1R - 426-101

REPORTS

DATE:

8-1-11

ARCADIS
Infrastructure, buildings, environment, communications

ARCADIS U.S., Inc.
1004 N. Big Spring Street
Suite 300
Midland Texas 79701
Tel 432.687.5400
Fax 432.687.5401
www.arcadis-us.com

Mr. Edward Hansen
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Certified Mail Receipt No. 7002 2410 0001 5813 0394

Subject:
INITIAL CORRECTIVE ACTION PLAN (CAP) REPORT
NMOCD Case # 1R426-101
Blinebry-Drinkard (BD) H-14
T22S, R37E, Section 14, Unit H, Eunice, Lea County, New Mexico

Date:
August 1, 2011

Contact:
Sharon Hall

Phone:
432 687-5400

Email:
shall@arcadis-us.com

Mr. Hansen,

On behalf of Rice Operating Company (ROC), ARCADIS respectfully submits this Initial Corrective Action Plan Report for the BD H-14 site located in the Blinebry-Drinkard (BD) Salt Water Disposal (SWD) System.

A Corrective Action Plan (CAP) was submitted on January 17, 2011 and an addendum to the plan was submitted on April 1, 2011. The CAP proposed removal of chloride mass from groundwater and extension of an existing clay infiltration barrier (liner). The addendum to the CAP proposed a modification to the dimensions of the liner based on additional delineation. NMOCD approved the CAP and addendum on April 10, 2011 and requested an initial report of the corrective actions within 120 days.

The liner was extended per the approved addendum to the CAP. Excavation and liner placement activities were conducted from June 6, 2011 through June 28, 2011. The existing 38x36 ft clay barrier was located and matched with a 58x84 ft clay barrier installed from 7 to 6 ft bgs. A compaction test was performed on the north side of the site on June 10, 2011 with a result of 93.8% and was backfilled with soil containing a chloride concentration of 256 mg/kg and a PID reading of 46.8 ppm. A compaction test was performed on the south side of the site on June 23, 2011 with a result of 94.3% and was backfilled with soil containing a chloride concentration of 192 mg/kg and PID reading of 10.5 ppm. On July 15, 2011 a soil amendment (RestoreNhance) was added to the backfilled site and the site was seeded with black grama seed. A summary of excavation activities, laboratory analytical reports of blended and composite backfill, compaction test results, proctor test results, hydraulic conductivity report, ROC sampling PID reports, vegetation form and site photographs are attached.

In addition to the extended liner the CAP proposed, and NMOCD approved removal of chloride mass from groundwater. Chloride mass removal will commence when the

groundwater recovery system located at the BD O-23 vent site is available for pumping. Approximately 1,941.32 kg of chloride or approximately 73,263 gallons of water will be removed and utilized for pipeline and well maintenance. Following completion of the chloride mass removal a termination request will be sent to NMOCD.

ROC is the service provider (agent) for the BD Salt Water Disposal System and has no ownership of any portion of the pipelines, wells or facilities. The BD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Thank you for your consideration concerning this Initial CAP Report. If you have any questions please do not hesitate to contact me or Hack Conder.

Best Regards,

ARCADIS U.S, Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies: Hack Conder- ROC

Attachments:
Laboratory analytical reports
Compaction test results
Proctor test results
Hydraulic conductivity report
ROC sampling PID reports
Vegetation form
Site photographs

CARDINAL Laboratories

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

June 13, 2011

Bruce Baker

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD JCT H-14

Enclosed are the results of analyses for samples received by the laboratory on 06/10/11 15:50.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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:	06/10/2011	Sampling Date:	06/10/2011
Reported:	06/13/2011	Sampling Type:	Soil
Project Name:	BD JCT H-14	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL #1 (H101209-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**256**	16.0	06/10/2011	ND	432	108	400	3.77	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

Company Name: Rice		**BILL TO**	
Project Manager: Bruce Baker		P.O. #:	
Address: 122 West Taylor		Company:	
City: Hobbs	State: NM Zip: 88240	Attn:	
Phone #: 393-9174	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:		State:	Zip:
Project Location: BD SWD H-19		Phone #:	
Sampler Name: Robert Rojas		Fax #:	

ANALYSIS REQUEST: Cl; Please Rush

Lab I.D. (FOR LAB USE ONLY)	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Cl
H101209															
-1	Blended Backfill #1	C	1			✓							6-10-11	3:19	✓

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: Robert Rojas	Date: 6/10/11 Time: 3:50	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: E-Mail Hack, Bruce, Lara, Zack, Katie
631-1322

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

#26

CARDINAL Laboratories

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

June 27, 2011

Bruce Baker

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD JCT H-14

Enclosed are the results of analyses for samples received by the laboratory on 06/27/11 8:01.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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:	06/27/2011	Sampling Date:	06/25/2011
Reported:	06/27/2011	Sampling Type:	Soil
Project Name:	BD JCT H-14	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLOWSAND 8 PT COMP (H101318-01)

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	06/27/2011	ND	416	104	400	3.92	

Sample ID: BACKFILL 8 PT COMP (H101318-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**352**	16.0	06/27/2011	ND	416	104	400	3.92	

Sample ID: BLENDED BACKFILL 8 PT COMP (H101318-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	06/27/2011	ND	416	104	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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	BILL TO
Project Manager: Bruce Baker	P.O. #:
Address:	Company:
City: State: NM Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: BD JCT H-14	State: Zip:
Project Location:	Phone #:
Sampler Name: Gerald Perez	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	TDS						
H101318																										
1	Blowsand 8 point comp	G	1			✓							6-25-11	9:27	✓											
2	Backfill 8 point comp.	G	1			✓							6-25-11	10:00	✓											
3	Blended Backfill 8 Pt. comp.	G	1			✓							6-25-11	11:00	✓											

Relinquished By:	Date: 6/27/11	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 7:30		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date: 6/27/11	Received By:	REMARKS: email results Please Rush
	Time: 8:01		Zconder@rice-ecs.com; Bbaker@rice-ecs.com; hconder@rice-ecs.com; Lweinheimer@rice-ecs.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

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 JCT H-14
Project No. 2011.1150

Date of Test: June 10, 2011

Depth: See Below

Depth of Probe: 6"

Test No.	Location	Dry Density % Max	% Moisture	Depth
SG 1	Approximately 10' N. & 10' W. of SE Corner	*95.2	11.0	7' Below Natural Ground
RT SG 1	Approximately 20' W. & 10' N. of SE Corner	93.8	9.1	7' Below Natural Ground

Control Density: 100.8
ASTM: D 698

Optimum Moisture: 19.6%

Required Compaction: 90-95%

Densometer ID: 5071

Lab No.: 11 5588-5589

Copies To: Rice Operating

* Does not meet specifications.

PETTIGREW & ASSOCIATES

BY: _____

BY: _____ for Debra Hicks P.E.

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 JCT H-14
Project No. 2011.1150

Date of Test: June 23, 2011

Depth: See Below

Depth of Probe: 12"

Test No.	Location	Dry Density % Max	% Moisture	Depth
SG 2	BD Junction H-14	94.3	10.0	FSG

Control Density: 100.8
ASTM: D 698

Optimum Moisture: 19.6%

Required Compaction: 90-95%

Densometer ID: 5572

Lab No.: 11 6117-6118

Copies To: Rice Operating

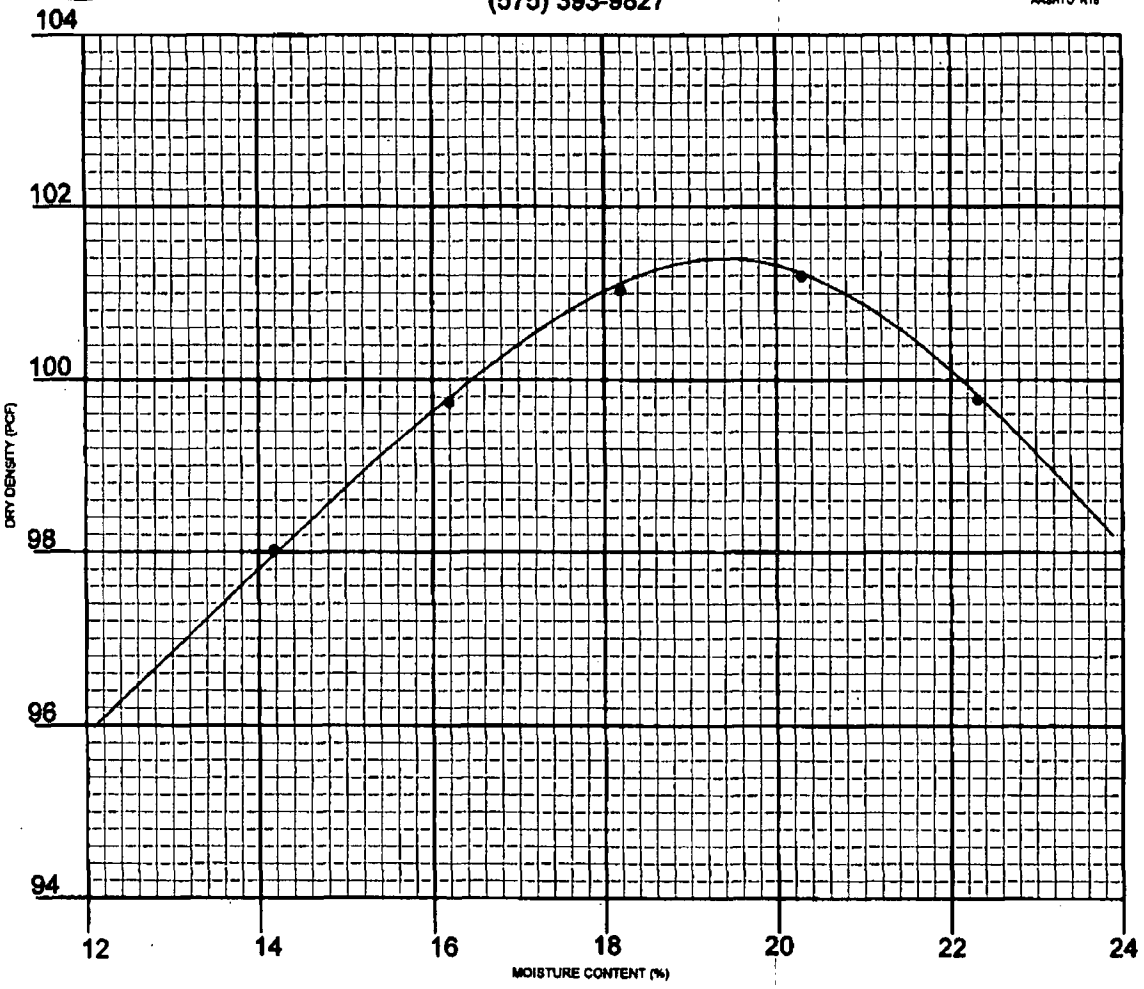
PETTIGREW & ASSOCIATES

BY: _____

BY: _____ for Debra Hicks P.E.

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

AASHTO R18



General Information

CLIENT: Rice Operating PROJECT: Project No. 2011.1006

SAMPLE LOCATION: Wallach Pit

SOIL DESCRIPTION: Wallach Red Clay

SOIL CLASSIFICATION: _____ TEST METHOD: ASTM: D 698

ATTERBERG: LL ____ PI ____ Sampled & Delivered 1/27/11

DATE: 2/1/11 LAB NO. 11 1554-1553

DRY WEIGHT LB/CU. FT. 100.8 MOISTURE CONTENT % 19.6

SIEVE ANALYSIS - % PASSING									

PETTIGREW & ASSOCIATES

BY: _____

BY: _____ P.E

COPIES: Rice Operating

ETTL Engineers & Consultants Inc.

GEOTECHNICAL * MATERIALS * ENVIRONMENTAL * DRILLING * LANDFILLS

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

Project : Pettigrew & Associates, Hobbs, NM, Job: Rice Operating
Date: 2/15/2011 Panel Number : P3 ; ASTM D 5084
Project No. : C 4965-111 Permometer Data

Boring No.:		ap =	0.031416 cm2		Set Mercury to Pipet Rp at beginning	Equilibrium	1.8	cm3
Sample:	10107 C Lab Molded	aa =	0.767120 cm2			Pipet Rp	6.7	cm3
Depth (ft):		M1 =	0.030180	C =	0.000436217	Annulus Ra	1.5	cm3
Other Location:	Wallach Pit	M2 =	1.040953	T =	0.203633132			

Material Description : Wallach Red Clay, Molded at about 95% D 698

SAMPLE DATA

					Before Test		After Test	
Wet Wt. sample + ring or tare :			538.63	g	Tare No.:	T 9	Tare No.:	T 7
Tare or ring Wt. :			0.0	g	Wet Wt.+tare:	889.10	Wet Wt.+tare:	776.72
Wet Wt: of Sample :			538.63	g	Dry Wt.+tare:	751.23	Dry Wt.+tare:	656.64
Diameter :	2.77	in	7.03	cm2	Tare Wt:	220.50	Tare Wt:	221.18
Length :	2.78	in	7.06	cm	Dry Wt.:	530.73	Dry Wt.:	435.46
Area:	6.01	in^2	38.79	cm2	Water Wt.:	137.87	Water Wt.:	120.08
Volume :	16.72	in^3	273.98	cm3	% moist.:	**26.0**	% moist.:	**27.6**
Unit Wt.(wet):	**122.68**	pcf	**1.97**	g/cm^3				
Unit Wt.(dry):	**97.38**	pcf	**1.56**	g/cm^3				

Assumed Specific Gravity: **2.75** Max Dry Density(pcf) = 100.8 OMC = 19.6
% of max = 96.6 +/- OMC = 6.38
Calculated % saturation: 99.38 Void ratio (e) = **0.76** Porosity (n)= **0.43**

TEST READINGS

Z1(Mercury Height Difference @ t1): 5.1 cm Hydraulic Gradient = 9.12

Date	elapsed t (seconds)	Z (pipet @ t)	ΔZπ (cm)	temp (deg C)	α (temp corr)	k (cm/sec)	k (ft./day)	Reset = *
2/15/2011	4200	6.1	0.5607922	25	0.889	1.12E-08	3.17E-05	
2/15/2011	5340	6	0.6607922	25.5	0.879	1.04E-08	2.94E-05	
2/15/2011	6540	5.9	0.7607922	25.5	0.879	9.87E-09	2.80E-05	
2/15/2011	8580	5.6	1.0607922	25.5	0.879	1.09E-08	3.08E-05	

SUMMARY

ka = 1.06E-08 cm/sec Acceptance criteria = 25 %

ki		Vm	
k1 =	1.12E-08 cm/sec	5.8	%
k2 =	1.04E-08 cm/sec	1.9	%
k3 =	9.87E-09 cm/sec	6.7	%
k4 =	1.09E-08 cm/sec	2.8	%

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

Hydraulic conductivity	k =	**1.06E-08**	cm/sec	**3.00E-05**	ft/day
Void Ratio	e =	**0.76**			
Porosity	n =	**0.43**			
Bulk Density	γ =	**1.97**	g/cm3	**122.7**	pcf
Water Content	W =	**0.41**	cm3/cm3	(at 20 deg C)	
Intrinsic Permeability	kint =	**1.08E-13**	cm2	(at 20 deg C)	

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

Respectfully Submitted

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.ettlinc.com

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

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 : 930737	EXPIRATION DATE: 6-16-2013
FILL DATE:	METER READING ACCURACY: 100

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
BD	H-14	H	14	22S	37E

SAMPLE ID	PID	SAMPLE ID	PID
Blended BackFill #1			
	46.8		

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

SIGNATUE: Robert Ramos DATE: 6-10-2011

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs. NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.	MODEL	SERIAL NO
	MODEL: PGM 7300	SERIAL NO: 590-000508
	MODEL: PGM 7300	SERIAL NO: 590-000504
	MODEL: PGM 7320	SERIAL NO: 592-903318
X	MODEL: PGM 7600	SERIAL NO: 110-013744

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 930360	EXPIRATION DATE: 5-24-2013
METER READING ACCURACY: 100 PPM	

ACCURACY : +/- 2%

RICE OPERATING

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD H-14	H	14	22S	37E

SAMPLE ID	PID	SAMPLE ID	PID
Blowsand (Patrick Sims Pit)	4.5		
8 Point Comp. (backfill)	8.5		
8 Point Comp. (blended)	10.5		

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

SIGNATURE: [signature]

DATE: 6-25-11

RICE ENVIRONMENTAL
RECS
CONSULTING & SAFETY, LLC

PO Box 5630
Hobbs, NM 88241
Phone: (575) 393-4411
Fax: (575) 393-0293

VEGETATION FORM

1. General Information

Site name: BD H-14						
U/L H	Section 14	Township 22S	Range 37E	County Lea	Latitude N 32*23.715'	Longitude W 103*07.512'
Contact Name: Zach Conder						
Email: zconder@rice-ecs.com						
Site size: 25,032 square feet			Map detail of site attached ☐			
Additional information:						

2. Soils **Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site ☒	Bioremediated ☐	Imported ☒	Blended ☐	Depth (in): 3.5 ft.-1ft. salvaged, 1ft.-groundsurface blow sand with amendments
Texture: Sandy	Describe soil & subsoil: Blow sand and subsoil caliche			
Soil prep methods:	Rip ☐ Depth(in):	Disc ☒ Depth (in): 6"	Rollerpack ☐	
Date completed: 7-16-11				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☒
Type:		Describe: RestoreNhance
Lbs/acre:		20 bags

4. Seeding **Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom seed mix ☒	Prescribed mix ☐	Seed mix name: Black Grama	Seeding date: 7-16-11
Broadcast ☒ Method: hand			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☐ Number of photos:	Observations: 32 lbs. of Black Grama		

5. Certification I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: Zach Conder	Title: Field Foreman	Date: 7-22-11
Signature:		

BD H-14 (1R426-101)
Unit H, Section 14, T22S, R37E

site prior to excavation, facing north

excavating the north side of the site to a depth of 7 ft bgs, facing southwest 6/8/2011

completed excavation with the existing clay barrier located, facing east 6/9/2011

clay barrier installed on the north side of the site, facing west 6/10/2011

blending the excavated soil, facing west 6/10/2011

clay compaction test on the north side excavation 6/13/2011

backfilling the north side of the excavation with blended backfill, facing northwest 6/13/2011

excavating the south side of the site to a depth of 7 ft bgs, facing east 6/17/2011

hauling excavated soil to Sundance for disposal, facing southwest 6/22/2011

completed excavation with the clay barrier installed on the south side of the site, facing northeast 6/24/2011

clay compaction test on the south side excavation 6/23/2011

blending excavated soil with imported soil, facing southwest 6/25/2011

backfilling the south side of the excavation with blended backfill, facing northwest 6/27/2011

importing clean blow sand, facing west 6/28/2011

contouring the site to the surrounding area, facing south 6/30/2011

adding restorNhance to the backfilled site, facing northwest 7/15/2011

tilling the restorNhance into the soil, facing north 7/15/2011

seeding the backfilled site, facing northeast 7/15/2011

tilling the seed into the soil, facing north 7/15/2011

site complete, facing south 7/28/2011