1R - 427-286

REPORTS

DATE:

9-15-11

Rice Environmental Consulting & Safety
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

CERTIFIED MAIL
RETURN RECIEPT NO. 7008 1140 0001 3070 5863

September 15th, 2011

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

RE: **ICP Report and Termination Request**
Rice Operating Company – EME SWD System
EME N-17 EOL (1R427-286): UL/N sec. 17 T19S R37E
(formerly EME Conoco A-17 EOL)

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the EME Salt Water Disposal (SWD) system. The site was previously referred to as the EME Conoco A-17 EOL. However, GIS mapping shows the site to be located within unit letter N (Figure 1). To reflect the geographical location of the site, the name has been changed to EME N-17 EOL. All correspondence will reference EME N-17 EOL. 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/usage basis.

Background and Previous Work

The site is located approximately 2.5 miles north-west of Monument, New Mexico at UL/N sec. 17 T19S R37E as shown on the Site Location Map (Figure 1). NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 59 +/- feet.

In 2004, ROC initiated work on the former EME N-17 EOL junction boxes. The site consisted of two boxes, one north and one south, and the south box contained a boot. The site was delineated using a backhoe to form a 20 ft x 25 ft x 13 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 the backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 319 mg/kg, a gasoline range organics (GRO) reading of 372 mg/kg and a diesel range organics (DRO) reading of 1,260 mg/kg. The benzene reading on the four-wall composite was non-detect, the toluene

reading was 0.177 mg/kg, the ethyl benzene reading was 0.338 mg/kg, and the total xylenes read 1.551 mg/kg. The bottom composite showed a chloride laboratory reading of 330 mg/kg, a gasoline range organics (GRO) reading of 155 mg/kg and a diesel range organics (DRO) reading of 520 mg/kg. The benzene reading on the bottom composite was non-detect, the toluene reading was 0.286 mg/kg, the ethyl benzene reading was 0.449 mg/kg, and the total xylenes read 1.814 mg/kg.

The excavated soil was remediated on site. Laboratory analysis of the blended backfill showed a chloride reading of 179 mg/kg, a GRO reading of 39.4 mg/kg and a DRO reading of 500 mg/kg. The area was contoured to the surrounding landscape and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on May 4th, 2005 and a junction box disclosure report was submitted to NMOCD with all the 2008 junction box closures and disclosures.

Proposed Work Elements

ROC proposed additional investigative work at the site to determine if there was potential for groundwater degradation from residual chlorides and/or hydrocarbons at the site.

1. Conduct vertical and lateral delineation of residual soil hydrocarbons and chlorides from samples taken using a drill rig, hand auger, and/or backhoe.
    a. Vertical sampling will be conducted until either one of the following criteria is met in the field.
        i. Three samples in which the chloride concentration decreases and the third sample has a chloride concentration of $\leq$ 250 ppm.
        ii. Three samples in which PID readings decrease and the third sample has a PID reading of $\leq$ 100 ppm.
        iii. The sampling reaches the capillary fringe.
    b. Lateral sampling will be conducted until the following criteria are met in the field.
        i. A decrease is observed in chloride concentrations between lateral bores at similar depths; and,
        ii. A chloride concentration of $\leq$ 250 ppm is observed in a lateral surface sample; or,
        iii. Safety concerns impede further lateral delineation.
2. If warranted, install a monitor well to provide direct measurement of the potential groundwater impact at the site. (All monitor wells will be installed by EPA, NMOCD, and industry standards.)
3. Evaluate the risk of groundwater impact based on the information obtained.

ICP Investigative Results

As part of the Investigation and Characterization Plan approved by NMOCD on July 21st, 2011, one soil bore was advanced through the former junction box site on July 13th, 2011 (Figure 2). RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bore were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers (Appendix

A). Laboratory readings of the two samples showed chloride numbers of 128 mg/kg at 20 ft bgs and 192 mg/kg at 40 ft bgs. Laboratory readings for GRO and DRO showed non-detect in both samples.

The highest chloride concentrations observed during the initial investigation of the junction box were found in the source vertical. A lateral decline was observed from that source vertical to the 15 ft north and the 10 ft east, west, and south verticals. That soil was remediated and returned to the excavation with a chloride concentration of 179 mg/kg. Based on the fact that the soil bore advanced through the source of the former junction box site shows chloride laboratory numbers below 250 mg/kg and hydrocarbon laboratory numbers as non-detect, the site will in no way contribute to the degradation of groundwater beneath the site. The site is located near an active battery and on a caliche lease road surrounding the battery; therefore, re-vegetation of the site in unnecessary (Figure 3). Because the site will in no way contribute to the degradation of groundwater beneath the site and given that re-vegetation efforts are not necessary, ROC submits this site for termination of the regulatory file.

ROC appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

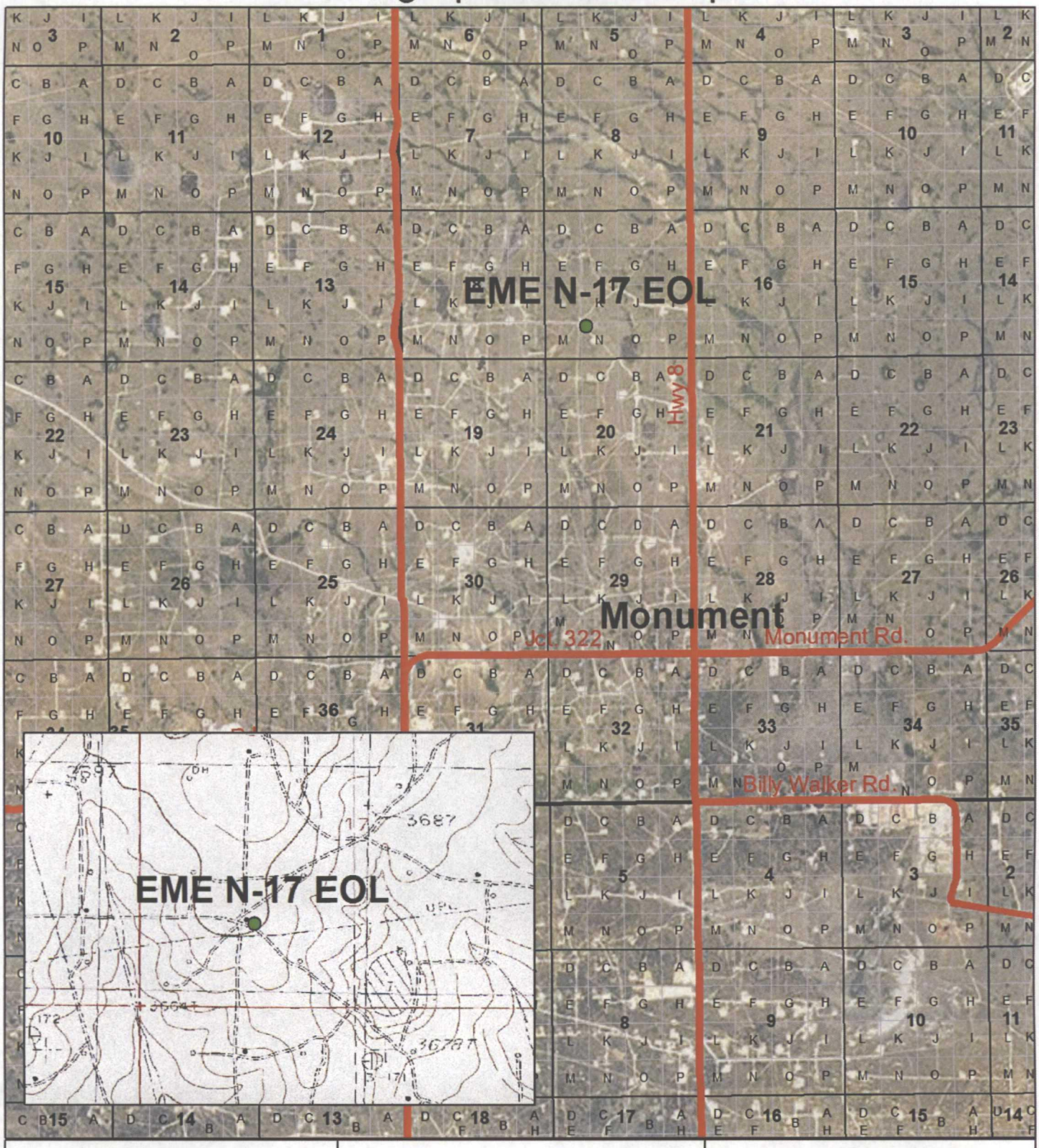
Attachments:

Figure 1 – Geographical Site Map
Figure 2 – Soil bore installation
Figure 3 – Site photo
Appendix A – Soil bore installation and laboratory confirmation

Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

Geographical Site Map



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME N-17 EOL

LEGALS: UL/N sec. 17
T19S R37E

NMOCD Case #: 1R427-286

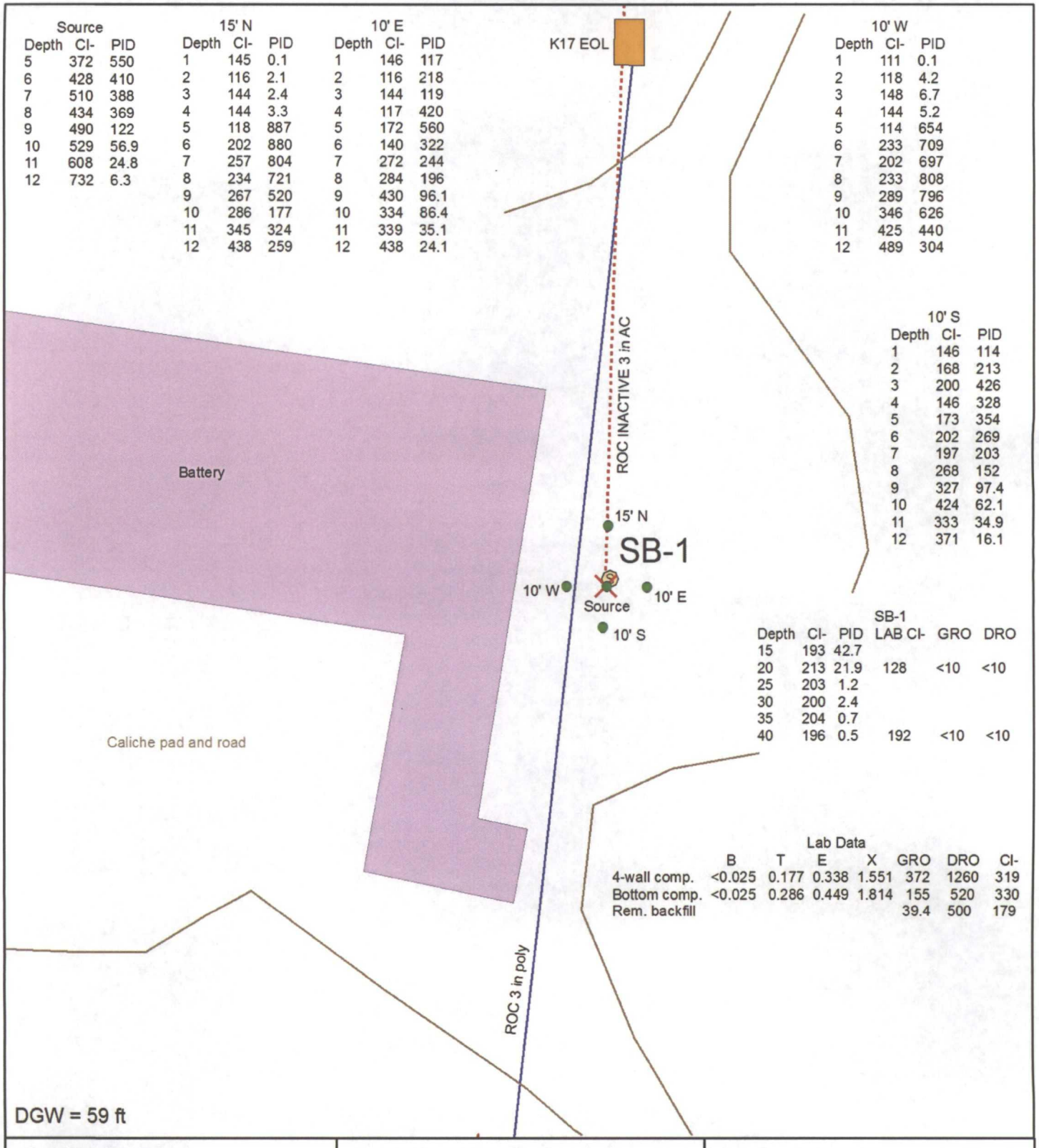
Figure 1

N
W E
S

0 2,250 4,500 9,000
Feet

Drawing date: 5-24-11
Drafted by: L. Weinheimer

Initial Backhoe Delineation and Soil Bore Installation



Source

Depth	Cl-	PID
5	372	550
6	428	410
7	510	388
8	434	369
9	490	122
10	529	56.9
11	608	24.8
12	732	6.3

15' N

Depth	Cl-	PID
1	145	0.1
2	116	2.1
3	144	2.4
4	144	3.3
5	118	887
6	202	880
7	257	804
8	234	721
9	267	520
10	286	177
11	345	324
12	438	259

10' E

Depth	Cl-	PID
1	146	117
2	116	218
3	144	119
4	117	420
5	172	560
6	140	322
7	272	244
8	284	196
9	430	96.1
10	334	86.4
11	339	35.1
12	438	24.1

10' W

Depth	Cl-	PID
1	111	0.1
2	118	4.2
3	148	6.7
4	144	5.2
5	114	654
6	233	709
7	202	697
8	233	808
9	289	796
10	346	626
11	425	440
12	489	304

10' S

Depth	Cl-	PID
1	146	114
2	168	213
3	200	426
4	146	328
5	173	354
6	202	269
7	197	203
8	268	152
9	327	97.4
10	424	62.1
11	333	34.9
12	371	16.1

SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	193	42.7			
20	213	21.9	128	<10	<10
25	203	1.2			
30	200	2.4			
35	204	0.7			
40	196	0.5	192	<10	<10

Lab Data

	B	T	E	X	GRO	DRO	Cl-
4-wall comp.	<0.025	0.177	0.338	1.551	372	1260	319
Bottom comp.	<0.025	0.286	0.449	1.814	155	520	330
Rem. backfill					39.4	500	179

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME N-17 EOL

Legals: UL/N SECTION 17
T-19-S R-37-E

NMOCD Case#: 1R427- 286

Figure 2

N W E S

0 12.5 25 50 Feet

Drawing date: 9/12/11
Drafted by: L. Weinheimer

EME N-17 EOL
UL/N sec. 17 T19S R37E

Site photo, facing south 8/23/11

Site photo, facing south 9/12/11

Figure 3

Appendix A

Soil bore installation and laboratory confirmation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 5630 Hobbs, NM 88241
Phone 575.393.4411 Fax 575.393.0293

Logger:	Jordan Woodfin		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME N-17 EOL **Well ID:** SB-1
Start Date:	7/13/2011		
End Date:	7/13/2011		**Project Consultant:** RECS
Comments: Located at the source of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 40 ft GW = 59 ft			**Location:** UL/N sec. 17 T19S R37E **Lat:** 32°39'23.314"N **Long:** 103°16'38.843"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Regolith		bentonite seal
Surface Sample						
5 ft						
10 ft						
15 ft	193		42.7	Tan very fine silty sand (Hard Drilling)		
20 ft	213	Cl- 128	21.9			
		GRO <10		Light brown very fine silty sand (Hard Drilling)		
		DRO <10				
25 ft	203		1.2			
30 ft	200		2.4			
35 ft	204		0.7			
40 ft	196	Cl- 192	0.5			
		GRO <10				
		DRO <10				

CARDINAL Laboratories

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

July 18, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME N-17 EOL

Enclosed are the results of analyses for samples received by the laboratory on 07/14/11 10:30.

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

Received:	07/14/2011	Sampling Date:	07/13/2011
Reported:	07/18/2011	Sampling Type:	Soil
Project Name:	EME N-17 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 20' (H101454-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	07/15/2011	ND	416	104	400	0.00	

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	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*116 %*	*70-130*

Sample ID: SB 1 @ 40' (H101454-02)

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	07/15/2011	ND	416	104	400	0.00	

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	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*114 %*	*70-130*

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 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 N-17 EOL	**State:** **Zip:**
Project Location: EME N-17 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	TPH 8015 M Extended Thru C40						
H1D1454																									
1	SB 1 @ 20'	G	1			✓					✓		7/13/11	09:00	✓	✓										
2	SB 1 @ 40'	G	1			✓					✓		"	09:30	✓	✓										

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:** 7-14-11 **Time:** 3:30	**Received By:**	**Phone Result:** ☐ Yes ☑ No	**Add'l Phone #:**
Relinquished By:	**Date:** 7/14/11 **Time:** 10:30	**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)**	**REMARKS:** email results Hconder@riceswd.com; jwoodfin@rice-ecs.com; Lweinheimer@rice-ecs.com kjones@riceswd.com	

-7°C

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

#26

NEED SAMPLES BACK, PLEASE