1R - 426-262

REPORTS

DATE:

10-21-10

1R426-262

BD Jct. A-24

2010

RECEIVED

APR - 1 2011

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

CLOSURE

RICE OPERATING COMPANY
JUNCTION BOX FINAL REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length 6 ft.	Width 4 ft.	Depth 4 ft.
Blinebry-Drinkard (BD)	Jct. A-24	A	24	21S	37E	Lea	moved 27' south		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER William Owen Stephans OTHER ___

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

Date Started 1/5/2010 Date Completed 5/13/2010 OCD Witness no

Soil Excavated 266.7 cubic yards Excavation Length 30 Width 20 Depth 12 feet

Soil Disposed 156 cubic yards Offsite Facility Sundance Services Location Eunice, NM

FINAL ANALYTICAL RESULTS:

Sample Date 1/13/2010, 5/13/2010 **Sample Depth** 12 ft., 20 ft., 40 ft.

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	Chlorides mg/kg
4-WALL COMP.	3.0	<10.0	<10.0	1,980
BOTTOM COMP.	1.3	<10.0	24.5	2,400
BACKFILL COMP.	1.0	<10.0	<10.0	1,960
SB # 1 @ 20 ft.	0.7	<10.0	<10.0	2,560
SB # 1 @ 40 ft.	0.5	<10.0	<10.0	144

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	1651
bottom comp.	12'	2134
backfill comp.	n/a	1,758
SB at 25' east of the junction.	15'	1,125
	20'	2,459
	25'	1,214
	30'	335
	35'	235
	40'	208

General Description of Remedial Action: *This junction box was addressed during* the pipeline replacement/upgrade program. A new, watertight junction box was built 27 ft south of the former. After the box was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals creating a 30x20x12-ft deep excavation. Chloride field tests performed on each sample yielded elevated chloride concentration that did not relent with depth. Organic vapors were measured using a PID which yielded low concentrations. Representative composite samples were sent to a commercial laboratory for analysis. The excavated soil was blended on site and returned to the excavation up to 5 ft below ground surface (BGS). At 5-4 ft. BGS, a 1-ft. thick clay barrier was installed with a compaction test performed on 1/18/2010. Clean, imported soil was used to backfill remaining excavation to ground surface and contoured to the surrounding area. On 1/20/2010, the site was seeded with a blend of native vegetation and is expected to return to a productive capacity at a normal rate. An identification plate was placed on the surface at the former junction box site to mark presence of clay below. To further investigate depth of chloride presence, a soil bore was initiated on 5/13/2010 at 25 ft. east of the former junction box. The boring was advanced to a depth of 80 ft. BGS with soil samples collected every 5 ft. between 15 ft.-40 ft. Chloride field test yielded chloride concentrations that decreased with depth. The 20 ft. and 40 ft. samples were taken to a commercial laboratory which confirmed decreasing chloride concentrations with depth and low organics. Since the hydrology of the area is limited and estimated groundwater would be encountered around 46 ft. the soil bore was advanced to 80 ft. BGS. The bore was left open for over 48 hours and hole was gauged with a solinist water level meter which indicated no water was present within bore hole. The entire bore hole was plugged with bentonite to ground surface.

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

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

SITE SUPERVISOR Robert Egans SIGNATURE Robert Egans COMPANY RICE OPERATING COMPANY

REPORT ASSEMBLED BY Larry Bruce Baker Jr. INITIAL LBB

PROJECT LEADER Larry Bruce Baker Jr. SIGNATURE Larry Bruce Baker Jr. DATE 10-21-10

BD Jct. A-24

Unit A, Section 24, T21S, R37E

Delineation trench being excavated 1/05/2010

Sample being collected 1/05/2010

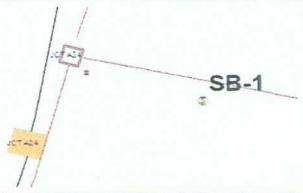
Backfilling excavation above clay liner 1/18/2010

Seeding site 1/20/2010

Drilling the soil bore 5/13/2010

Soil Bore # 1 plugged with bentonite 5/18/2010

Logger:	Jordan Woodfin
Driller:	Harrison & Cooper
Consultant:	Rice Operating
Drilling Method	Air Rotary
Start Date:	5/13/2010
End Date:	5/13/2010



RICE OPERATING COMPANY ROC SINCE 1955

Project Name: BD Jct A-24 **Well ID:** SB # 1

Location: UL/A Sec 24 T21S R37E

Lat: N 32* 28' 11.205" **County:** Lea

Long: W 103* 6' 30.585" **State:** NM

Comments: All samples from cuttings. Located 25' to the East of the former junction box.

Drafted by: Jordan Woodfin

TD = 80 ft DGW = None

Depth (feet)	chloride field tests	LAB	PID	Description
				0ft-12ft SAND red (backfill)
5 ft				
10 ft				
				12ft-25ft SAND red
15 ft	1125		1.1	
20 ft	2459	Cl- 2560	0.7	
		GRO	<10	
		DRO	<10	
				25ft-30ft SAND white
25 ft	1214		0.7	
30 ft	335		0.7	
				30ft-75ft SAND red
35 ft	235		0.6	
40 ft	208	Cl- 144	0.5	
		GRO	<10	
		DRO	<10	

Lithology

Well Construction: bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
50 ft						
55 ft						
60 ft						
65 ft						
70 ft						
75 ft						
				75 - 80 ft CLAY red, dry		
80 ft						

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
112 W. TAYLOR
HOBBS, NM 88240

Receiving Date: 05/13/10
Reporting Date: 05/18/10
Project Number: NOT GIVEN
Project Name: BD JCT A-24 (21/37)
Project Location: BD JCT A-24 (21/37)

Sampling Date: 05/13/10
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JH
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		05/17/10	05/17/10	05/17/10
H19893-1	SB#1 @ 20FT.	<10.0	<10.0	2,560
H19893-2	SB#1 @ 40FT.	<10.0	<10.0	144
Quality Control		505	495	500
True Value QC		500	500	500
% Recovery		101	99.0	100
Relative Percent Difference		2.7	0.2	< 0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B
*Analyses performed on 1:4 w:v aqueous extracts.
Reported on wet weight.

Chemist

05/19/10
Date

H19893 TCL RICE

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 #: 393-9174	Fax #: 397-1471	Address:	
Project #:	Project Owner:	City:	
Project Name: BD Jct A-24 21/37		State: Zip:	
Project Location: BD Jct A-24 21/37		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							
H19893-1	SB #1 @ 20ft		1			✓					✓		5/13/10	01:40	✓	✓										
2	SB #1 @ 40ft		1			✓					✓		5/13/10	01:50	✓	✓										

COPY

Relinquished By: Jordan Woodfin	Date:	Received By:		Phone Result: ☐ Yes ☑ No	Add'l Phone #:
	Time:			Fax Result: ☐ Yes ☑ No	Add'l Fax #:
Relinquished By:	Date: 5/13/10	Received By: Jodi Henson		REMARKS: email results	
	Time: 4:50			Hconder@riceswd.com; Kjones@riceswd.com; Jwoodfin@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 Tayor Hobbs, NM 88240
PHONE: (575) 393-9174 FAX: (575) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

Check Model Number:

	Model: PGM 7300	Serial No: 590-000183			Model: PGM 7600	Serial No: 110-023920
	Model: PGM 7300	Serial No: 590-000508			Model: PGM 7600	Serial No: 110-013744
✓	Model: PGM 7300	Serial No: 590-000504			Model: PGM 7600	Serial No: 110-013676

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 92 7041	EXPIRATION DATE: 11-10-12
FILL DATE: 11-17-09	METER READING ACCURACY: 100

ACCURACY: +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	A-24	A	24	21	37

SAMPLE ID	PID	SAMPLE ID	PID
SB #1			
15'	1.1		
20'	0.7		
25'	0.7		
30'	0.7		
35'	0.6		
40'	0.5		
		COPY	

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

SIGNATUE: Jordan Woody DATE: 5-13-10

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: BRUCE BAKER
122 W. TAYLOR
HOBBS, NM 88240

Receiving Date: 01/13/10
Reporting Date:01/14/10
Project Number: NOT GIVEN
Project Name: BD JCT A-24 21/37
Project Location: NOT GIVEN

Sampling Date: 01/13/10
Sample Type: SOIL
Sample Condition: INTACT
Sample Received By: JH
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		01/14/10	01/14/10	01/14/10
H19051-1	5 PT BOTTOM COMP @ 12'	<10.0	24.5	2,400
H19051-2	4 WALL COMPOSITE 20x30	<10.0	<10.0	1,980
H19051-3	BLENDED BACKFILL	<10.0	<10.0	1,960
Quality Control		562	539	500
True Value QC		500	500	500
% Recovery		112	108	100
Relative Percent Difference		21.3**	1.0	<0.1

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B
*Analyses performed on 1:4 w:v aqueous extracts.
Reported on wet weight.
**RPD outside historical limits, but percent recoveries within acceptable method limits.

COPY

Chemist

01/14/10
Date

H19051 TCL RICE

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: Bruce Baker		P.O. #:	
Address: 122 W Taylor		Company:	
City: Hobbs	State: NM Zip: 88240	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name: BD JcT 14-24 21137		State: Zip:	
Project Location:		Phone #:	
Sampler Name: Robert Ross		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-	TPH 8015m							
H19051																									
-1	5pt Bottom Comp @12	C	1			✓					✓		1-13-2010	1:14pm			✓	✓							
-2	4 Wall Composite 20x30	C	1			✓					✓		1-13-2010	2:12pm			✓	✓		Rush					
-3	Blended Backfill	C	1			✓					✓		1-13-2010	2:34			✓	✓							

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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:	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time:		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By: Robert Ross	Date: 1/13/10 Time: 5:40	Received By: Jodi Henson	REMARKS: Email Results to jpurvis@ricesad.com bbaker@ricesad.com, regans@ricesad.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

9°C #26

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:

	Model: PGM 7300	Serial No: 590-000183			Model: PGM 7600	Serial No: 110-023920
✓	Model: PGM 7300	Serial No: 590-000508			Model: PGM 7600	Serial No: 110-013744
	Model: PGM 7300	Serial No: 590-000504			Model: PGM 7600	Serial No: 110-013676

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 924503	EXPIRATION DATE: 07-05-2010
FILL DATE: 1-7-09	METER READING ACCURACY: 100.2 PPM

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	A-24	A	24	T21S	R37S

4 Wall Composite — Bottom 5PT Composite

SAMPLE ID	PID	SAMPLE ID	PID
4 Wall Composite	3.0	Bottom 5PT Composite	1.3
Blended Backfill	1.0		

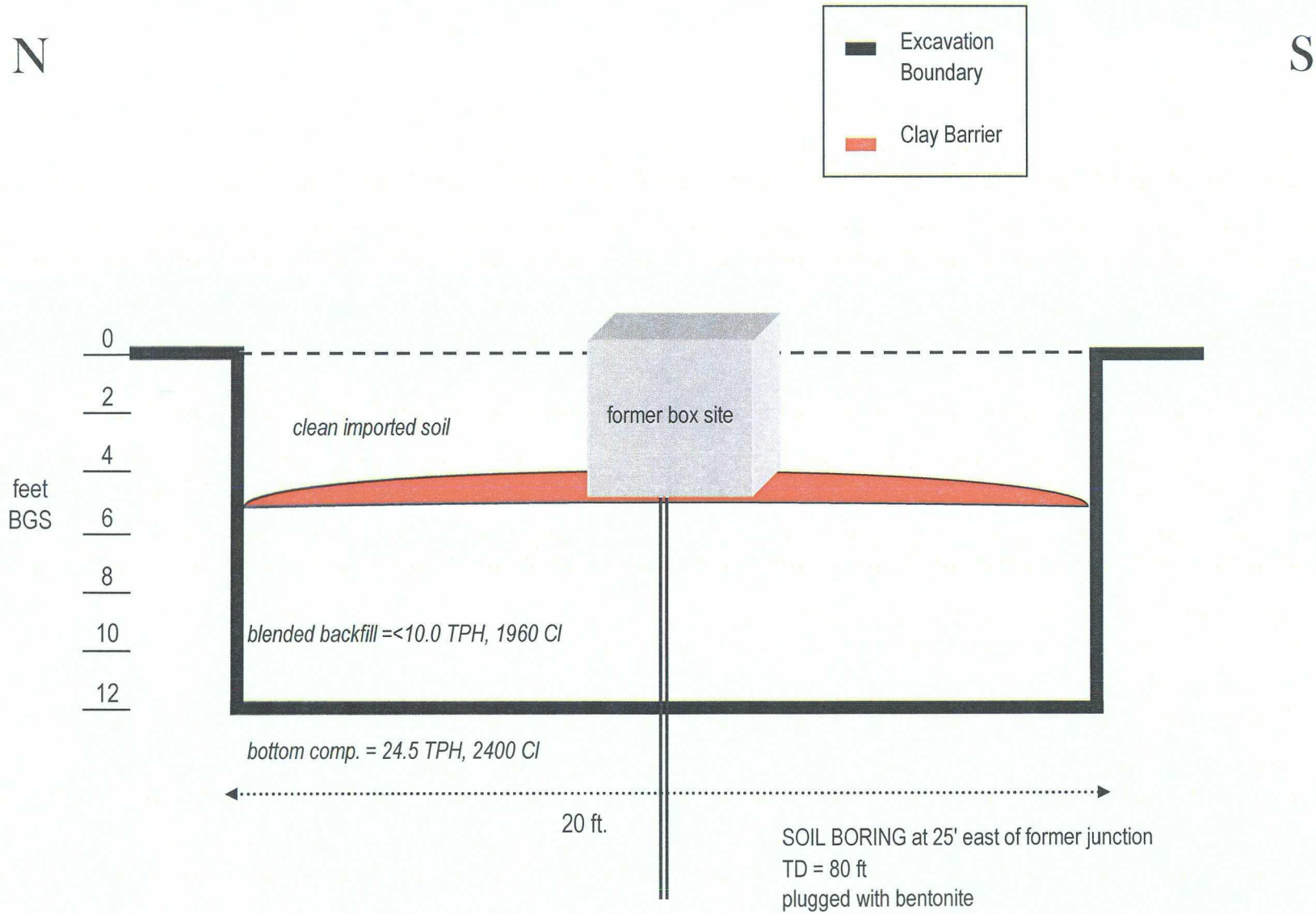
COPY

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

SIGNATUE: Robert Rose DATE: 1-13-2010

BD Jct. A-24
Unit 'A', Sec. 24, T21S, R37E

Excavation Cross-Section



LABORATORY TEST REPORT
PETTIGREW & ASSOCIATES, P.A.
1110 N. GRIMES
HOBBS, NM 88240
(575) 393-9827

DEBRA P. HICKS, P.E./L.S.U.
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 Junction A-24 (21/37) Project No. 2010.1013		
Date of Test:	January 18, 2010	**Depth:**	See Below
		Depth of Probe:	12"

Test No.	Location	*Dry Density % Max	% Moisture	Depth
SG 1	BD Jct. A-24 (21/37) - 10' S. & 15' W. of NE Corner of Pad	93.6	14.7	4' Below FSG

COPY

Control Density:	100.7 ASTM: D 698	**Optimum Moisture:**	20.7%
Required Compaction:	90-95%	**Densometer ID:**	5572
Lab No.:	10 1223-1224		PETTIGREW & ASSOCIATES
Copies To:	Rice Operating	**BY:**	Erica Mahan
		BY:	P.E.

ETTL Engineers & Consultants Inc.

GEOTECHNICAL * MATERIALS * ENVIRONMENTAL * DRILLING * LANDFILLS

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

Project : Pettigrew & Associates, P.A., Hobbs, NM - Project #2010.1028 Report No: 1-1201-000003
Date: 2/5/2010 Panel Number : P 3 ; ASTM D 5084
Project No. : C 4535-101 Permometer Data

Boring No.:		ap =	0.031416 cm2	Set Mercury to Direct Reading	Equilibrium	1.8	cm3
Sample:	9540	aa =	0.767120 cm2		Pipet Rp	6.7	cm3
Depth (ft):		M1 =	0.030180	C = 0.000434704	Annulus Ra	1.6	cm3
Other Location:	Wallach Plant Eunice	M2 =	1.040953	T = 0.203790628			

Material Description : Red Clay (Your Sample No 10 1422-1424) Compacted D 698 at 95% of your M/D curve (wet side)

SAMPLE DATA

					Before Test		After Test	
Wet Wt. sample + ring or tare :			581.37	g				
Tare or ring Wt. :			0.0	g				
Wet Wt. of Sample :			581.37	g	Tare No.:	T 5	Tare No.:	T 3
Diameter :	2.77	in	7.06	cm2	Wet Wt.+tare:	731.90	Wet Wt.+tare:	800.51
Length :	2.79	in	7.08	cm	Dry Wt.+tare:	641.76	Dry Wt.+tare:	690.35
Area:	6.04	in^2	38.99	cm2	Tare Wt:	218.78	Tare Wt:	220.69
Volume :	16.84	in^3	275.92	cm3	Dry Wt.:	422.97	Dry Wt.:	469.66
Unit Wt.(wet):	126.95	pcf	2.03	g/cm^3	Water Wt.:	90.15	Water Wt.:	110.16
Unit Wt.(dry):	104.65	pcf	1.68	g/cm^3	% moist.:	21.3	% moist.:	23.5

Specific Gravity: 2.77 Max Dry Density(pcf) = 104.6948 OMC = 21.3135683
% of max = 100.0 +/- OMC = 0.00
Calculated % saturation: 99.58 Void ratio (e) = 0.65 Porosity (n)= 0.39

TEST READINGS

Z1(Mercury Height Difference @ t1): 6.1 cm Hydraulic Gradient = 9.10

Date	elapsed t (seconds)	Z (pipet @ t)	ΔZπ (cm)	temp (deg C)	α (temp corr)	k (cm/sec)	k (ft./day)	Reset = *
2/5/2010	4740	6	0.656997	25	0.889	1.17E-08	3.32E-05	
2/5/2010	5940	5.9	0.756997	25	0.889	1.09E-08	3.09E-05	
2/5/2010	6900	5.8	0.856997	25	0.889	1.08E-08	3.05E-05	
2/5/2010	7800	5.7	0.956997	25	0.889	1.08E-08	3.05E-05	

SUMMARY

ka = 1.10E-08 cm/sec Acceptance criteria = 25 %

ki		Vm		
k1 =	1.17E-08 cm/sec	6.3	%	Vm = $\frac{\lvert ka-ki \rvert}{ka} \times 100$
k2 =	1.09E-08 cm/sec	1.2	%	
k3 =	1.08E-08 cm/sec	2.5	%	
k4 =	1.08E-08 cm/sec	2.5	%	

Hydraulic conductivity	k =	1.10E-08	cm/sec	3.13E-05	ft/day
Void Ratio	e =	0.88			
Porosity	n =	0.39			
Bulk Density	γ =	2.03	g/cm3	127.0	pcf
Water Content	W =	0.36	cm3/cm3	(at 20 deg C)	
Intrinsic Permeability	kint =	1.13E-13	cm2	(at 20 deg C)	

Liquid Limit LL	
Plastic Limit PL	
Plasticity Index PI	
- 200 Sieve	%
+ No 40 Sieve	%
+ No 4 Sieve	%

210 Beech Street
Texarkana, AR 71854
870-772-0013 Phone
870-216-2413 Fax

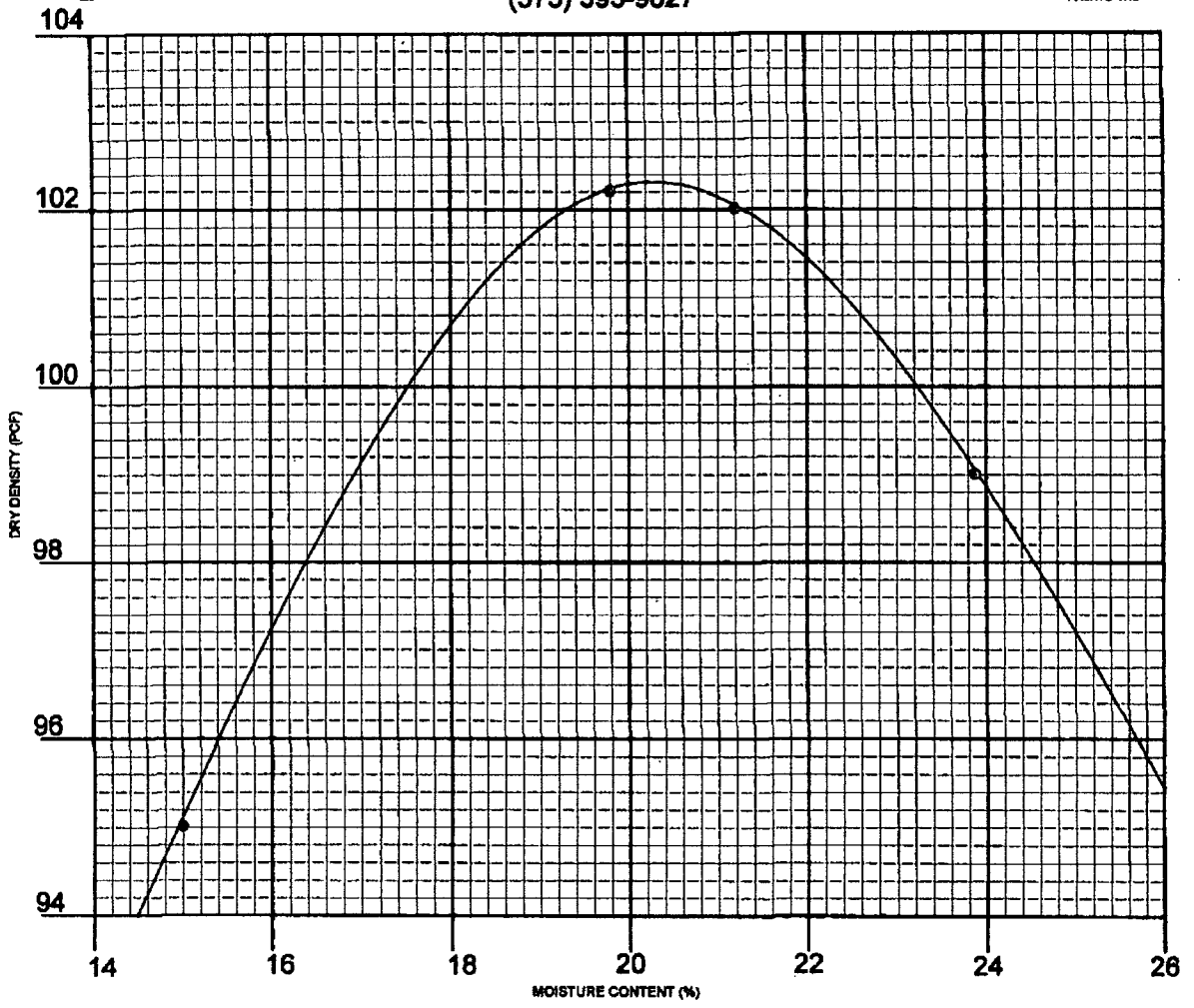
1717 East Erwin
Tyler, Texas 75702
903-595-4421 Phone
903-595-6113 Fax
www.ettinc.com

707 West Cotton Street
Longview, Texas 75604-5505
903-758-0915 Phone
903-758-8245 Fax

*Corrected Copy 2/17/10

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

AASHTO R18



General Information

CLIENT: Rice Operating PROJECT: Project No. 2010.1026

SAMPLE LOCATION: Eunice Wallach Plant

SOIL DESCRIPTION: Wallach Red Clay COPY

SOIL CLASSIFICATION: _____ TEST METHOD: ASTM: D 698

ATTERBERG: LL ___ PI ___ Sampled & Delivered 2/8/10

DATE: 2/12/10 LAB NO. 10 1422-1424

DRY WEIGHT LB/CU. FT. 102.3 MOISTURE CONTENT % 20.3

SIEVE ANALYSIS - % PASSING									

PETTIGREW & ASSOCIATES

BY: Erica M Hart

COPIES: Rice Operating

BY: _____ P.E

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

May 19, 2010

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

Re: BD Junction A-24

Mr. Conder,

On Monday May 17, 2010 soil bore #1 at the BD Junction A-24, Lea County T21S, R37E, Sec 24 Unit Letter A 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 80.12 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

COPY

Electronic Copy: Katie Jones
Jordan Woodfin

BD Jct. A-24

Unit 'A', Sec. 24, T21S, R37E

Soil bore 25 ft. east of former junction box (source)

Depth bgs (ft)	[Cl⁻] ppm
15	1125
20	2459
25	1214
30	335
35	235
40	208

Groundwater = none