1R - 426-270

REPORTS

DATE:

1-29-11

1R426-270

BD G-25 EOL

2010

CLOSURE

RICE OPERATING COMPANY
JUNCTION BOX FINAL REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Blinebry-Drinkard (BD)	G-25 EOL	G	25	21S	37E	Lea	Eliminated		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER Wallach Ranch OTHER ___

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

Date Started 1/6/2010 Date Completed 5/13/2010 OCD Witness no

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

Soil Disposed 108 cubic yards Offsite Facility Sundance Services Location Eunice, NM

FINAL ANALYTICAL RESULTS: **Sample Date** 1/26/2010, 5/13/2010 **Sample Depth** 12 ft., 20 ft., 35 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.	1.2	<10.0	<10.0	496
BOTTOM COMP.	26.6	<10.0	<10.0	1,340
BACKFILL COMP.	0.2	<10.0	<10.0	688
SB # 1 @ 20 ft.	0.0	<10.0	<10.0	384
SB # 1 @ 35 ft.	0.4	<10.0	<10.0	144

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	738
bottom comp.	12'	1,085
backfill comp.	n/a	572
SB #1 10 ft. south of former junction (source)	20'	374
	25'	390
	30'	246
	35'	182

General Description of Remedial Action: This junction and line were eliminated during the pipeline replacement/upgrade program. After the former 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 test 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 for chloride and TPH. The excavated soil was blended on site and returned to the excavation up to 7 ft. below ground surface (BGS). At 7-6 ft. BGS, a 1-ft. thick clay barrier was installed with a compaction test performed on 2/16/2010. Clean, imported soil was used to backfill remaining excavation to ground surface and contoured to the surrounding area. On 2/17/2010, 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 depth of chloride presence, a soil bore was initiated on 5/13/2010 at 10 ft. south of the former junction box. The boring was advanced to a depth of 80 ft. BGS with soil samples collected every 5 ft. between 20 ft.-35 ft. Chloride field test yielded chloride concentrations that decreased with depth. The 20 ft. and 35 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 ground water would be encountered around 45 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 1-29-11

BD G-25 EOL

Unit G, Section 25, T21S, R37E

Delineation trench being excavated 1/14/2010

Collecting Sample 1/14/2010

Covering seed facing North 2/17/2010

Clay marker 2/17/2010

Drililng the bore hole 5/13/10

Plugging the bore hole with Bentonite 5/18/10

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

SB-1

RICE OPERATING COMPANY ROC SINCE 1955

Project Name: BD G-25 EOL **Well ID:** SB # 1

Location: UL/G Sec 25 T21S R37E

Lat: N32* 27' 13.591" **County:** Lea

Long: W103* 6'50.787" **State:** NM

Comments: All samples from cuttings. Located 10' to the South of the former junction box.

Drafted by: Jordan Woodfin

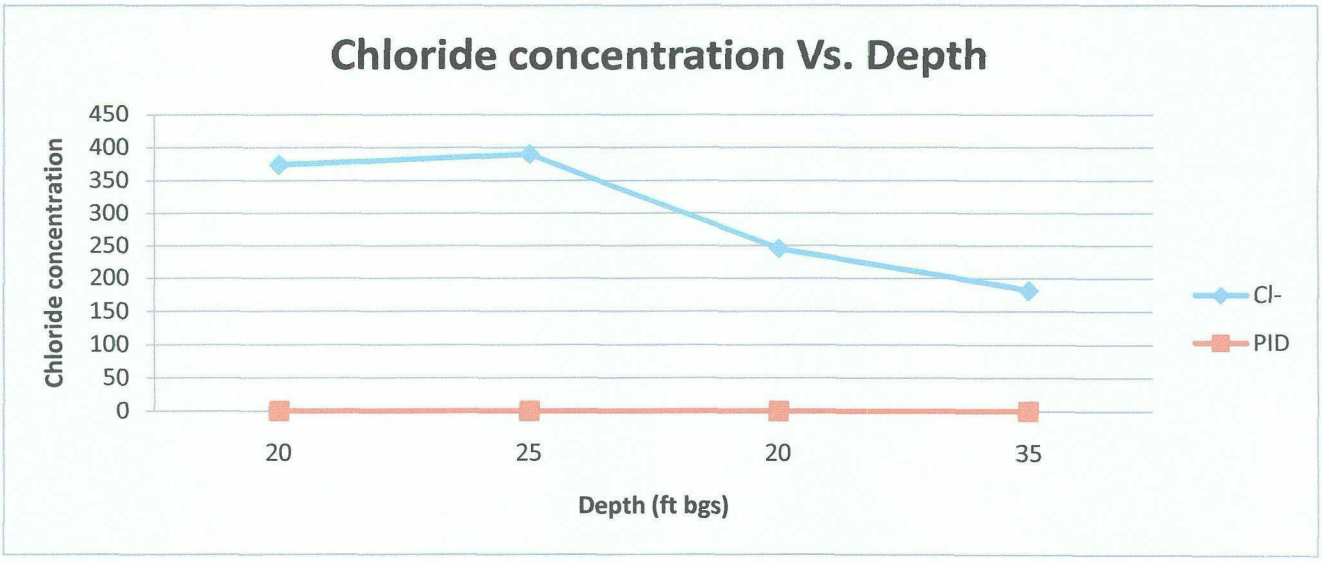
TD = 80 ft Groundwater = None

Depth (feet)	chloride field tests	LAB	PID	Description
				0ft-20ft SAND red (backfill) missed the 15ft sample because of cave in trouble
5 ft				
10 ft				
15 ft				
20 ft	374	Cl- 384	0	20ft-25ft SAND red
		GRO <10		
		DRO <10		
25 ft	390		0	25ft-70ft SANDY CLAY red
30 ft	246		0	
35 ft	182	Cl- 144	0	
		GRO <10		
		DRO <10		
40 ft				
45 ft				

Lithology

Well Construction: bentonite seal

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
				25ft-70ft SANDY CLAY red		
50 ft						
55 ft						
60 ft						
65 ft						
70 ft						
				70ft - 80ft CLAY red, dry		
75 ft						
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 G-25 (21/37)
Project Location: BD JCT G-25 (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
H19892-1	SB#1 @ 20FT.	<10.0	<10.0	384
H19892-2	SB#1 @ 35FT.	<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-ClB
*Analyses performed on 1:4 w:v aqueous extracts.
Reported on wet weight.

Chemist

05/19/10
Date

H19892 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 G-25 21/37	State: Zip:		
Project Location: BD Jct G-25 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							
H19892-1	SB #1 @ 20ft		1			✓					✓		5/13/10	12:30	✓	✓									
2	SB #1 @ 35ft		1			✓					✓		5/13/10	12:38	✓	✓									
							✓																		

COPY

Relinquished By: Jordan Woodfin	Date: Time:	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: 5/13/10 Time: 4:50	Received By: Jodi Henson	Fax Result: ☐ Yes ☑ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: email results Hconder@riceswd.com; Kjones@riceswd.com; Jwoodfin@riceswd.com

† 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 : 927041	EXPIRATION DATE: 11-16-12
FILL DATE: 11-17-09	METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	G-25 FOL	G	25	21S	37E

SAMPLE ID	PID	SAMPLE ID	PID
SB #1			
20'	0		
25'	0		
30'	0		
35'	0.4		
		COPY	

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

SIGNATUE: Jordan Woodfin 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: 01/26/10
Reporting Date:02/01/10
Project Number: NOT GIVEN
Project Name: BD G-25 EOL
Project Location: NOT GIVEN

Sampling Date: 01/26/10
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		01/29/10	01/29/10	01/26/10
H19140-1	5 PT BOTTOM COMP @ 12'	<10.0	<10.0	1,340
H19140-2	4 WALL COMP	<10.0	<10.0	496
H19140-3	BLENDED BACKFILL	<10.0	<10.0	688
Quality Control		542	507	510
True Value QC		500	500	500
% Recovery		108	101	102
Relative Percent Difference		9.6	5.7	2.0

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.

COPY

Chemist

02/02/10
Date

H19140 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 #:	575-393-9174 Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	BD G-25 EOL ck 2/2/10	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Robert Egans	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								
H19140 -1	5pT Bottom Comp @ 12'	C	1			✓					✓		1-26-10	2:05			✓	✓								
-2	H-Wall Comp	C	1			✓					✓		1-26-10	2:40			✓	✓								
-3	Blended backfill	C	1			✓					✓		1-26-10	3:20			✓	✓								

COPY

Relinquished By:	Date: 1-26-10	Received By:		Phone Result: ☐ Yes ☐ No	Add'l Phone #:
Robert Egans	Time:			Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Relinquished By:	Date: 1/26/10	Received By:		REMARKS: E-Mail Results To:	
Robert Egans	Time: 4:45	Jodi Henson		JPurvis@RiceSWO.com	
Delivered By: (Circle One)		Sample Condition	CHECKED BY:	BBaker " " " "	
Sampler - UPS - Bus - Other:		Cool: ☑ Yes ☐ No	Intact: ☑ Yes ☐ No	REgans " " " "	
			(Initials)		

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

#26

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 : 925621	EXPIRATION DATE: 9-27-2012
METER READING ACCURACY: 100 ppm	

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	G-25 EOL	G	25	21	37

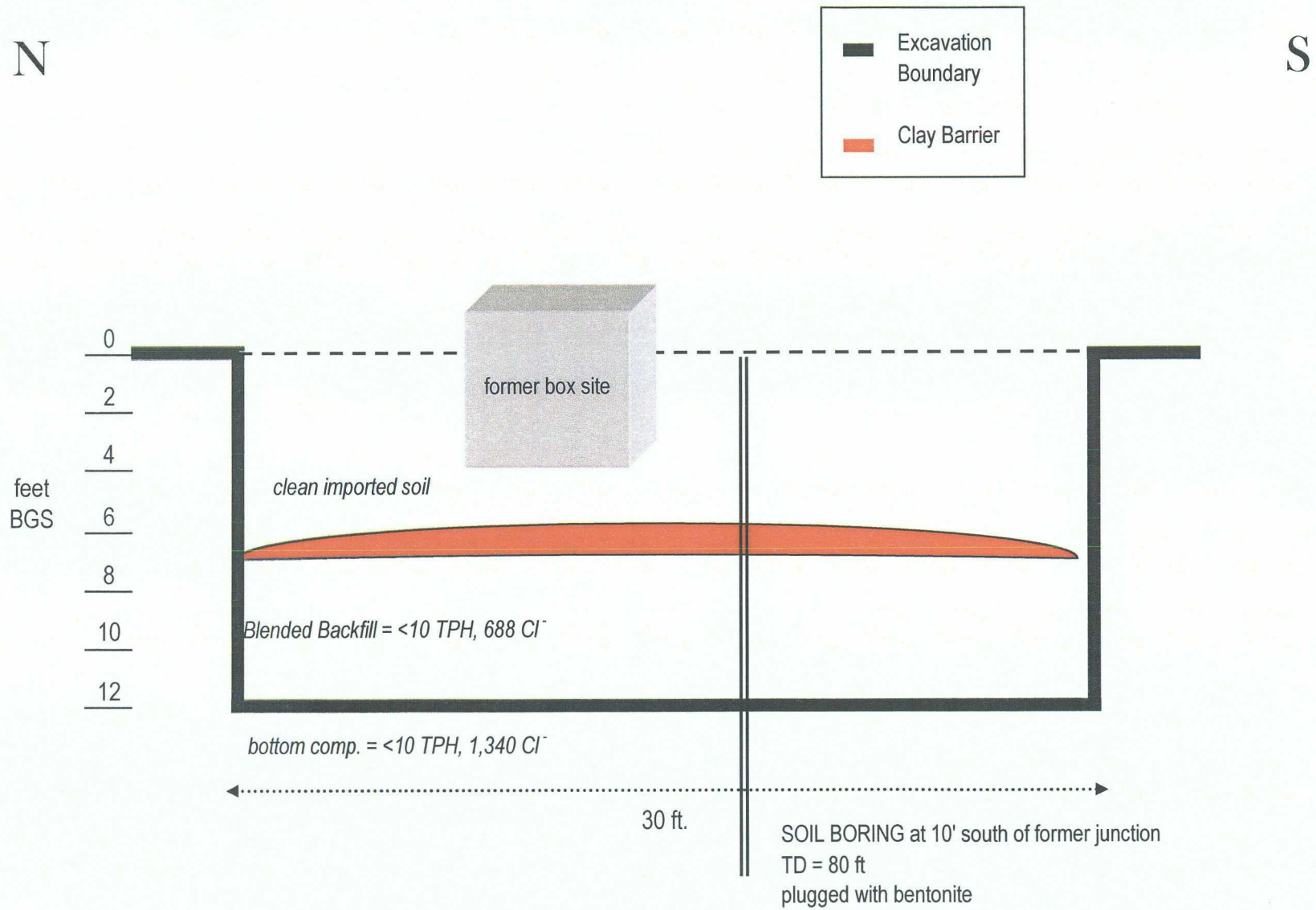
SAMPLE ID	PID	SAMPLE ID	PID
4 Wall Composite	1.2		
5pt Bottom Composite	26.6		
Blended Backfill	0.2		

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

SIGNATURE: Robert Tapia DATE: 1-26-2011

BD G-25 EOL
Unit 'G', Sec. 25, T21S, R37E

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 25 EOL 22/37
Project No. 2010.1052

Date of Test: February 16, 2010

Depth: See Below

Depth of Probe: 12"

Test No.	Location	*Dry Density % Max	% Moisture	Depth
SG 1	Section G BD 25 EOL 22/37 - 8' S. & 10' E. of NW Corner	91.1	18.8	FG

COPY

Control Density: 102.3
ASTM: D 698

Optimum Moisture: 20.3%

Required Compaction: 90-95%

Densometer ID: 5071

Lab No.: 10 1749-1750

PETTIGREW & ASSOCIATES

Copies To: Rice Operating

BY: Erica M Hart

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 #2010.1026 Report No: 1-1201-000003
Date: 2/5/2010 Panel Number : P 3 ; ASTM D 5084
Project No. : C 4635-101 Permometer Data
Boring No.:
Sample: 9540
Depth (ft):
Other Location: Wallach Plant Eunice

ap =	0.031416	cm2	Set Mercury to Bottom Ring	Equilibrium	1.8	cm3
as =	0.767120	cm2		Pipet Rp	6.7	cm3
M1 =	0.030180	C =	0.000434704	Annulus Ra	1.6	cm3
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 :			561.37	g				
Tare or ring Wt. :			0.0	g	Tare No.:	T 5	Tare No.:	T 3
Wet Wt. of Sample :			561.37	g	Wet Wt.+tare:	731.90	Wet Wt.+tare:	800.51
Diameter :	2.77	in	7.06	cm2	Dry Wt.+tare:	641.75	Dry Wt.+tare:	690.35
Length :	2.79	in	7.08	cm	Tare Wt:	218.78	Tare Wt:	220.69
Area:	6.04	in^2	38.99	cm2	Dry Wt.:	422.97	Dry Wt.:	469.66
Volume :	16.84	in^3	276.92	cm3	Water Wt.:	90.15	Water Wt.:	110.16
Unit Wt.(wet):	126.95	pcf	2.03	g/cm^3	% moist.:	21.3	% moist.:	23.5
Unit Wt.(dry):	104.65	pcf	1.68	g/cm^3				

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): 5.1 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	
2/6/2010	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 = |ka-ki| / ka x 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 =	0.65		
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

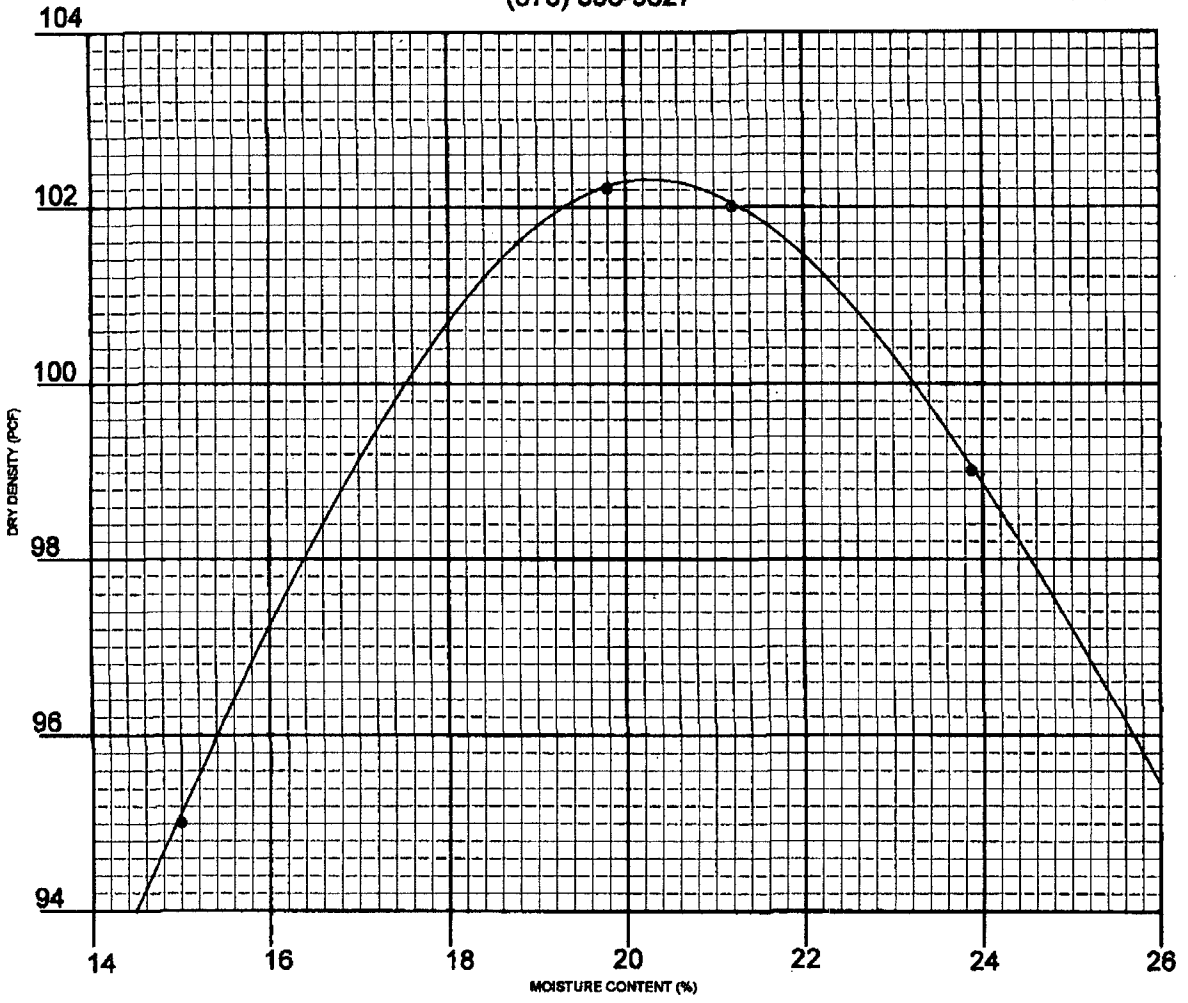
1717 East Erwin
Tyler, Texas 75702
903-595-4421 Phone
903-595-8113 Fax
www.ettinc.com

707 West Cotton Street
Longview, Texas 75604-5509
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

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

COPY

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 G-25

Mr. Conder,

On Monday May 17, 2010 soil bore #1 at the BD Junction G-25, Lea County T21S, R37E, Sec 25 Unit Letter G 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 80.03 feet.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Katie Jones
Jordan Woodfin

COPY

BD G-25 EOL

Unit 'G', Sec. 25, T21S, R37E

Soil bore 10 ft. south of former junction box (source)

Depth bgs (ft)	[Cl⁻] ppm
20	374
25	390
30	246
35	182

Groundwater = none