

1R - 427-365

WORKPLANS

Date:

5-30-12



IR427-365

RECEIVED OGD

2012 JUN -1 P 12:33

ARCADIS 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

Sent Certified Mail
Return Receipt No. 7002 2410 0001 5813 3968

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

Environmental

Subject:

**INVESTIGATION & CHARACTERIZATION PLAN (ICP)
EME Jct. C-13 (NMOCD Case #: not yet assigned)
Unit C, SEC. 13, T20S, R36E, Monument, Lea County, New Mexico**

Date:
May 30, 2012

Contact:
Sharon Hall

Mr. Hansen:

Phone:
432.687.5400

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site.

Email:
sharon.hall@arcadis-us.com

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.

Our ref:
MT001106.0001

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

For all such environmental projects, ROC will choose the path forward that:

- Protects public health;
- Provides the greatest net environmental benefit;
- Complies with NMOCD rules; and
- Is supported by good science.

Each site shall generally have three submissions:

1. This Investigation and Characterization Plan (ICP) is proposed for gathering data and site characterization and assessment.
2. Upon evaluating the data and results from the ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP), if warranted.

3. Finally, after implementing the remedy, a Termination Request with final documentation will be submitted.

Background and Previous Work

The site is located approximately 3.5 miles southwest of Monument, New Mexico as shown on the Site Location Map. Groundwater at the site will likely be encountered at a depth of 31 feet below ground surface (bgs). The junction box was eliminated and initial delineation was conducted from August 4th, 2011 through August 31st, 2011.

A backhoe was used to excavate soils from an excavation measuring 30 feet by 30 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. Chlorides were detected at a concentration of 992 mg/kg in the four-wall composite sample and 960 mg/kg in the five-point composite bottom sample. GRO and DRO were not detected in either of the samples.

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

Approximately 204 cubic yards of excavated soil was properly disposed of at a NMOCD approved facility. The remaining excavated soils were blended on site with clean imported soil and backfilled into the excavation to a depth of five feet below ground surface. A 20-mil poly liner was installed at five feet below ground surface and the remaining excavation was backfilled with blended soil to ground surface. The area was contoured to the surrounding landscape.

A sample of the blended backfill material was submitted to Cardinal Laboratories for chloride analysis. Chlorides were detected at a concentration of 288 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 with the 2011 junction box closures and disclosures (Appendix A).

ROC proposes additional investigative work at the site to determine if there is a potential for hydrocarbon impacts to groundwater.

Proposed Work Elements

- 1) Conduct vertical and lateral delineation of residual soil chloride and hydrocarbons from samples taken using a drilling rig, hand auger, and/or backhoe.
 - a) Vertical sampling will be conducted until the following criteria are met in the field:
 - i) Three samples in which the chloride concentration decreases and the third sample has a chloride concentration of ≤ 250 mg/kg; and,
 - ii) Three samples in which PID readings decrease and the third sample has a PID reading of ≤ 100 ppm; or,
 - 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 reading of ≤ 250 mg/kg 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 information obtained.

If the evaluation of the site shows no potential impact to groundwater from residual chlorides, only a vadose zone remedy will be undertaken. However, if groundwater

ARCADIS

Mr. Ed Hansen
May 30, 2012

shows impact from residual chlorides, a CAP will be developed to address these concerns.

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

Sincerely,

ARCADIS U.S., Inc.

Sharon E. Hall

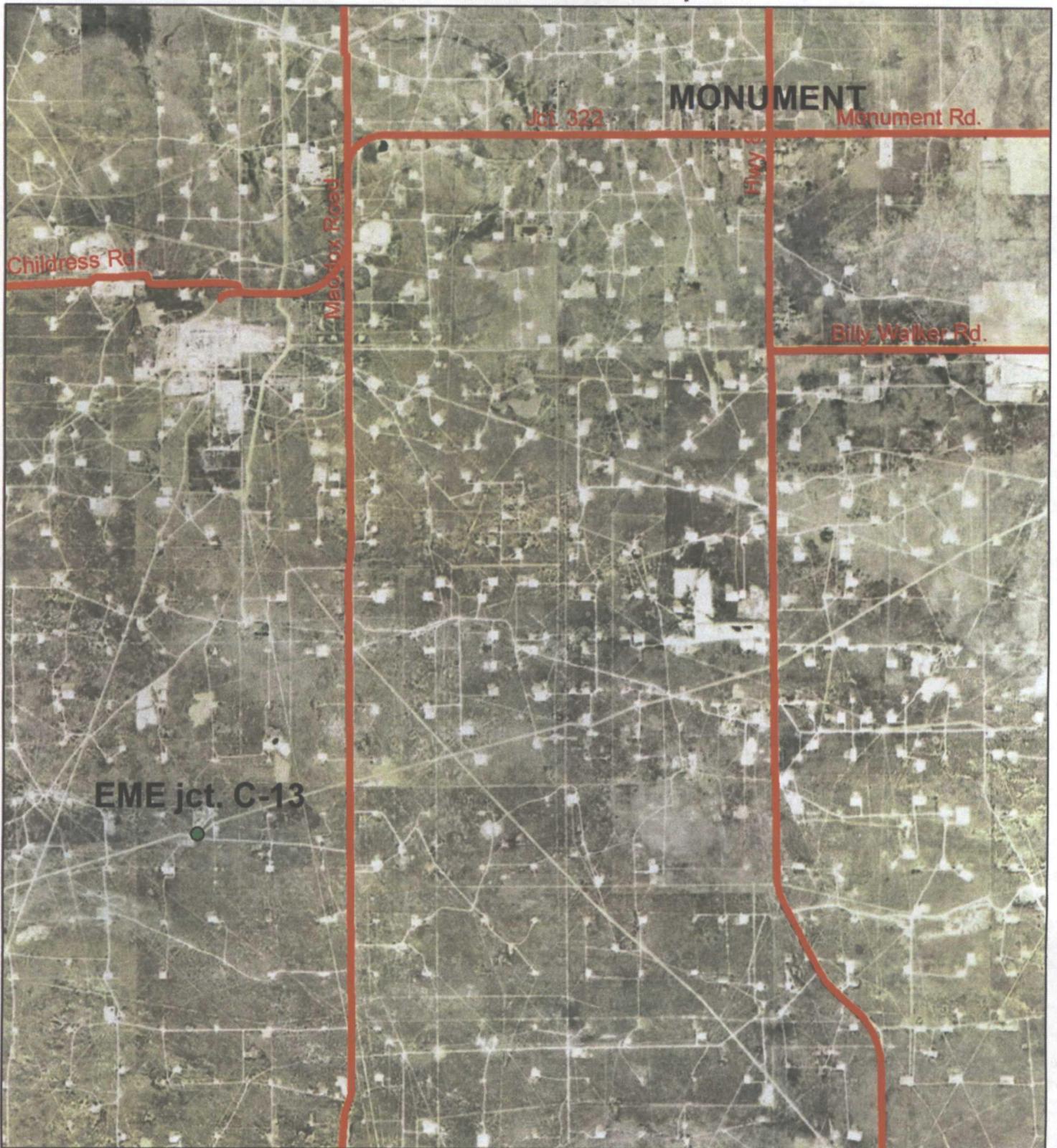
Sharon E. Hall
Associate Vice President

Copies:
Hack Conder, ROC

Attachments:

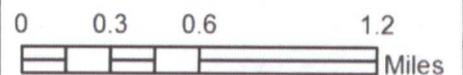
Site Location Map
Appendix A- Junction Box Disclosure Report

Site Location Map



EME jct. C-13

Legals: UL/C sec. 13
T-20-S R-36-E
LEA COUNTY, NM



Drawing date: 5-2-12
Drafted by: L. Weinheimer

EME Jct. C-13

Unit C, Section 13, T20S, R36E



Excavating the former junction box, facing south
8.8.11



Collecting a soil sample, facing north
8.30.11



Excavation prior to installation of plastic liner up to
5-ft. BGS, facing west
8.30.11



Installing a 30x30-ft., 20-mil reinforced liner at 5-ft.
BGS, facing east
8.30.11



Backfilling site above liner, facing north
8.30.11



Seeding site, facing west
8.31.11



August 18, 2011

BRUCE BAKER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

112 W. TAYLOR

HOBBS, NM 88240

RE: EME JCT. C-13

Enclosed are the results of analyses for samples received by the laboratory on 08/12/11 16:07.

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 Hydrocarbons

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

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 (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,

Hope Moreno

Inorganic Technical Director

COPY

Analytical Results For:

 RICE ENVIRONMENTAL CONSULTING & SAFETY
 BRUCE BAKER
 112 W. TAYLOR
 HOBBS NM, 88240
 Fax To: (575) 397-1471

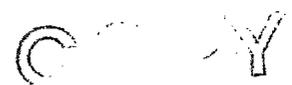
Received:	08/12/2011	Sampling Date:	08/12/2011
Reported:	08/18/2011	Sampling Type:	Soil
Project Name:	EME JCT. C-13	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: 5 PT BTM COMP (H101705-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	960	16.0	08/15/2011	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	08/16/2011	ND	205	102	200	0.954		
DRO >C10-C28	<10.0	10.0	08/16/2011	ND	180	90.0	200	0.324		
Surrogate: 1-Chlorooctane	105 %	70-130								
Surrogate: 1-Chlorooctadecane	115 %	70-130								

Sample ID: 4 WALL COMP (H101705-02)

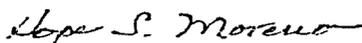
Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	992	16.0	08/15/2011	ND	416	104	400	0.00		
TPH 8015M		mg/kg		Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	08/16/2011	ND	205	102	200	0.954		
DRO >C10-C28	<10.0	10.0	08/16/2011	ND	180	90.0	200	0.324		
Surrogate: 1-Chlorooctane	103 %	70-130								
Surrogate: 1-Chlorooctadecane	107 %	70-130								



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 services. 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.



Hope Moreno, Inorganic Technical Director

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

6 PY

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno

Hope Moreno, Inorganic Technical Director



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

September 01, 2011

Hack Conder
Rice Operating Company
112 W. Taylor
Hobbs, NM 88240

RE: EME JCT C-13

Enclosed are the results of analyses for samples received by the laboratory on 08/30/11 16:15.

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
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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
Lab Director/Quality Manager

C Y

Analytical Results For:

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

Received:	08/30/2011	Sampling Date:	08/30/2011
Reported:	09/01/2011	Sampling Type:	Soil
Project Name:	EME JCT C-13	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

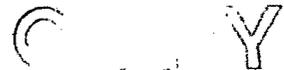
Sample ID: BLENDED BACKFILL (H101843-01)

Chloride, SM4500Cl-B

mg/kg

Analyzed By: HM

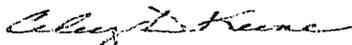
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	08/31/2011	ND	416	104	400	3.77	



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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

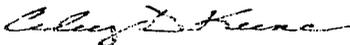
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>Cell</u>		BILL TO		ANALYSIS REQUEST											
Project Manager: <u>Mike Carter</u>		P.O. #:													
Address: <u>1322 W. Taylor</u>		Company:													
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>		Attn:													
Phone #: _____ Fax #: _____		Address:													
Project #: _____ Project Owner:		City:													
Project Name:		State: _____ Zip: _____													
Project Location: <u>EMC SGT C-13</u>		Phone #:													
Sampler Name: <u>Rosemary Taylor</u>		Fax #:													
FOR LAB USE ONLY															
Lab I.D.	Sample I.D.	# GRAB OR (COMP. #) CONTAINERS	MATRIX GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:	PRESERV ACID/BASE ICE / COOL OTHER:	SAMPLING DATE	TIME									
<u>H1019419</u>	<u>-1 Banded. Beck Hill</u>	<u>1</u>			<u>8-2-11</u>	<u>2:30</u>						<u>CL</u>			

PLEASE NOTE: Liability and Disputes. Cardinal is hereby notified that any cause of action arising out of this contract shall be barred by the statute of limitations unless the claimant files a lawsuit or other legal action within the time period specified in this contract. In the event of a claim, the claimant shall be responsible for all costs, including attorney's fees, and shall be liable for any loss of profits sustained by the claimant. Cardinal is not responsible for any loss of profits sustained by the claimant.

Relinquished By: <u>[Signature]</u>	Date: <u>8-2-11</u> Time: <u>9:15</u>	Received By: <u>Jodi Henderson</u>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <u>[Signature]</u>	REMARKS: <u>Off-trail @ Hill - res. cor; H-Condor @ E-mcs; K-Saves @ res - S-D; B-Baker @ res - as, B-Carbon @ res - as, res, L-Whitman @ res</u>

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

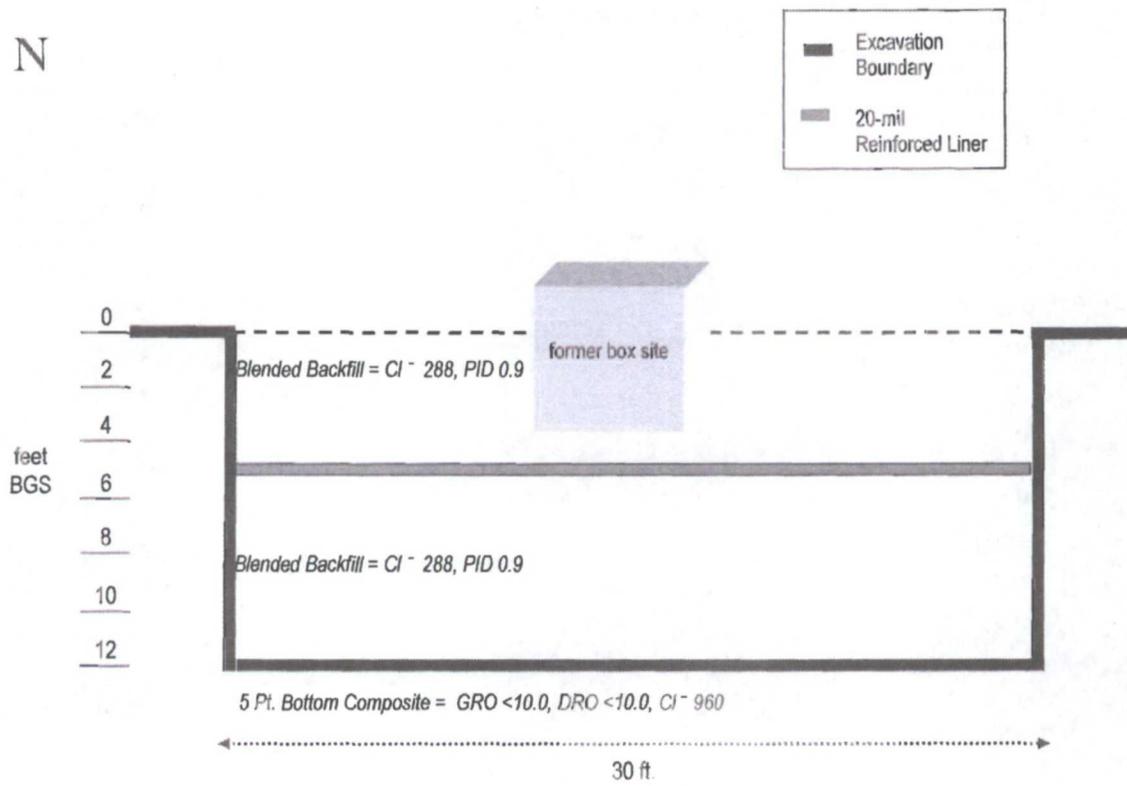
#26

EME Jct. C-13
Unit 'C', Sec. 13, T20S, R36E

Excavation Cross-Section

N

S



CHLORIDE CONCENTRATION CURVE

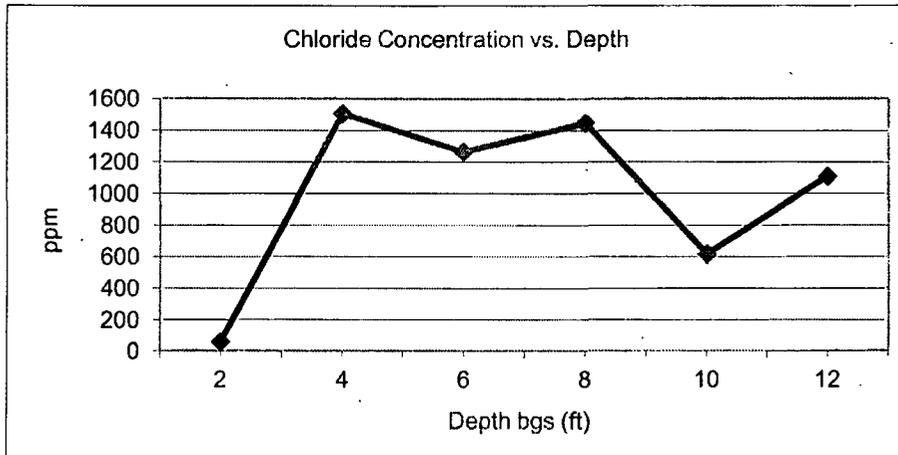
RICE Operating Company

EME Jct. C-13

Unit 'C', Sec. 13, T20S, R36E

Backhoe samples at 10 ft South of the junction (source)

Depth bgs (ft)	[Cl ⁻] ppm
2	58
4	1,505
6	1,265
8	1,447
10	616
12	1,110



Groundwater = 31 ft



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

VEGETATION FORM

1. General Information

Site name: EME C-13 JCT						
U/L C	Section 13	Township 20S	Range 36E	County Lea	Latitude 32° 34.649'	Longitude 103° 18.696'
Contact Name: Bruce Baker						
Email: bbaker@rice-ecs.com						
Site size: 15,367		square feet		Map detail of site attached <input checked="" 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 checked="" type="checkbox"/>	Depth (in):
Texture: Sandy		Describe soil & subsoil: Blow sand and subsoil caliche		
Soil prep methods: Rip <input type="checkbox"/>	Depth(in):	Disc <input type="checkbox"/>	Depth (in):	Rollerpack <input type="checkbox"/>
Date completed:				

3. Bioremediation

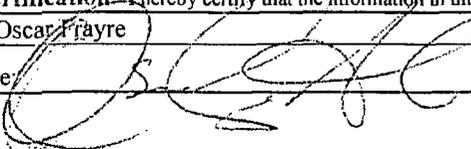
Fertilizer <input type="checkbox"/>	Hay <input type="checkbox"/>	Other <input type="checkbox"/>
Type:	Describe:	
Lbs/acre:		

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: Sandy Mix Grass Seed	Seeding date: 8/31/2011
Broadcast <input checked="" type="checkbox"/>			
Method: Hand Broadcast			
Soil conditions during seeding: Dry <input checked="" type="checkbox"/> Damp <input type="checkbox"/> Wet <input type="checkbox"/>			
Photos attached <input checked="" type="checkbox"/>		Observations: 15 lbs of sandy mix	
Number of photos: 11			

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: Oscar Frayre	Title: Environmental Tech.	Date: 8/31/2011
Signature: 		

COPY