1R - 427-367

WORKPLANS

Date:
10-23-12

ARCADIS
Infrastructure, environment, buildings

RECEIVED OCD
2012 OCT 26 A 10:44

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

Environmental

Sent Certified Mail
Return Receipt No. 7002 2410 0001 5813 4095

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

Subject:

ICP Report and Corrective Action Plan (CAP)
EME I-18 EOL
Unit I, SEC. 18, T19S, R37E, Monument, Lea County, New Mexico
NMOCD CASE # 1R427-367

Date:
October 23, 2012

Contact:
Sharon Hall

Phone:
432.687.5400

Email:
sharon.hall@arcadis-us.cor

Our ref:
MT001105.0001

ARCADIS U.S., Inc.
TX Engineering License # F-533

Mr. Hansen:

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site. 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. Environmental projects of this nature require System Party AFE approval prior to work commencing at the site. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is greatly appreciated.

On behalf of ROC, ARCADIS respectfully submits this ICP Report and Corrective Action Plan (CAP) for the above-referenced site.

SITE HISTORY AND BACKGROUND

The site is located approximately two and a half miles northwest of Monument, New Mexico. Groundwater at the site will likely be encountered at a depth of 35 feet below ground surface (bgs). The junction box was eliminated and initial delineation was conducted from January 26th, 2011 through February 14th, 2011.

A backhoe was used to excavate soils from an excavation measuring 10 feet by 10 feet by 12 feet deep around the former junction box. Soil samples were collected at regular intervals and analyzed in the field for chlorides using field-adapted Standard Method 4500-Cl⁻B and screened in the field using a photoionization detector (PID).

A five-point wall composite sample was collected from each of the four walls and combined to make a representative four-wall composite sample, and a five-point composite sample was collected from the bottom of the excavation and submitted to Cardinal Laboratories for gasoline range organics (GRO), diesel range organics (DRO) and chloride analysis. DRO was detected at a concentration of 1,100 milligrams per kilogram (mg/kg) in the four-wall composite sample and 1,780 mg/kg in the five-point bottom composite sample. GRO was detected at a concentration of 82.3 mg/kg in the four-wall composite sample and 76 mg/kg in the five-point bottom composite sample. Chlorides were detected at a concentration of 16 mg/kg in both the four-wall composite sample and the five-point composite bottom sample.

Based on the results of the soil sampling analytical results, elevated hydrocarbon concentrations are present at the subject site.

Excavated soils were blended on site and backfilled into the excavation to ground surface. The area was contoured to the surrounding landscape and seeded with a blend of native vegetation.

A sample of the blended backfill material was submitted to Cardinal Laboratories for GRO, DRO and chloride analysis. DRO was detected at a concentration of 1,080 mg/kg and GRO was detected at a concentration of 76.3 mg/kg. Chlorides were detected at a concentration of 16 mg/kg.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on March 13, 2012. A disclosure report was submitted to NMOCD in the 2011 junction box closures and disclosures.

ROC submitted an ICP to NMOCD on June 5, 2012 and was approved by NMOCD on July 25, 2012.

ICP INVESTIGATION RESULTS

Two soil borings (SB-1 and SB-2) were drilled at the site on July 11, 2012. Soil boring (SB-1) was advanced at the former junction box location and soil boring (SB-2) was advanced 11 feet east of the former junction box location.

SB-1 was drilled to a depth of 25 feet bgs, and SB-2 was drilled to a depth of 15 feet bgs. Soil samples were collected every five feet and analyzed in the field for chlorides using field-adapted Method 4500-Cl-B and screened in the field using a PID. Two samples from each boring were submitted to Cardinal Laboratories and analyzed for chlorides, GRO and DRO. Chloride concentrations were low in both soil bores, all below 115 mg/kg based on field titration. Laboratory analysis confirmed low concentrations, with the highest being 48 mg/kg. SB-1 laboratory analysis resulted in a decrease in DRO concentration from 145 mg/kg at 15 feet bgs to 128 mg/kg at 25 feet bgs. SB-2 decreased from 300 mg/kg at 5 feet bgs to <10 mg/kg at 15 feet bgs.

In addition to chloride, GRO and DRO, the sample at SB-2 (5 feet bgs) was submitted for benzene, toluene, ethylbenzene and xylenes (BTEX). Benzene was not detected. Toluene, ethylbenzene and xylenes were detected at concentrations of 0.162, 0.291 and 0.491 mg/kg, respectively (see attached figure and soil bore logs).

PROPOSED CORRECTIVE ACTION WORKPLAN

This site had a source bore and a bore drilled in the highest vertical location. Due to low chlorides and TPH, no groundwater remedy is needed. ARCADIS recommends the site be scraped to a depth of 6 inches to one foot, backfilled, and seeded with native vegetation. Soil amendments will be added as necessary. Excavated soil will be evaluated for use as backfill, and any soil requiring disposal will be properly disposed of at a NMOCD approved facility.

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

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall

Sharon E. Hall
Associate Vice President

Copies:
Hack Conder, ROC

Attachments:

Soil Boring Installation Figure
Soil Boring Logs
Soil Boring Photo Documentation
Soil Boring Laboratory Analysis Results

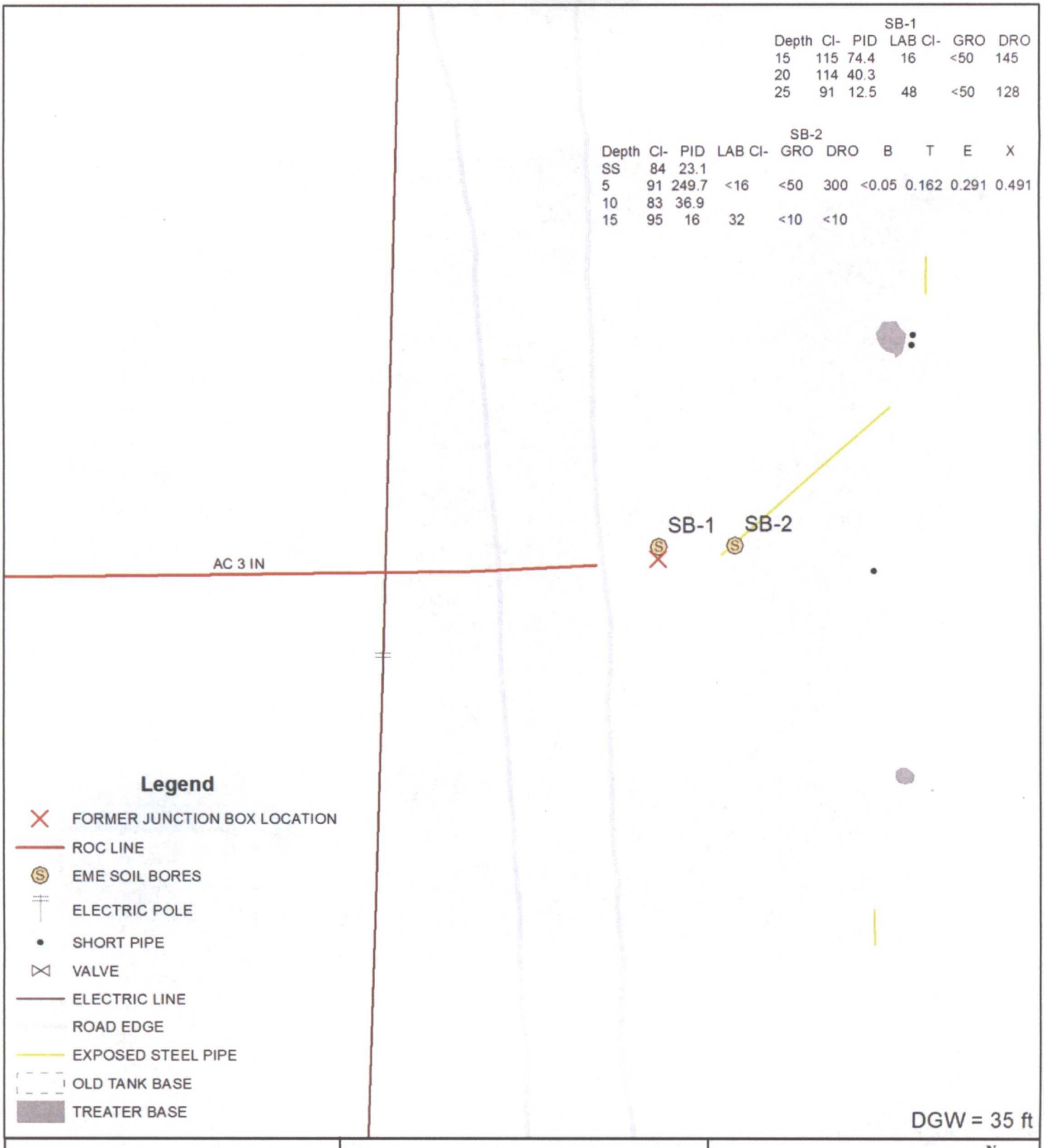
Soil Bore Installation

SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	115	74.4	16	<50	145
20	114	40.3			
25	91	12.5	48	<50	128

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
SS	84	23.1							
5	91	249.7	<16	<50	300	<0.05	0.162	0.291	0.491
10	83	36.9							
15	95	16	32	<10	<10				



DGW = 35 ft

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

EME I-18 EOL

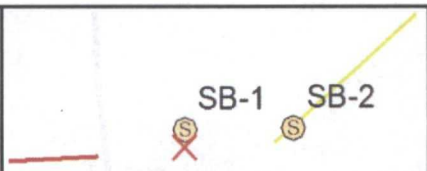
UL/I SECTION 18
T-19-S R-37-E
LEA COUNTY, NM

NMOCD Case #: 1R427-367

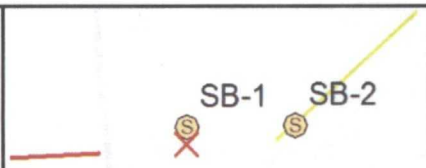
N
W E
S

0 10 20
Feet

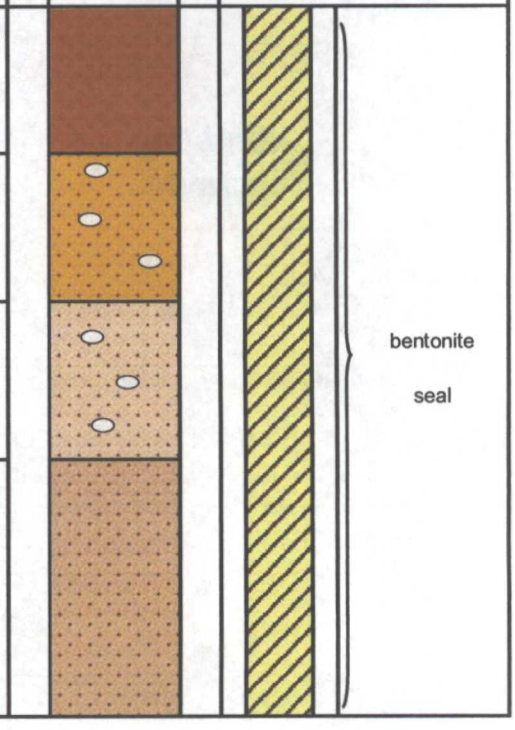
GPS date: 7/13/12 by TG
Drawing date: 7/23/12
Drafted by: L. Weinheimer

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME I-18 EOL **Well ID:** SB-1
Drilling Method:	Air Rotary		**Project Consultant:** ARCADIS U.S., Inc.
Start Date:	7/11/2012		
End Date:	7/11/2012		
Comments: Located at the former junction box site. All samples were from cuttings. **DRAFTED BY: A.C. Ruth** TD = 25 ft. GW = 35 ft.			**Location:** UL/I sec. 18 T-19-S R-37-E **Lat:** 32°39'26.337"N **Long:** 103°17'4.102"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Regolith		bentonite seal
SS						
5 ft						
10 ft						
15 ft	115	Cl- 16	74.4	Tan Sand		
		GRO <50				
		DRO 145				
20 ft	114		40.3			
25 ft	91	Cl- 48	12.5			
		GRO <50				
		DRO 128				

Logger:	Kyle Norman		**Project Name:** EME I-18 EOL **Well ID:** SB-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** ARCADIS U.S., Inc.
Drilling Method:	Air Rotary		
Start Date:	7/11/2012		
End Date:	7/11/2012		
Comments: Located 11 ft east of the former junction box site. All samples were from cuttings. **DRAFTED BY: A.C. Ruth** TD = 15 ft. GW = 35 ft.			**Location:** UL/I sec. 18 T-19-S R-37-E **Lat:** 32°39'26.338"N **Long:** 103°17'3.979"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	84		23.1	
				Yellow/Tan Sand with sand stone
5 ft	91	Cl- <16	249.7	
B: <0.05	E: 0.291	GRO <50		Tan Sand with Caliche/Sand Stone
T: 0.162	X: 0.491	DRO 300		
10 ft	83		36.9	
				Tan Sand
15 ft	95	Cl- 32	16	
		GRO <10		
		DRO <10		



EME I-18 EOL
Unit I, Section 18, T-19-S, R-37-E

Drilling SB-1, facing east 7/11/12

Plugging SB-1 in total with bentonite 7/11/12

Completed SB-1, facing east 7/11/12

Drilling SB-2, facing east 7/11/12

Plugging SB-2 in total with bentonite 7/11/12

Completed SB-2, facing east 7/11/12

CARDINAL Laboratories

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

July 17, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-18 EOL 19S/37E

Enclosed are the results of analyses for samples received by the laboratory on 07/11/12 16:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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 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 (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,

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:	07/11/2012	Sampling Date:	07/11/2012
Reported:	07/17/2012	Sampling Type:	Soil
Project Name:	EME I-18 EOL 19S/37E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 15' (H201588-01)

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	07/13/2012	ND	400	100	400	0.00	

TPH 8015M mg/kg Analyzed By: AM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/16/2012	ND	164	82.2	200	0.261	
DRO >C10-C28	**145**	50.0	07/16/2012	ND	166	83.0	200	0.729	

Surrogate: 1-Chlorooctane	*83.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*133 %*	*63.6-154*

Sample ID: SB 1 @ 25' (H201588-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	07/13/2012	ND	400	100	400	0.00	

TPH 8015M mg/kg Analyzed By: AM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/13/2012	ND	164	82.2	200	0.261	
DRO >C10-C28	**128**	50.0	07/13/2012	ND	166	83.0	200	0.729	

Surrogate: 1-Chlorooctane	*78.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*131 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

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:	07/11/2012	Sampling Date:	07/11/2012
Reported:	07/17/2012	Sampling Type:	Soil
Project Name:	EME I-18 EOL 19S/37E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 5' (H201588-03)

BTEX 8021B mg/kg **Analyzed By: AP** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/17/2012	ND	1.88	93.9	2.00	2.82	
Toluene*	**0.162**	0.050	07/17/2012	ND	1.89	94.5	2.00	3.09	
Ethylbenzene*	**0.291**	0.050	07/17/2012	ND	1.94	97.1	2.00	4.36	
Total Xylenes*	**0.491**	0.150	07/17/2012	ND	5.85	97.4	6.00	4.60	

Surrogate: 4-Bromofluorobenzene (PID *154 %* *89.4-126*

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	07/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/16/2012	ND	164	82.2	200	0.261	
DRO >C10-C28	**300**	50.0	07/16/2012	ND	166	83.0	200	0.729	

Surrogate: 1-Chlorooctane *72.1 %* *65.2-140*

Surrogate: 1-Chlorooctadecane *112 %* *63.6-154*

Cardinal Laboratories

*=Accredited Analyte

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:	07/11/2012	Sampling Date:	07/11/2012
Reported:	07/17/2012	Sampling Type:	Soil
Project Name:	EME I-18 EOL 19S/37E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 15' (H201588-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/16/2012	ND	164	82.2	200	0.261	
DRO >C10-C28	<10.0	10.0	07/16/2012	ND	166	83.0	200	0.729	

Surrogate: 1-Chlorooctane	*81.1 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*99.3 %*	*63.6-154*

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

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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
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	**BILL TO**
Project Manager: Hack Conder	P.O. #:
Address:	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: TMK T-13 BL 19S-37E	Phone #:
Sampler Name: Kyle Norman	Fax #:

ANALYSIS REQUEST

Lab I.D. (FOR LAB USE ONLY) H201588	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						
1	SB1 @ 15'	G	1			✓					✓		7-11-12	8:15	✓	✓										
2	SB1 @ 25'	G	1			✓					✓		↓	8:40	✓	✓										
3	SB2 @ 5'	G	1			✓					✓		↓	9:30	✓	✓	✓									
4	SB2 @ 15'	G	1			✓					✓		—	9:50	✓	✓										

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: KN	Date: 7-11-12 Time: 4:40	Received By: Jodi Benson	Phone Result: ☐ Yes ☒ No Add'l Phone #: Fax Result: ☐ Yes ☒ No Add'l Fax #:
Relinquished By:	Date: Time:	Received By:	REMARKS: email results: zconder@rice-ecs.com Knorman@rice-ecs.com; lpena@riceswd.com Kjones@riceswd.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) JB	

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

#A26

Hansen, Edward J., EMNRD

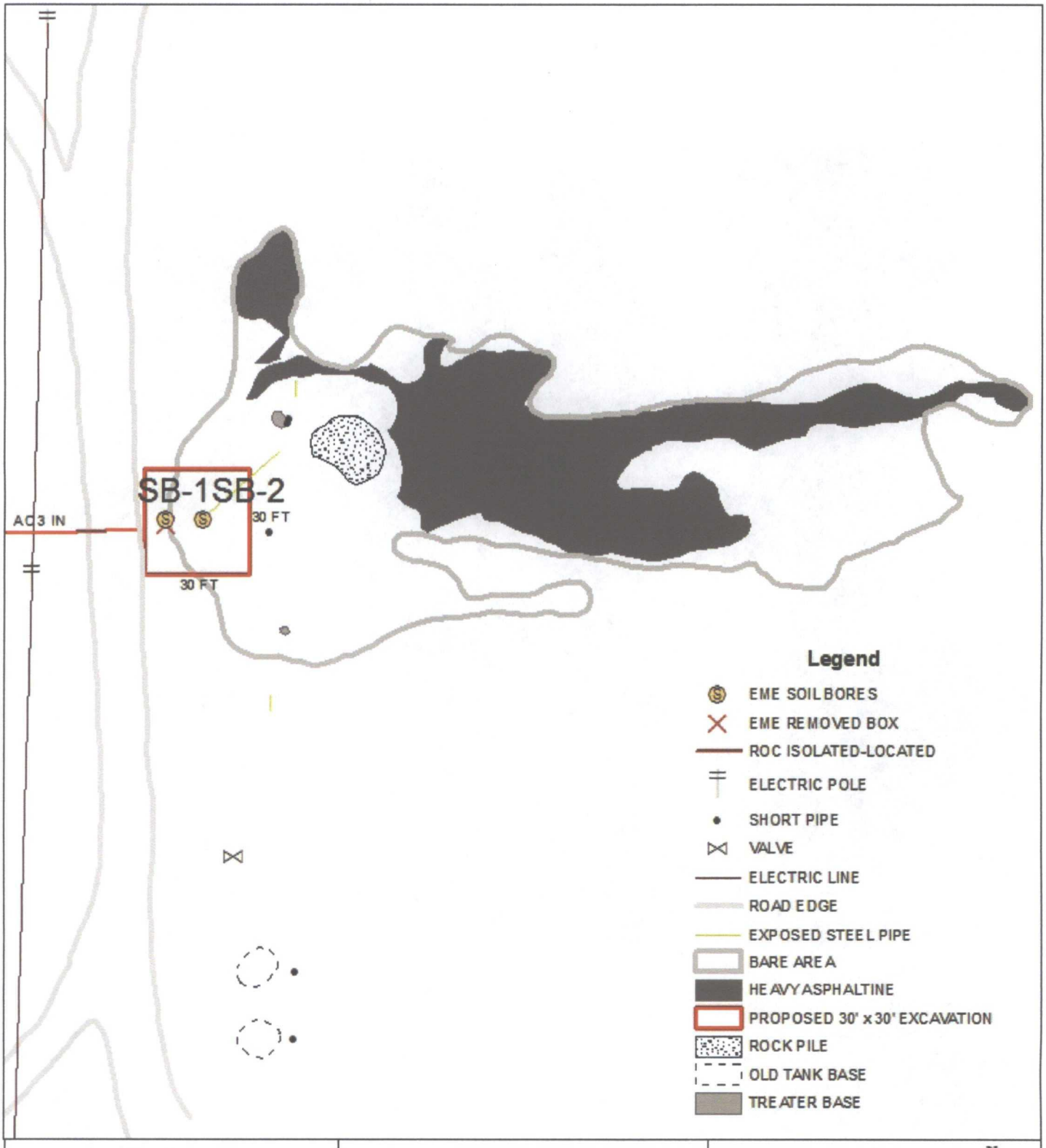
From: Hack Conder <hconder@riceswd.com>
Sent: Thursday, November 01, 2012 6:40 AM
To: Hansen, Edward J., EMNRD
Cc: Laura Pena; Katie Jones
Subject: FW: EME I-18 EOL (1R427-367) Plat and Photo Documentation
Attachments: EME I-18 EOL Photo Documentation.pdf; EME I-18 EOL Disturbed Area.pdf

Edward Hansen,

Attached is the Photo and Disturbed area of the EME I-18 as discussed.

Thanks
Hack Conder
RICE

From: Laura Pena
Sent: Wednesday, October 31, 2012 10:33 AM
To: Hack Conder
Subject: EME I-18 EOL (1R427-367) Plat and Photo Documentation



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME I-18 EOL

UL/I SECTION 18
T-19-S R-37-E
LEA COUNTY, NM

N
W E
S

0 25 50
Feet

GPS date: 5/4/12, 10/29/12 TG
Drawing date: 5/7/12, 10/29/12
Drafted by: TONY GRIECO

Facing east

10/29/2012