1R - 427-351

REPORTS

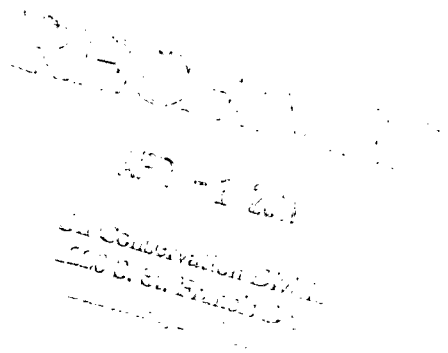
DATE:

2-28-11

IR427-351

EME I-7 EOL

2010



DISCLOSURE

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length 4 ft.	Width 4 ft.	Depth 3 ft.
Eunice Monument Eumont (EME)	I-7 EOL	I	7	20S	37E	Lea	eliminated		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER James Dellis Barber & Jimmie Cooper OTHER ___

Depth to Groundwater 26 feet NMOCD SITE ASSESSMENT RANKING SCORE: 40*

Date Started 2/26/2010 Date Completed 6/10/2010 OCD Witness no

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

Soil Disposed 112 cubic yards Offsite Facility Sundance Services, C &C Landfarm Location Eunice, NM, Monument, NM

FINAL ANALYTICAL RESULTS: **Sample Date** 3/17/2010, 6/10/2010 **Sample Depth** 12 ft., 21 ft., 24 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.	0.0	<10.0	<10.0	384
BOTTOM COMP.	0.0	<10.0	<10.0	624
BACKFILL COMP.	0.2	<10.0	<10.0	352
SB # 1 @ 21 ft.	18.8	<10.0	<10.0	912
SB # 1 @ 24 ft.	23.1	<10.0	<10.0	1,120

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	286
bottom comp.	12'	688
backfill comp.	n/a	441
background	6"	121
SB # 1 at 10 ft. south of former junction (source)	15'	797
	18'	637
	21'	889
	24'	925

General Description of Remedial Action: This junction and line were eliminated during the pipeline replacement/upgrade program. After the former junction box was removed, an investigation was conducted using a backhoe to collect samples at regular intervals creating a 30X30X12-ft. deep excavation. Chloride field test on each sample yielded chloride concentrations that did not relent with depth. Organic vapors were measured using a PID, which yielded low concentrations. The excavated soil was blended on site and representative samples were collected and from the blended backfill, the bottom of the excavation, and the excavation walls. The representative were sent to a commercial laboratory for analysis of chloride and TPH. At 12-11 ft. below ground surface (BGS), a 1-ft. thick clay layer was installed with compaction test performed on 3/25/2010. The remaining excavation was backfilled with the blended backfill to ground surface and contoured to the surrounding area. On 5/05/2010, 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 6/10/2010. The boring was advanced to 24 ft. BGS with soil samples collected every 3 ft. between 15 ft.-24 ft. Chloride field test performed on each sample yielded chloride concentrations that did not relent with depth. Organic vapors were measured using a PID, which yielded relatively low concentrations. The 21 ft. and 24 ft. samples were taken to a commercial laboratory for analysis of chloride and TPH. The entire bore hole was plugged with bentonite to ground surface. NMOCD was notified of potiential groundwater impact on 10/05/2010.

* inactive windmill 290 ft. west

ADDITIONAL EVALUATION IS HIGH PRIORITY

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

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

SITE SUPERVISOR Jordan Woodfin SIGNATURE Jordan Woodfin COMPANY RICE OPERATING COMPANY

REPORT ASSEMBLED BY Larry Bruce Baker Jr. INITIAL LBB

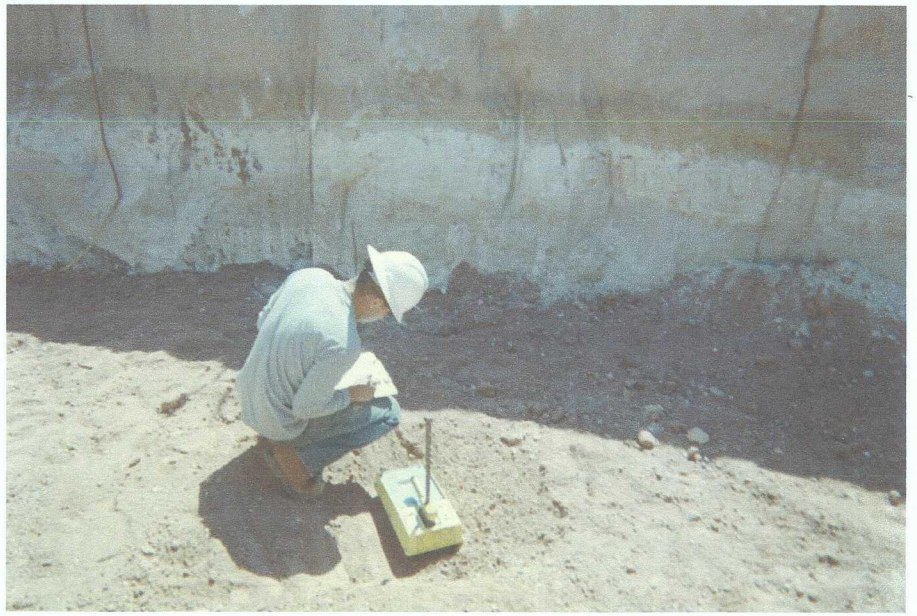
PROJECT LEADER Larry Bruce Baker Jr. SIGNATURE Larry Bruce Baker Jr. DATE 2-28-11

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

EME I-7 EOL

Unit I, Section 7, T20S, R37E

Site prior to Delineation 2/26/2010



Compaction test 3/25/2010

Clay liner installed 3/25/2010

Seeding site 5/05/2010

Drilling soil bore # 1 6/10/2010

Soil bore # 1 plugged with bentonite 6/10/2010

Logger:	Jordan Woodfin
Driller:	Harrison & Cooper, Inc. Drilling
Consultant:	N/A junction box upgrade plan
Drilling Method:	Air rotary
Start Date:	6/10/2010
End Date:	6/10/2010

RICE OPERATING COMPANY ROC SINCE 1955

Project Name: EME I-7 EOL **Well ID:** SB-1

Location: UL/I sec. 7 T20S R37E
Lat: 32°35'18.715"N **County:** Lea
Long: 103°17'6.679"W **State:** NM

Comments: All samples from cuttings. Located 10 ft south of the former juction box site.

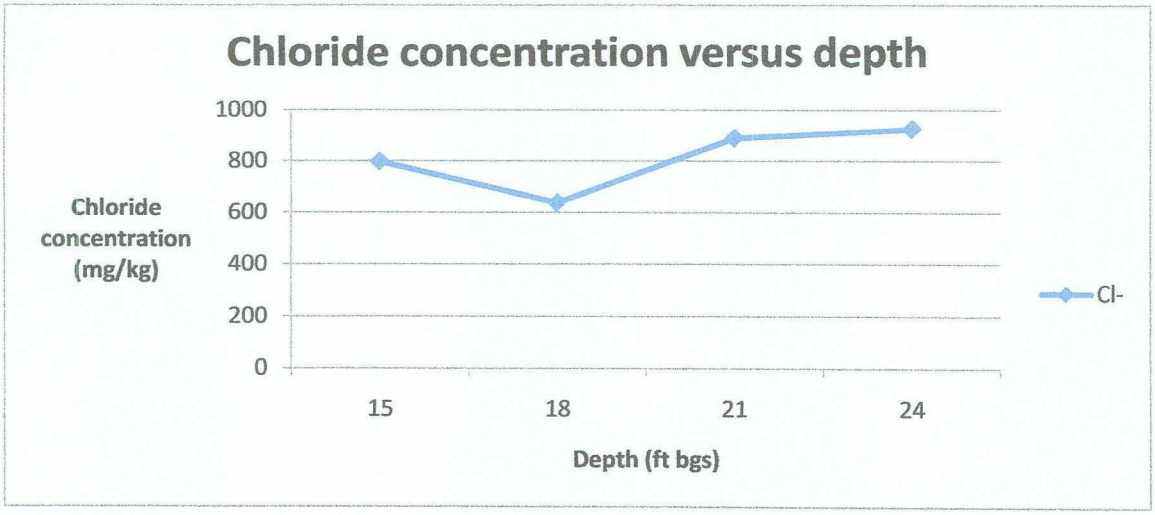
Drafted by: Lara Weinheimer

TD = 24 ft DGW = 26 ft

Depth (feet)	chloride field tests	LAB	PID	Description
				12 - 15 ft
				SAND
15 ft	797		10.1	tan
				15 - 18 ft
				SAND
18 ft	637		16.4	dark tan
				18 - 21 ft
				SAND
21 ft	889	Cl- 912	18.8	tan
		GRO <10		
		DRO <10		21 - 24 ft
24 ft	925	Cl- 1120	23.1	SAND
		GRO <10		dark tan
		DRO <10		

Lithology

Well Construction: bentonite seal



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: 06/11/10
Reporting Date: 06/17/10**
Project Number: NOT GIVEN
Project Name: EME I-7 EOL
Project Location: EME I-7 EOL

Sampling Date: 06/10/10
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: JH
Analyzed By: AB/CK

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE		06/12/10	06/12/10	06/15/10
H20095-1	SB #1 @ 21'	<10.0	<10.0	912
H20095-2	SB #1 @ 24"	<10.0	<10.0	1,120
Quality Control		461	423	500
True Value QC		500	500	500
% Recovery		92.2	84.6	100
Relative Percent Difference		1.7	0.4	<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.
**REVISED REPORT.

COPY

Chemist

06/17/10
Date

H20095 TCL RICE

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES

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: EME I-7 EOL	**State:** **Zip:**
Project Location: EME I-7 EOL	**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						
H20095-1	SB # 1 @ 21'	G	1			✓					✓		6/10/10	03:13	✓	✓								
2	SB # 1 @ 24"	G	1			✓					✓		6/10/10	03:17	✓	✓								

Relinquished By: Jordan Woodfin	**Date:** 6-11-10 **Time:** 7:20	**Received By:**	
Relinquished By:	**Date:** 6-11-10 **Time:** 9:06	**Received By:** Jodi Henson	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	**Sample Condition** Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	**CHECKED BY: (Initials)**	

Phone Result:	☐ Yes	☑ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☑ No	**Add'l Fax #:**

REMARKS:

email results

Hconder@riceswd.com; jwoodfin@riceswd.com; Lweinheimer@riceswd.com

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

NEED SAMPLES BACK, PLEASE

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

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-7 EOL	I	7	20 S	37 E

SAMPLE ID	PID	SAMPLE ID	PID
SB#1			
15'	10.1		
18'	16.4		
21'	18.8		
24'	23.1		

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

SIGNATUE: Jordan Woodruff DATE: 6-10-10

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

COPY

Receiving Date: 03/17/10
Reporting Date: 03/22/10
Project Number: NOT GIVEN
Project Name: EME I-7 EOL (20/37)
Project Location: EME I-7 EOL (20/37)

Sampling Date: 03/17/10
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		03/20/10	03/20/10	03/19/10
H19468-1	4 WALL COMP 30x30	<10.0	<10.0	384
H19468-2	5PT. BTM COMP @ 12'	<10.0	<10.0	624
H19468-3	BLENDED BACKFILL	<10.0	<10.0	352
Quality Control		536	558	500
True Value QC		500	500	500
% Recovery		107	112	100
Relative Percent Difference		1.7	6.6	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.

Chemist

03/23/10
Date

H19468 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 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: EME I-7 EOL 20137	State: Zip:
Project Location: EME I-7 EOL 20137	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							
H194681	4 Wall Comp 30x30	C	1			✓					✓		11:45a	3-17-10	✓	✓									
-2	Spt Btm Comp @ 12'	C	1			✓					✓		10:30a	3-17-10	✓	✓									
-3	Blended Backfill	C	1			✓					✓		4:00p	3-17-10	✓	✓									

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: 3-17-10 Time:	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time: 4:45	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) JH	REMARKS: email results jwoodfin@riceswd.com; jpurvis@riceswd.com bbaker@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 : 924503	EXPIRATION DATE: 7-5-12
FILL DATE: 7-1-09	METER READING ACCURACY: 100.3

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	I-7 EOL	I	7	20	37

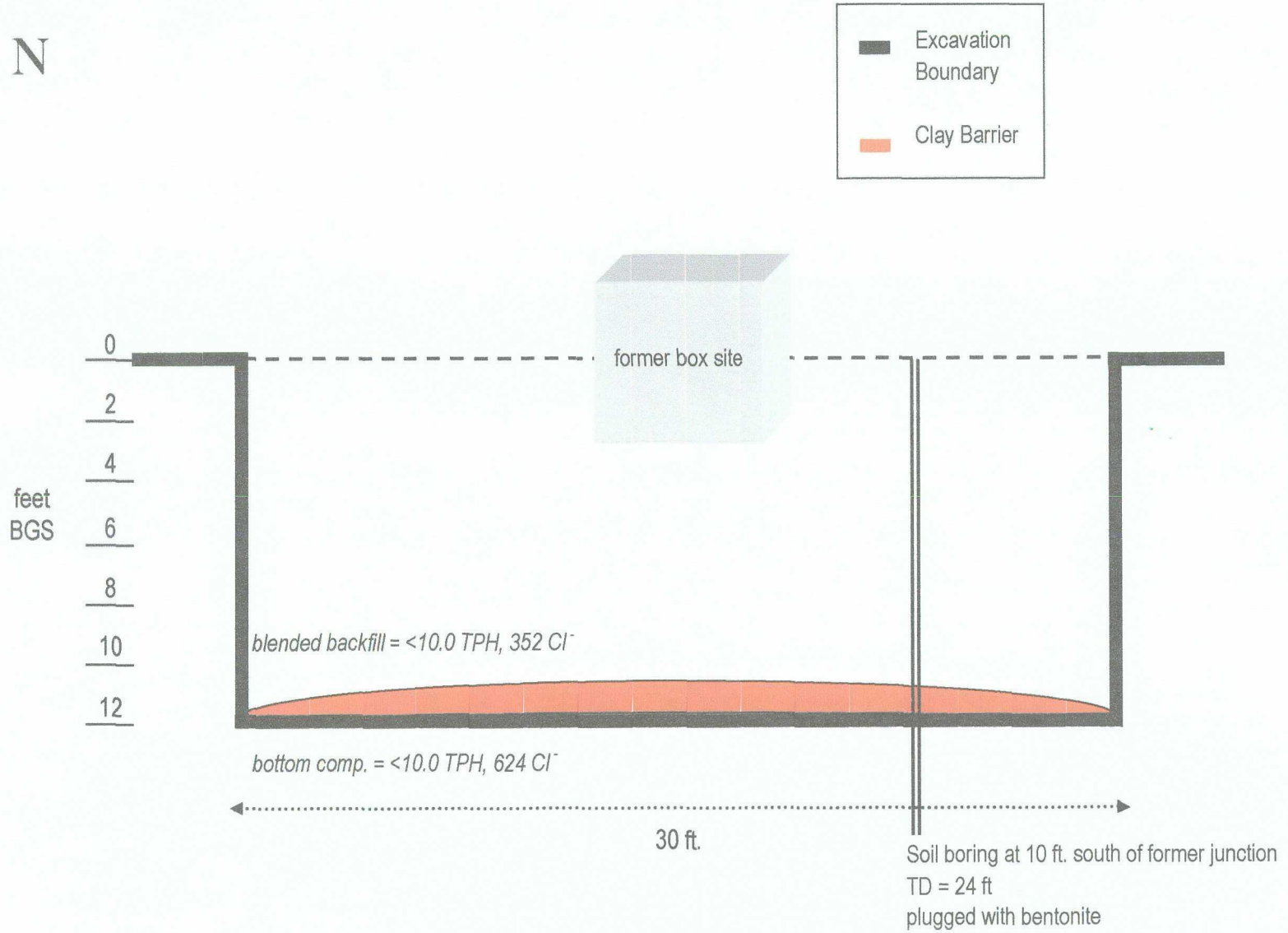
SAMPLE ID	PID	SAMPLE ID	PID
5pt Btm Comp	0	4 Wall Comp	0
pt 1	1.4	West Wall	0
pt 2	1.2	East Wall	0.2
pt 3	1	North Wall	0
pt 4	0.3	South Wall	0
pt 5	0.3		
		Blended Backfill	0.2

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

SIGNATUE: Jordan Woody DATE: 7-17-10

EME I-7 EOL
Unit 'I', Sec. 7, T20S, R37E

Excavation Cross-Section



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: 1-1201-000002
Date: 2/5/2010 Panel Number : P 2 ; ASTM D 5084
Project No. : C 4535-101 Permometer Data

Boring No.:		ap =	0.031416	cm2	Set Mercury to Bleed Pt. at	Equilibrium	1.6	cm3
Sample:	9539	aa =	0.767120	cm2		Pipet Rp	6.7	cm3
Depth (ft):		M1 =	0.030180	C =	0.000431428	Annulus Ra	1.5	cm3
Other Location:	Cooper Pit Monument	M2 =	1.040953	T =	0.203778436			

Material Description : Red Clay (Your Sample No 10 1500-1502) Compacted D 698 at 95% of your M/D curve (wet side)

SAMPLE DATA

					Before Test		After Test	
Wet Wt. sample + ring or tare :			532.08	g	Tare No.:	T 4	Tare No.:	T 2
Tare or ring Wt. :			0.0	g	Wet Wt.+tare:	694.63	Wet Wt.+tare:	794.06
Wet Wt. of Sample :			532.08	g	Dry Wt.+tare:	613.98	Dry Wt.+tare:	673.81
Diameter :	2.78	in	7.05	cm2	Tare Wt:	219.48	Tare Wt:	216.84
Length :	2.77	in	7.03	cm	Dry Wt.:	394.5	Dry Wt.:	457.17
Area:	8.05	in^2	39.02	cm2	Water Wt.:	80.65	Water Wt.:	120.25
Volume :	16.73	in^3	274.24	cm3	% moist.:	20.4	% moist.:	26.3
Unit Wt.(wet):	121.07	pcf	1.94	g/cm^3				
Unit Wt.(dry):	100.62	pcf	1.61	g/cm^3				

Specific Gravity: 2.80 Max Dry Density(pcf) = 100.6628 OMC = 20.4436985
% of max = 100.0 +/- OMC = 0.00
Calculated % saturation: 99.66 Void ratio (e) = 0.74 Porosity (n)= 0.42

TEST READINGS

Z1(Mercury Height Difference @ t1): 5.1 cm Hydraulic Gradient = 9.16

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	1140	5.65	1.0072906	25	0.889	7.73E-08	2.19E-04	
2/5/2010	1320	5.5	1.1572906	25	0.889	7.82E-08	2.22E-04	
2/5/2010	1500	5.4	1.2572906	25	0.889	7.57E-08	2.16E-04	
2/5/2010	1680	5.3	1.3572906	25	0.889	7.39E-08	2.10E-04	

SUMMARY

ka = 7.63E-08 cm/sec Acceptance criteria = 25 %

ki		Vm		Vm = |ka-ki| x 100 / ka
k1 =	7.73E-08 cm/sec	1.4	%	
k2 =	7.82E-08 cm/sec	2.5	%	
k3 =	7.57E-08 cm/sec	0.8	%	
k4 =	7.39E-08 cm/sec	3.1	%	

Hydraulic conductivity	k =	7.63E-08	cm/sec	2.16E-04	ft/day
Void Ratio	e =	0.74			
Porosity	n =	0.42			
Bulk Density	γ =	1.94	g/cm3	121.1	pcf
Water Content	W =	0.33	cm3/cm3	(at 20 deg C)	
Intrinsic Permeability	kint =	7.62E-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

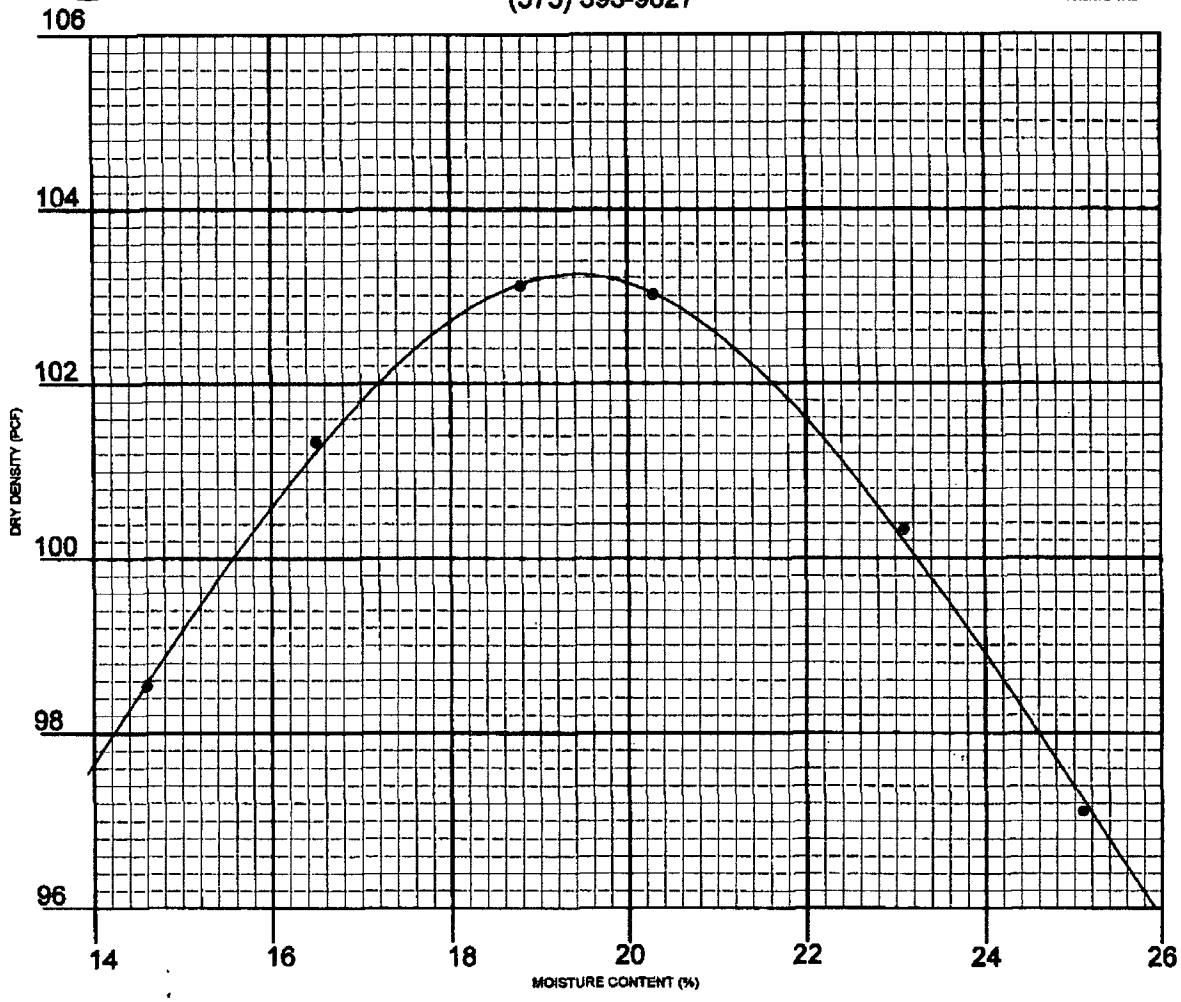
1717 East Erwin
Tyler, Texas 75702
903-595-4491 Phone
903-595-6113 Fax
www.ettlinc.com

707 West Cotton Street
Longview, Texas 75604-6505
903-758-0915 Phone
903-758-8246 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: Cooper Pit Stockpile

SOIL DESCRIPTION: Cooper Red Clay

SOIL CLASSIFICATION: _____ TEST METHOD: ASTM: D 698

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

DATE: 2/12/10 LAB NO. 10 1500-1502

DRY WEIGHT LB/CU. FT. 103.2 MOISTURE CONTENT % 19.5

SIEVE ANALYSIS - % PASSING									

PETTIGREW & ASSOCIATES

COPY

BY: Erica M Hart

COPIES: Rice Operating

BY: _____ P.E

*Corrected Report 4/7/10

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: Cooper Red Clay

Test Method: ASTM: D 2922

Project: *EME I-7 EOL 20/37
Project No. 2010.1082

Date of Test: March 25, 2010

Depth: See Below

Depth of Probe: 12"

Test No.	Location	*Dry Density % Max	% Moisture	Depth
SG 1	EME I-3 EOL 20/37	91.4	19.4	FGS

Control Density: 103.3
ASTM: D 698

Optimum Moisture: 19.5%

Required Compaction: 90-95%

Densometer ID: 5572

Lab No.: 10 2307-2308

Copies To: Rice Operating

PETTIGREW & ASSOCIATES

BY: Erica M Hart

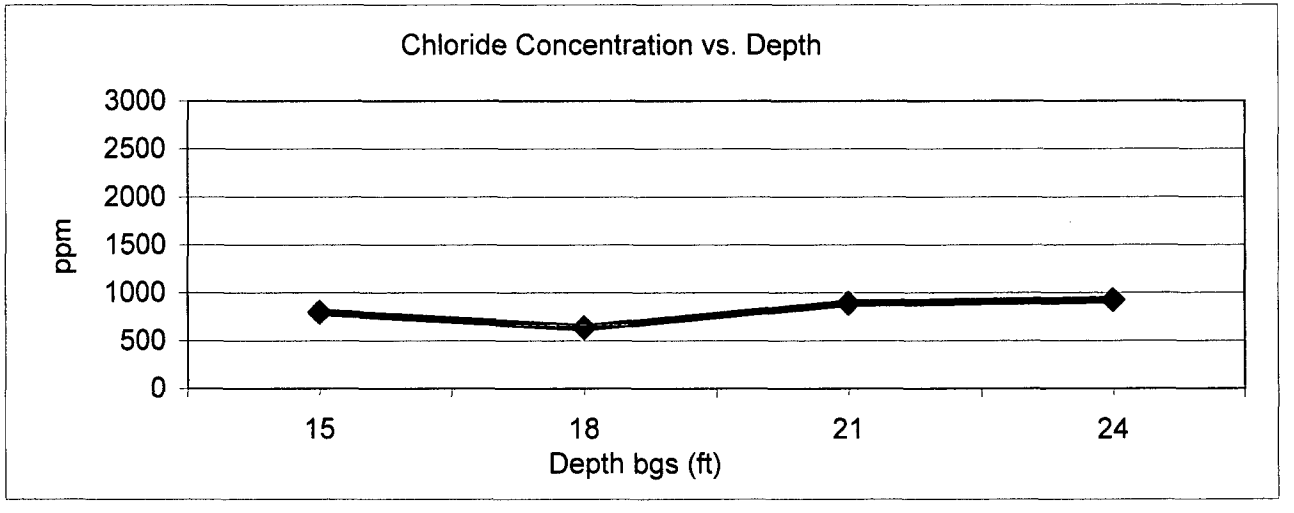
BY: _____ P.E.

EME I-7 EOL

Unit 'I', Sec. 7, T20S, R37E

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

Depth bgs (ft)	[Cl⁻] ppm
15	797
18	637
21	889
24	925



Groundwater = 26 ft.