## 1R - 426 - 12

### REPORTS

## DATE:

## 9-24-10



RECEIVED OCD

### 2010 3CT -1 P 1:45

CERTIFIED MAIL RETURN RECIEPT NO. 7001 0320 0004 3736 6068

September 24, 2010

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

### RE: CAP Report and Termination Request, Rice Operating Company, Blinebry Drinkard (BD) Saltwater Disposal System (SWD) O-17-1 Vent, Unit O, Section 17, T-21-S, R-37-E, Lea County, New Mexico, NMOCD CASE #1R426-12.

i

Mr. Hansen:

Tetra Tech, Inc. (Tetra Tech) submits the following CAP Report and Termination Request for the Rice Operating Company (ROC), Blinebry Drinkard (BD) Salt Water Disposal (SWD) System O-17-1 Vent, NMOCD Case #1R426-12. 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 BD SWD system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis. The site is shown on Figures 1 and 2.

### 1.0 BACKGROUND and PREVIOUS WORK

As part of the ROC Junction Box Upgrade Workplan, starting on March 7, 2003, the junction box was removed and the site was investigated vertically and horizontally with a backhoe. See site location as shown on Figure 1 and Figure 2. The site was excavated to the approximate dimensions of 27' x 18' x 12'. TPH impact was noted to a depth of at least 12' below ground surface (bgs). Chloride impact was consistent vertically and horizontally, with a bottom hole chloride concentration of 1,740 mg/kg at 12' below ground surface. Regional groundwater information indicates that the depth to groundwater is approximately 70' bgs.

The junction box once contained a vent, but the junction was eliminated and the site was plumbed straight through with new poly pipeline. ROC completed the replacement of the line on August 29, 2003. On September 16, 2003, ROC submitted a Junction Box



Disclosure Report to the NMOCD. A copy of the Junction Box Disclosure Report is included in Appendix A.

On August 10, 2006, ROC submitted the ICP to Mr. Wayne Price of the NMOCD-Santa Fe office for review. Mr. Price granted approval of the ICP in a letter dated September 21, 2006.

On October 9 and 10, 2006, Highlander personnel were onsite to oversee the installation of five soil borings (SB-1, SB-2, SB-3, SB-4, and SB-5) within and adjacent to the former junction box location. Soil samples were collected every 5' beginning at a depth of 13 feet bgs within the excavated area and 3 feet bgs outside the excavated area. Samples were collected utilizing a split spoon sampler, and placed into laboratory supplied containers and delivered to the laboratory under chain-of-custody control for chloride analysis by EPA method 300.0 and specific samples for TPH analysis by EPA method 8015 modified. The collected samples were field screened for TPH utilizing a photoionization detector (PID) and for chlorides with a field sampling kit. The split spoons were decontaminated between samples utilizing an Alconox and deionization water wash followed by a deionization water rinse.

The TPH concentrations were below the NMOCD guidelines in all samples collected and submitted for analysis. The chloride concentrations showed a marked decrease with depth in each of the five soil borings.

On September 17, 2007, ROC submitted a CAP to the NMOCD office for review. Mr. Hansen granted approval of the CAP in an email dated January 7, 2009.

### 2.0 CORRECTIVE ACTION PLAN IMPLEMENTATION

As part of the Corrective Action Plan (CAP), ROC was onsite August 9, 2010 through August 18, 2010, to excavate chloride impacted soils from the K-4 release area. An area measuring 38 feet wide by 38 feet long by 6 feet deep was excavated. Two feet of topsoil was removed and stockpiled onsite. The site was excavated further and a total of 372 cubic yards of soil were disposed of at the NMOCD approved Sundance facility. A topsoil composite sample (PID reading 3.3ppm) was collected on August 17, 2010 and analyzed by Cardinal Laboratory, with the resulting chloride concentration of 352 mg/Kg, GRO <10 mg/Kg and DRO 126 mg/Kg. A total of seven (7) loads of red clay and six (6) loads of blow sand were hauled in from Wallach Concrete. Upon completion of the excavation, a clay barrier was installed and compacted from 5'-6' in the bottom of the The blow sand was blended with the stockpiled soils and a backfill excavation. composite sample (PID reading 3.5 ppm) was analyzed by Cardinal Laboratory resulting in a chloride concentration of 336 mg/Kg, GRO of <10 mg/Kg and DRO of 99.5 mg/Kg. Between September 10 and September 14, 2010, clean offsite soils blended with peanut hay were brought to the site to continue backfilling. The site was brought up to surface arade. (See Appendix A - Laboratory Data for analysis on the topsoil and blended excavated soils and soil compaction testing data). The site was fenced and on September 16, 2010, the site was reseeded with 8 pounds of Lea County mix and 10 pounds of rye. (See Appendix B – Site Photographs)



1000

### 3.0 CONCLUSIONS

- As per the CAP, an area measuring 38 feet wide by 38 feet long by 6 feet deep was excavated and a 1 foot compacted clay liner was installed in the bottom of the excavation. Upon completion of the liner the site was backfilled with blended and clean soils, and brought up to surface grade with excavated soils blended with hay. The site was fenced and reseeded with native vegetation.
- 2. Approximately 372 cubic yards of soil was hauled to the NMOCD approved Sundance facility for disposal

With the completion of the liner, backfilling and reseeding as per the CAP, ROC requests that the NMOCD terminate further activities at this site. If you require any additional information of have any questions or comments concerning the termination request, please call me at (432) 682-4559 or Hack Conder of ROC at (575) 393-9174. Thank you for your attention to this matter.



Respectfully Submitted, Tetra Tech, Inc.

| & e A NX

Tim Reed, P.G. Senior Project Manager

and a start and

2 . Same

No. of the state

Contraction of the second s

Lang Street

1 . A. C.

Star Barrie

11 A.

Prof. Prof. Prof.

and a second

「「「「」」

T. Same

### **FIGURES**



MN (7.5°E)

Data use subject to license. © DeLorme. Topo USA® 8.

www.delorme.com

1" = 2,000.0 ft Data Z

Data Zoom 13-0

ft m



10.00 S. S. Salar Acres 14 4 The second second 「「 APPENDIX A A thread a Line Serie of . 142 942 # 2 10 10 10 10 10 Control of State 2. 35- 5- X.S The factor 1-10-100 - 10 - 1 2. <u>2. 2. 2. 2</u> 147 × 24 + 19

### **RICE OPERATING COMPANY**

### 122 West Tayor Hobbs, NM 88240 PHONE: (575) 393-9174 FAX: (575) 397-1471 PID METER CALIBRATION & FIELD REPORT FORM

Check Model Number:

	]
X	]

1. A. 1. 1.

. ac 2

and a street

ale ...

3.5

Alia a la

13 anto

4.5

100

10.0 4

100

10 - 12 A

100

12 18 18

100 - 10

 Model: PGM 7300
 Serial No: 590-000183

 Model: PGM 7300
 Serial No: 590-000508

 Model: PGM 7300
 Serial No: 590-000508

 Model: PGM 7300
 Serial No: 590-000504

Model: PGM 7600 Model: PGM 7600 Model: PGM 7600

Serial No: 110-023920 Serial No: 110-013744 Serial No: 110-013676

### GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 924503EXPIRATION DATE: 7-5-12FILL DATE: 7-6-09METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	O-17-1	0	17	21	37

SAMPLE ID	PID	SAMPLE ID	PID
Backfill # 1	3: 3		
,,,,,,,,,,,,_			
949 - fand de lander og gegen gegen for som en en en som en som en			

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

SIGNATUE: Judan Woodf

DATE: 8-17-10

August 18, 2010

Carles State

1000

1. J. C.

Star 1

ANT ATTAC

1000

2.6.6

の

100

And Sugar

1.38

Hack Conder Rice Operating Company 112 W. Taylor Hobbs, NM 88240

RE: BD O-17-1 VENT

Enclosed are the results of analyses for samples received by the laboratory on 08/17/10 14:36.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021Benzene, Toluene, Ethyl Benzene, and Total XylenesMethod SW-846 8260Benzene, Toluene, Ethyl Benzene, and Total XylenesMethod TX 1005Total 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.Kune

Celey D. Keene Lab Director/Quality Manager



### Analytical Results For:

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

Received:	08/17/2010
Reported:	08/18/2010
Project Name:	BD O-17-1 VENT
Project Number:	NOT GIVEN
Project Location:	BD O-17-1 VENT

08/17/2010
Soil
Cool & Intact
Celey D. Keene

### Sample ID: BACKFILL #1 (H020659-01)

Transford

Same Line

- <u>- - - - -</u>

14 JA

A Contraction

1 . A . A

100 A

- Action

19. 19. 19. 19. 19. 19. 19. 19.

Carlo and

A dente

100

Sec. 2

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	08/18/2010	ND	448	112	400	3.64	
трн 8015м	mg	/kg	Analyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/18/2010	ND	174	86.9	200	3.77	
DRO >C10-C28	126	10.0	08/18/2010	ND	178	88.8	200	2.16	
Surrogate: 1-Chlorooctane	97.8	% 70-130				·			
Surrogate: 1-Chlorooctadecane	97.9	% 70-130							

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 valved 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 incidential or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profils 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

Celuy D. Kune

Celey D. Keene, Lab Director/Quality Manager



1 . S. S. S.

Alle scharges

C. Santas

10 C 44

100000

State 2

1. S. .....

Contraction of

1. 1. 1. 1. 1. 1.

the state

ALCONTRACTOR

والمراجع

Strate and

記録書

1111

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

### **Notes and Definitions**

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QL-01	Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
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 SM4500CI-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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim ansing, 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 wholscovers shall be deemed waved unless made in writing and received by claim atising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its substituries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based unoverstated reasons or otherwise. Results relate only to the samples teadified above. This report shall note performance cept in full with written approval of Cardinal Laboratories.

Celey D.Kune

Celey D. Keene, Lab Director/Quality Manager

Page 3 of 4

Page 4 of 4

	F
	<
	0
	ñ
	~
	4
	2
	~
	-
	G
	5
	-
	C
	D
	2
•	1
<i>i</i>	- 3
	6.5
- <b>1</b> / S	ų.
in and	in.
Sec. and	1

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

一般に一般

14.182

active terms

Surger S.

14 A K K

Sec. 2 Acres

Real Print, work

いた

the state of

Martin and and

ARDINAL LABORATORIES

company Name: Rice Operating Com	npany		BILL T(	0	ANALYSIS REQUEST	
Project Manager: Hack Conder			P.O.#:			
Address: 122 West Taylor			Company:		S	
21ty: Hobbs	State: NM Z	p: 88240	Attn:		uo	
hone #: 393-9174	Fax #: 397-147		Address:		oin,	
Project #:	Project Owner:		City:	W	4/s	
Project Name: C. Bart C. I	7-1 2800		State: Zip:	) Sə		
roject Location: RV Con	くさんごう こうたい		Phone #:		i s Dife	
Sampler Name: J. Woodfin			Fax #:		(B) (C) (C)	
FOR LAB USE ONLY		MATRI	K PRESERV SAM		×ə	
Lab I.D. Sample I.	<u>aileis de</u>	RADIA SRAUIA RATAWO RATAR RATAR	or se: :	) 	1 Jəlqmc	
HZ0659-			асирое отнея остоивл остоивл остиея		20	
13221411				1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
2010 - 2011 - 201						
sama ( ) a sa a " ma mananananananananan ( ) a samara ang a sama a sama a sa a mang a sa a g						
and the second						
a series a construction de la construcción de la construcción de la construcción de la construcción de la const	are and the registerious descenary of all the					
a na mana ana ana ana ana ana ana ana an						
anno an						
LEASE NOTE: Linbley and Dryinges. Curdnafa tantily and cl	lient's exclusive remech for any r	taim utsing whether based in o	ontered or tort actual the Shutterd to the Amon	and the data tar to the -		
uarses. As somes including brook for negligence and one other around, in the seart shall Gatebral for both for Ancidented by Anna Males or successors origing out of Drofated to the pariounance	caute whatsoever shall be dee ธรุกเลกเคริ เริ่งการกระ, เทะโนส์เกฏ ฟรู e of cervices hereunder by Gard	nad walved unloss made in with heiti Bitikina, luisinnas interur nai, regerdiess of whether such	ing and received by Cardinet within 30 day Ning, Jians of than, 13 bisk of profile incurto Sizim is based upon any of the above stat	and and a second to the negative second to th		
telinguished By:	01-2 1-58 -	Received By:		Phone Result: D Yes d N Fax Result: D Yes d N FemARKS:	Add'l Phone #: Add'l Fax #:	
Zelinquished By:	Date:	Received By:		email results	Kush G	
	Time:	L'UN	LAL.	(	- ( -	
Velyvered By: (Circle Une) Sambler - UPS - Bus - Other:	S,		ngifion CHECKED BY: tet (hritials) Yes (NDV)	Lweinheimer@rices	om; Jwoodfin@riceswa.cc wd.com	E.
t Cardinal cannot accept verbal	changes. Please f	ax written changes	t to 505-393-2476			

### RICE OPERATING COMPANY

### 122 West Tayor Hobbs, NM 88240 PHONE: (575) 393-9174 FAX: (575) 397-1471 PID METER CALIBRATION & FIELD REPORT FORM

Check Model Number:

	Mo
	Mo
Х	Mo

1 Mar 1

And the second s

1.00

読みが

TA W. A.T.

100

4.55.4

Contraction of the

- thurst

1. 10 July 10

and a second

読いの

ALL ALL

odel: PGM 7300 Ser odel: PGM 7300 Ser odel: PGM 7300 Ser

Serial No: 590-000183 Serial No: 590-000508 Serial No: 590-000504 Model: PGM 7600 Model: PGM 7600 Model: PGM 7600

Serial No: 110-023920 Serial No: 110-013744 Serial No: 110-013676

### GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 924503	EXPIRATION DATE: 7-5-12
FILL DATE: 7-6-09	METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	<b>TOWN SHIP</b>	RANGE
BD	O-17-1	0	17	21	37

SAMPLE ID	PID	SAMPLE ID	PID
Blended Backfill	3,5		
		<u> </u>	
that the second s	·		
		· · · · · · · · · · · · · · · · · · ·	
			·····

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

SIGNATUE: Jordon Woodfr

DATE: 8 - 24-10

August 25, 2010

STATION OF

¥ . 49 5

The late

V. Contraction

Contraction of the

S. S. S. S.

110000

Hack Conder Rice Operating Company 112 W. Taylor Hobbs, NM 88240

RE: BD O-17-1 VENT

Enclosed are the results of analyses for samples received by the laboratory on 08/24/10 11:20.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021Benzene, Toluene, Ethyl Benzene, and Total XylenesMethod SW-846 8260Benzene, Toluene, Ethyl Benzene, and Total XylenesMethod TX 1005Total 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. Kune

Celey D. Keene Lab Director/Quality Manager



### Analytical Results For:

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

Received:	08/24/2010
Reported:	08/25/2010
Project Name:	BD 0-17-1 VENT
Project Number:	NOT GIVEN
Project Location:	BD O-17-1 VENT

States .

a starter

1

10.00

and and

10000

20.4

and a

AND PARTY

and the second

100 - 20

1949

And Control of

St. Bar

Sampling Date:08/24/2010Sampling Type:SoilSampling Condition:Cool & IntactSample Received By:Jodi Henson

### Sample ID: BLENDED BACKFILL (H020705-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	08/24/2010	ND	416	104	400	3.77	
TPH 8015M	mg	/kg	Anaiyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	8S	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2010	ND	162	81.2	200	0.699	
DRO >C10-C28	99.5	10.0	08/24/2010	ND	163	81.3	200	0.746	
Surrogate: 1-Chlorooctane	90.2	% 70-130	)						
Surrogate: 1-Chlorooctadecane	76.9	% 70-130	1						

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 walved unless made in writing and received by client, first control 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, ioss 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 in our state of assors and otheres.

Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



4. 8 20 A

and the second

a for the second

000

21.20

11 H

and the second s

Sal defined

ND

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 $6^{\circ}\text{C}$
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and ottent'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 case whatsoever shall be deemed wated unkers made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be taken or incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors anising 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.Kune

Celey D. Keene, Lab Director/Quality Manager

Page 4 of 4

	Ľ
	ō
	Ő
	4
	_ <b>_</b> _
	J
	2
	$\sim$
	2
	নি
1	
	1
6.	Horn
213	- 1

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Pro State

T AT NTA E

Sec. 34

Zales we

Party Se

9--- (t)-

「「「「

and the other of

10 mar 10

A COMPANY

Carried Carr

TANK TE.

State of the second

 
 RDINAL LABORATORIES

 101 East Marland, Hobbs, NM 88240
 2111 Beechwood, Ahilene TY 79603
 ş

ompany Name: Rice Operating Company		BILL TO				1	NALYSI	S REQ	NEST	
roject Manager: Hack Conder		0.#:								
ddress: 122 West Taylor	0	ompany:					S			
tty: Hobbs State: NM Zip:	: 88240 A	ttn:					uo			
thone #: 393-9174 Fax #: 397-1471	A	ddress:					iuv			
roject #: Project Owner:	0	ity:		VV	10	ŀ	4/۶			
roject Name: BD 0-17-1		tate: Zin:		s9		44	suc			
roject Location: OD or n - 1	<u>Δ</u>	hone #:		bin	EX	Τs	oite			
ampler Name: J. Vyoodfin	4	ax #;			15	se>	20			
FOR LAB USE CHLY	MATRIX	PRESERV SAMPLIN	NG		]	٢e>	ət			
WO(C	EK TER KS			<u>.</u>			əlq			
Lab I.D. Sample I.D.	AWC ATAV	ר אר פני					u			
) 845	оит STEW L STEW C STEM C SUNG SUNG SUNG SUNG SUNG SUNG SUNG SUNG	1000 2/845 1000 1000 1000 1000 1000 1000 1000 10					20			
			TIME							
HUUNDI Blacked (Sec RHI C	X -	× 8.44	8)2	ע א						
2 / 2004 ( ) - 2 / 20										
,										
LEASE NOTE: Liability and Daminger. Cardinal's Reditly and dients exclusive remedy for any slaim	t arting whether based in contract or	tori, shall be limited to the amount page	d të lite clent for t		_		_			
ហ្គេកីស	d valved unloss made in writing and re 8 finitian, bythnaes interruptings, jae 1. tegarafess of whather such tham in t	celved by Cnudinal winnin 30 days atter 1 nf uSe, 01 fuée 61 prefits immireel by 5 8300 Upen pry of the above stated teo	r sompletion of the dietit, its suitstellarit osons of otherwise.	sonkatie						
cellinquished By	sceived By:		Phone Result: Fax Result:		Yes P	o No No	Add'l Phone Add'l Fax #:	#		
J. Woodfin We'ra			REMARKS		~	2	510	cr	Dusi	
tetinduished By: Date: Rec	ceived By:		email r	esults	91	56		١		
	JUL JUL	JAN	Hoord H			<u>כ</u> רייים		16 () 16 ()	and house in	-
beirvered BV: (circle One) SaMeter - UPS - Bus - Other:	Sample Conditio	T CHECKED BY:	Lweinh	ei leine	r@rio	eswd	, uwuor .com			
		477			)					

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

本を

To:       Rice Operating Company 122 W. Taylor Hobbs, NM 85240       Material:       Wallach Red Clay         Test Method:       ASTM: D 2922         Project:       BD Jct. 0-17.1 Project No. 2010.1240       Depth       See Below         Date of Test:       August 19, 2010       Depth of Probe:       6"         Test No.       Location <sup>9</sup> / <sub>2</sub> Max <sup>9</sup> / <sub>2</sub> Molsture       Depth         SG 1       15' N. & 12' W. of SE Corner       87.4       27.8       5' Below FSG Natural Ground         RT SG 1       15' N. & 12' W. of SE Corner       93.1       21.5       6' Below FSG Natural Ground         2RT SG 1       15' N. & 12' W. of SE Corner       93.1       21.5       6' Below FSG Natural Ground	THE REPORT OF TH	LABORATOR) PETTIGREW & . 1110 N HOBBS, (575) :	Y TEST REPORT ASSOCIATES, P . GRIMES NM 88240 393-9827	C.A. DEBR. WILLIAN	AASHTO RIS AASHTO RIS A P. HICKS, P.E./L.S.I. A M. HICKS. III, P.E./F
Test Method:       ASTM: D 2922         Project:       BD Jct. 0-17-1 Project No. 2010.1240       Depth       See Below         Date of Test:       August 19, 2010       Depth of Probe:       6"         Test No.       Location       *Dry Density % Max       % Moisture       Depth         SG 1       15' N. & 12' W. of SE Corner       83.1       24.0       5' Below FSG Natural Ground         RT SG 1       15' N. & 12' W. of SE Corner       87.4       27.8       5' Below FSG Natural Ground         2RT SG 1       15' N. & 12' W. of SE Corner       93.1       21.5       5' Below FSG Natural Ground	То:	Rice Operating Company 122 W. Taylor Hobbs, NM 88240	Materiai:	Wallach Red Clay	
Project:       BD Jdt. 0-17-1 Project No. 2010.1240         Date of Test:       August 19, 2010       Depth       See Below         Depth of Probe:       6"         Test No.       Location <sup>6</sup> Max       % Moisture       Depth         SG 1       15' N. & 12' W. of SE Corner       83.1       24.0       5' Below FSG Natural Ground         RT SG 1       15' N. & 12' W. of SE Corner       87.4       27.8       5' Below FSG Natural Ground         2RT SG 1       15' N. & 12' W. of SE Corner       93.1       21.5       5' Below FSG Natural Ground			Test Method:	ASTM: D 2922	
Date of Test:       August 19, 2010       Depth:       See Below         Depth of Probe:       6"         Test No.       Location       'Dry Density % Max       Moisture       Depth         SG 1       15' N. & 12' W. of SE Corner       83.1       24.0       5' Below FSG Natural Ground         RT SG 1       15' N. & 12' W. of SE Corner       87.4       27.8       5' Below FSG Natural Ground         2RT SG 1       15' N. & 12' W. of SE Corner       '93.1       21.5       5' Below FSG Natural Ground	Project:	BD Jct. O-17-1 Project No. 2010.1240			
Depth of Probe:6"Test No.Location*Dry Density % MaxMoletureDepthSG 115' N. & 12' W. of SE Corner83.124.05' Below FSG Natural GroundRT SG 115' N. & 12' W. of SE Corner87.427.85' Below FSG Natural Ground2RT SG 115' N. & 12' W. of SE Corner93.121.55' Below FSG Natural Ground	Date of Test:	August 19, 2010	Depth:	See Below	
Test No.Location*Dry Density % Max% MoistureDepthSG 115' N. & 12' W. of SE Corner83.124.05' Below FSG Natural GroundRT SG 115' N. & 12' W. of SE Corner87.427.85' Below FSG Natural Ground2RT SG 115' N. & 12' W. of SE Corner93.121.55' Below FSG Natural Ground			Depth of Prob	e: 6"	
SG 115' N. & 12' W. of SE Corner83.124.05' Below FSG Natural GroundRT SG 115' N. & 12' W. of SE Corner87.427.85' Below FSG Natural Ground2RT SG 115' N. & 12' W. of SE Corner93.121.55' Below FSG Natural Ground	Test No.	Location	*Dry Density % Max	% Moisture	Depth
RT SG 1       15' N. & 12' W. of SE Corner       87.4       27.8       5' Below FSG Natural Ground         2RT SG 1       15' N. & 12' W. of SE Corner       93.1       21.5       5' Below FSG Natural Ground	SG 1	15' N. & 12' W. of SE Corner	83.1	24.0	5' Below FSG Natural Ground
2RT SG 1 15' N. & 12' W. of SE Corner 93.1 21.5 5' Below FSG Natural Ground	RT SG 1	15' N. & 12' W. of SE Corner	87.4	27.8	5' Below FSG Natural Ground
	2RT SG 1	15' N. & 12' W. of SE Corner	<sup>.</sup> 93.1	21.5	5' Below FSG Natural Ground

and the second

and the second

The second second

September 19

1949 - B

State State

A Contract

and the second

States - 1 and

the second second

21-121-67.0. 947-32-045

A BURNES

Control Density:	101.1 ASTM: D 698	Optimum Molsture: 19.0%
<b>Required</b> Compact	lon: 90-95%	Densometer ID: 5071 PETTIGREW & ASSOCIATES
Lab No.:	10 8749-8752	
Copies To:	Rice Operating	BY: Cricam Hart
		BY: Reported Hicks P.E.



			Office: 210 Beach 707 West C	: (903) 595-4421 Street otton St.	Home Off Lab: (903) 59 <u>Area Offices</u> Texarkana, / Longview, T2	<b>fice - 1717 E</b> Tyler, Tr 9 <b>5-6402</b> Fax AR 71854 X 75604	ast Erwin Street exas 75702-6398 (; (903) 595-6113 (870) 772-0013 (903) 758-0402
Acct ID: PI	ETTIGREW	File ID	C4535-101		Date Sample	d: 08/19/20	10
Report Date: 08	8/27/2010				Sampled By:	Client	د
Project: Pe	ettigrew Associates -	Project #2010	0.1026, Hobbs, N	M	By Order Of:	Erica Hai	t
Location: M	aterial Origin: Wallac	ch Pit, Sample	ELocation: N/G		Order Numbe	ər:	2
Client: Po	ettigrew & Associate	s, Hobbs, NM					
Contractor: N	ot Given		<u> </u>				
REPORT: FL	LEXIBLE WALL PE	RMEAMETER			LAB NO:	9881	
S. Marine States	وروه المحمد مرتبي سالي	حديمين بالبعد فابرد	المستعراب	~.	Test Method:	See Belo	W
······································			TEST RESI	JLTS	Report No: Page 1 of 2	1-1201-0	00005
Project : Ric. Date: 8/24 Project No. : C 4 Boring No.: Sample: 988 Depth (ft): Other Location: We Material Descript	e Operating Project 20 5/2010 535-101 Pern 11 11 11ach Pit 11iach Pit 11ion : Red Clay	10.1028 for Pet Panel 1 10meter Data ap = ( aa = 1 M1 = ( M2 = (Cilients Sample)	ttigrew & Associate Number : 0.031416 cm2 0.767120 cm2 0.030180 C = 1.040953 T = No 10 5904-5908	8. P.A., Hobbs, P 2; ASTM Bet M Groury to Pipet R 5 at 0.000448509 0.203785086 Lab Molded @	NM D 5084 Equilibrium Pipet Rp Annulus Ra ~95% ASTM D	1.8 6.7 1.5 0 698	cm 3 cm 3 cm 3
SAMPLE DATA							
Wet Wt. sample Tare or ring Wt. Wet Wt: of Samp Dlameter : Length : Area: Volume : Unit Wt.(wet): Unit Wt.(dry):	+ ring or tare : : 2.72 in 2.75 in 5.79 in^2 15.94 in^3 121.23 pcf 96.38 pcf	507.52         g           0.0         g           507.52         g           6.90         cm 2           6.88         cm           37.35         cm 2           261.23         cm 3           1.84         g/cm           1.53         g/cm	^3 ^3	Before Test Tare No.: Wat Wt.+tare: Dry Wt.+tare: Tare W t: Dry Wt.: Water Wt.: ;% moist.:	T 9 850.96 716.43 220.51 495.92 134.53 27.1	After Test Tare No.: Wet WI.+tare Dry WI.+tare Tare W t: Dry WI.: Water WI.: % moist.:	T 2 728.58 621.60 216.59 405.01 108.98 26.4
Assumed Specific G	Sravity: 2.66	Max Dry Density	y(pcf) = <u>101.1</u>	OMC =	19		
Calculated % satu	aration: <u>95.26</u> Vi	old ratio(e) ≃	ormax = 94.3 0.73	+/-OMC ≕ Porosity (n)≖	0.42		
				. •			
				· .			•
· .			· · · · ·	· ·	z "*****	• •	
Charge: Pettigrew & A	ssociates Attn: Erica Hart aciates, Hoops, NM Attn: Eric	a Hart	<b>.</b>		· -· •		

------

Orig: Pettigrew & Associates, Hobbs, NM Attn: Erica Hart 1-ec Pettigrew & Associates, Hobbs, NM Attn: Erica Hart

E-Mail: ehart@pattigrew.us

Sector Sector

1 4 A ......

Section 2

S. reaging the state

121

A the grant of

1.00

1 1 1

2. 5. 1. 2.

The second s

100 Mar

のである

100 A Dur

THE P.

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OSSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR OD 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.

							Home Off	ice - 1717 Eas	t Erwin Stree
					Office: (	903) 595-4421	Lab: (903) 59	Tyler, Tex 5-6402 Fax: (	as 76702-639 (903) 595-611
					210 Beach St	reat	Texerkens A	R 71854	(870) 772-0013
					707 West Col	ton St.	Longview, D	( 75604	(903) 758-0402
1999 S.									
Acct ID:	PETTIGRE	W	F	ile ID: C453	5-101		Date Sample	d: 08/19/2010	)
Report Date	: 08/27/2010	)					Sampled By:	Client	
Project	Pettigrew /	- Associates	- Project #	2010.1026.	Hobbs, NM	1	By Order Of:	Frica Hart	
ocation <sup>.</sup>	Material O	rigin <sup>.</sup> Walls	ach Pit Sa	mple Locat	ion' N/G		Order Numbe		
Client:	Pettigrew	R Associat	es Hobhs	NM					
Contractor	Not Given								
	CI CYIDI C			TED	<u> </u>			0991	
REFURI.	FLEAIDLE					·	LAD NU. Taat Mathad	See Below	l
· · · · · · · · · · · · · · · · · · ·							lest Method:	See Below	
				Т	EST RESU	LTS	Report No:	1-1201-00	0005
					,		Page 2 of 2		
TEST READ	INGS						· .		
Z1(Mercury h	leight Differer	nce @ t1):	5.1	cm	Hydraulic (	Gradient =	9.20		
		_							
Date	elapsed t	Z		temp	0	K	k		
8/23/2010	(\$800008)	(pipet (@ t) 6 1	0.5571305			(CM/SEC)	(π./day)	Reset = -	
012012010	444	0.1	0.0071000	25	0.889	4.78E-08	4 255 04		
8/23/2010	1200	6	0.00/1000		0.000		1.336-04		
8/23/2010 8/23/2010	1200 1500	6 5.9	0.8571305	25	0.889	4.46E-08	1.26E-04		
8/23/2010 8/23/2010 8/23/2010	1200 1500 1800	6 5.9 5.8	0.8571305	25 25	0.889	4.46E-08 4.25E-08	1.26E-04 1.21E-04		
8/23/2010 8/23/2010 8/23/2010	1200 1500 1800	6 5.9 5.8	0.8571305 0.7571305 0.8571305	25 25	0.889	4.46E-08 4.25E-08	1.35E-04 1.26E-04 1.21E-04		
8/23/2010 8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8	0.8571305 0.7571305 0.8571305	25 25	0.889	4.46E-08 4.25E-08	1.35E-04 1.26E-04 1.21E-04	25 %	
8/23/2010 8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6	0.8571305 0.7571305 0.8571305 4.62E-08	25 25 cm/sec	0.889 0.889	4.46E-08 4.25E-08 Acceptance c	1.35E-04 1.26E-04 1.21E-04	25 %	
8/23/2010 8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8 ka = <u>ki</u> k1 =	0.6571305 0.7571305 0.8571305 4.62E-08 5.01E-08	25 25 cm/sec cm/sec	0.889 0.889 0.889 <u>Vm</u> 8.3	4.46E-08 4.25E-08 Acceptance c	1.35E-04 1.26E-04 1.21E-04 iteria = Vm =	25 % <u> ka-ki </u> x 1	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8 ka = <u>ki</u> k1 = k2 =	0.8571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08	25 25 cm/sec cm/sec cm/sec	0.889 0.889 0.889 <u>Vm</u> 8.3 3.3	4.46E-08 4.25E-08 Acceptance cl %	1.35E-04 1.26E-04 1.21E-04 riteria = Vm =	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8 ka = k <u>i</u> k1 = k2 = k3 =	0.6571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08 4.78E-08 4.46E-08	25 25 cm/sec cm/sec cm/sec cm/sec cm/sec	0.889 0.889 0.889 <u>Vm</u> 8.3 3.3 3.6	4.46E-08 4.25E-08 Acceptance cl % %	1.35E-04 1.26E-04 1.21E-04	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8 ka = ki k1 = k2 = k3 = k4 =	0.0571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08 4.46E-08 4.25E-08	25 25 cm/sec cm/sec cm/sec cm/sec cm/sec	0.889 0.889 0.889 0.889 0.889 0.889	4.46E-08 4.25E-08 Acceptance c % % %	1.35E-04 1.26E-04 1.21E-04	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800	6 5.9 5.8 ka = ki k1 = k2 = k3 = k4 = nductivity	0.0571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08 4.46E-08 4.25E-08 k =	25 25 25 cm/sec cm/sec cm/sec cm/sec cm/sec 25 25 25 25 25 25 25 25 25 25 25 25 25	0.889 0.889 0.889 <u>Vm</u> 8.3 3.3 3.6 8.0 cm/sec	4.46E-08 4.25E-08 Acceptance c % % % % 1.31E-04	1.352-04 1.26E-04 1.21E-04 iteria = Vm =	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800 Hydraulic co Void Ratio	6 5.9 5.8 ka = k1 = k2 = k3 = k4 = nductivity	0.6571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08 4.46E-08 4.25E-08 k = e =	25 25 Cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec	0.889 0.889 0.889 <u>Vm</u> 8.3 3.3 3.6 8.0 cm/sec	4.46E-08 4.25E-08 Acceptance c % % % % % 1.31E-04	1.352-04 1.26E-04 1.21E-04 riteria = Vm =	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800 Hydrauilc co Void Ratio Porosity	6 5.9 5.8 ka = k1 k1 = k2 = k3 = k4 = nductivity	0.0571305 0.7571305 0.8571305 4.62E-08 5.01E-08 4.78E-08 4.46E-08 4.25E-08 k = e = n =	25 25 25 cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec	0.889 0.889 0.889 <u>Vm</u> 8.3 3.3 3.6 8.0 cm/sec	4.46E-08 4.25E-08 Acceptance cl % % % % %	1.35E-04 1.26E-04 1.21E-04 iteria = Vm = ft/day	25 % <u> ka-ki </u> x 1 ka	00
8/23/2010 8/23/2010 8/23/2010 SUMMARY	1200 1500 1800 Hydrauilc co Void Ratio Porosity Bulk Density Water Conte	6 5.9 5.8 ka = ki k1 = k2 = k3 = k4 = nductivity	0.0571305 0.7571305 0.8571305 0.8571305 4.62E-08 4.78E-08 4.25E-08 4.25E-08 k = e = n =	25 25 25 cm/sec cm/sec cm/sec cm/sec cm/sec cm/sec 0.73 0.42 1.94 0.42	0.889 0.889	4.46E-08 4.25E-08 Acceptance c % % % % % 1.31E-04	1.352-04 1.26E-04 1.21E-04 iteria = Vm = ft/day pcf	25 % <u> ka-ki </u> x 1 ka	00

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

.

100 Lan

Carter and

100 C

ALC AL

A CONTENT

4 . 2 . 4 . A

200

Superior Superior

A VALUE A VALUE A

the second

And a state

Call of the second

Ser and

State Barry

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.



Contraction of the second

Same and

Sec. 2

学習で

の新聞

1.1

以外載

States of

State State

June wy

Service.

and the second

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

### **REVEGETATION FORM**

1. General I	nformatio	<u>n</u>						<u></u>	
Site name:	BD 0-17	-l vent							
U/L	Section	Township	Range	Co	unty	Latitude	•	Longitude	
0	17	21S	37E	L	ea	32.473		-103.181	
Contact Name:	Hack C	Conder							
Email:	hconder@	<u>Driceswd.com</u>							
Site size: 7050		square feet	Map o	letail of site	attached				
Additional infor	mation:								
2. Soils	*Do no	ot rip caliche subsoil	s: caliche roci	s brought to	the surfa	ce by ripping sha	ll be remo	wed.	
Salvaged from site Bioremediated I Imported Blended Depth (in):									
Texture: blow	sand	Describe soil & sul	osoil:		1				
		fine grain sand							
Soil prep methods: Rip Depth(in): Disc Depth (in): Rollerpack									
Date completed	·····					·····			
9/16/2010									
3. Bioremed	iation	······							
Fertilizer				Hay 🛛			Other 🗌		
Туре:				Peanut			Describ	Describe:	
				hay					
Lbs/acre:									
4. Seeding	*Attaci	h seed bag tags to thi	s form. Seed t	oag tags shall	contain	the site nume and	<u>IS-T-R.</u>		
Justom seed mi	x 🖾   Pro	Prescribed mix Seed mix			name:			Seeding date:	
			8 lbs lea county				9/16/2010		
57			mix, 10 lbs	rye					
Sroadcast 🔯									
vietnou: spreau			D [7]	W-+ []					
Son conditions (				wet					
motos anached		Observations:							
No. 10		l					·		
5. Certificati	ion Thereby	certify that the inform	ation in this for	n and attachme	nts is true	and complete to th	e best of m	v knowled∞e and belief	
Name: Titl				e:				Date:	
Jordan				vironmental				9/22/2010	
Woodfin				Fechnician					
		( . )	0					_L	
signature: (	100	dan Woo	def-						
	/		V						

### **APPENDIX B**

,

Participants

an and a second

States

ないない

Land B. W.

1. Carlor

38 P.

28-1-2-40

C. States

States.

「「「「

記録

語の語

Service -

State State

きょうできょう

### BD O-17-1 vent (1R426-12) Unit O, Section 17, T-21-S, R-37-E



and the second se

site prior to excavation, facing north



excavating a 38'x38' area, facing northeast



hauling off excavated soil, facing east



installing clay barrier, facing north (8/18/2010)



final excavation, facing southwest



clay compaction test (8/19/2010)



backfilling the excavation, facing east

and the second se

States and



hauling in clean soil blended with hay, facing southwest (9/14/2010)



tilling in the clean soil blended with hay, facing southeast (9/16/2010)



seeding the backfilled site, facing southeast (9/16/2010)



tilling in seed, facing northeast (9/16/2010)



site complete with vegetation beginning to grow, facing east

### Hansen, Edward J., EMNRD

From: Sent: To: Cc: Subject: Hack Conder [hconder@riceswd.com] Monday, October 04, 2010 6:42 PM Hansen, Edward J., EMNRD Katie Jones BD 0-17-1 IR426-12

M. Hansen,

On October 9-10 2006 Rice Operating drilled five soil bores at BD O-17-1 (NMOCD Case # IR426-12) according to the August 10, 2006 approved ICP. Our records indicate that all borings were backfilled with 100% Bentonite chips a total of forty fifty pound bags were utilized for backfilling. If you have any questions or concerns please let me know.

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