

January 19, 2015

Mr. Leonard Lowe

New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

**RE: Corrective Action Plan (CAP) Report & Termination Request
Rice Operating Company – EME SWD System
EME C-33 EOL (1R427-405): UL/C, Sec. 33, T20S, R36E**

Mr. Lowe:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced sites in the EME Salt Water Disposal (SWD) system.

ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Background and Previous Work

The site is located approximately 8.3 miles southwest of Monument, New Mexico at UL/C, Sec. 33, T20S, R36E as shown on the Geographical Location Map (Figure 1). NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 166 +/- feet; however, soil bore installation activities performed at the site showed that there is no groundwater located beneath the site.

In 2012, ROC initiated work on the former C-33 EOL junction box. The site was delineated using a backhoe to form a 30 ft x 30 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the four-wall composite, the bottom composite and blended backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 928 mg/kg, and a gasoline range organics (GRO) and diesel range organics (DRO) reading of non-detect. The bottom composite showed a chloride laboratory reading of 1,250 mg/kg, and a GRO and DRO reading of non-detect. The blended backfill showed a chloride reading of 448 mg/kg, and a GRO and DRO reading of non-detect. A total of 596 yards of the blended backfill was taken to a NMOCD approved facility for disposal. At the base of the excavation, a 20-mil reinforced plastic liner was installed and properly seated. The site was backfilled with clean, imported soil and the area was contoured to the surrounding landscape. NMOCD was notified of potential

groundwater impact on January 30th, 2013 and a junction box disclosure report was submitted to NMOCD with all the 2012 junction box closures and disclosures.

As part of the Investigation and Characterization Plan (ICP) submitted to NMOCD on February 10th, 2014, five soil bores were installed at the site April 17th, May 13th and 14th, 2014. As the bores were advanced, soil samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for analysis. Laboratory analysis of SB-1 returned chloride concentrations of 1,490 at 15 ft bgs, 1,390 mg/kg at 30 ft bgs and decreased to 16 mg/kg at 40 ft bgs. SB-2 returned chloride concentrations of 1,680 mg/kg at 15 ft bgs and decreased to 48 mg/kg at 35 ft bgs. SB-3 returned chloride concentrations of below detectable limits at the surface, 64 mg/kg at 5 ft bgs and at 10 ft bgs and 256 mg/kg at 15 ft bgs. SB-4 returned chloride concentrations of 464 mg/kg at 5 ft bgs, 416 mg/kg at 15 ft bgs and 144 mg/kg at 20 ft bgs. SB-5 returned chloride concentrations of 416 mg/kg at 10 ft bgs, 656 mg/kg at 20 ft bgs and 144 mg/kg at 25 ft bgs. GRO and DRO analysis returned values of non-detect in all bores at all depths. The bore holes were plugged in total with bentonite to the ground surface.

Red bed clay was encountered at 85 ft bgs, which indicated the bottom of the aquifer. Since no groundwater was encountered, the bore was advanced to 95 ft bgs and packed open for 48 hours to allow any possible groundwater to accumulate. On May 23rd, 2014, Arc Environmental, LLC was on site to gauge the bore for groundwater accumulation. They found no water in the bore.

On August 15th, 2014, ROC submitted a Corrective Action Plan (CAP), which was approved August 28th, 2014. The plan recommended that ROC install a 20-mil reinforced poly liner at the site with dimensions of 47 ft x 60 ft at a depth of 4 – 5 ft bgs (Figure 2). The liner would inhibit the downward migration of constituents through the vadose zone. The soils placed above the liner would have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soils would be evaluated for use as backfill and any soils that did not meet requirements would be properly disposed of at a NMOCD approved facility. The excavation would be backfilled to ground surface and contoured to the surrounding location. The soils over and surrounding the site would then be prepared with soil amendments as necessary and seeded with a native vegetative mix. Vegetation above the liner would also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone.

Corrective Action Plan Report

On September 8th, 2014, RECS personnel began excavating the site to a depth of 5 ft. The base of the excavation was padded with 6" of imported top soil and a 47 ft x 60 ft, 20-mil reinforced poly liner was installed at 4.5 ft bgs (Figure 2). A total of 860 yards of excavated material were taken to a NMOCD approved facility for disposal. A total of 972 yards of clean soil were imported and a sample of this imported soil was tested for hydrocarbons using a PID and was sent to a commercial laboratory for analysis of chloride, resulting in a chloride concentration below detectable limits and field PID reading of 0.3 ppm. The site was then seeded with a native seed blend, amendments were added to the soil, and a silt net fence was placed around the site to maintain seed integrity. Documentation of all site activities can be found in Appendix A.

Given that RECS has completed the CAP work, ROC respectfully requests 'remediation termination' or similar closure status of the site.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 if you have any questions or wish to discuss the site.

Sincerely,

A handwritten signature in cursive script, appearing to read 'L Flores'.

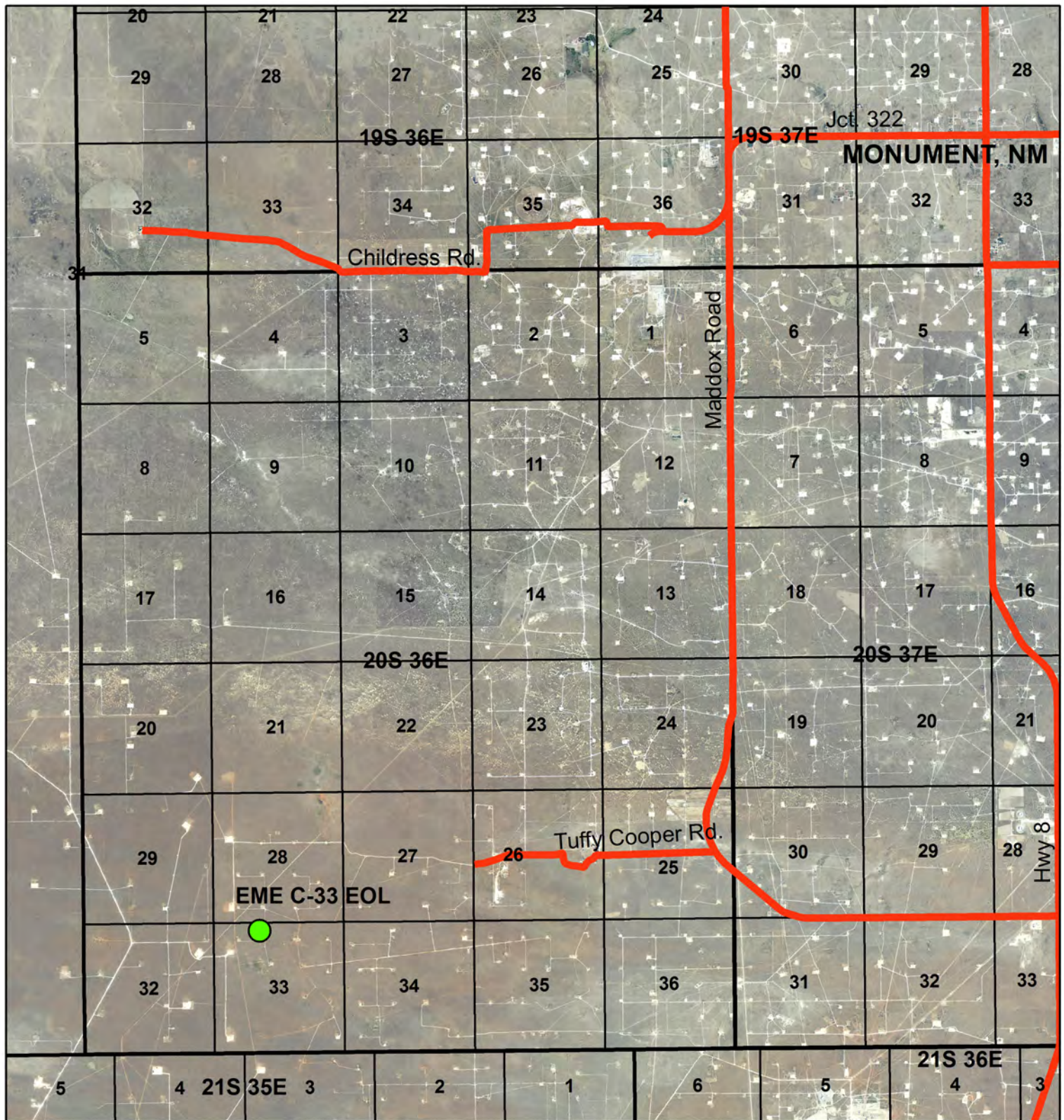
Laura Flores
Rice Environmental Consulting & Safety (RECS)
Project Manager

Attachments:

- Figure 1 – Geographical Location Map
- Figure 2 – Excavation Map
- Appendix A – CAP Activities

Figures

Geographical Location Map



EME C-33 EOL
 UL/C SECTION 33
 T-20-S R-36-E
 LEA COUNTY, NM
 NMOCD CASE # 1R427-405

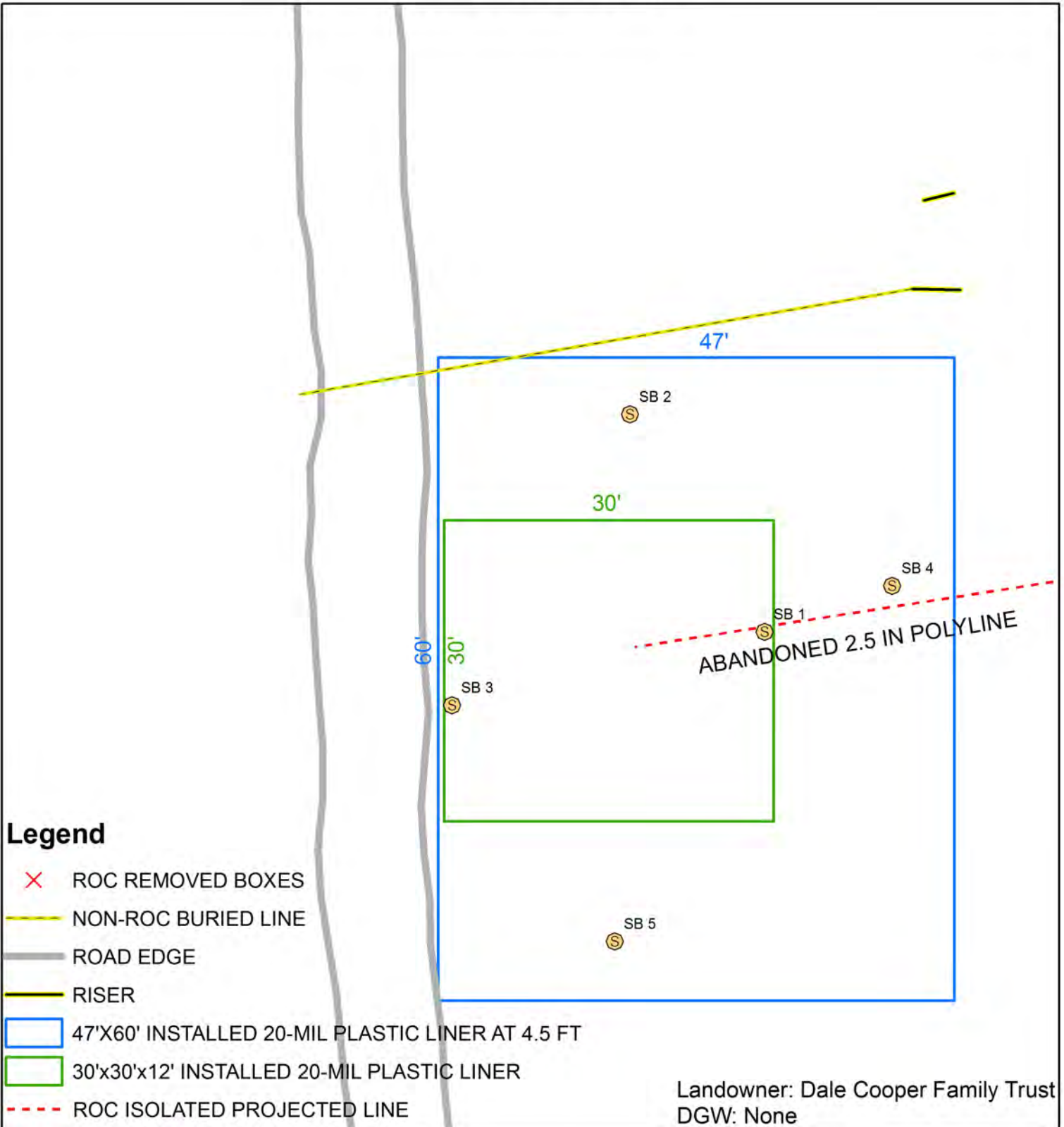
Figure 1



0 0.95 1.9
 Miles

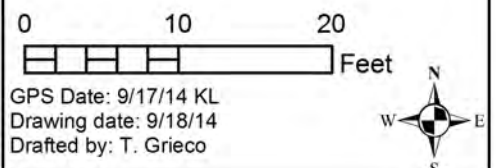
Drawing date: 11/7/12
 Drafted by: Tony Grieco

Excavation Map



EME C-33 EOL
Unit Letter C, Section 33
T-20-S R-36-E
NMOCD CASE # 1R427-405

Figure 2



Appendix A

CAP Activities

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



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

October 02, 2014

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME C-33 EOL

Enclosed are the results of analyses for samples received by the laboratory on 10/01/14 16:23.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited 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 (V1, 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received: 10/01/2014
Reported: 10/02/2014
Project Name: EME C-33 EOL
Project Number: NONE GIVEN
Project Location: T20S R36E

Sampling Date: 10/01/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: IMPORTED TOPSOIL (H402999-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/02/2014	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: RICE Operating				BILL TO				ANALYSIS REQUEST																		
Project Manager: Katie Jones				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> <div>TDS</div> </div>																		
Address: 112 W. Taylor				Company:																						
City: Hobbs State: NM Zip: 88240				Attn:																						
Phone #: Fax #:				Address:																						
Project #: Project Owner:				City:																						
Project Name:				State: Zip:																						
Project Location: EME C-33 EOL (205 36E)				Phone #:																						
Sampler Name: Karanja Lewis				Fax #:																						
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																		
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												
H402999	Imported Top soil	G	1			✓					✓		10-1-14	1:44												

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:		Date:	Received By:	Phone Result:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Karanja Lewis		10-1-14		Fax Result:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:		Time:		REMARKS:		
		4:23	Received By:	email: hconder@riceswd.com; kjones@riceswd.com;		
Delivered By: (Circle One)		Date:		lflores@rice-ecs.com; lweinheimer@rice-ecs.com;		
Sampler - UPS - Bus - Other: 36 CIES4		Time:		knorman@rice-ecs.com; jkamplain@rice-ecs.com;		
				sedwards@rice-ecs.com; cursanic@rice-ecs.com		
				Environmental Tech: K Lewis @rice-ecs.com		

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

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.	<input checked="" type="checkbox"/>
MODEL	<input type="checkbox"/>
NO.	<input type="checkbox"/>
	<input type="checkbox"/>

MODEL: PGM 7300 X SERIAL NO: 590-000183
MODEL: PGM 7300 SERIAL NO: 590-000504
MODEL: PGM 7320 SERIAL NO: 592-903318
MODEL: PGM 7300 SERIAL NO: 590-902553

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO: HAL-248-100-1	7/1/2015
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%


COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
EME C-33 EOL	C	33	T20S	36-E

SAMPLE ID	PID	SAMPLE ID	PID
Imported Top Soil	0.3		

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

SIGNATURE:



DATE: 10/1/2014

EME C-33 EOL (1R427-405)
Unit Letter C, Section 33, T20S, R36E



Site prior to excavation,
Facing south 9/5/2014



Digging excavation,
Facing southwest 9/9/2014



Exporting the spoil pile,
Facing south 9/11/2014



Importing soil,
Facing north 9/30/2014



Padding excavation with 6" of topsoil,
facing east 10/2/2014



Installing 20-mil liner at 4.5 ft gs,
facing northwest 10/2/2014



47x48-ft liner installed with 6 inch top soil pad, facing southeast 10/2/2014



Installing and seaming the 47x12-ft liner with the 47x48-ft liner, facing southwest 10/3/2014



Padding above the liner with 6 inches of top soil, facing north west 10/3/2014



Backfilling above liner, facing west 10/6/2014



Contouring the site with imported soil, facing south 10/10/2014



Spreading amendments, facing east 10/15/2014



Discing location,
facing south 10/15/2014



Seeding site,
facing east 10/15/2014



Site complete, facing south 11/13/2014



Site complete, facing north 11/13/2014



PO Box 2948
Hobbs, NM 88241
Phone: (575) 393-2967

RE-VEGETATION FORM

1. General Information

Site name: EME C-33 EOL						
U/L C	Section 33	Township 20S	Range 36E	County Lea	Latitude 32°32'3.38"N	Longitude 103°21'40.627"W
Contact Name: Kyle Norman						
Email: knorman@rice-ecs.com						
Site size: 100x150		square feet 15,000		Map detail of site attached <input type="checkbox"/>		
Additional information:						

2. Soils

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

Salvaged from site <input type="checkbox"/>	Bioremediated <input type="checkbox"/>	Imported <input checked="" type="checkbox"/>	Blended <input type="checkbox"/>	Depth (in):	
Texture:		Describe soil & subsoil:			
Soil prep methods:	Rip <input type="checkbox"/>	Depth(in):	Disc <input checked="" type="checkbox"/>	Depth (in): 3	Rollerpack <input type="checkbox"/>
Date completed: 10/15/14					

3. Bioremediation

Fertilizer <input type="checkbox"/>	Hay <input type="checkbox"/>	Other <input checked="" type="checkbox"/>
Type:		Describe: 15 bags of special amendments
Lbs/acre:		

4. Seeding

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

Custom seed mix <input checked="" type="checkbox"/>	Prescribed mix <input type="checkbox"/>	Seed mix name: 15 lbs. each of Lea County Mix, Blue Gramma. & Winter Wheat	Seeding date: 10 /15 /14
Broadcast <input checked="" type="checkbox"/>			
Method: Seed Spreader			
Soil conditions during seeding: Dry <input checked="" type="checkbox"/> Damp <input type="checkbox"/> Wet <input type="checkbox"/>			
Photos attached <input type="checkbox"/>	Observations: The seed was tilled into the soil.		
Number of photos:			

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: Kyle Humphrey	Title: Environmental Tech	Date: 10/15/14
Signature:		