

1R - 426 - 281

**REPORTS**

**DATE:**

1 - 29 - 11

1R426-281

**BD B-23 EOL**

**2010**

1R426-281  
APR - 1 2011  
Oil Conservation Division  
1220 S. St. Francis Drive  
Denver, CO 80202

**DISCLOSURE**

**RICE OPERATING COMPANY  
JUNCTION BOX DISCLOSURE\* REPORT**

**BOX LOCATION**

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Blinebry-Drinkard (BD)	B-23 EOL	B	23	22S	37E	Lea	8'	6'	4'
							eliminated		

LAND TYPE: BLM \_\_\_ STATE \_\_\_ FEE LANDOWNER Walco Ranch, LLC OTHER \_\_\_\_\_

Depth to Groundwater 59 feet NMOCD SITE ASSESSMENT RANKING SCORE: 40\*

Date Started 2/1/2010 Date Completed 3/1/2010 OCD Witness no

Soil Excavated 111.1 cubic yards Excavation Length 25 Width 10 Depth 12 feet

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

**FINAL ANALYTICAL RESULTS:** Sample Date 2/8/2010 Sample Depth 12'

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.	0.0	<10.0	<10.0	3,320
BOTTOM COMP.	0.1	<10.0	<10.0	9,520
BACKFILL COMP.	0.0	<10.0	<10.0	4,560

**CHLORIDE FIELD TESTS**

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	2,356
bottom comp.	12'	5886
backfill comp.	n/a	4,294
vertical delineation trench at 5 ft south of the junction (source)	2'	2,332
	4'	1,783
	6'	4,457
	8'	2,775
	10'	5,216
	12'	9,297

**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 producing a 25x10x12-ft deep excavation. Chloride field tests were performed on each sample which 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 representative composite samples were collected from the blended backfill, the bottom of the excavation, and the excavation walls. The representative samples were sent to a commercial laboratory for analysis of chloride and TPH. The blended backfill was returned to the excavation to 5 ft below ground surface (bgs). At 5-4 ft. BGS, a 1-ft. thick clay layer was installed and compaction test performed on 3/1/2010. The remaining blended backfill was hauled to a NMOCD approved facility and the remaining excavation was backfilled with clean imported soil to ground surface and contoured to the surrounding area. An identification plate was placed on the surface of the former junction box site to mark the presence of clay below. On 3/25/2010, site was seeded with a blend of native vegetation and is expected to return to a productive capacity at a normal rate. NMOCD was notified of potential groundwater impact on 8/04/2010.

\* inactive windmill, housing 614 ft. east

**ADDITIONAL EVALUATION IS HIGH PRIORITY**

enclosures: photos, lab reports, PID (field) screenings, cross-section, compaction test, hydraulic conductivity, proctor, chloride curve

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

SITE SUPERVISOR Robert Eagans SIGNATURE *Robert Eagans* 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

\*This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

# BD B-23 EOL

Unit B, Section 23, T22S, R37E



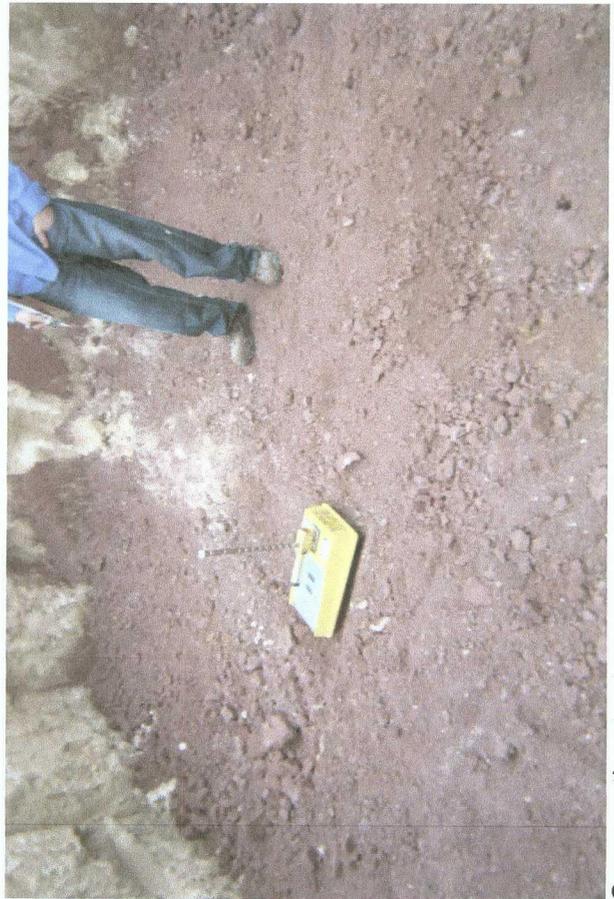
Site prior to excavation

1/27/2010



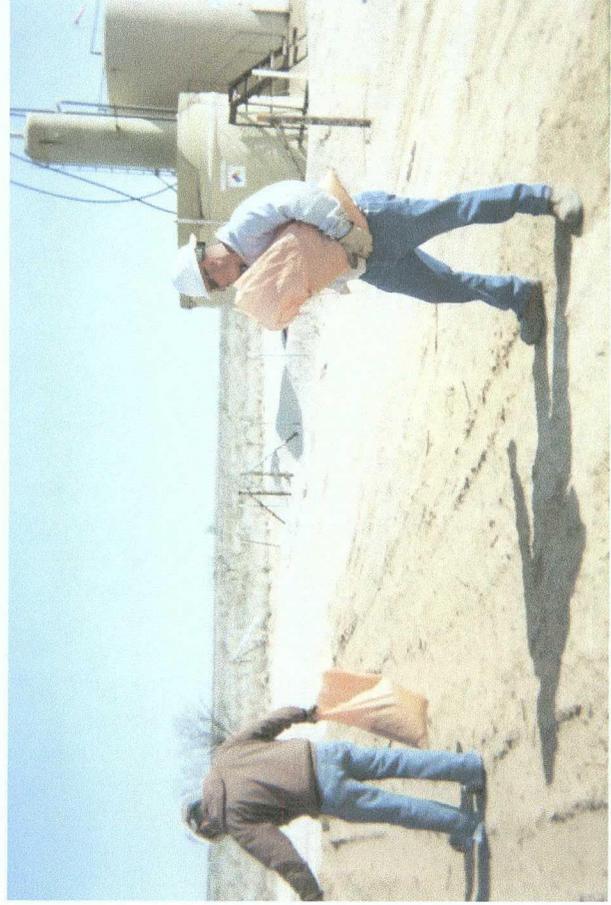
Samples being taken

2/1/2010



Compaction test

3/1/2010



Seeding Site

3/25/2010



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

Receiving Date: 02/08/10  
 Reporting Date: 02/11/10  
 Project Number: NOT GIVEN  
 Project Name: BD JCT. B-23 EOL  
 Project Location: NOT GIVEN

Sampling Date: 02/08/10  
 Sample Type: SOIL  
 Sample Condition: COOL & INTACT  
 Sample Received By: JH  
 Analyzed By: AB/HM

LAB NUMBER	SAMPLE ID	GRO	DRO	CI*
		(C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	(>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	(mg/kg)
	ANALYSIS DATE	02/11/10	02/11/10	02/09/10
H19230-1	5 PT BOTTOM COMP @ 12'	<10.0	<10.0	9,520
H19230-2	4-WALL COMP.	<10.0	<10.0	3,320
H19230-3	BLENDED BACKFILL	<10.0	<10.0	4,560
	Quality Control	526	510	510
	True Value QC	500	500	500
	% Recovery	105	102	102
	Relative Percent Difference	1.0	3.3	2.0

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

COPY

  
 Chemist

  
 Date

H19230 TCL RICE

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**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

**ARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
 (505) 393-2328 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

**Company Name:** Rice Operating Company  
**Project Manager:** Bruce Baker  
**Address:** 122 W. Taylor  
**City:** Hobbs State: NM Zip: 88240  
**Phone #:** 575-393-9174 **Fax #:** 575-397-1471  
**Project #:** Project Owner:  
**Project Name:** BD Jct. 6-23 EOL  
**Project Location:**  
**Sampler Name:** Robert Egans

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	MATRIX			PRESERV	SAMPLING	DATE	TIME
			GROUNDWATER	WASTEWATER	SLUDGE				
H1923D-1	5PT Bottom Campe 12'	C 1					2-8-10	9:35am	
-2	4-Wall Comp	C 1					2-8-10	10:10am	
-3	Blended backfill	C 1					2-8-10	10:30am	

**FOR LAB USE ONLY**

**Lab I.D.:** Sample I.D.

**DATE:** 2-8-10 **TIME:** 9:35am

**DATE:** 2-8-10 **TIME:** 10:10am

**DATE:** 2-8-10 **TIME:** 10:30am

**Phone Result:**  Yes  No **Add'l Phone #:**

**Fax Result:**  Yes  No **Add'l Fax #:**

**REMARKS:** F-Mail Results To:  
 J Purvis @ Rice-Swo.com  
 B Baker " " " " "  
 R Egans " " " " "

**Relinquished By:** [Signature] **Time:** 2-9-10

**Received By:** [Signature] **Time:** 4:35

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

† Cardinal cannot accept verbal changes. Please fax written changes to 805-393-2476 #26

# RICE OPERATING COMPANY

122 West Taylor 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 7300    Serial No: 590-000508  
 Model: PGM 7300    Serial No: 590-000504


Model: PGM 7600    Serial No: 110-023920  
 Model: PGM 7600    Serial No: 110-013744  
 Model: PGM 7600    Serial No: 110-013676

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO: <b>925621</b>	EXPIRATION DATE: <b>9-27-2017</b>
FILL DATE: <b>9-28-09</b>	METER READING ACCURACY: <b>100ppm</b>

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
<b>BD</b>	<b>B-23 FOL</b>	<b>B</b>	<b>23</b>	<b>22</b>	<b>37</b>

SAMPLE ID	PID	SAMPLE ID	PID
<b>Bottom Spt Comp</b>	<b>0.1</b>		
<b>Blended Backfill</b>	<b>0</b>		
<b>4-Wall Composite</b>	<b>0</b>		

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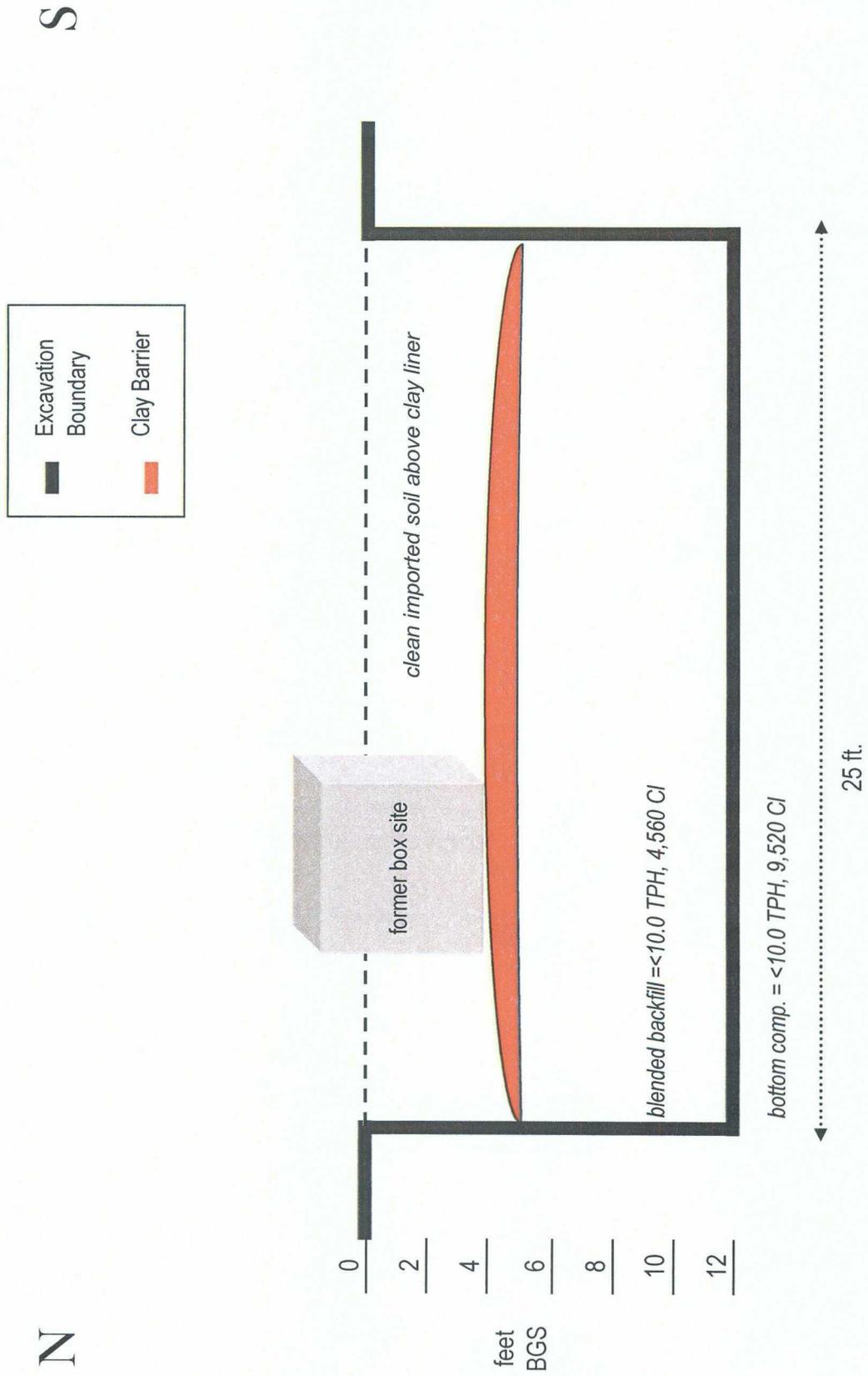
I verify that I have calibrated the above instrument in accordance to the manufacture operation manual.

SIGNATURE: *Robert Young*

DATE: **2-8-2010**

BD B-23 EOL  
Unit 'B', Sec. 23, T22S, 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.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 B-23 EOL 22/37  
Project No. 2010.1061

Date of Test: March 1, 2010

Depth: See Below

Depth of Probe: 12"

Test No.	Location	*Dry Density % Max	% Moisture	Depth
SG 1	Pit - 5' W. & 10' S. of NE Corner	91.6	15.2	FSG

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Control Density: 102.3  
ASTM: D 698

Optimum Moisture: 20.3%

Required Compaction: 90-95%

Densometer ID: 815

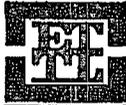
Lab No.: 10 2230

PETTIGREW & ASSOCIATES

Copies To: Rice Operating

BY: Eric M. Hart

BY: C. J. [Signature] P.E.



# ETTL Engineers & Consultants Inc.

GEOTECHNICAL \* MATERIALS \* ENVIRONMENTAL \* DRILLING \* LANDFILLS

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

Project : Pelligrew & 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 4835-101 Permeometer Data  
 Boring No.: \_\_\_\_\_  $sp = 0.031418 \text{ cm}^2$  Set Mercury to \_\_\_\_\_ Equilibrium \_\_\_\_\_ 1.8 cm<sup>3</sup>  
 Sample: 8540  $sa = 0.767120 \text{ cm}^2$  \_\_\_\_\_ Pipet Rp \_\_\_\_\_ 6.7 cm<sup>3</sup>  
 Depth (ft): \_\_\_\_\_  $M1 = 0.030180$   $C = 0.000434704$  Annulus Ra \_\_\_\_\_ 1.5 cm<sup>3</sup>  
 Other Location: Wallach Plant Eunice  $M2 = 1.040953$   $T = 0.203790528$   
 Material Description : Red Clay (Your Sample No 10 1422-1424) Compacted D 698 at 95% of your M/D curve (wet side)

### SAMPLE DATA

Wet Wt. sample + ring or tare :	<u>591.37</u> g				
Tare or ring Wt. :	<u>0.0</u> g				
Wet Wt. of Sample :	<u>591.37</u> g				
Diameter :	<u>2.77</u> in	<u>7.06</u> cm			
Length :	<u>2.79</u> in	<u>7.08</u> cm			
Area :	<u>6.04</u> in <sup>2</sup>	<u>38.99</u> cm <sup>2</sup>			
Volume :	<u>18.84</u> in <sup>3</sup>	<u>276.92</u> cm <sup>3</sup>			
Unit Wt. (wet):	<u>128.85</u> pcf	<u>2.03</u> g/cm <sup>3</sup>			
Unit Wt. (dry):	<u>104.65</u> pcf	<u>1.68</u> g/cm <sup>3</sup>			

			<b>Before Test</b>		<b>After Test</b>	
			Tare No.:	<u>T 6</u>	Tare No.:	<u>T 3</u>
			Wet Wt.+tare:	<u>731.90</u>	Wet Wt.+tare:	<u>800.61</u>
			Dry Wt.+tare:	<u>641.75</u>	Dry Wt.+tare:	<u>680.35</u>
			Tare Wt.:	<u>218.78</u>	Tare Wt.:	<u>220.69</u>
			Dry Wt.:	<u>422.97</u>	Dry Wt.:	<u>469.68</u>
			Water Wt.:	<u>90.15</u>	Water Wt.:	<u>110.16</u>
			% moist.:	<u>21.3</u>	% moist.:	<u>23.5</u>

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

### TEST READINGS

Z1 (Mercury Height Difference @ t1): 5.1 cm Hydraulic Gradient = 9.10

Date	elapsed t (seconds)	Z (pipet @ t)	$\Delta Z_r$ (cm)	temp (deg C)	$\alpha$ (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	0.768997	25	0.889	1.09E-08	3.09E-05	
2/5/2010	6900	5.8	0.858997	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

$k_a = 1.10E-08$ cm/sec		Acceptance criteria =	<u>25 %</u>
$k_1 = 1.17E-08$ cm/sec	$V_m$		
$k_2 = 1.09E-08$ cm/sec	6.3 %	$V_m = \frac{ k_a - k_1 }{k_a} \times 100$	
$k_3 = 1.08E-08$ cm/sec	1.2 %		
$k_4 = 1.08E-08$ cm/sec	2.5 %		
	2.5 %		

Hydraulic conductivity	$k = 1.10E-08$ cm/sec	<u>3.13E-06</u> ft/day
Void Ratio	$e = 0.65$	
Porosity	$n = 0.39$	
Bulk Density	$\gamma = 2.03$ g/cm <sup>3</sup>	<u>127.0</u> pcf
Water Content	$W = 0.38$ cm <sup>3</sup> /cm <sup>3</sup>	( at 20 deg C)
Intrinsic Permeability	$k_{int} = 1.13E-13$ cm <sup>2</sup>	( at 20 deg C)

Liquid Limit LL	<input type="text"/>
Plastic Limit PL	<input type="text"/>
Plasticity Index PI	<input type="text"/>
- 200 Sieve	<input type="text"/> %
+ No 40 Sieve	<input type="text"/> %
+ No 4 Sieve	<input type="text"/> %

210 Beach Street  
Texarkana, AR 71854  
870-772-0013 Phone  
870-218-2413 Fax

1717 East Erwin  
Tyler, Texas 75702  
903-695-4421 Phone  
903-698-8113 Fax  
www.ettillo.com

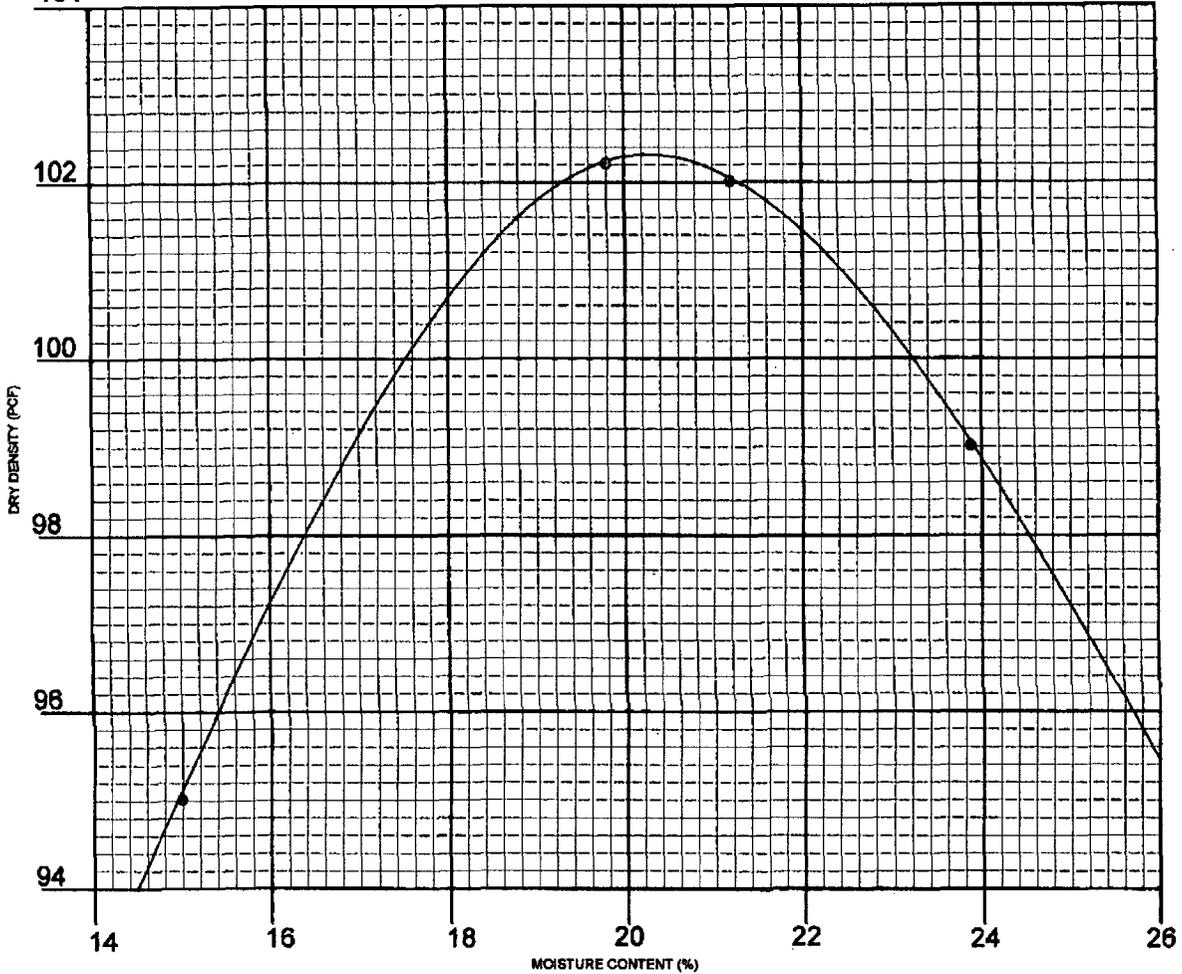
707 West Cotton Street  
Longview, Texas 75804-5505  
903-788-0915 Phone  
903-788-8245 Fax



\*Corrected Copy 2/17/10  
**PETTIGREW & ASSOCIATES, P.A.**  
 1110 N. GRIMES ST.  
 HOBBS, NM 88240  
 (575) 393-9827



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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

BY: Erica M. Hart

COPIES: Rice Operating

BY: C. J. [Signature] P.E.

CHLORIDE CONCENTRATION CURVE

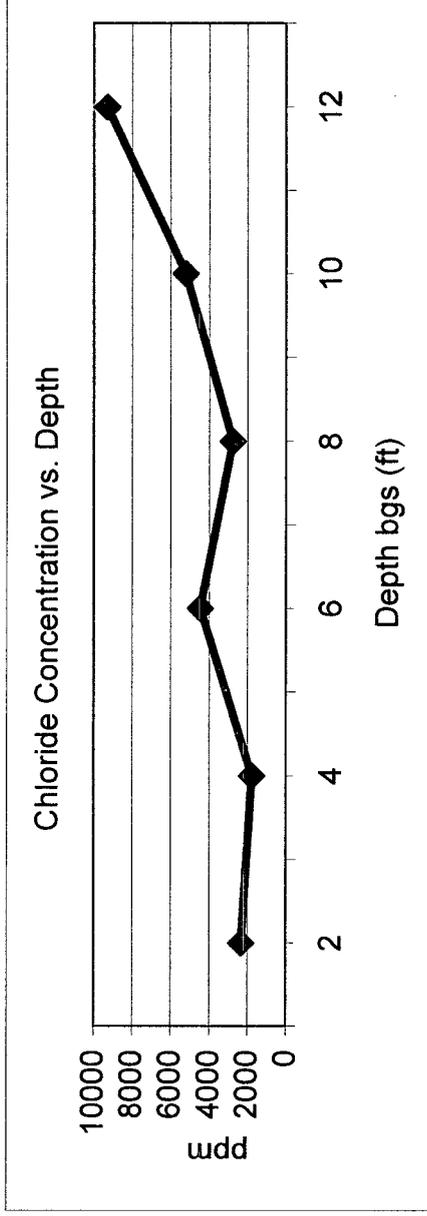
RICE Operating Company

**BD Jct. B-23 EOL**

Unit 'B', Sec. 23, T22S, R37E

Backhoe samples at 5 ft. south of junction (source)

Depth bgs (ft)	[Cl <sup>-</sup> ] ppm
2	2332
4	1783
6	4457
8	2775
10	5216
12	9297



Groundwater = 59 ft