1R - 427-367

WORKPLANS

Date:
6-5-12

ARCADIS
Infrastructure, environment, buildings

RECEIVED OCD
2012 JUN 11 A 4:39

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

Environmental

Sent Certified Mail
Return Receipt No. 7002 2410 0001 5813 3975

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:

INVESTIGATION & CHARACTERIZATION PLAN (ICP)
EME I-18 EOL
Unit I, SEC. 18, T19S, R37E, Monument, Lea County, New Mexico
NMOCD CASE # 1R427-367

Date:
June 5, 2012

Contact:
Sharon Hall

Phone:
432.687.5400

Email:
sharon.hall@arcadis-us.cor

Our ref:
MT001085.0001

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. The site was previously referred to as the EME P-18 EOL. However, the site name has changed to the EME I-18 EOL to match its geographical location. All future correspondence will reference I-18 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 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.

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 two and a half miles northwest of Monument, New Mexico as shown on the Site Location Map. 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 (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 chlorides 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 $\leq$ 250 mg/kg; and,
        ii) Three samples in which PID readings decrease and the third sample has a PID reading of $\leq$ 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 $\leq$ 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 TPH, only a vadose zone remedy will be undertaken. However, if groundwater shows impact from residual TPH, 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

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME I-18 EOL

Legals: UL/I sec. 18
T-19-S R-37-E
LEA COUNTY, NM

N
W E
S

0 0.15 0.3 0.6
Miles

Drawing date: 5-1-12
Drafted by: L. Weinheimer

RICE OPERATING COMPANY
JUNCTION BOX DISCLOSURE* REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
Eunice Monument Eumont (EME)	P-18 EOL	P	18	19S	37E	Lea	Eliminated		

LAND TYPE: BLM ___ STATE X FEE LANDOWNER _____ OTHER _____

Depth to Groundwater 35 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20

Date Started 1/26/2011 Date Completed 2/14/2011 OCD Witness No

Soil Excavated 44.4 cubic yards Excavation Length 10 Width 10 Depth 12 feet

Soil Disposed None cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 2/14/2011 **Sample Depth** 12'

Procure 5-point composite sample of bottom and 4-point composite sample of sidewalls. TPH and Chloride laboratory test results completed by using an approved lab and testing procedures pursuant to NMOCD guidelines.

Sample Location	PID (field) ppm	GRO mg/kg	DRO mg/kg	Chloride mg/kg
4-WALL COMP.	5.7	82.3	1,100	16
BOTTOM COMP.	5.7	76.0	1,780	16
BLENDED BACKFILL	6.7	76.3	1,080	16

CHLORIDE FIELD TESTS		
LOCATION	DEPTH	mg/kg
background	6"	148
4-WALL Comp	n/a	148
Bottom Comp	12'	148
Blended Backfill	n/a	151
Vertical delineation trench at the former junction (source)	3'	111
	4'	146
	5'	140
	6'	84
	7'	149
	8'	116
	9'	118
	10'	122
	11'	94
	12'	90

General Description of Remedial Action: This junction box and line were eliminated during the pipeline replacement/upgrade program. After the former junction box was removed, an investigation was conducted using a backhoe to collect soil samples at regular intervals producing a 10x10x12 ft deep excavation. Chloride field tests were performed on soil samples which yielded low chloride. Organic vapors were measured using a PID which yielded elevated concentrations. The excavated soil was blended on site and representative composite samples were collected from the excavation walls, the excavation bottom, and the blended backfill. The samples were sent to a commercial laboratory for analysis of chloride and TPH. Sample analysis showed elevated levels of TPH. The excavation was backfilled with the blended soil to ground surface and contoured to the surrounding area. On 3/2/2012, the site was seeded with a blended of native vegetation and is expected to return to a productive capacity at a normal rate. NMOCD was notified of potential groundwater impact on 3/13/2012.

ADDITIONAL EVALUATION IS HIGH PRIORITY

Enclosures: photos, lab results, PID (field) screenings, chloride graph, revegation form

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SITE SUPERVISOR Oscar Frayre SIGNATURE _____

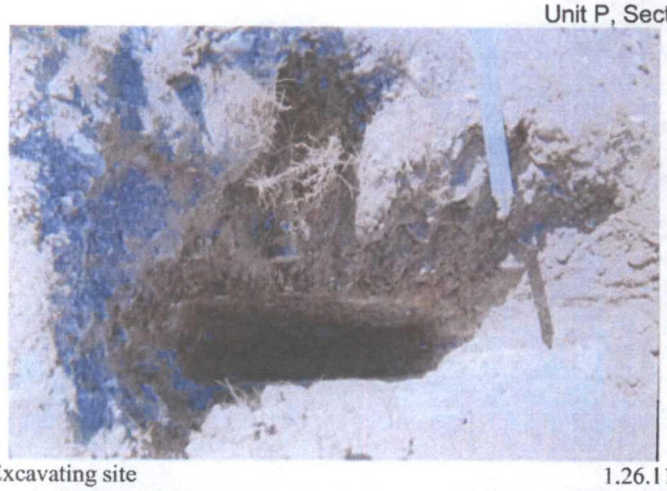
REPORT ASSEMBLED BY Laura Peña SIGNATURE Laura Peña COMPANY RICE OPERATING COMPANY

PROJECT LEADER Larry Bruce Baker, Jr. SIGNATURE Larry Bruce Baker Jr. DATE 4-10-12

*This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.

EME P-18 EOL

Unit P, Section 18, T19S, R37E



Excavating site 1.26.11

Collecting sample 2.14.11

Blending backfill 2.14.11

Seeding site 3.2.12

CARDINAL Laboratories

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

February 18, 2011

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME P-18 EOL (19/37)

Enclosed are the results of analyses for samples received by the laboratory on 02/15/11 8:09.

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:	02/15/2011	Sampling Date:	02/14/2011
Reported:	02/18/2011	Sampling Type:	Soil
Project Name:	EME P-18 EOL (19/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: 4 WALL COMP (H100299-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	02/16/2011	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	**82.3**	50.0	02/15/2011	ND	206	103	200	1.92	
DRO >C10-C28	**1100**	50.0	02/15/2011	ND	213	107	200	1.36	

Surrogate: 1-Chlorooctane	*107 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*104 %*	*70-130*

Sample ID: 5 PT BOTTOM COMP (H100299-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	02/16/2011	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	**76.0**	50.0	02/15/2011	ND	206	103	200	1.92	
DRO >C10-C28	**1780**	50.0	02/15/2011	ND	213	107	200	1.36	

Surrogate: 1-Chlorooctane	*110 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*104 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

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:	02/15/2011	Sampling Date:	02/14/2011
Reported:	02/18/2011	Sampling Type:	Soil
Project Name:	EME P-18 EOL (19/37)	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BLENDED BACKFILL COMP (H100299-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	02/16/2011	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	**76.3**	50.0	02/15/2011	ND	206	103	200	1.92	
DRO >C10-C28	**1080**	50.0	02/15/2011	ND	213	107	200	1.36	

Surrogate: 1-Chlorooctane	*105 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*98.2 %*	*70-130*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

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:
Project Manager:
Address:
City: Hobbs State: Zip: 88240
Phone #: Fax #:
Project #: Project Owner:
Project Name:
Project Location:
Sampler Name:

BILL TO

P.O. #:
Company:
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

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	CL	TPH 8015M
H0022[illegible]-1	4 Wall Comp	C				✓							2/14/11	[illegible]	X	X
2	5, 2+ Bar [illegible] Comp	C				✓							2/14/11	[illegible]	X	X
3	Blended Backfill Comp	C				✓							2/14/11	[illegible]	X	X

PLEASE NOTE: Liability and Damages. [illegible fine print]

Relinquished By: Date: Time: Received By:
Relinquished By: Date: Time: Received By:
Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool ☒ Yes ☐ No; Intact ☒ Yes ☐ No
CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

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

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:

X	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: 110-013676

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : 930132	EXPIRATION DATE: 4-28-13
METER READING ACCURACY: 100.00	

ACCURACY : +/- 2%

SYSTEM	JUNCTION	UNIT	SECTION	TOWN SHIP	RANGE
EME	P-18 EOL	P	18	19S	37E

SAMPLE ID	PID	SAMPLE ID	PID
5 Pt. Bottom Composite	5.7		
4 Wall Composite	5.7		
Blended Backfill	6.7		

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

SIGNATURE:

DATE: 2/14/2011

CHLORIDE CONCENTRATION CURVE

RICE *Operating Company*

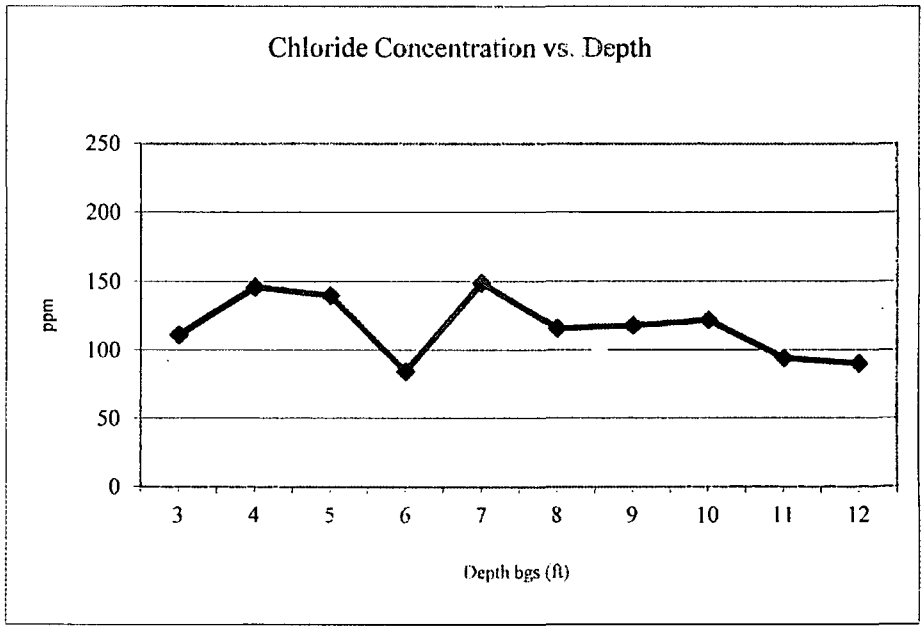
EME P-18 EOL

Unit 'P', Sec. 18, T19S, R37E

Backhoe samples at junction (source)

Depth bgs (ft)	[Cl⁻] ppm
3	111
4	146
5	140
6	84
7	149
8	116
9	118
10	122
11	94
12	90

Groundwater = 35 ft



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

VEGETATION FORM

1. General Information

Site name: EME P-18 EOL						
U/L P	Section 18	Township 19S	Range 37E	County Lea	Latitude N 32*.65721'	Longitude W 103*28417'
Contact Name: Zack Conder						
Email: zconder@rice-ecs.com						
Site size: 2,200 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):
Texture: Sandy	Describe soil & subsoil: Blow sand and subsoil caliche			
Soil prep methods:	Rip ☐ Depth(in):	Disc ☐ Depth (in):	Rollerpack ☐	
Date completed:				

3. Bioremediation

Fertilizer ☐	Hay ☐	Other ☐
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 ☒	Prescribed mix ☐	Seed mix name: 2 lbs blue grama	Seedingdate: 3-2-11
Broadcast ☒ Method: Portable seeder			
Soil conditions during seeding: Dry ☒ Damp ☐ Wet ☐			
Photos attached ☒ Number of photos:	Observations:		

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: 3-2-11
Signature:		

COPY