1R - 427-359

REPORTS

DATE:

3-29-11

IR427-359

EME Jct. F-24

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
Eunice Monument Eumont (EME)	Jct. F-24	F	24	20S	36E	Lea	eliminated		

LAND TYPE: BLM ___ STATE ___ FEE LANDOWNER Jimmie T. Cooper etux Betty B. OTHER ___

Depth to Groundwater 28 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 9/15/2010 Date Completed 12/10/2010 OCD Witness no

Soil Excavated 177.8 cubic yards Excavation Length 20 Width 20 Depth 12 feet

Soil Disposed 228 cubic yards Offsite Facility C & C Landfarm Location Monument, NM

FINAL ANALYTICAL RESULTS: **Sample Date** 10/28/2010, 12/10/2010, **Sample Depth** 12 ft., 15 ft., 24 ft. 27 ft.

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH, BTEX and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Total Xylenes mg/kg	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
4-WALL COMP.	PID = 48.8				<10.0	83.3	16
BOTTOM COMP.	<0.050	0.771	0.121	2.05	64.9	683	80
BACKFILL COMP.	<0.050	0.104	<0.050	0.169	<10.0	<10.0	32
SB # 1 @ 15 ft.	PID = 0				<10.0	<10.0	176
SB # 1 @ 24 ft.	PID = 0				<10.0	<10.0	480
SB # 1 @ 27 ft.	PID = 0				<10.0	<10.0	240

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 soil samples at regular intervals creating a 20X20X12-ft. deep excavation. Chloride field test performed on each sample yielded low concentrations. Organic vapors were measured using a PID, which yielded some elevated concentrations. The excavated soil was blended on site and representative samples were collected from the blended backfill, the bottom of the excavation, and the excavation walls. The representative samples were taken to a commercial laboratory for analysis of chloride, TPH, and BTEX. The entire excavated soil was hauled to a NMOCD approved facility. The excavation was backfilled with clean imported soil to 5 ft. below ground surface (BGS). At 5-4 ft. BGS, a 1-ft. thick clay barrier was installed with compaction test performed on 11/23/2010. The remaining excavation was backfilled with clean imported soil to ground surface and contoured to the surrounding area. On 11/29/2010, 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 TPH presence, a soil bore was initiated on 12/10/2010 at the former junction box source. The boring was advanced to a depth of 27 ft. BGS with soil samples collected every 3 ft. between 15-27 ft. BGS. Chloride field test performed on each sample yielded low concentrations. Organic vapors were measured using a PID, which yielded low concentrations. The 15 ft., 24 ft., and 27 ft. samples were taken to a commercial laboratory for analysis of chloride and TPH, which confirmed low concentrations of each. The entire bore was plugged with bentonite to ground surface.

CHLORIDE FIELD TESTS

LOCATION	DEPTH	mg/kg
4-wall comp.	n/a	114
bottom comp.	12	148
backfill comp.	n/a	142
background	6"	92
SB # 1 at the former junction (source)	15'	243
	18'	155
	21'	209
	24'	448
	27'	226

enclosures: photos, soil bore log, lab results, PID screenings, cross-section, compaction results, hydraulic conductivity, proctor, BTEX comparison study, 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 3-29-11

EME JCT. F- 24 Unit F, Section 24, T20S, R36E

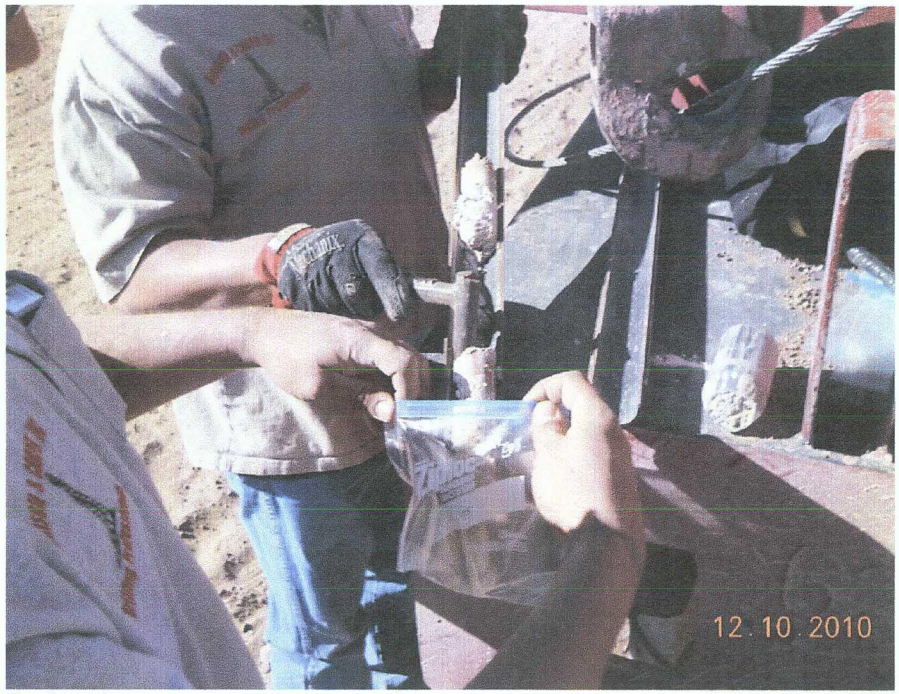
Delineation trench being excavated 9/15/2010

Samples being collected 10/12/2010

Performing compaction test 11/23/2010

Backfilling excavation above clay liner 11/23/2010

Drilling the soil bore 12/10/2010



Collecting sample 12/10/2010

Plugging bore hole with bentonite 12/10/2010

Logger:	Jordan Woodfin	SB-1	RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC (RECS)
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME jct. F-24 **Well ID:** SB-1
Drilling Method:	Split spoon sampling		**Project Consultant:** N/A
Start Date:	12/10/2010		
End Date:	12/10/2010		

Comments: Located at the source of the former junction box site.

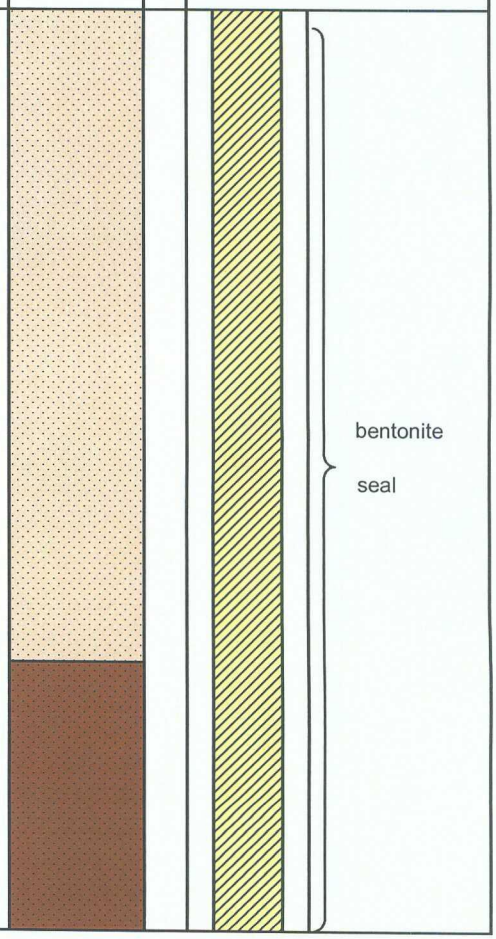
DRAFTED BY: L. Weinheimer

TD = 27 ft GW = 28 ft

Location: UL/F sec. 24 T20S R36E

Lat: 32°33'44.11"N **Long:** 103°18'27.274"W **County**: LEA **State**: NM

Depth (feet)	chloride field tests	LAB	PID	Description
				Tan with some brown fine sand, clay and caliche (well consolidated)
15 ft	243	Cl- 176	0	
		GRO <10		
		DRO <10		
18 ft	155		0	
21 ft	209		0	
24 ft	448	Cl- 480	0	
		GRO <10		Brownish red sandy silt and clay
		DRO <10		
27 ft	226	Cl- 240	0	
		GRO <10		
		DRO <10		



CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/10/2010	Sampling Date:	12/10/2010
Reported:	12/15/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 @ 15' (H021498-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	12/13/2010	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/14/2010	ND	213	106	200	6.74	
DRO >C10-C28	<10.0	10.0	12/14/2010	ND	226	113	200	5.87	

Surrogate: 1-Chlorooctane	*95.2 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*94.3 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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 #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME Jct F-24	State: Zip:
Project Location: EME Jct F-24	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	TPH 8015 M Extended Thru C40				
H21499-1	SB # 1 @ 15'	G	1			✓					✓		12/10/10	10:30	✓	✓								

Relinquished By: Jordan Woodfin	Date: 12/10/10 Time: 4:45	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	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; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com

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

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CARDINAL Laboratories

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

Analytical Results For:

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

Received:	12/10/2010	Sampling Date:	12/10/2010
Reported:	12/15/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 @ 24' (H021497-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**480**	16.0	12/13/2010	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/14/2010	ND	213	106	200	6.74	
DRO >C10-C28	<10.0	10.0	12/14/2010	ND	226	113	200	5.87	

Surrogate: 1-Chlorooctane	*92.3 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*92.7 %*	*70-130*

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*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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 #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME Jct F-24	State: Zip:
Project Location: EME Jct F-24	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	TPH 8015 M Extended Thru C40						
H21497-1	SB # 1 @ 24'	G	1			✓					✓		12/10/10	10:40	✓	✓									

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Relinquished By: Jordan Woodfin	Date: 12/10/10 Time: 4:45	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	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; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com

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

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

Analytical Results For:

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

Received:	12/10/2010	Sampling Date:	12/10/2010
Reported:	12/15/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB #1 @ 27' (H021496-01)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	12/13/2010	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/14/2010	ND	213	106	200	6.74	
DRO >C10-C28	<10.0	10.0	12/14/2010	ND	226	113	200	5.87	

Surrogate: 1-Chlorooctane	*97.3 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*101 %*	*70-130*

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*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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 #: 575-393-9174 Fax #: 575-397-1471	Address:
Project #: Project Owner:	City:
Project Name: EME Jct F-24	State: Zip:
Project Location: EME Jct F-24	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	TPH 8015 M Extended Thru C40				
H21496-1	SB # 1 @ 27'	G	1			✓					✓		12/10/10	11:00	✓	✓								

Relinquished By: Jordan Woodfin	Date: 12/10/10 Time: 4:45	Received By: Debi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	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; jwoodfin@riceswd.com; Lweinheimer@riceswd.com kjones@riceswd.com

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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
X	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: 7-6-09	METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	F-24	F	24	20S	36E

SAMPLE ID	PID	SAMPLE ID	PID
SB #1			
15'	0		
18'	0		
21'	0	COPY	
24'	0		
27'	0		

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

SIGNATUE: Jordan Woolf DATE: 12-10-10

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/28/2010	Sampling Date:	10/28/2010
Reported:	11/03/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: 4 WALL COMP @ 20 X 20 (H021174-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	10/29/2010	ND	464	116	400	3.51	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/30/2010	ND	178	88.9	200	7.41	
DRO >C10-C28	**83.3**	10.0	10/30/2010	ND	178	88.9	200	7.46	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*110 %*	*70-130*

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*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/28/2010	Sampling Date:	10/28/2010
Reported:	11/03/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: 5 PT. BOTTOM COMP @ 12' (H021174-01)

BTEX 8021B mg/kg Analyzed By: cms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/03/2010	ND	2.20	110	2.00		
Toluene*	**0.771**	0.050	11/03/2010	0.080	2.07	103	2.00		
Ethylbenzene*	**0.121**	0.050	11/03/2010	ND	1.98	98.9	2.00		
Total Xylenes*	**2.05**	0.150	11/03/2010	ND	5.91	98.5	6.00		

Surrogate: 4-Bromofluorobenzene (PIL *102 %* *80-120*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	10/29/2010	ND	464	116	400	3.51	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**64.9**	10.0	10/30/2010	ND	178	88.9	200	7.41	
DRO >C10-C28	**683**	10.0	10/30/2010	ND	178	88.9	200	7.46	

Surrogate: 1-Chlorooctane *100 %* *70-130*

Surrogate: 1-Chlorooctadecane *102 %* *70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/28/2010	Sampling Date:	10/28/2010
Reported:	11/03/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL (H021174-03)

BTEX 8021B mg/kg Analyzed By: cms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/03/2010	ND	2.20	110	2.00		
Toluene*	**0.104**	0.050	11/03/2010	0.080	2.07	103	2.00		
Ethylbenzene*	<0.050	0.050	11/03/2010	ND	1.98	98.9	2.00		
Total Xylenes*	**0.169**	0.150	11/03/2010	ND	5.91	98.5	6.00		

Surrogate: 4-Bromofluorobenzene (PIL 85.5 % 80-120

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	10/29/2010	ND	464	116	400	3.51	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/30/2010	ND	178	88.9	200	7.41	
DRO >C10-C28	<10.0	10.0	10/30/2010	ND	178	88.9	200	7.46	

Surrogate: 1-Chlorooctane 97.7 % 70-130

Surrogate: 1-Chlorooctadecane 109 % 70-130

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/28/2010	Sampling Date:	10/28/2010
Reported:	11/03/2010	Sampling Type:	Soil
Project Name:	EME JCT F-24 (20-36)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: BOTTOM GRAB PT 1 - 5 @ 12' (H021174-04)

BTEX 8021B mg/kg **Analyzed By: cms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.090**	0.050	11/03/2010	ND	2.20	110	2.00		
Toluene*	**1.37**	0.050	11/03/2010	0.080	2.07	103	2.00		
Ethylbenzene*	**0.697**	0.050	11/03/2010	ND	1.98	98.9	2.00		
Total Xylenes*	**3.76**	0.150	11/03/2010	ND	5.91	98.5	6.00		

Surrogate: 4-Bromofluorobenzene (PIL *111 %* *80-120*

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*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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
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:	EME Tot F-24 (20136)
Project Location:	
Sampler Name:	Robert Eggins

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	G/GRAB OR C/COMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	CL	TPH 8015M	B-TEX
H21174- 1	5pt Bottom Comp @ 12'	C	1			✓					✓		10-28-10	11:03	✓	✓	✓
2	4 Wall Comp @ 20x20	C	1			✓					✓		10-28-10	11:09	✓	✓	✓
3	Blended Backfill	C	1			✓					✓		10-28-10	10:54	✓	✓	✓
4	Bottom Grab Pt 1 @ 12'	G	1			✓					✓		10-28-10	11:26	Composite B-Tex Only		
	Bottom Grab Pt 2 @ 12'	G	1			✓					✓		10-28-10	11:34			
	Bottom Grab Pt 3 @ 12'	G	1			✓					✓		10-28-10	11:39			
	Bottom Grab Pt 4 @ 12'	G	1			✓					✓		10-28-10	11:49			
	Bottom Grab Pt 5 @ 12'	G	1			✓					✓		10-28-10	11:54			

Relinquished By:	Date: 10/28/10	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Robert	Time: 1:10		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: E-Mail Results To:
	Time:		rleggins@ricksud.com
Delivered By: (Circle One)	Sample Condition: Cool: Yes / No; Intact: Yes / No	CHECKED BY: (Initials)	bbaker " " "
Sampler - UPS - Bus - Other:			rleggins " " "

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

F20

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: 592-903318

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 925621	EXPIRATION DATE: 9-27-2012
FILL DATE:	METER READING ACCURACY: 99.8

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	F-24	F	24	20	36

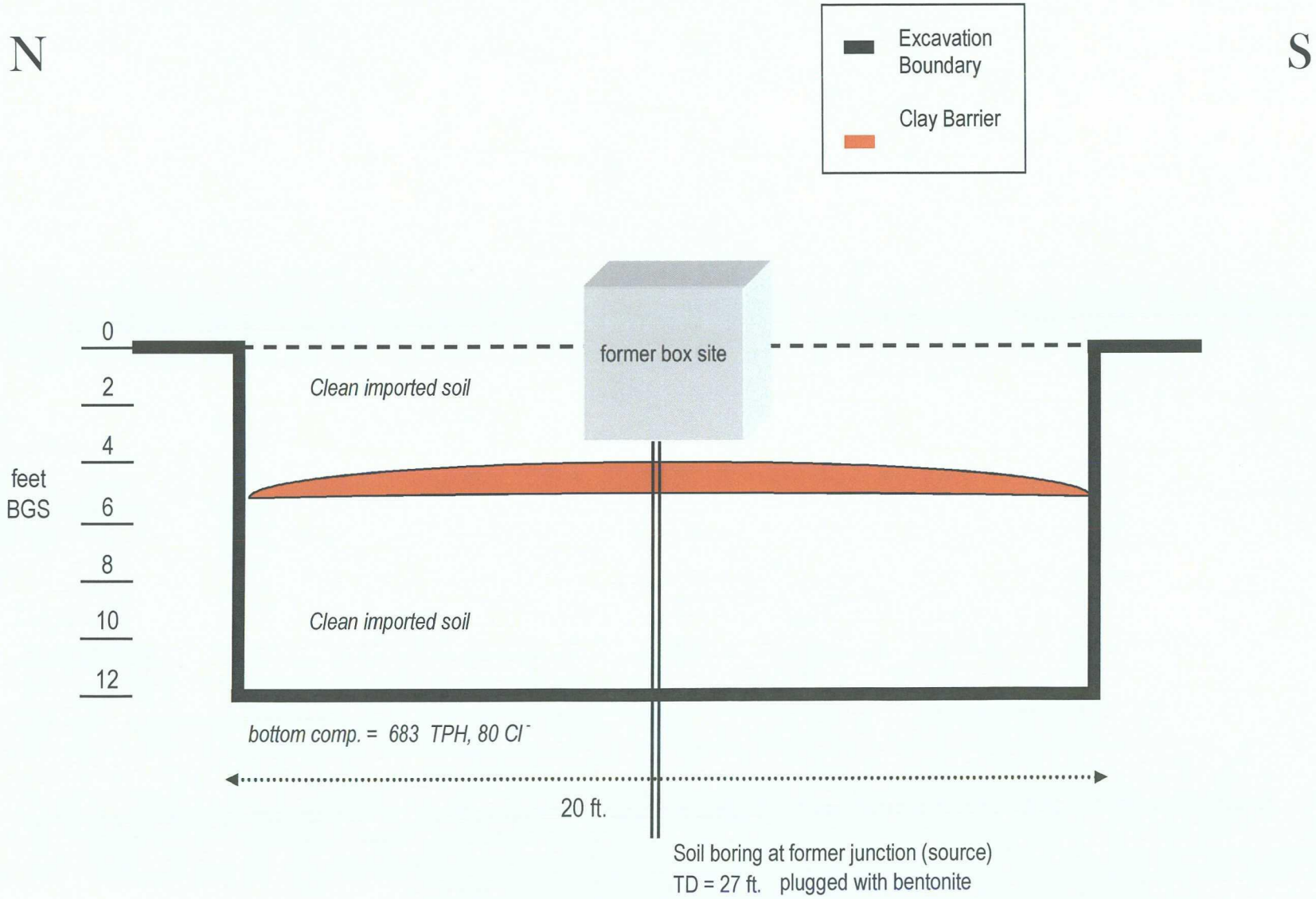
SAMPLE ID	PID	SAMPLE ID	PID
5pt Bottom Composite	335.0		
4 Wall Composite	48.8		
Blended Backfill	163.3		

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

SIGNATUE: Robert Bass DATE: 10/28/2010

EME Jct. F-24
Unit 'F', Sec. 24, T20S, R36E

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: Cooper Red Clay

Test Method: ASTM: D 2922

Project: EME Junction F-24 (21/36)
Project No. 2010.1346

Date of Test: November 23, 2010

Depth: See Below

Depth of Probe: 6"

Test No.	Location	Dry Density % Max	% Moisture	Depth
SG 1	10' N. & 8' E. of SW Corner	92.2	13.3	FSG

Control Density: 103.0
ASTM: D 698

Optimum Moisture: 20.0%

Required Compaction: 90-95%

Densometer ID: 815

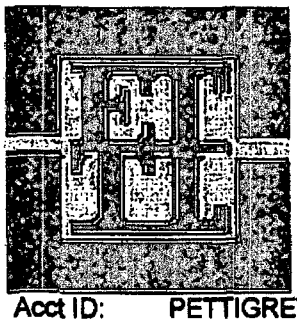
Lab No.: 10 11266-11267

Copies To: Rice Operating

PETTIGREW & ASSOCIATES

BY: _____

BY: _____ **P.E.**



Home Office - 1717 East Erwin Street
Tyler, Texas 75702-6398
Office: (903) 595-4421 Lab: (903) 595-6402 Fax: (903) 595-6113
Area Offices
210 Beech Street Texarkana, AR 71854 (870) 772-0013
707 West Cotton St. Longview, TX 75604 (903) 758-0402

Acct ID: PETTIGREW File ID: C4535-101 Date Sampled: 08/19/2010
Report Date: 08/27/2010 Sampled By: Client
Project: Pettigrew Associates - Project #2010.1026, Hobbs, NM By Order Of: Erica Hart
Location: Material Origin: Cooper Pit, Sample Location: N/G Order Number:
Client: Pettigrew & Associates, Hobbs, NM
Contractor: Not Given

REPORT: **FLEXIBLE WALL PERMEAMETER** LAB NO: 9880
Test Method: See Below

TEST RESULTS Report No: 1-1201-000004
Page 2 of 2

TEST READINGS

Z1(Mercury Height Difference @ t1): 5.1 cm Hydraulic Gradient = 9.17

Date	elapsed t (seconds)	Z (pipet @ t)	□□□ (cm)	temp (deg C)	□ (temp corr)	k (cm/sec)	k (ft./day)	Reset = *
8/23/2010	2460	6.1	0.5573253	25.2	0.885	1.95E-08	5.54E-05	
8/23/2010	3120	6	0.6573253	25.2	0.885	1.84E-08	5.21E-05	
8/23/2010	3840	5.9	0.7573253	25.2	0.885	1.74E-08	4.93E-05	
8/23/2010	4620	5.8	0.8573253	25.2	0.885	1.66E-08	4.70E-05	

SUMMARY

ka = 1.80E-08 cm/sec Acceptance criteria = 25 %

ki		Vm	
k1 =	1.95E-08 cm/sec	8.7	%
k2 =	1.84E-08 cm/sec	2.3	%
k3 =	1.74E-08 cm/sec	3.2	%
k4 =	1.66E-08 cm/sec	7.8	%

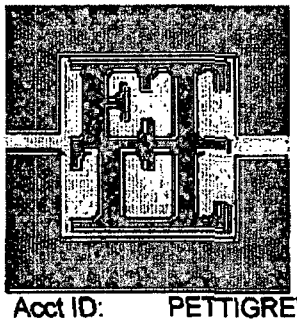
$$Vm = \frac{|ka - ki|}{ka} \times 100$$

Hydraulic conductivity	k =	1.80E-08	cm/sec	5.09E-05	ft/day
Void Ratio	e =	0.72			
Porosity	n =	0.42			
Bulk Density	□□□	1.95	g/cm3	122.0	pcf
Water Content	W =	0.38	cm3/cm3	(at 20 deg C)	
Intrinsic Permeability	kint =	1.84E-13	cm2	(at 20 deg C)	

Remarks: **These tests were performed solely at the request of the Client for his own use. No warranties are expressed or implied regarding the suitability of the site for construction or whether or not the reported data represents all conditions of the site.**

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

COPY



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Acct ID: PETTIGREW File ID: C4535-101 Date Sampled: 08/19/2010
Report Date: 08/27/2010 Sampled By: Client
Project: Pettigrew Associates - Project #2010.1026, Hobbs, NM By Order Of: Erica Hart
Location: Material Origin: Cooper Pit, Sample Location: N/G Order Number:
Client: Pettigrew & Associates, Hobbs, NM
Contractor: Not Given

REPORT: **FLEXIBLE WALL PERMEAMETER** LAB NO: 9880
Test Method: See Below

TEST RESULTS Report No: 1-1201-000004
Page 1 of 2

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

Project : Rice Operating Project 2010.1026 for Pettigrew & Associates, P.A., Hobbs, NM
Date: 8/25/2010 Panel Number : P 1; ASTM D 5084
Project No. : C 4535-101 Permometer Data

Boring No.:		ap =	0.031416 cm2	Set Mercury to Pipet Rdg at	Equilibrium	1.8	cm3
Sample:	9880	aa =	0.787120 cm2		Pipet Rp	6.7	cm3
Depth (ft):		M1 =	0.030180 C =	0.00045027	Annulus Re	1.5	cm3
Other Location:	Cooper Pit	M2 =	1.040953 T =	0.203776994			

Material Description : Red Clay (Clients Sample No 10 5902-5903) Lab Molded @ ~95% ASTM D 698

SAMPLE DATA

					Before Test		After Test	
Wet Wt. sample + ring or tare :			512.33	g				
Tare or ring Wt. :			0.0	g	Tare No.:	T 7	Tare No.:	T 11
Wet Wt: of Sample :			512.33	g	Wet Wt.+tare:	881.97	Wet Wt.+tare	753.77
Diameter :	2.71	in	6.90	cm2	Dry Wt.+tare:	753.55	Dry Wt.+tare	647.11
Length :	2.76	in	7.02	cm	Tare Wt:	221.20	Tare Wt:	219.29
Area:	5.79	in^2	37.34	cm2	Dry Wt.:	532.35	Dry Wt.:	427.82
Volume :	16.00	in^3	262.14	cm3	Water Wt.:	128.42	Water Wt.:	106.66
Unit Wt.(wet):	121.96	pcf	1.95	g/cm^3	% moist.:	24.1	% moist.:	24.9
Unit Wt.(dry):	98.26	pcf	1.57	g/cm^3				

Assumed Specific Gravity: 2.70 Max Dry Density (pcf) = 103 OMC = 20
% of max = 95.4 +/- OMC = 4.12
Calculated % saturation: 94.07 Void ratio (e) = 0.72 Porosity (n)= 0.42

COPY

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

PETTIGREW & ASSOCIATES, P.A.
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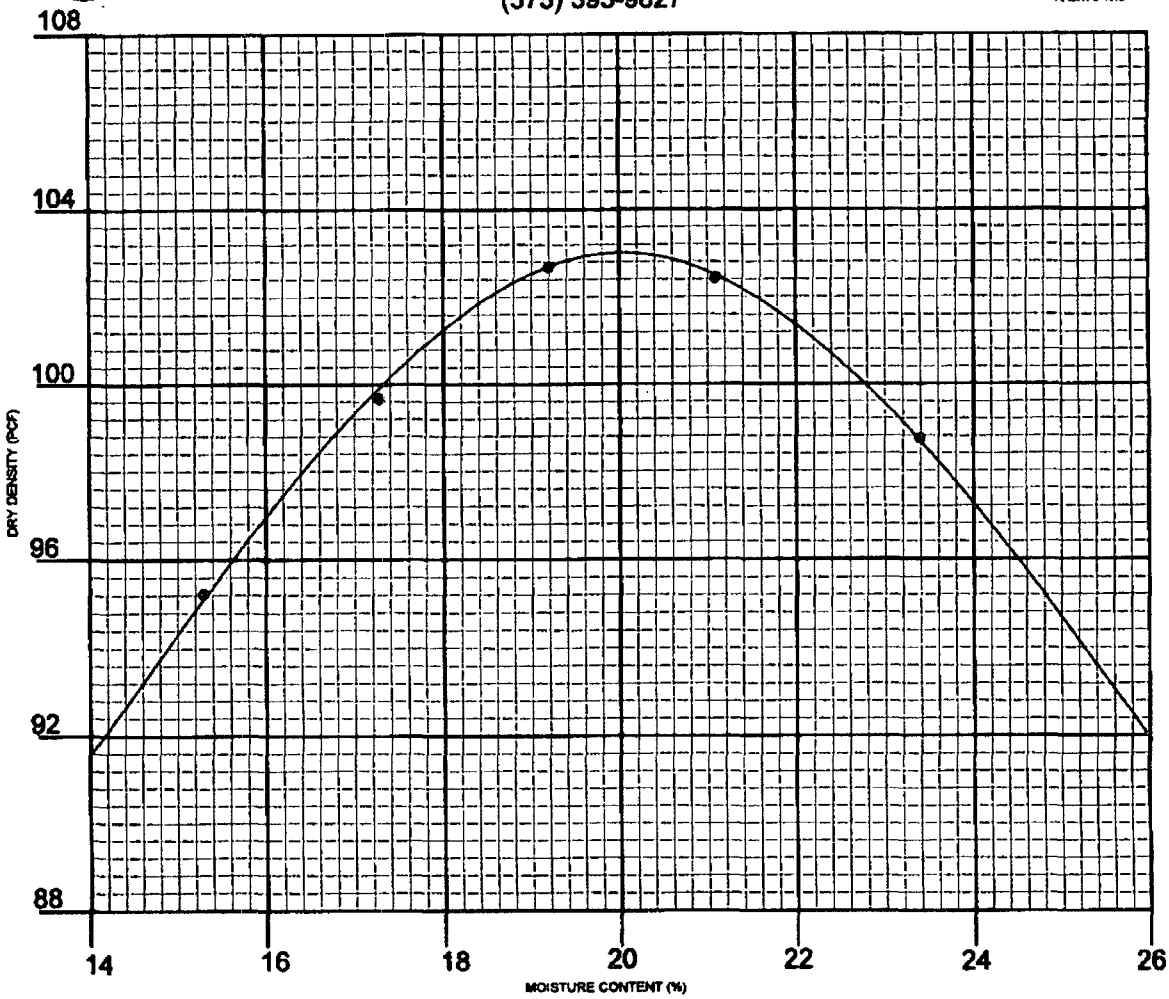
AASHTO R18



General Information

CLIENT: Rice Operating PROJECT: Project No. 2010.1026

SAMPLE LOCATION: Cooper Pit

SOIL DESCRIPTION: Cooper Red Clay

SOIL CLASSIFICATION: ____ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Sampled & Delivered 8/13/10

DATE: 8/13/10 LAB NO. 10 5902-5903

DRY WEIGHT LB/CU. FT. 103.0 MOISTURE CONTENT % 20.0

SIEVE ANALYSIS - % PASSING									

COPY

PETTIGREW & ASSOCIATES

BY: Erica M Hart

BY: for Debra Hicks PE

COPIES: Rice Operating

2010 BTEX Study

Revised Junction Box Upgrade Plan (2003)

System: EME
Site: Jct. F-24
Date: 10/28/2010
Sampler: Robert Egans
Laboratory: Cardinal Laboratories

Location	Component	PID reading (ppm)	FIELD COMPOSITE (mg/kg)			
			Benzene	Toluene	Ethyl Benzene	Total Xylenes
bottom composite at 12 ft BGS	1	335	<0.050	0.771	0.121	2.05
	2					
	3					
	4					
	5					
			LAB COMPOSITE (mg/kg)			
			0.090	1.37	0.697	3.76

Field PID tests <100 ppm are considered final for BTEX. If PID is >100 ppm, the components of the BTEX composite sample will be collected individually and will be composited under laboratory conditions to prevent excessive volatilization. A 15-box, 30-sample study will be made to compare field-compositing with lab-compositing BTEX samples. Composite components are collected in a skewed 'W' pattern.

Revised Junction Box Upgrade Work Plan (July 16, 2003)

EME JCT. F-24

Unit 'F', Sec. 24, T20S, R36E

Soil bore at former junction box (source)

Depth bgs (ft)	[Cl-] ppm
15	243
18	155
21	209
24	448
27	226

Groundwater = 28 ft