1R - 426-307

REPORTS

DATE:

3-27-12

IR426-307
RECEIVED OCD
2012 MAY -1 P 1:49

BD Jct. C-7
2011

CLOSURE

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

May 1, 2012

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

RE: Termination Request
BD Jct. C-7: UL/C, Sec. 7, T22S, R38E
RICE Operating Company – Blinebry-Drinkard SWD System

Mr. Hansen:

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.

Background
In 2010, ROC initiated work on the former C-7 junction box. The site is located in UL/C, Sec. 7, T22S, R38E. NM OSE records indicated that groundwater would likely be encountered at a depth of approximately 55 +/- feet but after encountering red bed clay while drilling a source soil bore, it was verified there is no groundwater at this site. The site was delineated using a backhoe to collect soil samples at regular intervals, creating a 30x30x12 ft deep excavation. Each sample was field titrated for chlorides and field screened using a PID for hydrocarbons, resulting in chloride concentrations that did not relent with depth and low concentrations of TPH. The excavated soil was blended on site and representative composite samples of the excavation bottom, the excavation walls, and the blended backfill were sent to a commercial for analysis of chloride and TPH, resulting in a 4-WALL chloride concentration of 320 mg/kg and concentrations of GRO and DRO below detectable limits. The bottom composite resulted in chloride concentrations of 1,040 mg/kg, and concentrations of GRO and DRO below detectable limits. The blended backfill resulted in a chloride concentration of 576 mg/kg, a GRO concentration below detectable limits, and a DRO concentration of 14.8 mg/kg. The blended backfill was returned to the excavation to 6 ft BGS. From 6-5 ft BGS, a 1 ft thick clay liner was installed with a compaction test performed on 10/22/2010. The excavation was backfilled with clean imported soil to ground surface and contoured to the

surrounding area. On 10/27/2010, the site was seeded with a blend of native vegetation and is expected to return to a productive capacity at a normal rate.

To further investigate the depth of chloride presence, a soil bore was initiated on 4/13/2011 at 12 ft south of the former junction box. The boring was advanced to a total depth of 70 ft BGS with soil samples collected at regular intervals to a depth of 50 ft BGS. The 30 ft and 50 ft samples were taken to a commercial laboratory for analysis of chloride and TPH, resulting in a concentration of 2,400 mg/kg and concentrations of GRO and DRO below detectable limits at 30 ft BGS. The sample resulted in chloride concentrations of 48 mg/kg and concentrations of GRO and DRO below detectable limits at 50 ft BGS. To verify depth to groundwater, the boring continued to a depth of 70 ft where red bed clay was encountered, indicating the bottom of the aquifer. Since no groundwater was encountered, the bore was packed open to allow any possible groundwater to accumulate. On 4/18/2011, Arc Environmental was on site to gauge the bore for groundwater accumulation and found no water in the bore. The entire bore hole was plugged with bentonite to ground surface. The junction box final report, photo documentation, boring log, laboratory analysis, PID sheet, cross-section diagram, compaction test, hydraulic conductivity, proctor, bore hole condition letter, chloride graph, and revegetation form are attached.

Recommendations

Site investigation demonstrates that residual chloride and hydrocarbons in the vadose zone will not with reasonable probability contaminate groundwater in excess of NMOCD standards. This site meets the requirements of the NMOCD-approved Revised Junction Box Upgrade Work Plan (July 16, 2003). As such, ROC request termination of the regulatory file, or similar closure status.

Please contact me at (575)393-9174 if you have any questions or wish to discuss this site. Thank you for your time and consideration.

Sincerely,
RICE Operating Company

Hack Conder
Environmental Manager

enclosures

RICE OPERATING COMPANY
JUNCTION BOX FINAL REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length 4'	Width 4'	Depth 4'
Blinebry-Drinkard (BD)	Jct. C-7	C	7	22S	38E	Lea	Eliminated		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER Walco Ranch, LLC. OTHER ___

Depth to Groundwater None feet NMOCD SITE ASSESSMENT RANKING SCORE: 0

Date Started 9/21/2010 Date Completed 10/27/2010 OCD Witness No

Soil Excavated 400.0 cubic yards Excavation Length 30 Width 30 Depth 12 feet

Soil Disposed 240 cubic yards Offsite Facility Sundance Services, Inc. Location Eunice, NM

FINAL ANALYTICAL RESULTS:

Sample Date 10/11/2010, 4/13/2011 **Sample Depth** 12', 30', 50'

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
4-WALL COMP.	2.6	<10.0	<10.0	320
BOTTOM COMP.	2.8	<10.0	<10.0	1,040
BLENDED BACKFILL	2.0	<10.0	14.8	576
SB 1 @ 30'	0.3	<10.0	<10.0	2,400
SB 1 @ 50'	0.1	<10.0	<10.0	48

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	N/A	742
bottom comp.	12'	2,868
blended backfill	N/A	1,063
background	6"	87
SB 1 at 12' south of junction (source)	15'	3,048
	20'	3,857
	25'	3,839
	30'	5,441
	35'	4,360
	40'	2,407
	45'	577
	50'	222

General Description of Remedial Action: This junction was eliminated during the pipeline replacement/upgrade program. After the former junction box was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals producing a 30x30x12-ft excavation. Chloride field tests performed on each sample yielded elevated concentrations that did not relent with depth. Organic vapors were measured using a PID which yielded relatively low concentrations. The excavated soil was blended on site and composite samples of the blended backfill, the excavation walls, and the bottom of the excavation were collected. The composite samples were sent to a commercial laboratory for analysis of chloride and TPH. The blended backfill was returned to the excavation up to 6 ft. BGS. From 6-5 ft. BGS, a 1 ft. thick clay liner was installed with a compaction test performed on 10/22/2010. A total of 240 cubic yards of excavated soil was hauled to a NMOCD approved facility for disposal. Clean soil was imported and used to backfill the site to ground surface and contoured to the surrounding area. On 10/27/2010, the site was seeded with a blend of native vegetation and is expected to return to a productive capacity at a normal rate. To further investigate the depth of chloride, a soil bore was initiated on 4/13/2011. The boring was advanced to a total depth of 70 ft. BGS with soils samples collected at regular intervals. Chloride field tests were performed on each sample and organic vapors were measured using a PID. The 30 ft. and 50 ft. samples were taken to a commercial laboratory for analysis of chloride and TPH. Red bed clay was encountered at 70 ft. which indicated the bottom of the aquifer. Since no groundwater was encountered, the bore was packed open to allow any possible groundwater to accumulate. On 4/18/2011, Arc Environmental was on site to gauge the bore for groundwater accumulation. They found no water in the bore. The entire bore was plugged with bentonite to ground surface.

enclosures: photos, boring log, lab results, PID (field) screenings, cross-section, compaction test, hydraulic conductivity, proctor, bore condition letter, chloride curve, revegetation form

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

SITE SUPERVISOR John R. Harrison SIGNATURE signature not available

REPORT ASSEMBLED BY Laura Peña SIGNATURE Laura Peña COMPANY RICE OPERATING COMPANY

PROJECT LEADER Larry Bruce Baker, Jr. SIGNATURE Larry Bruce Baker Jr. DATE 3-27-12

BD Jct. C-7

Unit C, Section 7, T22S, R38E

Site prior to excavation, facing north 9.21.10

Excavating source, facing north 9.21.10

Backfilling site, facing west 10.06.10

Collecting a sample, facing north 10.11.10

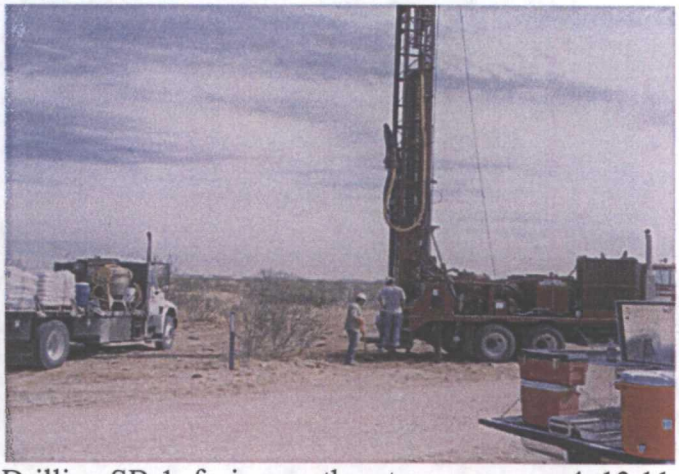
Importing clay for liner, facing north 10.21.10

Installed clay liner at 6-ft. BGS, facing southwest 10.22.

Performing clay compaction test, facing northwest 10.22.10

Backfilling above clay liner, facing northwest 10.22.11

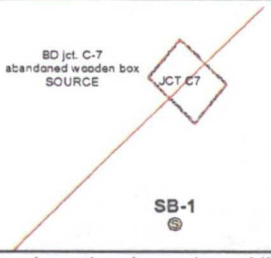
Seeding site, facing north 10.27.10



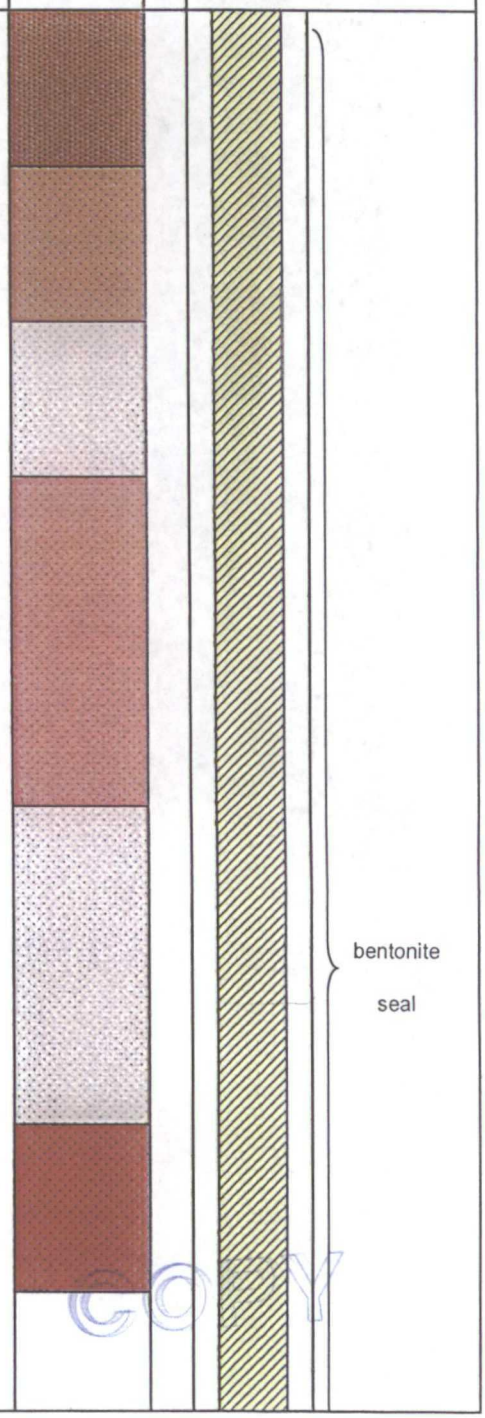
Drilling SB-1, facing northeast 4. 13.11

Plugging SB-1 with bentonite, facing west 4.29.11

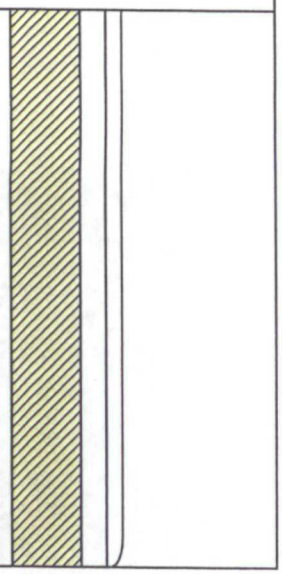
Completed SB-1, facing west 4.29.11

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** BD jct. C-7 **Well ID:** SB-1
Start Date:	4/13/2011		
End Date:	4/13/2011		**Project Consultant:** Junction Box Plan
Comments: Located 12 ft south of the former junction box site. All samples from cuttings. **DRAFTED BY: L. Weinheimer** TD = 70 ft GW = none			**Location:** UL/C sec. 7 T22S R38E **Lat:** 32°24'41.949"N **Long:** 103°6'2.67"W **County:** Lea **State:** NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Brown fine sand with caliche mix
15 ft	3048		1.3	
				Light brown well consolidated fine sand
20 ft	3857		0.2	
				Tan very fine silty sand
25 ft	3839		0.3	
				Light red very fine silty sand
30 ft	5441	Cl- 2400	0.3	
		GRO <10		
		DRO <10		
35 ft	4360		0.3	
				Tan very fine silty sand
40 ft	2407		0.6	
45 ft	577		0.6	
				Red very fine sandy clay
50 ft	222	Cl- 48	0.1	
		GRO <10		
		DRO <10		



COPY

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
55 ft				NO SAMPLES TAKEN		
60 ft						
65 ft						
70 ft				RED BED CLAY		

COPY

CARDINAL Laboratories

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

April 18, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD JCT C-7 (22/38)

Enclosed are the results of analyses for samples received by the laboratory on 04/13/11 16:27.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (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

COPY

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:	04/13/2011	Sampling Date:	04/13/2011
Reported:	04/18/2011	Sampling Type:	Soil
Project Name:	BD JCT C-7 (22/38)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 30' (H100750-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2400**	16.0	04/14/2011	ND	432	108	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/16/2011	ND	209	104	200	1.98	
DRO >C10-C28	<10.0	10.0	04/16/2011	ND	207	103	200	6.74	

Surrogate: 1-Chlorooctane	*102 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*108 %*	*70-130*

Sample ID: SB 1 @ 50' (H100750-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	04/14/2011	ND	432	108	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/16/2011	ND	209	104	200	1.98	
DRO >C10-C28	<10.0	10.0	04/16/2011	ND	207	103	200	6.74	

Surrogate: 1-Chlorooctane	*96.5 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*96.0 %*	*70-130*

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Cardinal Laboratories *=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rice Operating Company	BILL TO
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: BD Jct C-7	State: Zip:
Project Location: BD Jct C-7	Phone #:
Sampler Name: Jordan Woodfin	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	TPH 8015 M Extended Thru C40						
H11007-01	SB 1 @ 30'		1			✓					✓		4/13/11	10:15	✓	✓									
2	SB 1 @ 50'		1			✓					✓		4/13/11	10:48	✓	✓									

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: Jordan Woodfin	Date: 4/13/11	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 4:29		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results
	Time:		Hconder@riceswd.com; jwoodfin@rice-ecs.com; Lweinheimer@rice-ecs.com kjones@riceswd.com
Delivered By: (Circle One)	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other:			

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

#26

NEED SAMPLES BACK, PLEASE

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.		MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7300	SERIAL NO: 590-000504
	x	MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300	SERIAL NO: 590-000183

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 927041	EXPIRATION DATE: 11-16-12
METER READING ACCURACY: 100.00	

ACCURACY : +/- 2%

COMPANY
Rice Operating Company

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	C-7 JCT	C	7	22S	38E

SAMPLE ID	PID	SAMPLE ID	PID
SB 1 @ 15'	1.3		
20'	0.2		
25'	0.3		
30'	0.3		
35'	0.3		
40'	0.6		
45	0.6		
50'	0.1		

COPY

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

SIGNATURE: Not Available DATE: 4/13/2011

CARDINAL Laboratories

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

October 18, 2010

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD JCT C-7 (22/38)

Enclosed are the results of analyses for samples received by the laboratory on 10/11/10 16:17.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (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

COPY

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:	10/11/2010	Sampling Date:	10/11/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	BD JCT C-7 (22/38)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: 5 PT. BOTTOM COMP (H021028-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1040**	16.0	10/13/2010	ND	432	108	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*95.2 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*121 %*	*70-130*

Sample ID: 4 WALL COMP (H021028-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	10/13/2010	ND	432	108	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	<10.0	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*93.3 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*117 %*	*70-130*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/11/2010	Sampling Date:	10/11/2010
Reported:	10/18/2010	Sampling Type:	Soil
Project Name:	BD JCT C-7 (22/38)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL (H021028-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**576**	16.0	10/13/2010	ND	432	108	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/15/2010	ND	193	96.4	200	2.38	
DRO >C10-C28	**14.8**	10.0	10/15/2010	ND	204	102	200	2.31	

Surrogate: 1-Chlorooctane	*101 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*119 %*	*70-130*

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*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

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Celey D. Keene

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 Company	**BILL TO**
Project Manager: Hack Conder	P.O. #:
Address: 122 West Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: BO JCF C-7 22.38	State: Zip:
Project Location:	Phone #:
Sampler Name: Robert Harrison	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							
H21029-1	5PT BOTT. COMP	C	1			✓					✓		10/11/10	1:50	✓	✓									
2	4 WALL COMP	C	1			✓					✓		10/11/10	2:05	✓	✓									
3	BLENDED BACKFILL	C	1			✓					✓		10/11/10	2:15	✓	✓									

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Relinquished By: Robert Harrison	Date:	Received By:		Phone Result: ☐ Yes ☑ No	Add'l Phone #:
	Time:			Fax Result: ☐ Yes ☑ No	Add'l Fax #:
Relinquished By:	Date: 10/11/10	Received By: Jodi Henson		REMARKS: email results	
	Time: 4:17			Bbaker@riceswd.com; Kjones@riceswd.com; Regans@riceswd.com pharrison@riceswd.com	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)		

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

#26

NEED SAMPLES BACK, PLEASE

RICE OPERATING COMPANY

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

CK. MODEL NO.			
✓	MODEL: PGM 7300	SERIAL NO: 590-000508
	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 : 930360	EXPIRATION DATE: 5/24/13
METER READING ACCURACY: 100.0	

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	C-7JCT	C	7	22 S	38E

SAMPLE ID	PID	SAMPLE ID	PID
5 Pt Bott Comp.	2.8		
4 WALL Comp.	2.6		
BLENDED BACKFILL	2.0		

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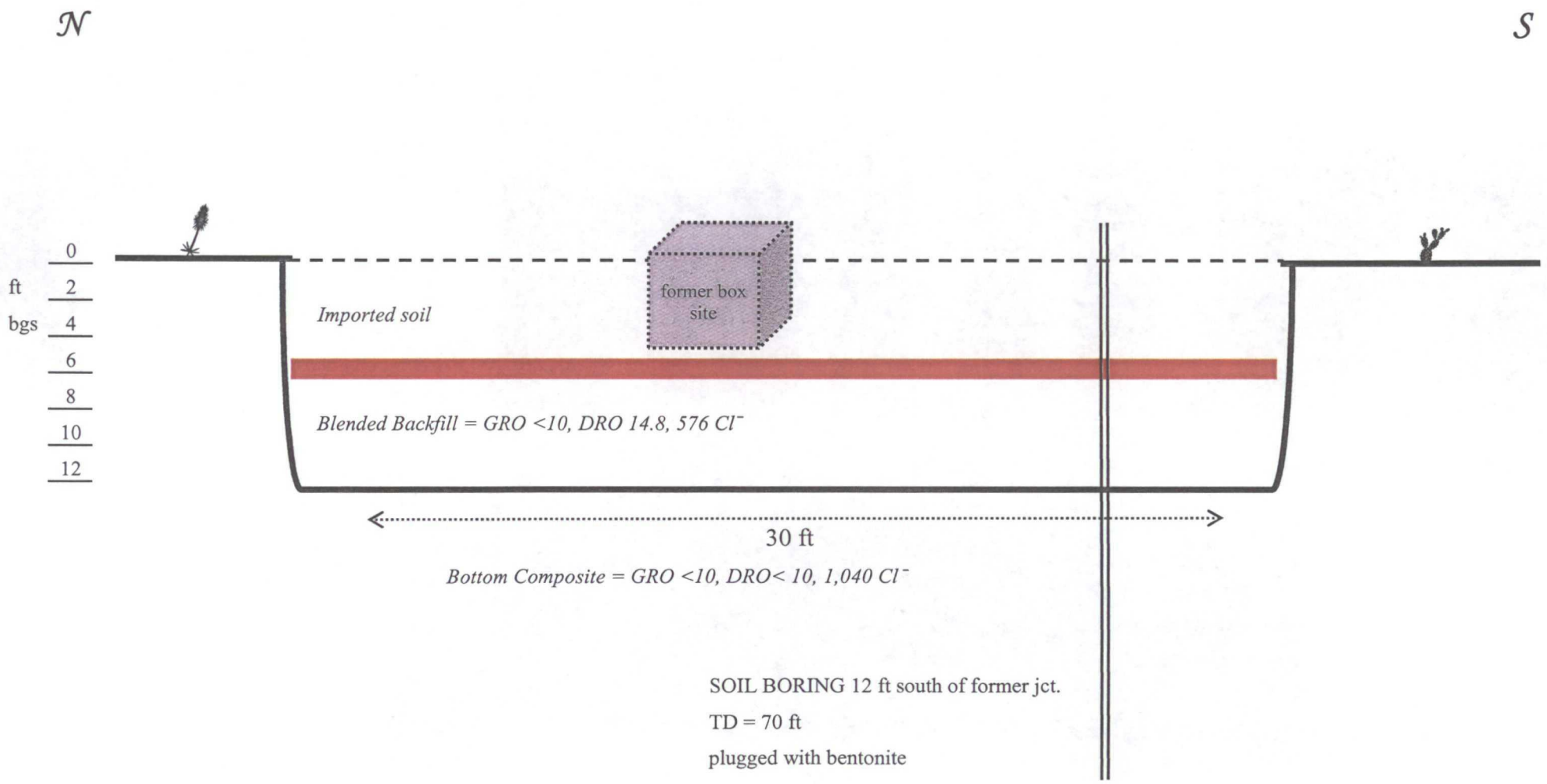
I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE: John R Harrison DATE: 10/11/10

BD Jct. C-7

Unit C, Section 7, T22S, R38E

Excavation Cross-Section



LABORATORY TEST REPORT

PETTIGREW & ASSOCIATES, P.A.

1110 N. GRIMES
HOBBS, NM 88240
(575) 393-9827

AASHTO R18

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III, P.E./P.S.

To: Rice Operating Company
122 W. Taylor
Hobbs, NM 88240

Material: Wallach Red Clay

Test Method: ASTM: D 2922

Project: BD Jct. C-7 (22/38)
Project No. 2010.1313

Date of Test: October 22, 2010

Depth: See Below

Depth of Probe: 6"

Test No.	Location	Dry Density % Max	% Moisture	Depth
SG 1	Pit - 6' N. & 8' W. of SE Corner	91.5	15.9	FSG

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Control Density: 101.1
ASTM: D 698

Optimum Moisture: 19.0%

Required Compaction: 90-95%

Densometer ID: 5071

Lab No.: 10 10488-10490

Copies To: Rice Operating

PETTIGREW & ASSOCIATES

BY: _____

BY: for Debra Hicks P.E.

Home Office - 1717 East Erwin Street
Tyler, Texas 75702-6398
Office: (903) 595-4421 Lab: (903) 595-6402 Fax: (903) 595-6113
Area Offices
210 Beech Street Texarkana, AR 71854 (870) 772-0013
707 West Cotton St. Longview, TX 75604 (903) 758-0402

Acct ID: PETTIGREW File ID: C4535-101 Date Sampled: 08/19/2010
Report Date: 08/27/2010 Sampled By: Client
Project: Pettigrew Associates - Project #2010.1026, Hobbs, NM By Order Of: Erica Hart
Location: Material Origin: Wallach Pit, Sample Location: N/G Order Number:
Client: Pettigrew & Associates, Hobbs, NM
Contractor: Not Given

REPORT: **FLEXIBLE WALL PERMEAMETER** LAB NO: 9881
Test Method: See Below

TEST RESULTS Report No: 1-1201-000005
Page 1 of 2

HYDRAULIC CONDUCTIVITY DETERMINATION
FLEXIBLE WALL PERMEAMETER - CONSTANT VOLUME
(Mercury Permometer Test)

Project : Rice Operating Project 2010.1026 for Pettigrew & Associates, P.A., Hobbs, NM
Date: 8/25/2010 Panel Number : P 2 ; ASTM D 5084
Project No. : C 4535-101 Permometer Data

Boring No.:		ap =	0.031416 cm2	Set Mercury to Pipet Rp at	Equilibrium	1.8	cm3
Sample:	9881	aa =	0.787120 cm2		Pipet Rp	6.7	cm3
Depth (ft):		M1 =	0.030180	C = 0.000448509	Annulus Ra	1.5	cm3
Other Location:	Wallach Pit	M2 =	1.040953	T = 0.203785086			

Material Description : Red Clay (Clients Sample No 10 5904-5906) Lab Molded @ ~95% ASTM D 698

SAMPLE DATA

					Before Test		After Test	
Wet Wt. sample + ring or tare :		507.52	g					
Tare or ring Wt. :		0.0	g		Tare No.:	T 9	Tare No.:	T 2
Wet Wt. of Sample :		507.52	g					
Diameter :	2.72	in	6.90	cm2	Wet Wt.+tare:	850.96	Wet Wt.+tare	728.58
Length :	2.75	in	6.99	cm	Dry Wt.+tare:	716.43	Dry Wt.+tare	621.60
Area:	5.78	in^2	37.35	cm2	Tare Wt:	220.51	Tare Wt:	216.59
Volume :	15.94	in^3	261.23	cm3	Dry Wt.:	495.92	Dry Wt.:	405.01
Unit Wt.(wet):	121.23	pcf	1.94	g/cm^3	Water Wt.:	134.53	Water Wt.:	106.98
Unit Wt.(dry):	95.36	pcf	1.53	g/cm^3	% moist.:	27.1	% moist.:	26.4

Assumed Specific Gravity:	2.65	Max Dry Density(pcf) =	101.1	OMC =	19
		% of max =	94.3	+/- OMC =	6.13
Calculated % saturation:	95.26	Void ratio (e) =	0.73	Porosity (n)=	0.42

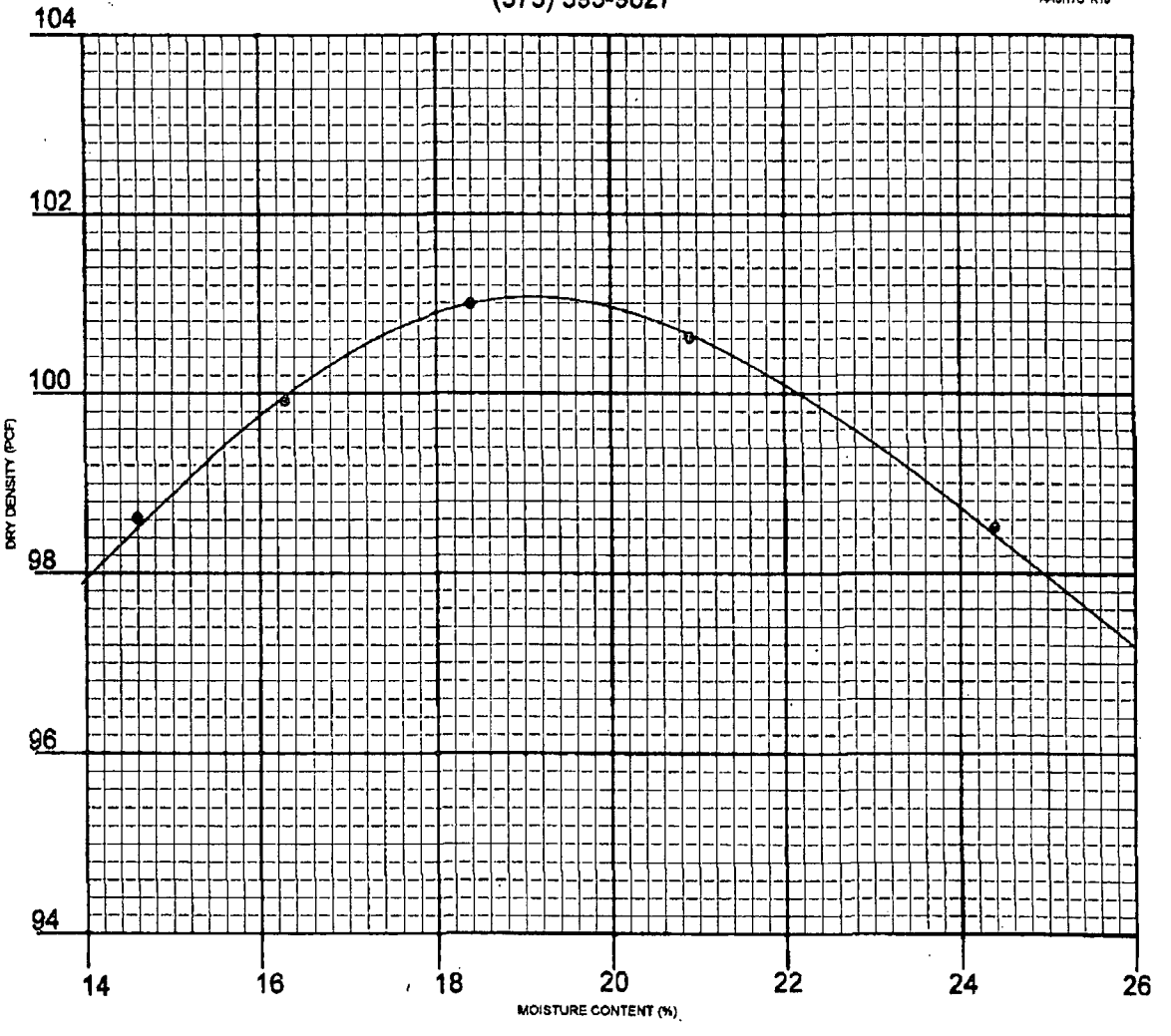
COPY

Charge: Pettigrew & Associates Attn: Erica Hart
Orig: Pettigrew & Associates, Hobbs, NM Attn: Erica Hart
1-ec Pettigrew & Associates, Hobbs, NM Attn: Erica Hart
E-Mail: ehart@pettigrew.us

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.

PETTIGREW & ASSOCIATES, P.
1110 N. GRIMES ST.
HOBBS, NM 88240
(575) 393-9827

AASHTO R18



General Information

CLIENT: Rice Operating PROJECT: Project No. 2010.1026

SAMPLE LOCATION: Wallach Pit

SOIL DESCRIPTION: Wallach Red Clay

SOIL CLASSIFICATION: ____ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Sampled & Delivered 8/13/10

DATE: 8/13/10 LAB NO. 10 5904-5906

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DRY WEIGHT LB/CU. FT. 101.1 MOISTURE CONTENT % 19.0

SIEVE ANALYSIS - % PASSING									

PETTIGREW & ASSOCIATES

BY: Erica Hart

BY: [signature] P.E

COPIES: Rice Operating

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

April 18, 2011

Mr. Hack Conder
RICE Operating Company
112 West Taylor
Hobbs, New Mexico 88240

Re: BD Junction C-7

Mr. Conder,

On Monday April 18, 2011 soil bore #1 at the BD Junction C-7, Lea County T22S, R38E, Sec 7 Unit Letter C was checked with a Solinist Water Level Meter for water accumulation within the borehole. The meter indicated no water within the borehole to the total depth of 70.51 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Katie Jones

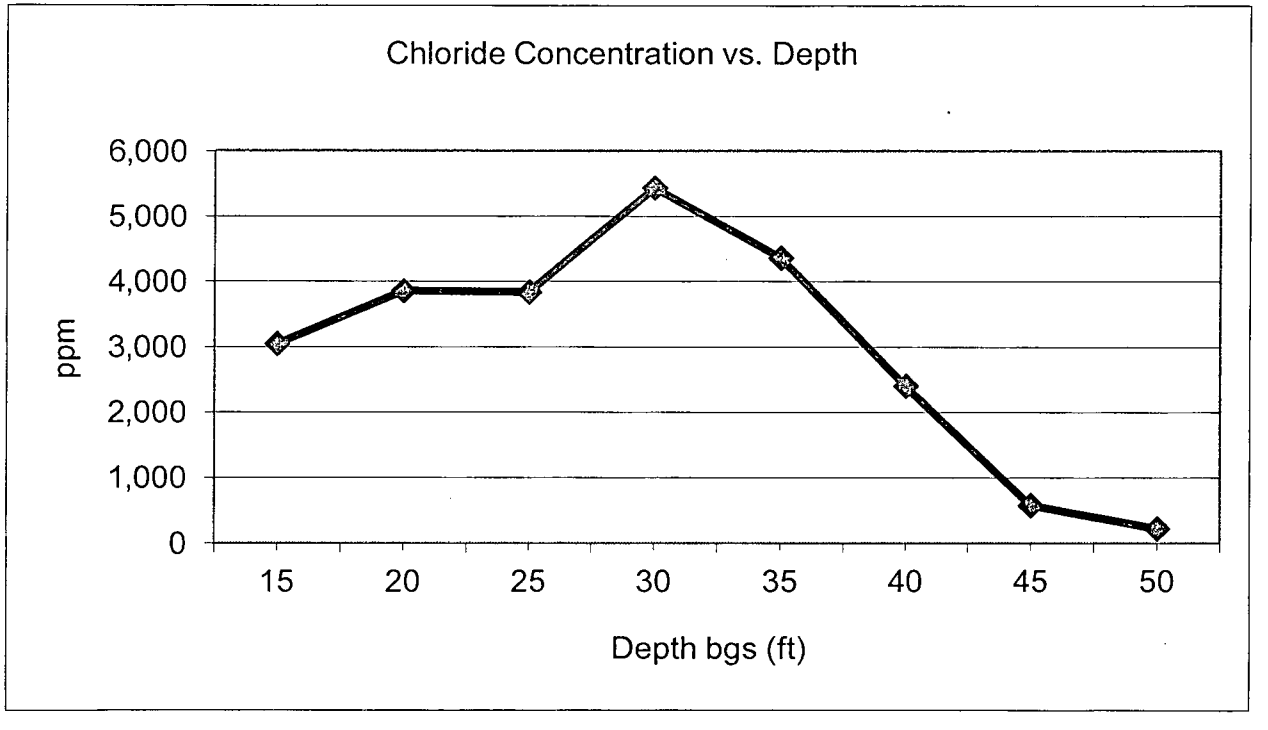
COPY

BD Jct. C-7

Unit 'C', Sec. 7, T22S, R38E

Soil Bore samples at 12 ft south of the junction (source)

Depth bgs (ft)	[Cl] ppm
15	3,048
20	3,857
25	3,839
30	5,441
35	4,360
40	2,407
45	577
50	222



Groundwater = None

112 West Taylor
Hobbs, NM 88240
Phone: (575) 393-9174
Fax: (575) 393-0293

VEGETATION FORM

1. General Information

Site name: BD C-7 JCT 22.38						
U/L **C**	Section **7**	Township **22S**	Range **38E**	County **LEA**	Latitude **N32*24.694**	Longitude **W103*06.024**
Contact Name: **Bruce Baker**						
Email: bbaker@riceswd.com						
Site size: 75' X 90' **6750** square feet				Map detail of site attached ☐		
Additional information:						

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

Salvaged from site ☒	Bioremediated ☐	Imported ☐	Blended ☒	Depth (in):
Texture: **Sandy**	Describe soil & subsoil: **Sand**			
Soil prep methods:	Rip ☐ Depth(in):	Disc ☐ Depth (in):		Roller pack ☐
Date completed: 10/27/2010				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☐
Type:		Describe:
Lbs/acre:		

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

Custom seed mix ☒	Prescribed mix ☐	Seed mix name: **BLUE GRAMMA**	Seeding date: **10/27/2010**
Broadcast ☒ Method: PORTABLE SEEDER			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☒ Number of photos:	Observations: **6.5lbs BLUE GRAMMA mix**		

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

Name: **ROBERT HARRISON**	Title: **Environmental Tech**	Date: **10/27/ 2010**
Signature:		

COPY