDIX – Photographs

Photograph A – View of BD N-18 SWD near entrance to site.

Photograph B– View during soil augering under east tank, looking northwest.

Photograph C – View of "natural background" soil sampling area.

Photograph D – View east toward BD N-18 SWD. Excavated soil is on the right.

From: Hack Conder
To: Katie Jones;
Subject: FW: ROC Below-Grade Tank Closure Plan Approvals
Date: Thursday, February 19, 2009 2:07:39 PM

Hack Conder
Enviromental Manager
Rice Operating Company
575-393-9174
fax 575-397-1471

From: Hansen, Edward J., EMNRD [mailto:edwardj.hansen@state.nm.us]
Sent: Tuesday, January 13, 2009 3:16 PM
To: Hack Conder
Cc: Price, Wayne, EMNRD; Johnson, Larry, EMNRD; Katie Lee
Subject: ROC Below-Grade Tank Closure Plan Approvals

RE: Below-Grade Tank Closure Plan Approvals
for the Rice Operating Company's
BD SWD N-18 Site (East Tank and West Tank)
Unit Letter B, Section 18, T22S, R37E, Lea County, New Mexico
EME SWD G-8 Site (East Tank and West Tank)
Unit Letter G, Section 8, T20S, R37E, Lea County, New Mexico
Justis SWD B-12 Site (North Tank and South Tank)
Unit Letter B, Section 12, T25S, R37E, Lea County, New Mexico

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received the revised Closure Plans for the BD SWD N-18 Site (East Tank and West Tank), the EME SWD G-8 Site (East Tank and West Tank) and the Justis SWD B-12 Site (North Tank and South Tank), dated December 16, 2008, and has conducted a review of the Plans. The Plans, submitted for the above-referenced sites, indicates that Rice Operating Company (ROC) has substantially met the requirements of OCD Part 17 for closure plans. However, due to the integrity issues with the fiberglass tanks used by ROC, the OCD has concerns regarding the safety of public health and the environment. Therefore, the OCD hereby conditionally approves the

Closure Plans for above-referenced below-grade tanks in accordance with 19.15.17 NMAC:

ROC shall close the above-referenced below-grade tanks within one year in accordance with Subsection
A of 19.15.17.13 NMAC.

ROC shall not retrofit the above-referenced below-grade tanks in accordance with Paragraph (6) Subsection I of 19.15.17.11 NMAC nor pursue a permit or permit modification in accordance with Subsection D of 19.15.17.17 NMAC.

ROC shall use EPA method 418.1 to determine TPH concentrations (not EPA method 300.1 as specified in the item 5.c of the Closure Plans) in accordance with Subsection E of 19.15.17.13 NMAC.

ROC shall construct the soil cover to the sites' existing grade in accordance with Subsection H of
19.15.17.13 NMAC.

Since ROC is not requesting any Administrative Approvals under 19.15.17 NMAC (contrary to the "Administrative Approval(s)" box that is checked on each of the Form C-144s), no Administrative Approvals are being granted by the OCD for these Closure Plans.

Please be advised that OCD approval of these Plans does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

December 15, 2008

Edward J. Hansen
NMOCD Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Via E-mail

RE: **Closure Plan for two Below Grade Tanks at BD N-18,**
Unit N, Section 18, T 22S, R 37E

Dear Mr. Hansen:

On behalf of Rice Operating Company, R.T. Hicks Consultants, Ltd. is pleased to submit the attached Closure Plan for ROC Below-Grade Tanks in response to your November 25th, 2008 letter requesting additional information and modifications. Attached here, please find a revised Closure Plan and separate C-144 forms for each of the two tanks at this site.

These below-grade tanks will be replaced with above grade tanks in keeping with industry practice.

Sincerely,
R.T. Hicks Consultants, Ltd.

Katie Lee

Katie Lee
Project Scientist

Copy: Rice Operating Company

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

Closure Plan for ROC Below-Grade Tanks

Pursuant to Closure Requirements: NMAC Subsection E, 19.15.17.13
This is ROC's standard procedure for all below-grade tanks. A separate plan will be submitted for any below-grade tank that does not conform to this plan.

Schedule

- ROC shall close below-grade tanks within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
- ROC shall close either of these below-grade tanks if they do not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.
- ROC shall close these tanks by June 16, 2013 and within 60 days of cessation of the below-grade tanks' operation, or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves along with a filed C-144 form.

Closure Method

1. ROC shall obtain prior approval from OCD to dispose, recycle, reuse, or reclaim the below-grade tanks and provide documentation of the final disposition of the below-grade tank in the closure report.
2. ROC shall remove liquids and sludge from the tanks prior to implementing the closure and shall dispose of the liquids and sludge in a NMOCD-approved facility (Sundance Services, Facility number: NM-01-0003).
3. ROC shall remove the below-grade tanks and recycle, reuse, or reclaim them if possible.
4. ROC shall remove any on-site equipment associated with the below grade tanks, unless the equipment is required for some other purpose.
5. ROC shall test the soils beneath the below-grade tanks to determine whether a release has occurred. ROC will collect a five point, composite sample and individual grab samples for any area that is wet, discolored, or showing other evidence of a release and analyze for: BTEX, TPH and chlorides to determine if samples meet NMOCD requirements, as determined by approved methods, specifically:
    a. Benzene does not exceed 0.2 mg/kg, as determined by EPA SW-846 methods 8021B or 8260B
    b. Total BTEX does not exceed 50 mg/kg, as determined by EPA SW-846 methods 8021B or 8260B
    c. TPH concentration does not exceed 100 mg/kg, as determined by EPA method 300.1
    d. Chloride concentration does not exceed 250 mg/kg, as determined by EPA method 300.1, or the background concentration, whichever is greater.

    ROC will notify NMOCD of results on form C-141.

6. If ROC determines that a release has occurred, ROC shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC as appropriate.
7. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then ROC shall backfill the excavation with compacted, non-waste containing, earthen material. If the site will not be used for future service and operations, ROC will construct a division-prescribed soil cover; re-contour and re-vegetate the site.
8. The soil cover, re-contouring and re-vegetation shall comply with Subsections G, H, and I of 19.15.17.13 NMAC as described below. However, currently ROC does plan to continue to use the site for operations.
    a. Site Reclamation –ROC will, upon closure of the below-grade tanks, reclaim the below-grade tank locations and all areas associated with them. Soil placed over the site shall be re-contoured to a contour that approximates the original contour and blends with surrounding topography.
    b. Soil cover design – the soil cover for closure, after the below-grade tanks are removed, shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. The soil cover shall be graded to prevent ponding of water and erosion of the cover material.
    c. ROC will seed the disturbed areas in the first growing season after closing the below-grade tank areas. ROC shall accomplish seeding by drilling on the contour whenever practical or by other division-approved methods and shall obtain vegetative cover that equals 70% of the native perennial vegetative cover consisting of at least three native plan species, including at least one grass and not including noxious weeds, and maintain that cover through two successive growing seasons. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation. ROC shall repeat seeding until it successfully achieves the required vegetative cover and shall notify NMOCD when successful re-vegetation is achieved.

Notice

Notice of Closure operations will be given to the Hobbs Division District I office verbally or by other means at least 72 hours, but not more than one week prior to any closure operation. The notice shall include:

- Operator's name,
- Location to be closed by unit letter, section, township and range,
- Well name and API number, if closure is associated with a particular well

The surface owner shall be notified by certified mail, return receipt requested, of plans to close the below-grade tank. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records will be retained to demonstrate, if need be, compliance with this requirement.

Reporting

Within 60 days of closure completion, ROC shall submit a closure report on form C-144 and certify that all information in the report and attachments is correct and that ROC has complied with all applicable closure requirements and conditions specified in the approved closure plan, with necessary attachments to document all closure activities including:

- Sampling results,
- Information required by 19.15.17 NMAC such as, where applicable:
  - Proof of closure notice to division and surface owner,
  - Disposal facility name and permit number,
  - Inspection reports,
  - Re-vegetation application rates and seeding techniques,
  - Photo documentation of the site reclamation,
- A plot plan
- Details on backfilling, capping and covering where applicable

From:	Hansen, Edward J., EMNRD
To:	Hack Conder;
cc:	Leking, Geoffrey R, EMNRD; Katie Jones; L Peter Galusky Jr @ Texerra;
Subject:	"Remediation Work Plan" Approval for BD SWD N-18 Site (East Tank and West Tank)
Date:	Thursday, January 28, 2010 2:46:11 PM

RE: "Remediation Work Plan" Approval
for the Rice Operating Company's
BD SWD N-18 Site (East Tank and West Tank)
Unit Letter B, Section 18, T22S, R37E, NMPM, Lea County, New Mexico

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received the Remediation Work Plan for the BD SWD N-18 Site (East Tank and West Tank), dated January 26, 2010, and has conducted a review of the Plan. The Plan, submitted for the above-referenced sites, indicates that Rice Operating Company (ROC) has substantially met the requirements of 19.15.17 NMAC (Part 17) for a closure plan. Therefore, the OCD hereby conditionally approves the Remediation Work Plan for above-referenced below-grade tanks in accordance with 19.15.17 NMAC:

ROC must begin implementation of the Plan within 180 days.

ROC must comply with 19.15.29 NMAC (Part 29) (including the submittal of a Form C-141) if applicable.

Please be advised that OCD approval of this Plan does not relieve the owner/ operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

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Texerra

627 Forest View Way Monument, Colorado 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

July 1st, 2011

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: Rice Operating Company
Site Summary and Corrective Action Plan
BD N-18 Below Grade Tanks
UL-N, Sec 18, T22S, R37E
NMOCD Case No. 1R-500

Sent via E-mail and U.S. Certified Mail w/ Return Receipt No. 7011 0110 0001 5863 4813

Mr. Hansen,

This report is to serve as a summary of the history and investigative activities associated with Rice Operating Company's BD N-18 Below Grade Tank (BGT) site and to present a Corrective Action Plan (CAP) to remediate and protect groundwater quality at this location. The site is located approximately 4 miles southwest of Eunice, New Mexico (Figures 1 & 2). The depth to groundwater is approximately 100 ft below ground surface (bgs).

History of Site Characterization Activities

In follow-up to a June 8th, 2009 meeting with Brad Jones and Edward Hansen of NMOCD, Rice Operating Company (ROC) completed an integrity test of the two below-grade tanks at the BD N-18 SWD system and completed a preliminary soils investigation on October 12th, 2009. The purpose of this work was to determine if the past or continued operation of these below grade tanks pose a threat to groundwater quality. Palmer of Texas conducted a tank integrity test of the BD N-18 tanks in July of 2009 and found the tanks have integrity. The natural background soil chloride concentration, as measured from a sample taken in a grassy area adjacent to the facility was 194 ppm. The composite/average chloride concentration taken from multiple, representative points from the excavated soil material was 432 ppm. The composite/average soil chloride concentration taken from the east tank was 720 ppm and that from the west tank was 1,580 ppm. Soil hydrocarbon concentrations for gasoline range organics (GRO) and diesel range organics (DRO) were below laboratory detection limits (< 10 ppm) for both tank composite samples. Diesel range organics (DRO) measured 310 ppm in the excavated soil pile. The fact that the tanks have integrity and that hydrocarbons were only found in the excavated soil indicates that the source of all contaminants was from surface overflow rather than tank leakage.

Subsequent to this initial investigation, ROC conducted further soil sampling and analyses, installed monitor wells and sampled groundwater. This work, which is briefly summarized below, was

presented in Texerra's site characterization report of April 29th, 2011 and subsequently approved by OCD on May 4th, 2011.

ROC analyzed soils for chlorides and petroleum hydrocarbons at varying depths from near the surface (5 ft bgs) to the groundwater capillary fringe (approximately 100 ft bgs) beneath the former tanks (these having been removed and replaced in 2010 with new above-ground tanks located to the southwest on the lease pad) and in areas exhibiting apparent surface evidence of historical impacts (Figure 3). ROC also installed groundwater monitor wells at BD N-18 BGT and at up-gradient and down-gradient locations, and sampled groundwater for chlorides and BTEX (Figure 4).

It is clear from the high groundwater chloride concentration in the up-gradient monitor well (MW-2: 1,220 ppm) that the on-coming regional, base-line groundwater is not pristine but has been degraded by historical impacts from up-gradient sources and not caused by activities at the BD N-18 BGT location (see Figure 2). Nevertheless, historical activities at the subject site do appear to have caused a moderate increase in down-gradient groundwater chlorides, as evidenced by the elevated groundwater chloride concentration beneath the site (MW-1: 2,400 ppm) and a down-gradient concentration that is moderately elevated above that of the on-coming (up- gradient) groundwater (MW-3: 1,720 ppm). This is supported by the generally elevated levels of soil chlorides measured at and across the affected area. It should be pointed out that no petroleum hydrocarbons (either as BTEX in groundwater or PID in soils) were found in this investigation.

Further Site Analysis and Modeling

The estimated extent (in plan view) of the affected area that has contributed chlorides to groundwater is given in Figure 3. The estimated, calculated mass of groundwater chloride contributed from historical operations of these former below grade tanks is approximately 1,927 kg (Table 1).

The model Multi-Med was run to anticipate the potential movement of residual, contributed soil chlorides into groundwater. Using an infiltration rate of 1.5 inches/yr (and other parameter values as summarized in Table 2) the maximum projected increase in groundwater chloride was projected to be less than 200 mg/kg (Figure 5).

These estimates and projections support the Corrective Action Plan proposed below.

Proposed Corrective Action Plan

Saturated Zone (groundwater) Remedy

We propose to remedy the contributed mass of groundwater chlorides (1,927 kg) by pumping water from the near-source well (MW-1) to remove an equivalent mass of chlorides. Our calculations indicate that this will be accomplished through the removal of approximately 4,400 bbls of groundwater from MW-1 (Table 1) and that this will over the course of approximately 64 days (depending upon the actual well yield and the actual, measured concentration of the pumped groundwater).

Rice Operating Company BD N-18 BGT

Vadose (unsaturated) Zone Remedy

Although Multi-Med modeling indicates that residual, contributed soil chlorides do not pose a threat to groundwater quality without any remedy, we nevertheless propose to install a synthetic double-liner system across the former tank area to preclude any possibility of potential future groundwater impacts (Figure 3). The bottom liner will be installed at an approximate depth of 30 ft bgs and encompass an area of approximately 98 ft by 98 ft. Excavated soil material having a chloride concentration less than 2,000 mg/kg chloride and 100 PID (petroleum hydrocarbons) will be placed on top of this lower liner. The upper liner will be installed approximately 4 to 5 ft bgs and encompass an area of approximately 108 ft by 108 ft. Soil material having a chloride concentration of less than 500 mg/kg and 100 PID will be placed on top of the upper liner and graded to the natural ground contour. Excavated soil will be evaluated for use as backfill and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. The ground surface above the liner system will be covered with caliche as the site will remain part of an active and operating SWD system.

Upon the removal of the equivalent, contributed chloride mass and the installation of the double liner system, we will submit a report to OCD documenting this work and request remediation termination or similar closure status.

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. Environmental projects of this magnitude require System Party AFE approval, and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission would be greatly appreciated.

Please do not hesitate to contact either myself or Katie Jones at Rice Operating Company if you have any questions or need additional information.

Thank you.

Sincerely,

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

Copy: Rice Operating Company

Rice Operating Company BD N-18 BGT

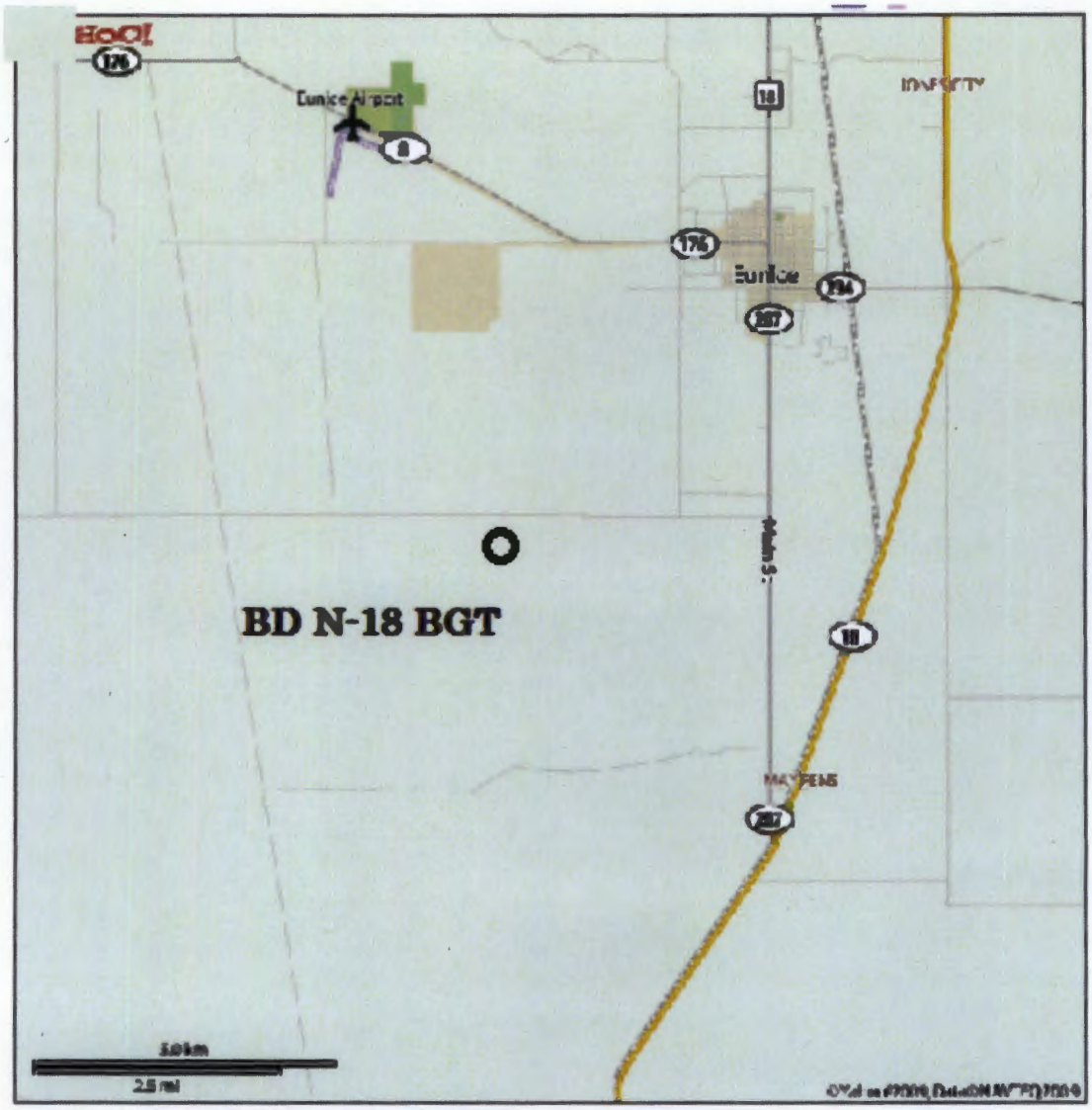


Figure 1 – BD N-18 BGT site location.

Figure 2 – BD N-18 BGT location relative to nearby and up-gradient oil-field operations.

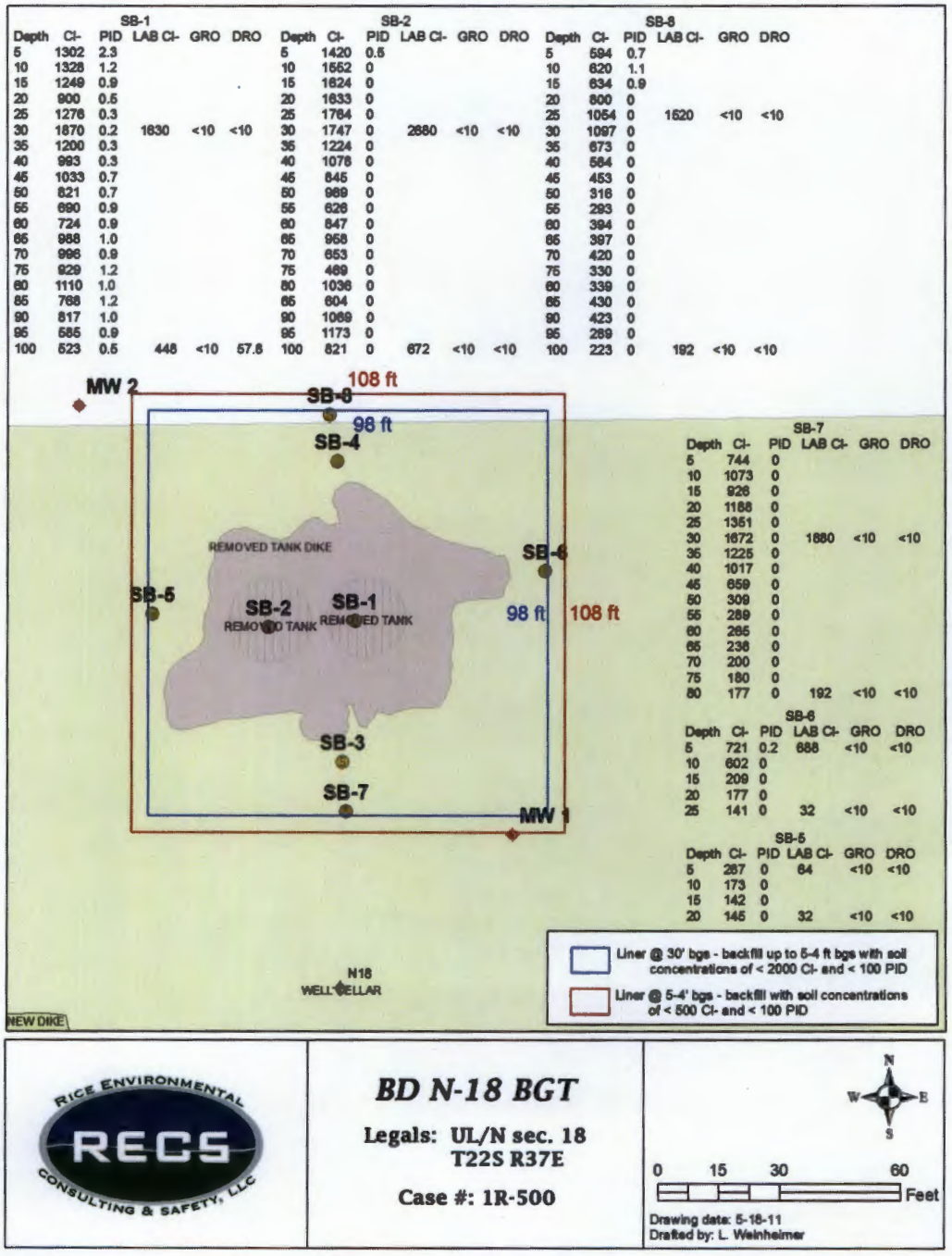
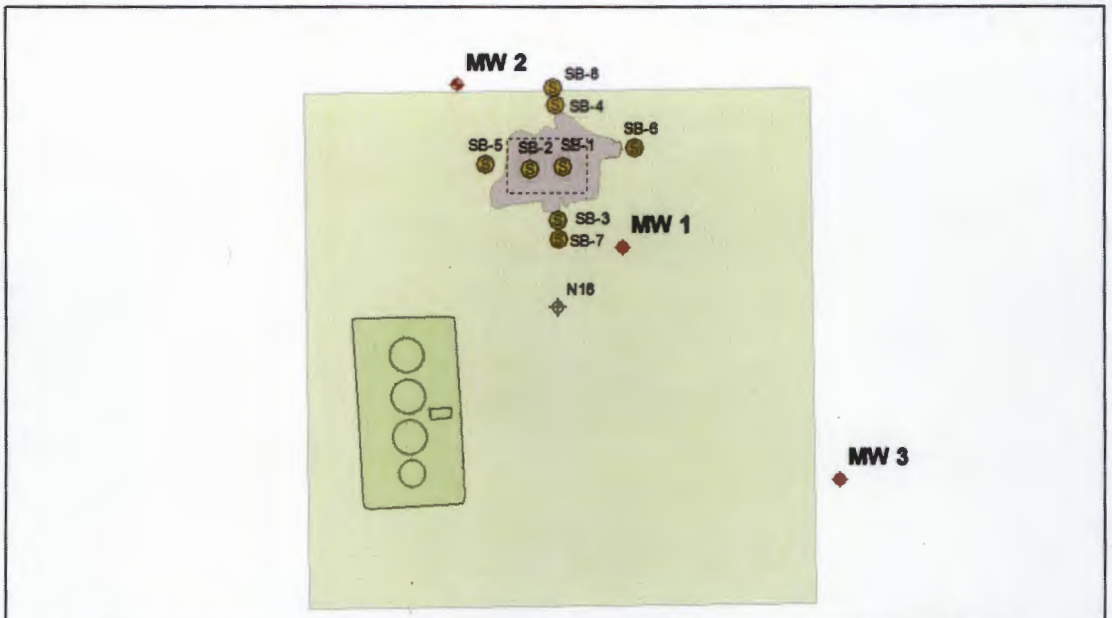


Figure 3 – BD N-18 BGT proposed liners in relation to monitor wells and soil borings.



MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	101.17	146.3	29.3	90	1/14/2011	2400	4110	<0.001	<0.001	<0.001	<0.003	343	clear no odor
1	101.15	146.3	29.3	90	5/11/2011	3100	5450	<0.001	<0.001	<0.001	<0.003	195	clear no odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	101.85	115.27	2.1	8	1/14/2011	1220	2490	<0.001	<0.001	<0.001	<0.003	480	clear no odor
2	101.84	115.27	2.1	8	5/11/2011	1450	3210	<0.001	<0.001	<0.001	<0.003	480	clear no odor

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
3	99.08	116.55	2.8	10	1/14/2011	1720	3040	<0.001	<0.001	<0.001	<0.003	391	clear no odor
3	99.08	116.55	2.8	10	5/11/2011	1400	2840	<0.001	<0.001	<0.001	<0.003	302	clear no odor/no change in water depth

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD N-18 BGT

Legals: UL/N sec. 18 T22S R37E

NMOCD Case #: 1R-500

N W E S

0 45 90 180 Feet

Drawing date: 4-18-11
Drafted by: L. Weinheimer

Figure 4 – BD N-18 BGT groundwater sampling data.

Rice Operating Company BD N-18 BGT

Table 1 – BD N-18 BGT estimated mass of chlorides in groundwater contributed by past operation of the former below grade tanks.

Soil & Groundwater Chloride Calculator **Estimated Mass of Contributed, Residual Chloride** **from Saturated Zone Groundwater**		
Site:	**BD N-18 BGT**	
This estimate prepared by:	L. Peter Galusky, Jr.	
Date:	6/29/2011	
Model Inputs		Notes
length of affected area (ft)	98	estimated
width of affected area (ft)	98	estimated
depth to water table (ft)	100	measured
sat zone affected thickness (ft)	20	prescribed by NMOCD
sat zone porosity	25%	estimated
Cl- conc of affected groundwater (ppm)	2,750	avg of two measurements
Cl- conc of up-gradient groundwater (ppm)	1,335	avg of two measurement
sat zone mass density (lbs/cu yd)	3,000	estimated
Cl- conc of recovery well (ppm)	2,750	MW-1 on location
avg daily pumping rate of recover well (gpm)	2.0	anticipated
Intermediate (calculated) Parameters		
affected area (sq ft)	9,604	calculated
volume of affected groundwater (cu ft)	48,020	calculated
mass of affected groundwater (lbs)	2,995,641	calculated
mass of contributed Cl- in affected groundwater (lbs)	4,239	calculated
avg daily pumping rate of recovery well (bbls/day)	68.6	calculated
Cl- conc of recovery well (lbs/bbl)	1.0	calculated
Cl- conc of recovery well (kg/bbl)	0.4	calculated
Estimated Contributed Cl- Mass and Equivalent Pumping Volume & Time		
mass of contributed Cl- in affected groundwater (kg)	1,927	calculated
approx volume of groundwater to be removed (bbls)	4,400	calculated ... see note, below
# acre feet ...	0.57	calculated
approx # of days pumping required to remove contributed	64	anticipated
Notes		
The actual volume of groundwater to be removed will depend upon the measured chloride concentration of the groundwater as it is removed during the course of pumping.		

Table 2 – Multi-Med model key input parameter estimates

MultiMed Input Parameter Estimates			
Key Parameters			
			Notes
Source area length	98 ft	29.8704 m	
Source area width	98 ft	29.8704 m	
Infiltration rate	1.5 in/yr	0.0381 m/yr	
wtable depth	100 ft	30.48 m	
bottom depth of liner	30 ft bgs	9.144 m	
dist from liner to water table	85 ft	25.908 m	
aquifer thickness	20 ft	6.096 m	assumed

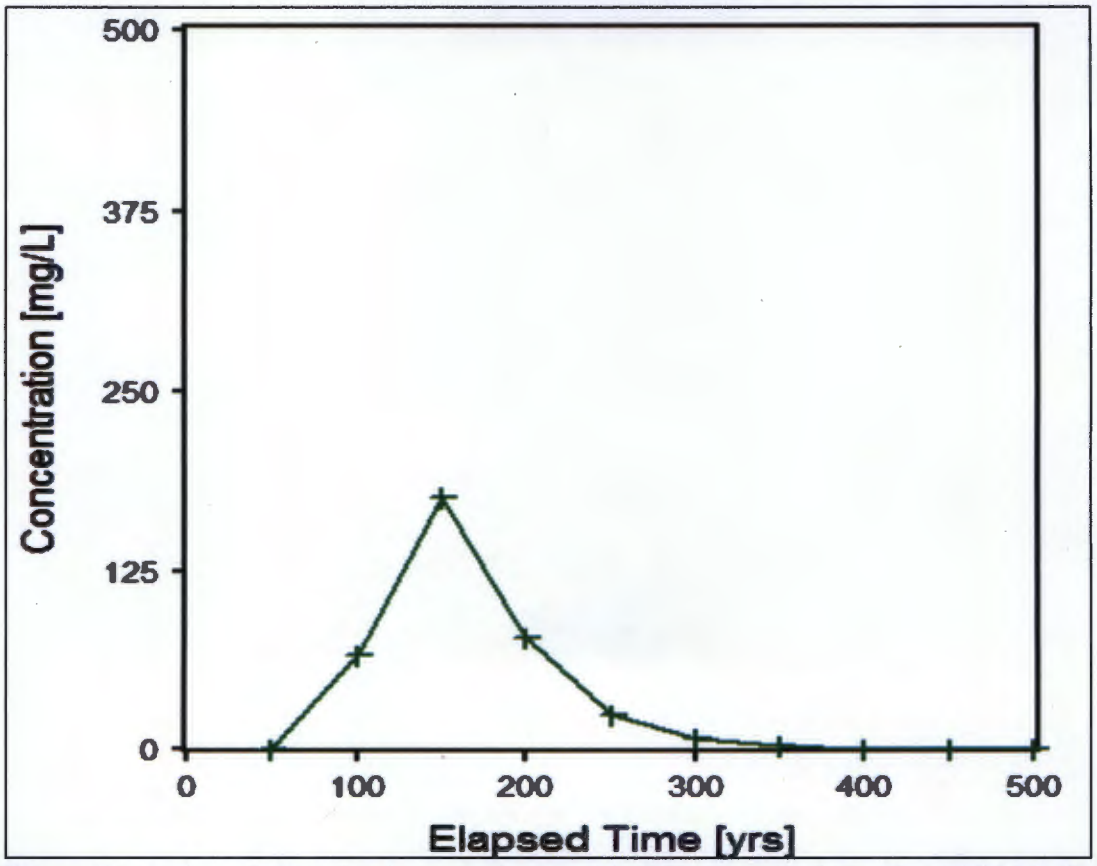


Figure 5 – Projected elevation in groundwater chloride concentration using Multi-Med model.

From:	Hansen, Edward J., EMNRD
To:	Hack Conder
Cc:	Leking, Geoffrey R, EMNRD; Katie Jones; lpg@texerra.com
Subject:	Corrective Action Plan (1R-500) Approval - ROC BD N-18 BGT Site
Date:	Wednesday, July 13, 2011 3:07:17 PM

RE: Site Summary and Corrective Action Plan for the Rice Operating Company's BD N-18 BGT Site
Unit Letter N, Section 18, T22S, R37E, NMPM, Lea County, New Mexico
Corrective Action Plan (1R-500) Approval

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received the Site Summary and Corrective Action Plan for the BD N-18 BGT Site, dated July 1, 2011 and has conducted a review of the plan. The plan indicates that Rice Operating Company (ROC) has substantially met the requirements of 19.15.29 NMAC (Part 29; formerly, Rule 116) for a remediation plan. Therefore, the OCD hereby conditionally approves the plan for above-referenced site in accordance with 19.15.29 NMAC:

ROC must recalculate the amount of groundwater to be recovered (based on the chloride concentration in the recovered groundwater) on a bi-weekly basis.

ROC must recover a sufficient amount of groundwater to remove the calculated amount of chloride as specified in the plan or to create a significant reduction in chloride concentration in the groundwater, whichever occurs later. (However, if the chloride concentration in the groundwater at the site is reduced to the background concentration, then no further groundwater recovery will be required.)

ROC must submit to the OCD the proposed report regarding remediation within 180 days.

Please be advised that OCD approval of this plan does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From:	Katie Jones
To:	Hansen, Edward J., EMNRD
Cc:	Hack Conder; L Peter Galusky; Laura Pena
Subject:	BD N-18 BGT (1R-500) CAP Addendum
Date:	Monday, January 23, 2012 10:40:29 AM
Attachments:	BD N-18 BGT - spoil pile lab.pdf BD N-18 BGT excavating to 30 ft, facing NW 1.17.12.JPG

Mr. Hansen:

The following is an Addendum to the BD N-18 BGT (1R-500) Corrective Action Plan (CAP) submitted to the NMOCD on July 1, 2011 and approved on July 13, 2011.

The site has been excavated to dimensions of 98x98 ft to a depth of 27 ft below ground surface (bgs) with a 4-5 ft deep shelf extending 5 ft north, south, east, and west. Personnel began excavating the site to 30 ft bgs, and an unexpected rock layer was encountered making excavating almost impossible. An area of approximately 15x15 ft required almost 4 days of field work to reach the depth of 30 ft bgs. A photograph showing progress as of January 17, 2012 is attached. Excavated soil has also yielded unexpectedly low chloride concentrations that meet backfill requirements, as approved by the NMOCD. A composite sample from each of the four spoil piles was analyzed by Cardinal Laboratories and yielded concentrations of 304 mg/kg, 608 mg/kg, 352 mg/kg, and 464 mg/kg (lab analysis is attached). A bottom composite sample was also field titrated this morning, January 23, 2012, and yielded a chloride concentration of 855 mg/kg. Based on the unexpected rock layer and the lower concentrations of chloride encountered at depth, ROC proposes installing the synthetic liner at 27 ft bgs as noted in the following Addendum to the NMOCD approved CAP.

Page 3, paragraph 1: *Vadose (unsaturated) Zone Remedy*; red lettering will be deleted from the paragraph and blue lettering will be added to the paragraph.

"Although Multi-Med modeling indicates that residual, contributed soil chlorides do not pose a threat to groundwater quality without any remedy, we nevertheless propose to install a synthetic double liner system across the former tank area to preclude any possibility of potential future groundwater impacts (Figure 3). The bottom liner will be installed at an approximate depth of ~~30~~27 ft bgs and encompass an area of approximately 98 ft by 98 ft. Excavated soil material having a chloride concentration less than 2,000 mg/kg chloride and 100 PID (petroleum hydrocarbons) will be placed on top of this lower liner. The upper liner will be installed approximately 4 to 5 ft bgs and encompass an area of approximately 108 ft by 108 ft. Soil material having a chloride concentration of less than 500 mg/kg and 100 PID will be placed on top of the upper liner and graded to the natural ground contour. Excavated soil will be evaluated for use as backfill and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. The ground surface above the liner system will be covered with caliche as the site will remain part of an active and operating SWD system."

If you have any questions or require any additional information, please contact myself at (575)393-9174 or Hack Conder at (575)631-6432.

Thank you.

Katie Jones
Environmental Project Manager
RICE *Operating Company*

From:	Katie Jones
To:	Laura Pena
Subject:	FW: CAP (1R-500) Addendum Approval - ROC BD N-18 BGT Site
Date:	Friday, January 27, 2012 10:15:37 AM

From: Hansen, Edward J., EMNRD [mailto:edwardj.hansen@state.nm.us]
Sent: Monday, January 23, 2012 2:10 PM
To: Katie Jones
Cc: Leking, Geoffrey R, EMNRD; Hack Conder; L Peter Galusky; Laura Pena
Subject: CAP (1R-500) Addendum Approval - ROC BD N-18 BGT Site

RE: Corrective Action Plan (1R-500) Addendum Approval
for the Rice Operating Company's
BD N-18 BGT Site
Unit Letter N, Section 18, T22S, R37E, NMPM, Lea County, New Mexico

Dear Ms. Jones:

The New Mexico Oil Conservation Division (OCD) has received the Corrective Action Plan Addendum, dated January 23, 2012 and has conducted a review of the proposed CAP Addendum. The Addendum indicates that Rice Operating Company (ROC) has met the requirements of 19.15.29 NMAC (Rule 29; formerly, Rule 116) for a remediation plan. Therefore, the OCD hereby approves the Corrective Action Plan Addendum as proposed for above-referenced site in accordance with 19.15.29 NMAC.

Please be advised that OCD approval of this addendum does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

Texerra

627 Forest View Way Monument, Colorado 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

March 6th, 2012

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

Re: **Rice Operating Company**
Corrective Action Plan Progress Report
BD N-18 Below Grade Tanks
NMOCD Case No. 1R-500 UL-N, Sec 18, T22S, R37E

Sent via E-mail and U.S. Certified Mail w/ Return Receipt No. 7011 0110 0001 5863 4844

Mr. Hansen,

This letter summarizes progress made in implementing the OCD approved Corrective Action Plan (CAP) of July 1st, 2011 and CAP Addendum of January 23rd, 2012 for Rice Operating Company's BD N-18 Below Grade Tank (BGT) project (Figures 1&2).

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.

The key elements of this CAP are summarized, below:

CAP Corrective Actions Planned

Vadose (unsaturated) Zone Remedy

The removal of chloride impacted soils and the installation of a synthetic double-liner system across the former tank area to preclude any possibility of potential future groundwater impacts (Figure 3). The bottom liner would be installed at an approximate depth of 30 ft bgs and encompass an area of approximately 98 ft by 98 ft. Excavated soil material having a chloride concentration less than 2,000 mg/kg chloride and 100 PID will be placed on top of the lower liner. The upper liner would be installed approximately 4 to 5 bgs and encompass an area of approximately 108 ft x 108 ft. Soil material having a chloride concentration of less than 500 mg/kg and 100 PID will be placed on top of the upper liner and contoured to ground surface. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. Ground surface above the liner will be covered with caliche.

Saturated Zone (groundwater) Remedy

The removal of the estimated mass of chlorides (1,927 kg) from the near-source well (MW-1), or approximately 4,400 bbls of groundwater. NMOCD approved the chloride mass with the condition that the amount of groundwater to be recovered be recalculated on a bi-weekly basis based on the chloride concentration in the recovered groundwater. Also, a sufficient amount of groundwater must be recovered to remove the calculated chloride mass or to create a significant reduction in chloride concentration in the groundwater, whichever occurs later. (However, if the chloride concentration in the groundwater at the site is reduced to the background concentration, then no further groundwater recovery will be required.)

Corrective Action Progress

ROC removed the two below-grade tanks in 2010 and began excavating beneath them to install the double-liner system in November 2011. Although the initial design was to install the 98 ft by 98 ft lower synthetic liner at 30 ft bgs, rock was encountered at 27 ft bgs. An eight-point composite soil sample from that depth tested 1,060 mg/kg for chlorides (Appendix A-1) and 45.9 ppm for PID hydrocarbons (Appendix A-2). ROC subsequently submitted a CAP Addendum to install the liner at 27 ft bgs and this was approved by OCD on January 23rd, 2012.

The bottom of the excavation was padded with 6 inches of blow sand, and the 98 ft by 98 ft, 20 mil reinforced synthetic liner was properly seated. A 6 inch blow sand pad was then placed above the liner. The excavation was backfilled in 3 ft lifts with the previously excavated soil from Stockpile B, which had a laboratory chloride result of 608 mg/kg and a PID of 6.3 ppm, and from the 8 Pt Comp Spoil Pile, which had a laboratory chloride result of 464 mg/kg and a PID of 2.4 ppm (Appendix A-3, A-4). Once the excavation was backfilled up to 5 ft bgs, 6 inches of blow sand were used to pad the excavation. The second, near-surface 108 ft by 108 ft, 20 mil reinforced synthetic liner was installed and properly seated at 4.5 ft bgs with a 6-inch pad of clean blow sand carefully placed above it. The remaining excavation was backfilled with previously excavated soil from Stockpile A, which had a laboratory chloride reading of 304 mg/kg and a PID of 0.6 ppm, and from 8 Pt Comp Stockpile C, which had a laboratory chloride result of 352 mg/kg and a PID of 2.7 ppm, to within approximately 2 ft of the surface (Appendix A-3, A-4). The remaining volume was backfilled with clean, imported caliche, which tested 96 mg/kg and 144 mg/kg for chlorides (Appendix A-5) and 0.6 ppm and 1.6 ppm for PID hydrocarbons (Appendix A-6).

Over the course of this work, which was completed on February 15th, 2012, a total of 806 cu yards of chloride-impacted soil material was removed and taken to Sundance Services for proper disposal. A total of approximately 1,456 cu yards of clean caliche were brought to the site to complete backfill and prepare a pad so that the site could be returned to normal use. A photographic chronology of the course of this work is given in Figures 4a-4c. Laboratory reports for soil chloride analyses and field PID reports are given in the Appendix.

Conclusion

ROC has completed the vadose (unsaturated) zone remedy specified in the OCD-approved Corrective Action Plan for this location. ***We therefore request that OCD grant remedial closure status for the vadose zone for this project.***

ROC is presently planning work to address the saturated (groundwater) zone remedy specified in the Corrective Action Plan. We will report progress and results of these efforts to OCD upon their completion.

We appreciate your review of this report and your consideration of our request for remedial closure for the unsaturated zone. Please contact either myself or Rice Operating Company if you have any questions or need additional information.

Sincerely,

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

Copy: Rice Operating Company

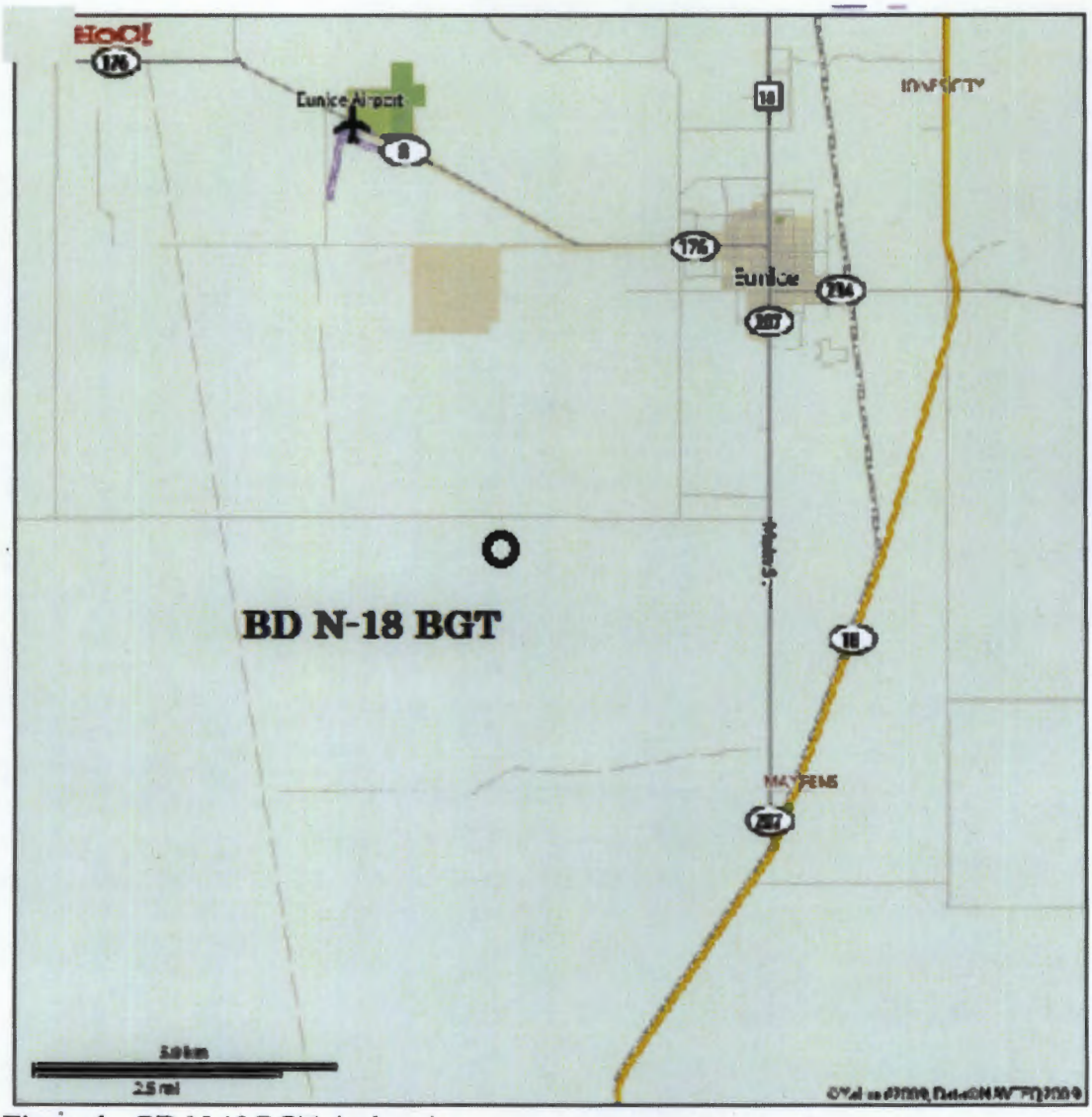


Figure 1 – BD N-18 BGT site location.

Figure 2 – BD N-18 BGT location relative to nearby and up-gradient oil-field operations.

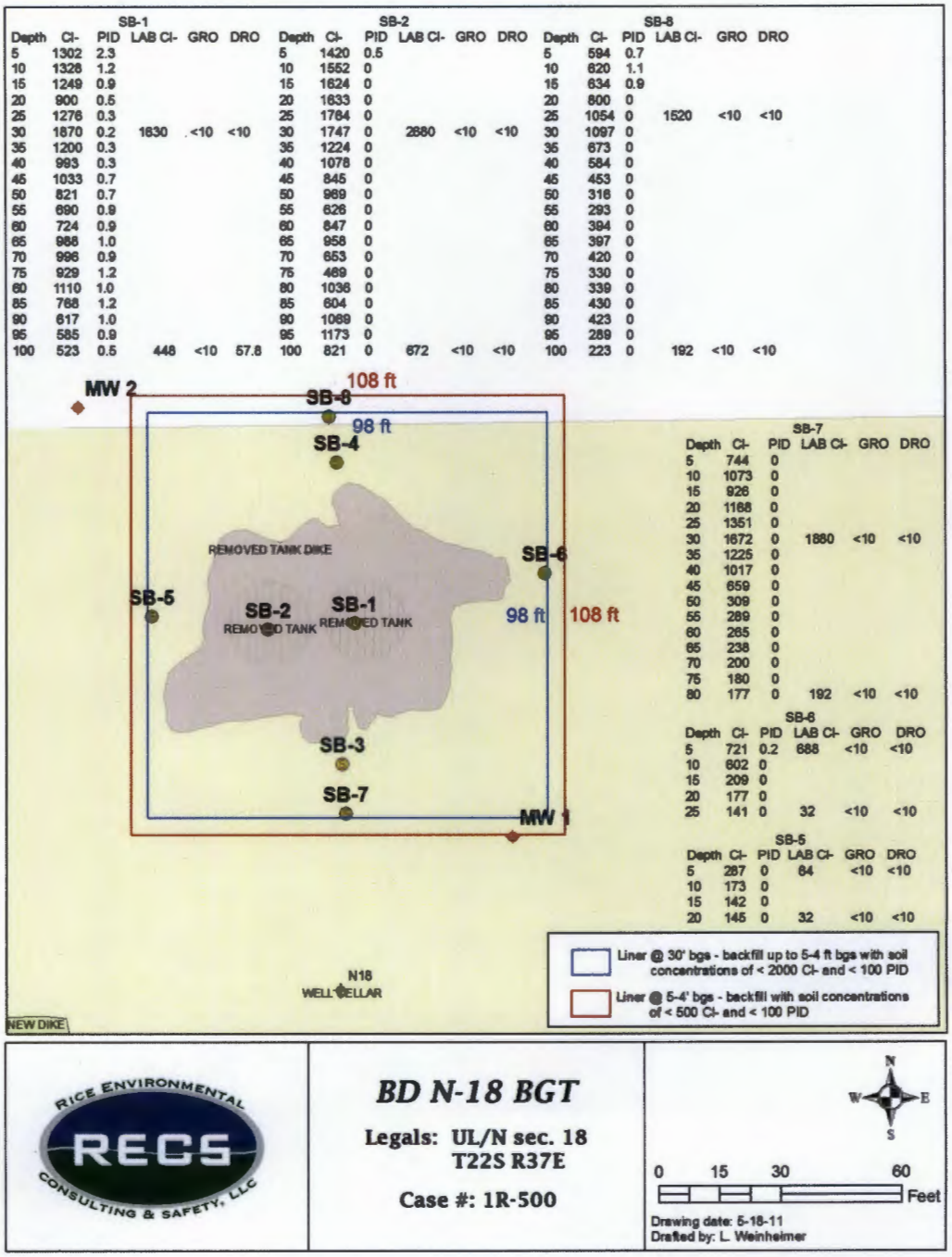


Figure 3 – BD N-18 BGT approved liners in relation to monitor wells and soil borings. Note that the deeper liner was installed at 27 ft bgs (rather than at 30 ft bgs as indicated here) due to the presence of impenetrable rock. This modification was approved by NMOCD on January 23rd, 2012.

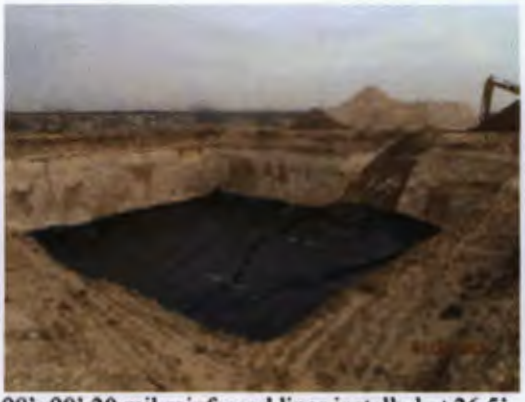
BD N-18 BGT (1R-500)
Unit N, Section 18, T-22-S, R-37-E

excavating the site, facing east 11/30/2011

exporting excavated soil, facing south 12/21/2011

excavating the 98'x98' area to 30' bgs, facing northwest 1/20/2012

excavation complete to 27' bgs with a 6" blow sand pad installed, facing southeast 1/23/2012



98'x98' 20 mil reinforced liner installed at 26.5', facing northeast 1/24/2012

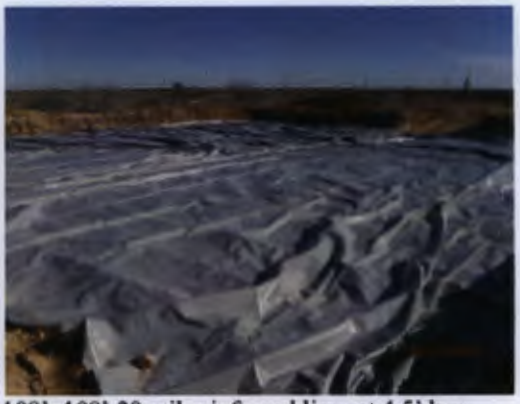
installing a 6" blow sand pad above liner, facing northeast 1/24/2012

Figure 4a – Photographic record of soil excavation and installation of double synthetic liner system.

backfilling the excavation,
facing northeast 1/26/2012

roller packing the backfilled site,
facing northwest 1/26/2012

6" blow sand pad installed at 5' bgs,
facing northeast 2/3/2012



108'x108' 20 mil reinforced liner at 4.5' bgs,
facing northeast 2/3/2012

installing a 6" blow sand pad above liner,
facing northwest 2/3/2012

backfilling the excavation,
facing northwest 2/6/2012

Figure 4b – Photographic record of soil excavation and installation of double synthetic liner system.

roller packing the backfilled excavation,
facing northwest 2/6/2012

importing caliche,
facing north 2/7/2012

roller packing the backfilled site,
facing east 2/7/2012

importing base coarse caliche,
facing southeast 2/9/2012

leveling the site using base coarse caliche,
facing northwest 2/13/2012

site complete,
facing east 2/15/2012

Figure 4c – Photographic record of soil excavation and installation of double synthetic liner system.

APPENDIX – Soil Chloride and Hydrocarbon Analytical Data

CARDINAL Laboratories

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

January 24, 2012

ZACH CONDER

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 01/23/12 17:05.

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

Page 1 of 4

Appendix A-1 – Soil chloride concentration from a composite sample at 27 ft bgs.

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:	01/23/2012	Sampling Date:	01/23/2012
Reported:	01/24/2012	Sampling Type:	Soil
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NOT GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: 8 PT COMP @ 27' (H200166-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1060**	16.0	01/24/2012	ND	432	108	400	3.77	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Page 2 of 4

Appendix A-1 – Soil chloride concentration from a composite sample at 27 ft bgs.

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

Page 3 of 4

Appendix A-1 – Soil chloride concentration from a composite sample at 27 ft bgs.

Cardinal Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating
Project Manager: Zach Conder
Address: 122 W Taylor
City: Hobbs State: NM Zip: 88240
Phone #: 393-9174 Fax #:
Project #: Project Owner:
Project Name:
Project Location: BD N-18 BGT
Sampler Name: Robert

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

ANALYSIS REQUEST: Cl

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV.	DATE	TIME	Cl
H200116 -1	5pt composite @ 27'	C	1	Soil ✓	Cool ✓	1-23-12	8:40am	✓

Relinquished By: Robert [signature] Date: 1/23/12 Time: 5:05 Received By: Jodi Henson
Relinquished By: Date: Time: Received By:

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: Hernandez, K Jones, B Baker, Z Conder, R Eggers
RUSH!!

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

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

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

#26

Page 4 of 4

Appendix A-1 – Soil chloride concentration from a composite sample at 27 ft bgs.

RICE ENVIRONMENTAL CONSULTING & 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: 590-000504
		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:7-1-2015
METER READING ACCURACY:100PPM	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING CO.

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	N-18 BGT	N	18	122S	R37E

SAMPLE ID	PID	SAMPLE ID	PID
8PT. COMPOSITE @ 27'	45.9		

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

SIGNATURE: Robert Jones DATE: 1-23-2012

Appendix A-2 – Soil PID hydrocarbon concentration from a composite sample at 27 ft bgs.

CARDINAL Laboratories

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

January 14, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 01/12/12 16:37.

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

Page 1 of 4

Appendix A-3 – Soil chloride concentrations from excavated soil material.

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:	01/12/2012	Sampling Date:	01/12/2012
Reported:	01/14/2012	Sampling Type:	Soil
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	22/37	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: 10 PT COMP STOCKPILE A (H200070-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**304**	16.0	01/13/2012	ND	416	104	400	0.00	

Sample ID: 8 PT COMP STOCKPILE B (H200070-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**608**	16.0	01/13/2012	ND	416	104	400	0.00	

Sample ID: 8 PT COMP STOCKPILE C (H200070-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**352**	16.0	01/13/2012	ND	416	104	400	0.00	

Sample ID: 8 PT COMP SPOIL PILE (H200070-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**464**	16.0	01/13/2012	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

Hope Moreno, Inorganic Technical Director

Page 2 of 4

Appendix A-3 – Soil chloride concentrations from excavated soil material.

CARDINAL Laboratories

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

Notes and Definitions

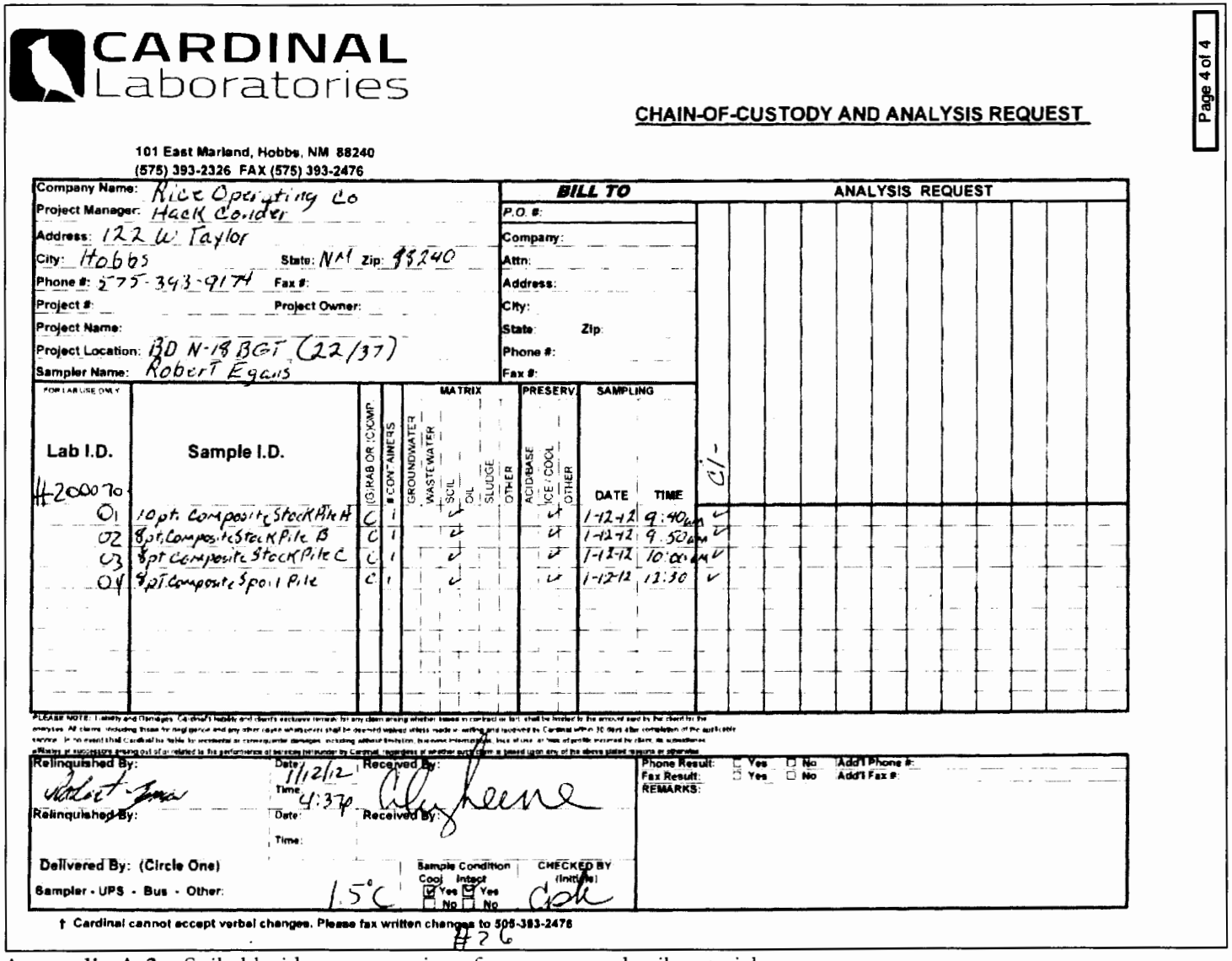
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl B does not require samples be received at or below 6°C
	Samples reported on an as received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

Cardinal Laboratories

*=Accredited Analyte

Hope Moreno, Inorganic Technical Director

Appendix A-3 – Soil chloride concentrations from excavated soil material.



CARDINAL Laboratories

Page 4 of 4

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Rice Operating Co
Project Manager:	Hack Conder
Address:	122 W Taylor
City:	Hobbs
State:	NM
Zip:	88240
Phone #:	575-393-9174
Fax #:	
Project #:	
Project Owner:	
Project Name:	
Project Location:	BD N-18 BGT (22/37)
Sampler Name:	Robert Egans

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	Cl-
H200070															
01	10 pt. Composite Stock Pile A	C	1			✓					✓		1-12-12	9:40 AM	✓
02	8 pt. Composite Stock Pile B	C	1			✓					✓		1-12-12	9:50 AM	✓
03	8 pt Composite Stock Pile C	C	1			✓					✓		1-12-12	10:00 AM	✓
04	9 pt Composite Spoil Pile	C	1			✓					✓		1-12-12	12:30	✓

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: 1/12/12	Received By:	Phone Result:	☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 4:37p	Received By:	Fax Result:	☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS:	
Delivered By: (Circle One)	Time:			
Sampler - UPS - Bus - Other:	1.5°C	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

Appendix A-3 – Soil chloride concentrations from excavated soil material.

RICE ENVIRONMENTAL CONSULTING & 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: 590-000504
		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:7-1-2015
METER READING ACCURACY:100	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	N-18 BGT	N	18	22S	37E

SAMPLE ID	PID	SAMPLE ID	PID
STOCK PILE A	0.6		
STOCK PILE B	6.3		
STOCK PILE C	2.7		

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

SIGNATURE: Robert Rice DATE: 1-12-2012

Appendix A-4 – Soil PID hydrocarbon concentrations from excavated soil material.

RICE ENVIRONMENTAL CONSULTING & 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: 590-000504
		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:7-1-2015
METER READING ACCURACY:100	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	N-18-BGT	N	18	22S	37E

SAMPLE ID	PID	SAMPLE ID	PID
SPOIL PILE	2.4		

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

SIGNATURE: Robert Bass DATE: 1-12-2012

Appendix A-4 – Soil PID hydrocarbon concentrations from excavated soil material.

CARDINAL Laboratories

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

February 15, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD N-18 BGT

Enclosed are the results of analyses for samples received by the laboratory on 02/10/12 16:30.

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

Lab Director/Quality Manager

Appendix A-5 – Soil chloride concentrations from imported caliche.

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:	02/10/2012	Sampling Date:	02/10/2012
Reported:	02/15/2012	Sampling Type:	Soil
Project Name:	BD N-18 BGT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: IMPORTED CALICHE W (H200351-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	02/13/2012	ND	432	108	400	7.69	

Sample ID: IMPORTED CALICHE (H200351-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	02/13/2012	ND	432	108	400	7.69	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Page 2 of 4

Appendix A-5 – Soil chloride concentrations from imported caliche.

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

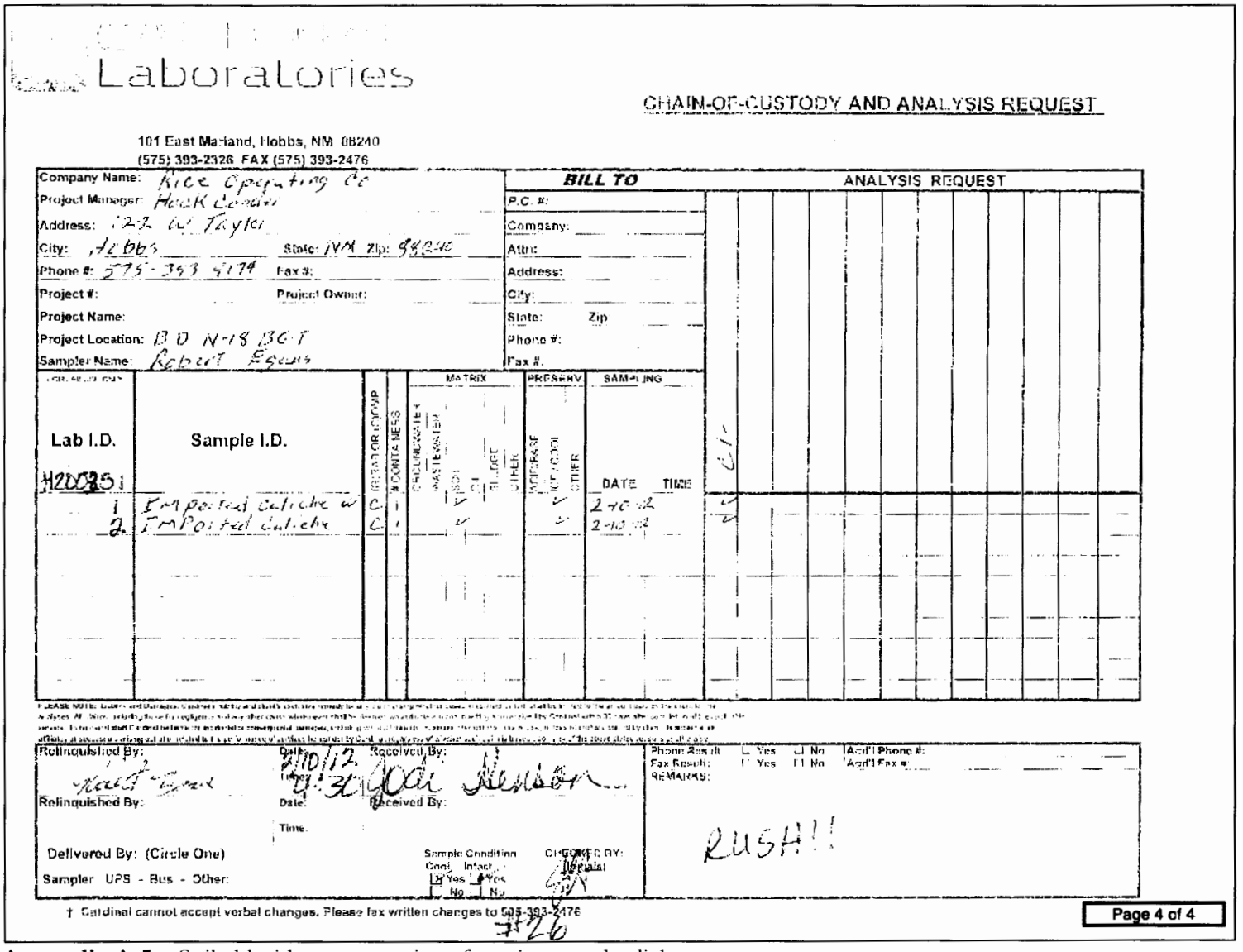
Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Page 3 of 4

Appendix A-5 – Soil chloride concentrations from imported caliche.



Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rice Operating Co
Project Manager: Hank Lemon
Address: 122 W Taylor
City: Hobbs State: NM Zip: 88240
Phone #: 575-393-9174 Fax #:
Project #: Project Owner:
Project Name:
Project Location: BD N-18 BGT
Sampler Name: Robert Eguia

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

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	# CONTAINERS	MATRIX	PRESERV	SAMPLING DATE	SAMPLING TIME
H20035 1	Imported caliche w	C			2-10-12	
2	Imported caliche	C			2-10-12	

Relinquished By: Date: 2/10/12 Received By:
Relinquished By: Date: Received By:
Time:
Delivered By: (Circle One)
Sampler UPS - Bus - Other:
Sample Condition: Cool: Yes No Intact: Yes No
CHECKED BY:

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

RUSH!!

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

Page 4 of 4

Appendix A-5 – Soil chloride concentrations from imported caliche.

RICE ENVIRONMENTAL CONSULTING & 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: 590-000504
		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:7-1-2015
METER READING ACCURACY:100	

ACCURACY : +/- 2%

COMPANY
RICE OPERATING

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	N-18 BGT	N	18	22S	37E

SAMPLE ID	PID	SAMPLE ID	PID
IMPORTED CALICHE (W)	0.6		
IMPORTED CALICHE	1.6		

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

SIGNATURE: Robert Jones DATE: 2-10-2012

Appendix A-6 – Soil PID hydrocarbon concentrations from imported caliche.

From:	Hansen, Edward J., EMNRD
To:	Hack Conder
Cc:	Leking, Geoffrey R, EMNRD; Laura Pena; lpg@texerra.com
Subject:	Soil Closure Approval (1R-500) - ROC BD N-18 BGT Site
Date:	Tuesday, June 26, 2012 5:17:02 PM

RE: Corrective Action Plan Progress Report
for the Rice Operating Company's
BD N-18 BGT Site
Unit Letter N, Section 18, T22S, R37E, Lea County, New Mexico
Soil Closure Approval (1R-500)

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has received the Rice Operating Company's (ROC) the report for vadose zone remediation for the Remediation Plan (1R-500) for the BD N-18 BGT Site, dated March 6, 2012. The above-referenced report, submitted in fulfillment of 19.15.29 NMAC (Rule 29, formally, Rule 116), indicates that Rice Operating Company (ROC) has partially met the requirements of 19.15.29 NMAC for this site. Therefore, the OCD hereby conditionally approves the soil closure for the BD N-18 BGT Site and no further soil remediation is required for this site:

The BD N-18 BGT Site is still active under Remediation Plan, 1R-500, and ROC must submit a groundwater remediation report to the OCD within 120 days.

Please be advised that OCD partial approval of this request does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

From: Katie Jones
To: "Edward J. Hansen, EMNRD"
Cc: Hack Conder; Laura Pena
Subject: BD N-18 BGT (1R-500)
Date: Wednesday, September 25, 2013 7:48:00 PM

Mr. Hansen,

The former BD N-18 below grade tanks (BGT) were located within the active caliche lease pad of the BD N-18 SWD facility. ROC has 2.5 acre lease agreement for this facility. Once the facility is abandoned, ROC will follow the guidelines of the lease agreement and the lease pad area, including the former below grade tank area, will be reclaimed and seeded, if necessary. If you have any questions or require any additional information, please contact me or Hack Conder at (575)393-2967.

Thank you.

Katie Jones
Environmental Project Manager
RICE ***Operating Company***

APPENDIX D

Final C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **RICE Operating Company**	Contact **Hack Conder**
Address **112 West Taylor Hobbs, NM 88240**	Telephone No. **(575) 393-9174**
Facility Name **BD N-18 below grade tanks (BGT)**	Facility Type **SWD**

Surface Owner **State**	Mineral Owner	API No. **30-025-25616**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	**18**	**22S**	**37E**					**Lea**

Latitude 32*23'16.72: N **Longitude** 103*12'11.328:W

NATURE OF RELEASE

Type of Release **produced water**	Volume of Release **unknown**	Volume Recovered **unknown**
Source of Release **unknown**	Date and Hour of Occurrence **unknown**	Date and Hour of Discovery **soil investigation began in October 2010 and was complete in December 2010**
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.*

The below grade tanks located at this site were removed according to 19.15.17 NMAC. Upon removal of the former tanks and investigation of the soils beneath the tanks, impact was evident.

Describe Area Affected and Cleanup Action Taken.*

Use of the BD N-18 below grade tanks (BGT) was discontinued and a new facility was built on location. An air-rotary drilling rig was utilized to investigate soils located beneath the former below grade tanks. Soil samples were collected at regular intervals and field screened for chlorides and volatile organic compounds (VOCs) using a PID meter. Laboratory analysis confirmed chloride concentrations above 250 mg/kg and low concentrations of TPH (<10 mg/kg). Near-source (MW-1), up-gradient (MW-2), and down-gradient (MW-3) monitoring wells were installed to verify impact to groundwater. Chloride impact to groundwater was confirmed in all three monitoring wells. Depth to groundwater 101 ft below ground surface (bgs). Groundwater and vadose zone remedial actions were completed according to the CAP, approved by the NMOCD on July 13, 2011, and the Addendum approved by the NMOCD on January 23, 2012. The corrective action for the vadose zone included installing a 20-mil reinforced liner at 27 ft bgs and also at 4.5 ft bgs. The site is located on a caliche pad, so seeding was not required. NMOCD granted 'soil closure' on June 26, 2012. The remedial action for the groundwater included removing a chloride mass of 1,980 kg from MW-1. ROC acknowledges they have met the requirements of 19.15.29 NMAC and 19.15.17 NMAC.

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:	OIL CONSERVATION DIVISION
Printed Name: **Hack Conder**	Approved by District Supervisor:
Title: **Environmental Manager**	Approval Date: 10-1-13 Expiration Date:
E-mail Address: **hconder@riceswd.com**	Conditions of Approval: Attached ☐
Date: **9/18/2013** Phone: **(575) 393-9174**	

* Attach Additional Sheets If Necessary

Hansen, Edward J., EMNRD

From: Katie Jones <kjones@riceswd.com>
Sent: Wednesday, September 25, 2013 7:48 PM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Laura Pena
Subject: BD N-18 BGT (1R-500)

Mr. Hansen,

The former BD N-18 below grade tanks (BGT) were located within the active caliche lease pad of the BD N-18 SWD facility. ROC has 2.5 acre lease agreement for this facility. Once the facility is abandoned, ROC will follow the guidelines of the lease agreement and the lease pad area, including the former below grade tank area, will be reclaimed and seeded, if necessary. If you have any questions or require any additional information, please contact me or Hack Conder at (575)393-2967.

Thank you.

Katie Jones
Environmental Project Manager
RICE *Operating Company*