1R - 427-363

WORKPLANS

Date:
8-28-12

Hansen, Edward J., EMNRD

From: Katie Jones <kjones@riceswd.com>
Sent: Thursday, September 13, 2012 11:03 AM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Laura Pena; Lara Weinheimer
Subject: ROC - EME I-35 EOL ICP Report and CAP Addendum
Attachments: Site Location Map - Site to EME K-6 and L-6.jpg

Mr. Hansen,

The following is an Addendum to the EME I-35 EOL (1R426-363) ICP Report and CAP submitted to the NMOCD on August 28th, 2012.

Pages 2-4, Section: Corrective Action for Groundwater; red lettering will be deleted from the paragraph and blue lettering should be added to the paragraph.

"This site is located within the regionally impacted groundwater plume in an area with groundwater chloride concentrations greater than 10,000 mg/L (Figure 3 and 4). Monitor well sampling of the Environmental Protection Agency monitor wells located around Climax Chemical shows an up gradient well with a chloride concentration of 23,000 mg/L and a down gradient well with a chloride concentration of 10,700 mg/L. Based on this regional data, monitoring well installation at this site is not warranted since the minute amount of chlorides added to the aquifer by the site can only be negligible in relation to the high regional concentrations. Therefore, ROC proposes to remove chloride impacted groundwater from the existing groundwater recovery systems located at EME Jct. K-6 and EME L-6 to compensate for the chlorides remaining in the vadose zone. A plat showing the location of this site in relation to the existing recovery systems located at EME K-6 and L-6 are attached. Removed groundwater will be used for pipeline and well maintenance. Our estimate conservatively reflects the net impact to groundwater at the site resulting from the residual chloride in the vadose zone. It does not take into account other sources or regional conditions that may exist up gradient of the site.

The estimated impact area for the site is 6,300 square feet. The vadose zone thickness is considered to be the bottom 10 ft of the vadose zone. The proposed liner will prevent the downward migration of chlorides in the vadose zone, except in the bottom 10 ft of the zone, which will be affected by the water already moving through the vadose zone to groundwater. The volume of the impacted vadose zone beneath the site is determined by multiplying the impact area by the vadose zone thickness. Therefore, the volume of impacted vadose zone beneath the site is 63,000 cubic feet. The result is then converted to kilograms giving a value of 2,860,200 kg. The chloride concentration contributed from the source is the average soil bore concentrations from the bottom 10 ft of the soil bores resulting in 608 mg/kg. The total chloride mass in the vadose zone is then determined by multiplying the volume of impacted vadose zone beneath the site by the chloride concentration contributed from the site. This then is converted to kilograms. Thus, the total chloride mass beneath the site is 1,739 kg.

Chloride Mass in the Vadose Zone

Parameter	Unit	Value	Description
Impact area	ft^2	6,300	Estimated Area of Impact
Vadose Zone Thickness	ft	10	Bottom 10 ft of the vadose zone

Volume of Impacted Vadose Zone	ft^3	63,000	Impact Area x Vadose Zone Thickness
Mass of Impacted Vadose Zone	kg	2,860,200	Volume of Impacted Vadose Zone x Mass Density (1 ft^3 of soil weighs approx. 45.4 kg or 100 lb/ft^3)
Chloride Concentration Added to Soil From Source	mg/kg	608	Average Soil Bore Concentrations From the Bottom 10 ft of the Soil Bores
TOTAL CHLORIDE MASS	**kg**	**1,739**	Mass of Impacted Vadose Zone x Chloride Concentration Added to Soil From Source

The recovery system located at EME Jct. K-6 is expected to extract one gallon a minute and the recovery system located at EME L-6 is expected to extract up to two gallons a minute based on two recovery wells being located at the site. Based on the lowest chloride concentration (10,200 mg/L) observed in the three existing recovery wells (RW-1 located at EME L-6), a maximum of 1,072 barrels of groundwater will be required to remove 1,739 kg of chloride. Given the chloride concentration in RW-1 of 11,000 mg/L, approximately 994 barrels of groundwater will be required to remove 1,739 kg of chloride.

Estimated Groundwater Recovery System Removal at the EME Jct. K-6

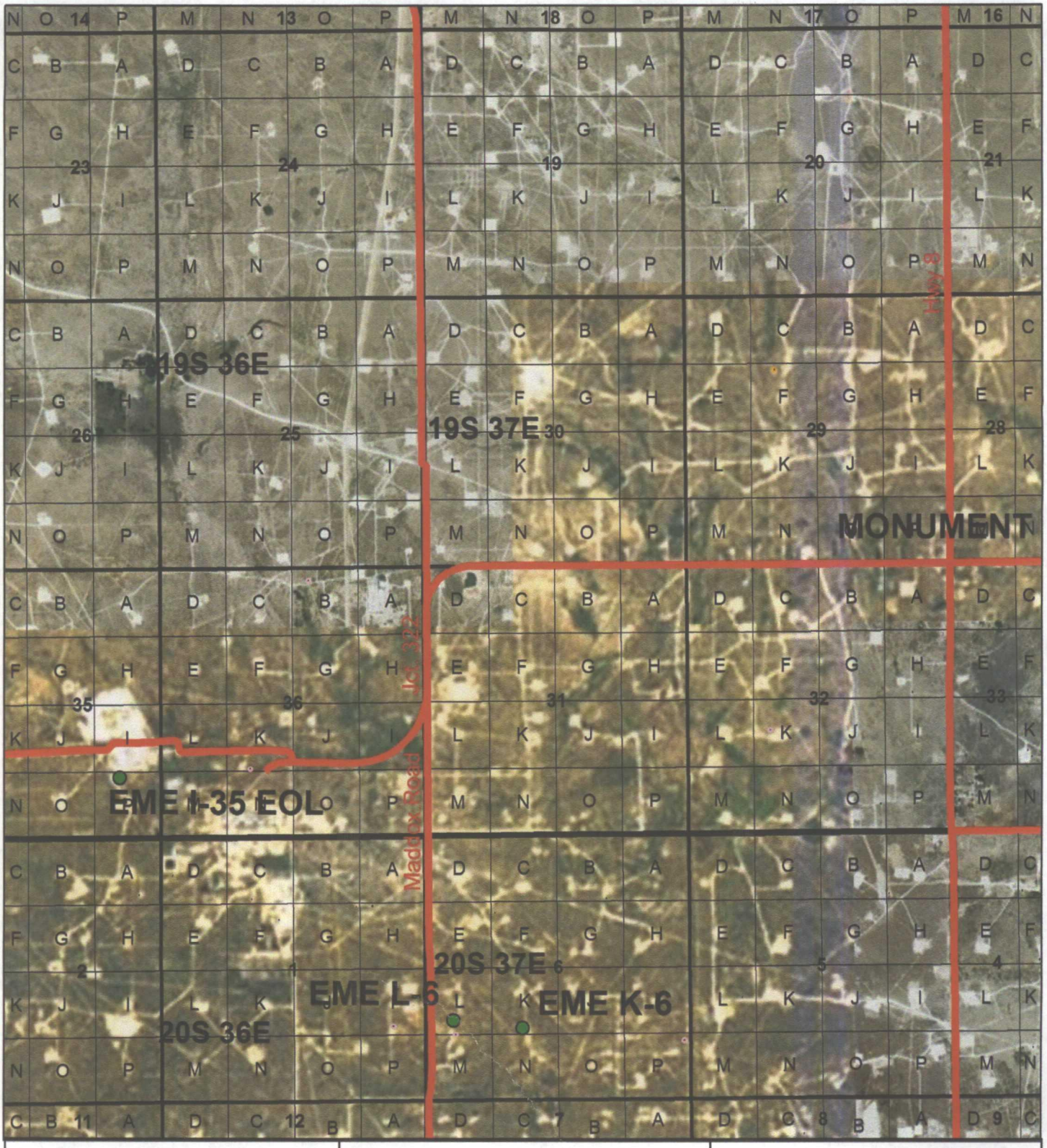
Parameter	Unit	Value	Value	Description
Groundwater Concentration	mg/L	11,000	10,200	Groundwater Concentration from R
Groundwater Concentration	kg/gal	0.041639853	0.0386115	Conversion from mg/ kg/gal
Pumping Rate	gals/min	1	3	Given
Extraction Rate	kg/min	0.041639853	0.115834501	Pumping rate x Groundwater Concentration (kg/g
Extraction Rate	kg/day	24.98391187	69.50070031	Conversion from kg/m kg/day
Representative Total Chloride Mass	kg	1,739	1,739	From above
Volume Removal	gals	41,763	45,038	Pumping rate x Estim Removal Time x 6(min/hour x 10 hr/d
Volume Removal	bbls	994	1,072	Conversion from gal: bbls
ESTIMATED REMOVAL TIME	**day**	**70**	**25**	Representative Tot Chloride Mass/Extrac Rate

Once the CAP work is completed by installing the 20-mil reinforced poly liner and removing 1,739 kg of chlorides from the aquifer, ROC will submit a written report that will include a request for 'remediation termination' of the regulatory file."

Thank you.

Katie Jones
Environmental Project Manager
RICE *Operating Company*

Site Location to EME L-6 and K-6



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

EME I-35 EOL

Legals: UL/P sec. 35
T-19-S R-36-E
LEA COUNTY, NM

NMOCD CASE #: 1R427-363

N
W E
S

0 0.2 0.4 0.8 Miles

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

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

CERTIFIED MAIL
RETURN RECEIPT NO. 7007 2560 0003 0320 5501

August 28th, 2012

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 Corrective Action Plan (CAP)**
Rice Operating Company – EME SWD System
EME I-35 EOL (1R427-363): UL/P sec. 35 T19S R36E

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. 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 3 miles southwest of Monument, New Mexico at UL/P sec. 35 T19S R36E as shown on the Site Location Map (Figure 1). RECS conducted a groundwater study of NM OSE records and BLM well records which indicated that groundwater would likely be encountered at a depth of approximately 46 +/- feet. However, soil bore installation at the site indicates that groundwater is located at approximately 33 feet.

In 2011, ROC initiated work on the former EME I-35 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 the blended backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 1,550 mg/kg, a gasoline range organics (GRO) reading of non-detect and a diesel range organics (DRO) reading of 10.8 mg/kg. The bottom composite showed a chloride laboratory reading of 1,200 mg/kg, a GRO reading of non-detect and a DRO reading of 25.3 mg/kg. The excavated soil was blended on site and returned to the excavation to a depth of 5 ft bgs where a 20-mil reinforced poly liner was installed and properly seated into the excavation. The excavation was then backfilled with the remainder of the blended soil to ground surface. Laboratory analysis

of the blended backfill showed a chloride reading of 960 mg/kg, a GRO and a DRO reading of non-detect.

The area was contoured to the surrounding landscape and seeded. NMOCD was notified of potential groundwater impact on February 15th, 2012 and a junction box disclosure report was submitted to NMOCD with all the 2011 junction box closures and disclosures.

Investigation and Characterization Plan (ICP) Report

As part of the Investigation and Characterization Plan submitted to NMOCD on May 22nd, 2012 and approved on May 30th, 2012, thirteen soil bores were installed at the site on June 12th and 13th, 2012 and August 8th and 10th, 2012 (Figure 2). While the bores were advanced, samples were taken at regular intervals for chloride and hydrocarbon field testing. Representative samples for each bore were taken to a commercial laboratory for confirmation of field numbers. Chloride concentrations decreased laterally with the edges being defined by SB-7 to the west, SB-13 to the south, SB-5 to the east, and SB-8 to the north. Chloride concentrations in SB-7 decreased from 1,220 mg/kg at 10 ft to 224 mg/kg at 25 ft. Chloride concentrations in SB-13 were low throughout, all be less than 144 mg/kg. Concentrations in SB-5, resulted in 336 mg/kg at 5 ft and 352 mg/kg at 10 ft, and SB-8 resulted in 416 mg/kg at 10 ft and 800 mg/kg at 20 ft. SB-10 was drilled near the Climax Chemical fence line and is representative of background soil concentrations.

Corrective Action Plan for the Vadose Zone

In order to lessen the movement of residual chlorides in the vadose zone to groundwater, RECS recommends that ROC install a 20-mil reinforced poly liner at 4-4.5 ft bgs measuring 105 ft x 60 ft (Figure 2). The liner will cover the existing liner measuring 30 ft x 30 ft at 5 ft bgs and will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soil will be evaluated for use as backfill and any soil requiring disposal will be properly disposed of at a NMOCD approved facility. The soils over and surrounding the site will then be prepared with soil amendments as necessary and seeded with a native vegetative mix. Vegetation above the liner will 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 to groundwater.

Corrective Action for Groundwater

This site is located within the regionally impacted groundwater plume in an area with groundwater chloride concentrations greater than 10,000 mg/L (Figure 3 and 4). Monitor well sampling of the Environmental Protection Agency monitor wells located around Climax Chemical shows an up gradient well with a chloride concentration of 23,000 mg/L and a down gradient well with a chloride concentration of 10,700 mg/L. Based on this regional data, monitoring well installation at this site is not warranted since the

minute amount of chlorides added to the aquifer by the site can only be negligible in relation to the high regional concentrations. Therefore, ROC proposes to remove chloride impacted groundwater from the existing groundwater recovery system located at EME Jct. K-6 to compensate for the chlorides remaining in the vadose zone. Removed groundwater will be used for pipeline and well maintenance. Our estimate conservatively reflects the net impact to groundwater at the site resulting from the residual chloride in the vadose zone. It does not take into account other sources or regional conditions that may exist up gradient of the site.

The estimated impact area for the site is 6,300 square feet. The vadose zone thickness is considered to be the bottom 10 ft of the vadose zone. The proposed liner will prevent the downward migration of chlorides in the vadose zone, except in the bottom 10 ft of the zone, which will be affected by the water already moving through the vadose zone to groundwater. The volume of the impacted vadose zone beneath the site is determined by multiplying the impact area by the vadose zone thickness. Therefore, the volume of impacted vadose zone beneath the site is 63,000 cubic feet. The result is then converted to kilograms giving a value of 2,860,200 kg. The chloride concentration contributed from the source is the average soil bore concentrations from the bottom 10 ft of the soil bores resulting in 608 mg/kg. The total chloride mass in the vadose zone is then determined by multiplying the volume of impacted vadose zone beneath the site by the chloride concentration contributed from the site. This then is converted to kilograms. Thus, the total chloride mass beneath the site is 1,739 kg.

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Parameter	Unit	Value	Description
Impact area	ft^2	6,300	Estimated Area of Impact
Vadose Zone Thickness	ft	10	Bottom 10 ft of the vadose zone
Volume of Impacted Vadose Zone	ft^3	63,000	Impact Area x Vadose Zone Thickness
Mass of Impacted Vadose Zone	kg	2,860,200	Volume of Impacted Vadose Zone x Mass Density (1 ft^3 of soil weighs approx. 45.4 kg or 100 lb/ft^3)
Chloride Concentration Added to Soil From Source	mg/kg	608	Average Soil Bore Concentrations From the Bottom 10 ft of the Soil Bores
TOTAL CHLORIDE MASS	**kg**	**1,739**	Mass of Impacted Vadose Zone x Chloride Concentration Added to Soil From Source

The recovery system located at EME Jct. K-6 is expected to extract one gallon a minute. Given the chloride concentration in RW-1 of 11,000 mg/L, approximately 994 barrels of groundwater will be required to remove 1,739 kg of chloride.

Estimated Groundwater Recovery System Removal at the EME Jct. K-6

Parameter	Unit	Value	Description
Groundwater Concentration	mg/L	11,000	Groundwater Concentration from RW-1
Groundwater Concentration	kg/gal	0.041639853	Conversion from mg/L to kg/gal
Pumping Rate	gals/min	1	Given
Extraction Rate	kg/min	0.041639853	Pumping rate x Groundwater Concentration (kg/gal)
Extraction Rate	kg/day	24.98391187	Conversion from kg/min to kg/day
Representative Total Chloride Mass	kg	1,739	From above
Volume Removal	gals	41,763	Pumping rate x Estimated Removal Time x 60 min/hour x 10 hr/day
Volume Removal	bbls	994	Conversion from gals to bbls
ESTIMATED REMOVAL TIME	**day**	**70**	Representative Total Chloride Mass/Extraction Rate

Once the CAP work is completed by installing the 20-mil reinforced poly liner and removing 1,739 kg of chlorides from the aquifer, ROC will submit a written report that will include a request for 'remediation termination' of the regulatory file.

RECS 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 – Site Location Map

Figure 2 – Soil Bore Installation Map and Proposed Liner
Figure 3 – EME Groundwater Contamination Map
Appendix A – Soil Bore Installation Documentation

Figures

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

Site Location Map

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

EME I-35 EOL

Legals: UL/P sec. 35
T-19-S R-36-E
LEA COUNTY, NM

NMOCD CASE #: 1R427-363

Figure 1

N
W E
S

0 0.2 0.4 0.8
Miles

Drawing date: 5-3-12
Drafted by: L. Weinheimer

Soil Bore Installation and Proposed Liner

SB-1

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	144	27.7			
5	448	19.6	400	<10	<10
10	392	26.4			
15	287	32.2			
20	414	14.8			
25	563	1.4	592	<10	<10
30	943	1.7			

SB-2

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	243	1.9			
5	445	2.3			
10	1381	1.5	1380	<10	<10
15	794	1.6			
20	480	1.6			
25	305	1.2	304	<10	<10
30	860	0.6			

SB-3

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	110	0.9			
5	555	1.8			
10	1019	1.2			
15	1033	3.2	1250	<10	<10
20	760	1.5			
25	518	4.1	400	<10	<10

Fence to Climax Chemical

SB-4

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	141	0.2			
5	792	1.1			
10	1480	1	1680	<10	<10
15	1275	1			
20	1224	1			
25	1162	0.8	1460	<10	<10

SB-5

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	144	5.6			
5	317	2.7	336	<10	<10
10	238	2.5	352	<10	<10

SB-6

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	317	6.7			
5	294	4.4			
10	1419	6.9	1630	<10	<10
15	694	6.8			
20	752	6.8			
25	610	6.2	368	<10	<10

SB-7

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	274	4.5			
5	483	7.4			
10	887	3.1	1220	<10	<10
15	760	5.8			
20	440	4.6			
25	254	3.2	224	<10	<10

SB-8

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	119	7.1			
5	142	4.7			
10	390	4.6	416	<10	<10
15	507	3.6			
20	515	2.5	800	<10	<10

SB-9

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	551	4.8			
5	387	9.1			
10	1026	2.5	1100	<10	<10
15	602	3.4			
20	308	6.7			
25	840	6.5	832	<10	<10

SB-10

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	5806	9.2	8260	<10	<10
3	1260	11.3			
6	804	10			
9	708	9.4			
12	568	7.5			
15	451	9.3			
18	591	9.9			
21	216	8.7	240	<10	<10

SB-11

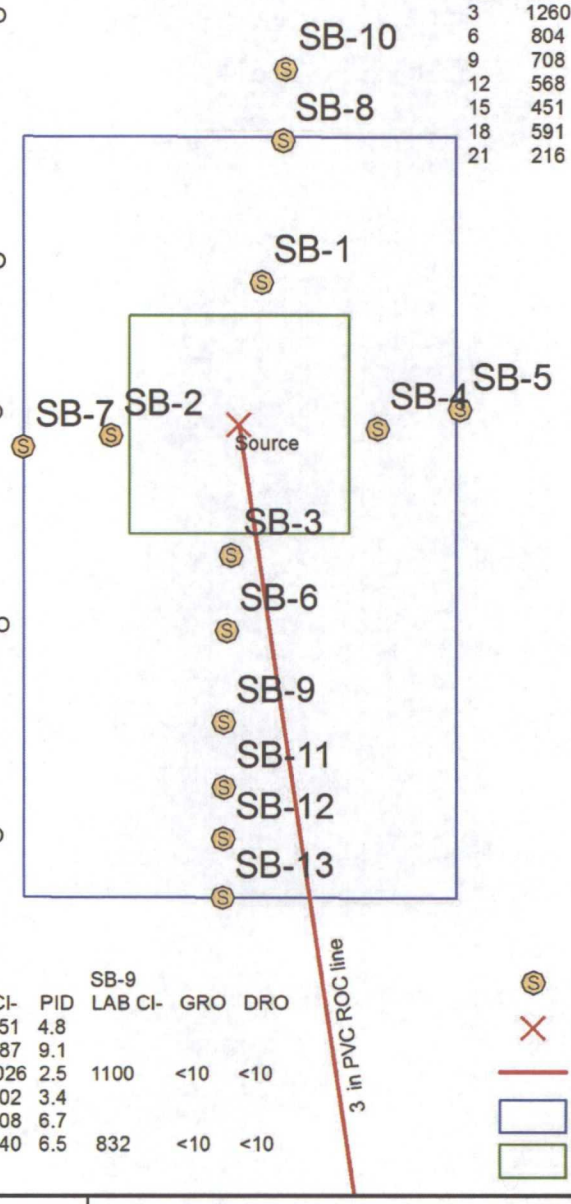
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	86	64.5			
3	497	34.4			
6	629	49			
9	1000	17.7			
12	755	33.7			
15	1170	34			
18	1373	19.2	1520	<10	<10
21	1287	20.1			
24	883	33.2	1220	<10	<10

SB-12

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	52	34			
3	430	51.2			
6	500	19.7	560	<10	<10
9	490	14.2			
12	571	23.7			
15	331	25.5			
18	333	5.7			
21	628	20.2			
24	891	19.2	720	<10	<10

SB-13

Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	118	0			
3	252	6.4	144	<10	<10
6	163	14.5			
9	133	10.2	16	<10	<10



Legend

- EME SOIL BORES
- EME REMOVED BOXES
- ROC LINE
- 105' x 60' 20-MIL POLY LINER 4'-4'5" BGS
- 30' x 30' 20-MIL POLY LINER @ 5' BGS

DGW = 33 ft

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

EME I-35 EOL

UL/P SECTION 35
T-19-S R-36-E
LEA COUNTY, NM

NMOCD CASE #: 1R427-363

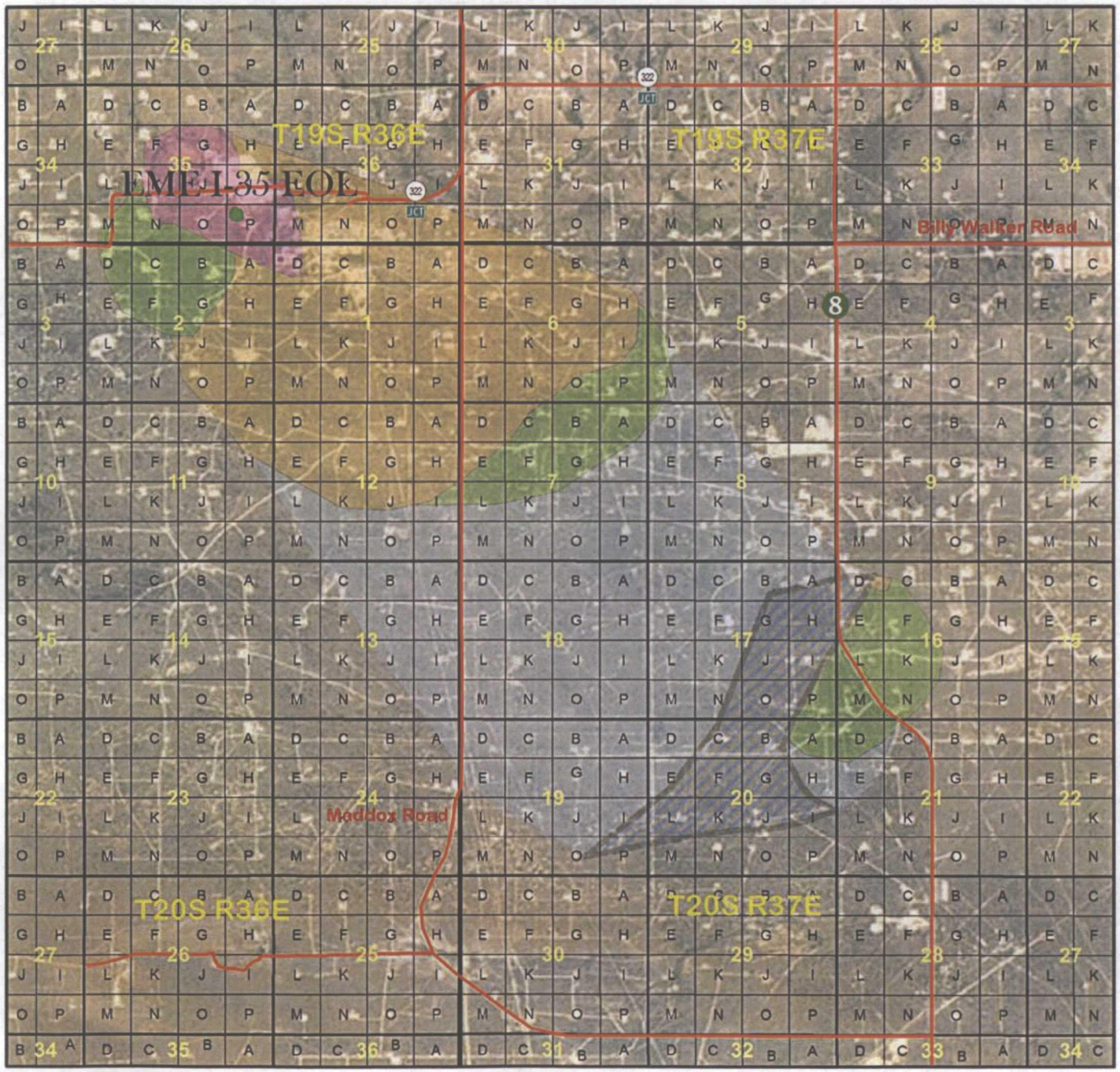
Figure 2

N W E S

0 20 40 Feet

GPS date: 6/14/12 by TG
Drawing date: 6/20/12
Drafted by: L. Weinheimer

EME Groundwater Contamination



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

122 W. Taylor
Hobbs, NM 88240
Phone (575) 393-9174
Fax (575) 397-1471

- Cl- concentration > 10,000
- 10,000 > Cl- concentration > 5,000
- 5,000 > Cl- concentration > 2,000
- 2,000 > Cl- concentration > 500
- Hypothetical Cl- contamination area

N
W E
S

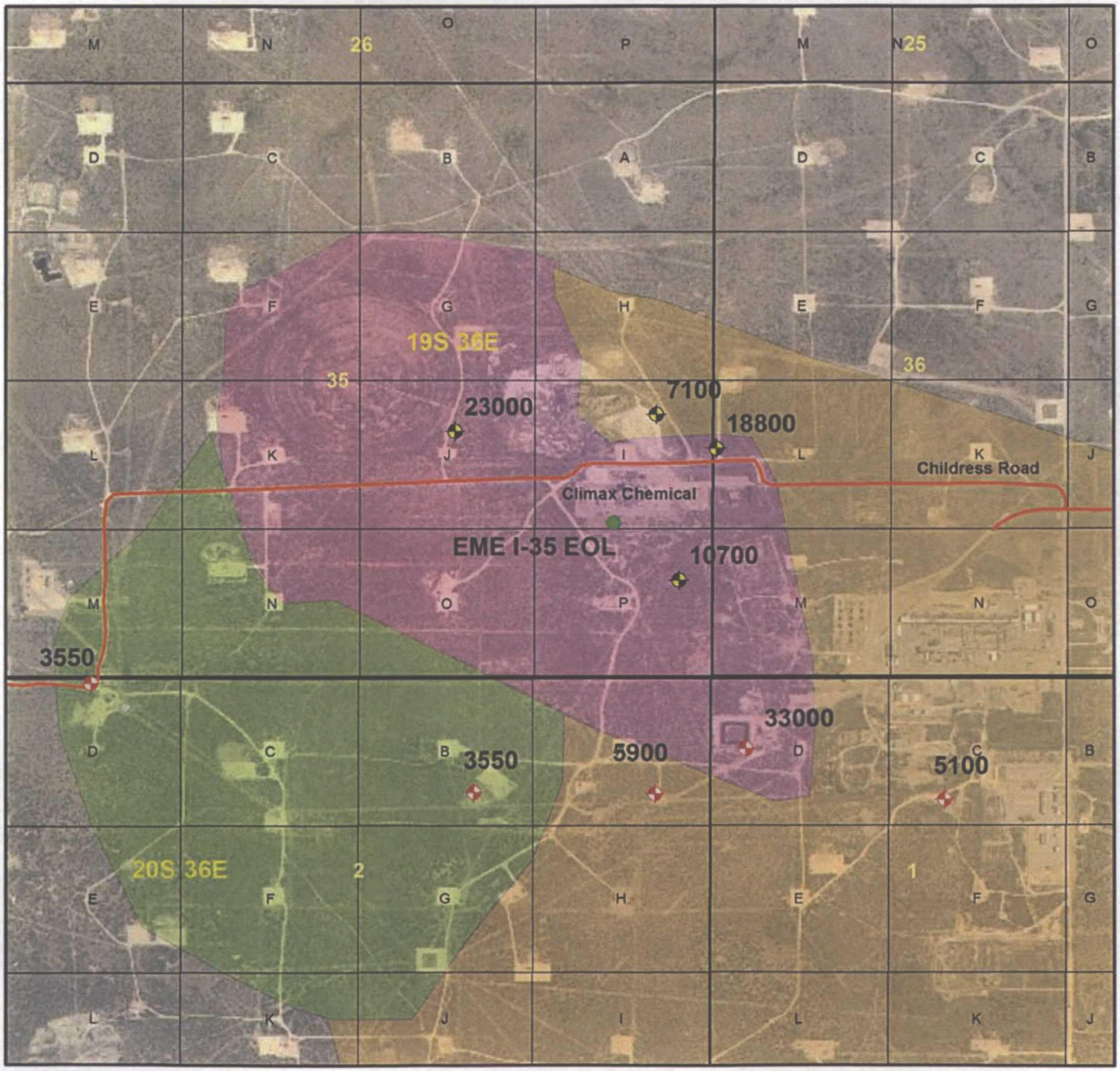
0 0.5 1 Miles

This map was prepared for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2012. As conditions change and/or new monitor wells are added, the contamination plume will undergo permutations that will be reflected in future maps. Rice Operating Company does not assume any responsibility for the use of this information by others.

Drawing date: 12-15-09
Revision date: 8-17-12
Drafted by: Lara Weinheimer

Figure 3

EME Groundwater Chloride Contamination Concentrations



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122 W. Taylor
Hobbs, NM 88240
Phone (575) 393-9174
Fax (575) 397-1471

Cl- concentration > 10,000

10,000 > Cl- concentration > 5,000

5,000 > Cl- concentration > 2,000

EPA Monitor Wells

ROC Monitor Wells

N W E S

0 0.15 0.3 Miles

This map was prepared for Rice Operating Company. This map represents the known chloride impact concentrations in the groundwater as of 2012. As conditions change and/or new monitor wells are added, the contamination plume will undergo permutations that will be reflected in future maps. Rice Operating Company does not assume any responsibility for the use of this information by others.

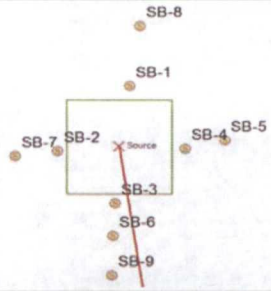
Drawing date: 12-15-09
Revision date: 8-24-12
Drafted by: Lara Weinheimer

Figure 4

Appendix A

Soil Bore Installation Documentation

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

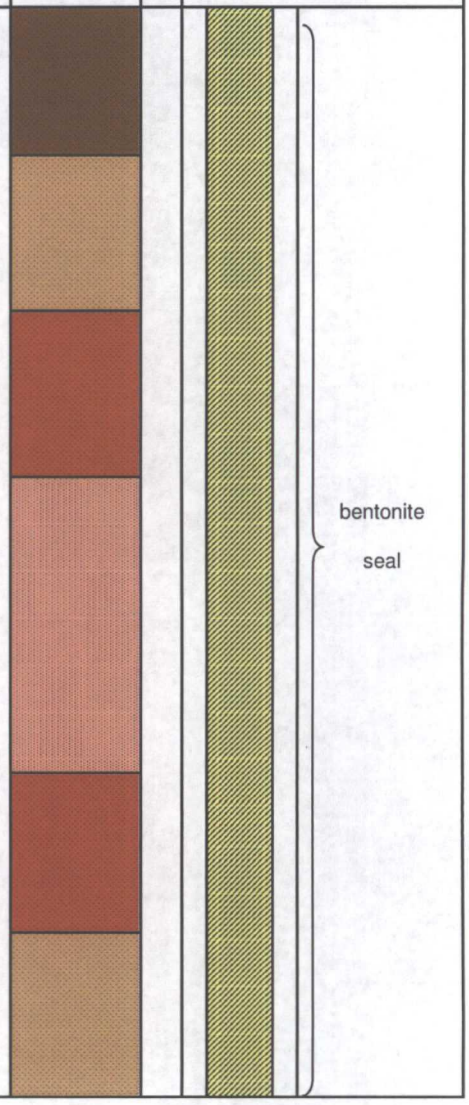
Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-1
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/12/2012		
End Date:	6/12/2012		

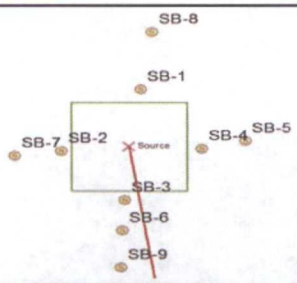
Comments: Located 20 ft north of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer
TD = 30 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

Lat: 32°36'46.674"N **County**: Lea
Long: 103°19'5.235"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	144		27.7	
				Brown/Tan Sand
5 ft	448	Cl-400	19.6	
		GRO <10		Red Sand
		DRO <10		
10 ft	392		26.4	
				Tan/Red Sand With Some Caliche
15 ft	287		32.2	
20 ft	414		14.8	
				Red Sand
25 ft	563	Cl-592	1.4	
		GRO <10		Damp Brown/Tan Sandy Clay
		DRO <10		
30 ft	943		1.7	



Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-2
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/12/2012		
End Date:	6/12/2012		

Comments: Located 18 ft west of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

TD = 30 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

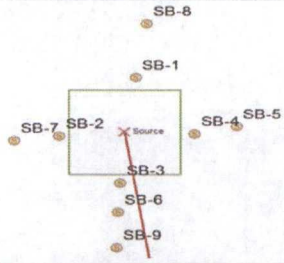
Lat: 32°36'46.469"N **County**: Lea
Long: 103°19'5.479"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	243		1.9	
5 ft	445		2.3	
				Tan/Red Sand With Some Caliche
10 ft	1381	Cl- 1380	1.5	
		GRO <10		
		DRO <10		
15 ft	794		1.6	
				Red Sand
20 ft	480		1.6	
25 ft	305	Cl- 304	1.2	
		GRO <10		Damp Red/Brown Sandy Clay
		DRO <10		
30 ft	860		0.6	

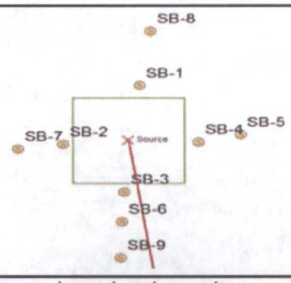
Lithology

Well Construction

bentonite seal

Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-3
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/12/2012		
End Date:	6/12/2012		
Comments: Located 19 ft south of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 25 ft GW = 33 ft			**Location:** UL/P sec. 35 T-19-S R-36-E **Lat:** 32°36'46.299"N **Long:** 103°19'5.286"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Brown Sand		bentonite seal
SS	110		0.9			
				Brown/Red Sand With Some Caliche		
5 ft	555		1.8			
10 ft	1,019		1.2			
15 ft	1,033	Cl- 1250	3.2			
		GRO <10				
		DRO <10				
20 ft	760		1.5			
				Red/Brown Sandy Clay		
25 ft	518	Cl- 400	4.1			
		GRO <10				
		DRO <10				

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME I-35 EOL **Well ID:** SB-4
Start Date:	6/12/2012		
End Date:	6/12/2012		**Project Consultant:** RECS

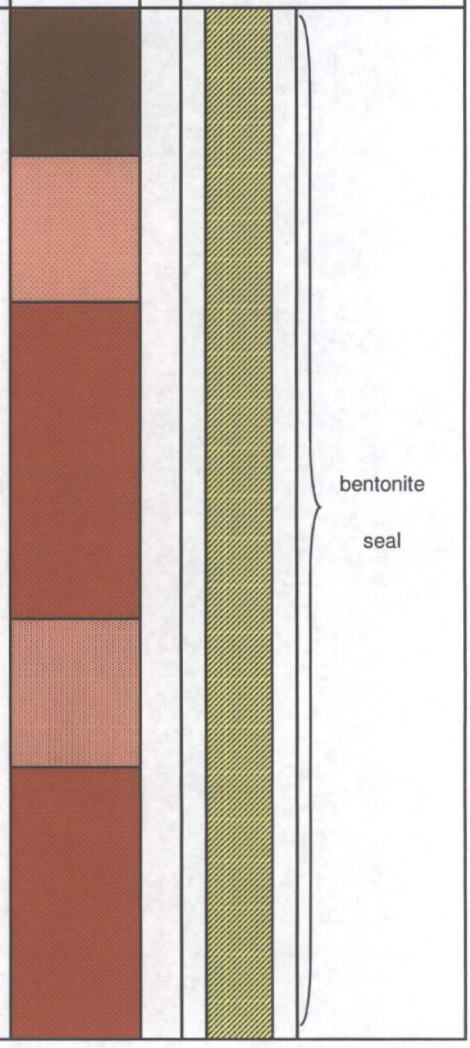
Comments: Located 20 ft east of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

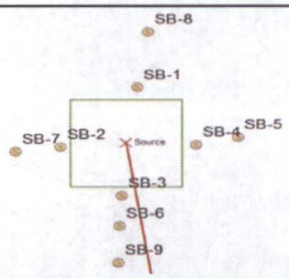
TD = 25 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

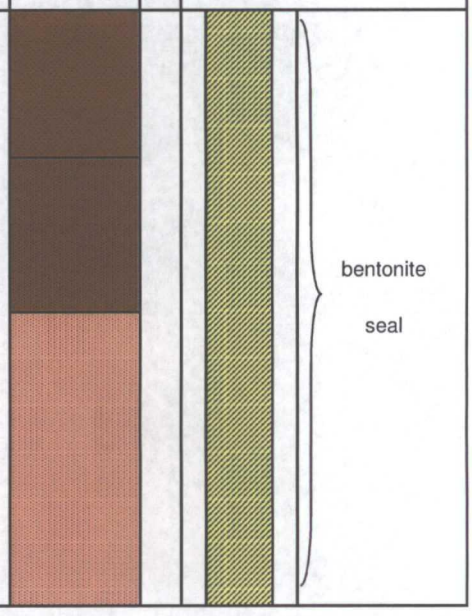
Lat: 32°36'46.473"N **County**: Lea
Long: 103°19'5.045"W **State**: NM

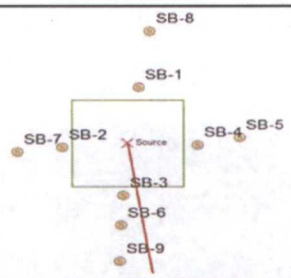
Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	141		0.2	
				Red/Tan Sand
5 ft	792		1.1	
				Red Sand
10 ft	1480	Cl- 1680	1.0	
		GRO <10		
		DRO <10		
15 ft	1275		1.0	
				Red/Tan Sand With Some Caliche
20 ft	1224		1.0	
				Red Sand
25 ft	1162	Cl- 1460	0.8	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air rotary		**Project Name:** EME I-35 EOL **Well ID:** SB-5
Start Date:	6/13/2012		
End Date:	6/13/2012		**Project Consultant:** RECS
Comments: Located 31 ft east of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 10 ft GW = 33 ft			**Location:** UL/P sec. 35 T-19-S R-36-E **Lat:** 32°36'46.498"N **Long:** 103°19'4.912"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	144		5.6	
				Brown Sand With Some Caliche
5 ft	317	Cl- 336	2.7	
		GRO <10		Tan/Red Sand With Some Caliche
		DRO <10		
10 ft	238	Cl- 352	2.5	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-6
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/13/2012		
End Date:	6/13/2012		

Comments: Located 29 ft south of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

TD = 25 ft GW = 33 ft

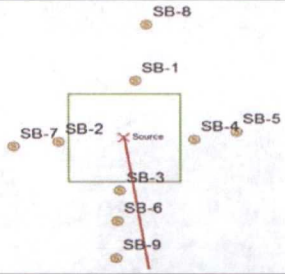
Location: UL/P sec. 35 T-19-S R-36-E

Lat: 32°36'46.2"N **County**: Lea
Long: 103°19'5.293"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	317		6.7	
5 ft	294		4.4	
				Red/Tan Sand
10 ft	1419	Cl- 1630	6.9	
		GRO <10		Red Sand
		DRO <10		
15 ft	694		6.8	
				Red/Tan Sand
20 ft	752		6.8	
				Tan Sand With Some Caliche
25 ft	610	Cl- 368	6.2	
		GRO <10		
		DRO <10		

Lithology

Well Construction: bentonite seal

Logger:	Kyle Norman		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME I-35 EOL **Well ID:** SB-7
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	6/13/2012		
End Date:	6/13/2012		

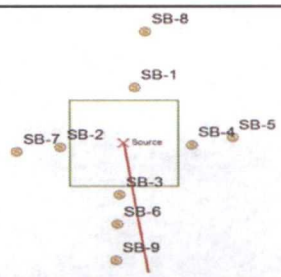
Comments: Located 30 ft west of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer
TD = 25 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E
Lat: 32°36'46.451"N **Long:** 103°19'5.625"W
County: Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	274		4.5	
5 ft	483		7.4	
				Red/Tan Sand With Some Caliche
10 ft	887	Cl- 1220	3.1	
		GRO <10		Red Sand
		DRO <10		
15 ft	760		5.8	
20 ft	440		4.6	
				Tan/Red Sand
25 ft	254	Cl- 224	3.2	
		GRO <10		
		DRO <10		

Lithology

Well Construction: bentonite seal

Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-8
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air rotary		
Start Date:	6/13/2012		
End Date:	6/13/2012		

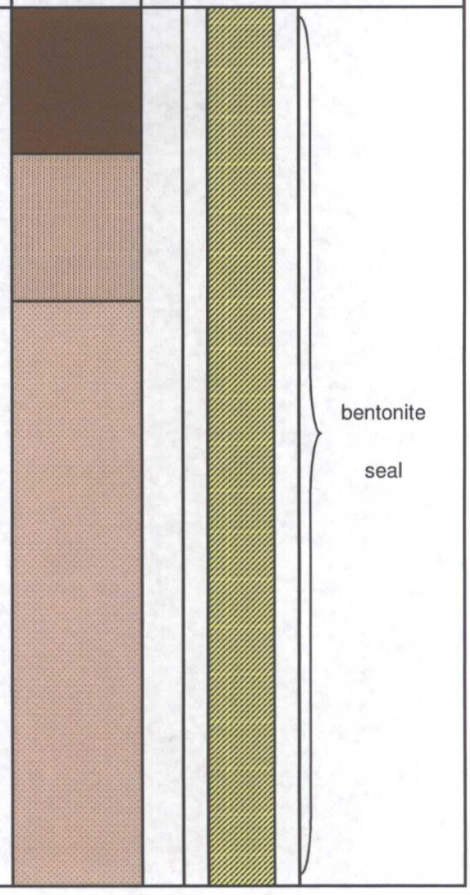
Comments: Located 40 ft north of the former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

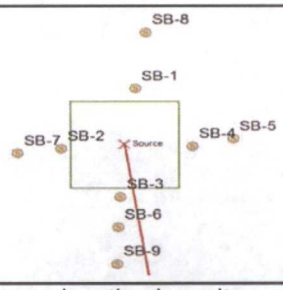
TD = 20 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

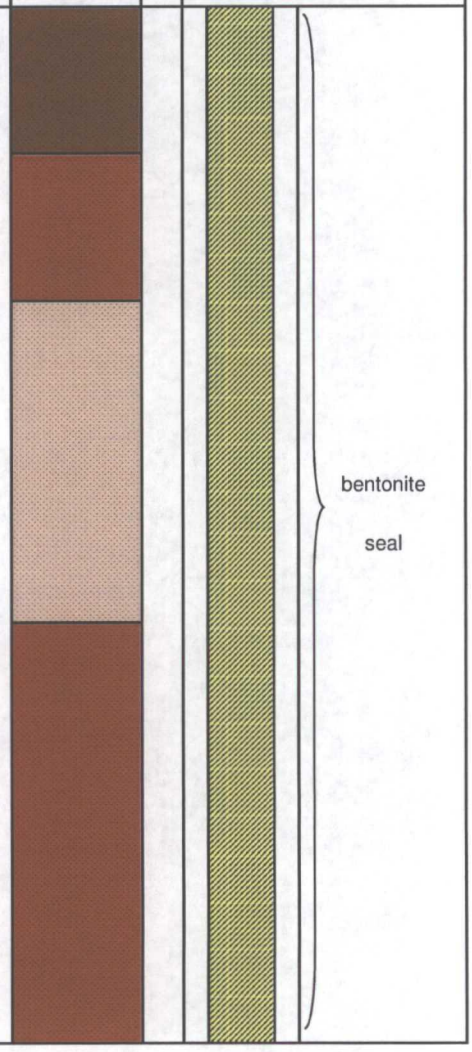
Lat: 32°36'46.867"N **County**: Lea
Long: 103°19'5.199"W **State**: NM

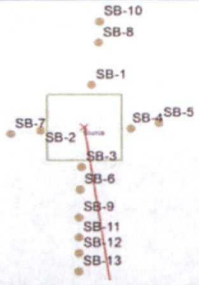
Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	119		7.1	
				Tan Sand With Some Caliche
5 ft	142		4.7	
				Tan Sand
10 ft	390	Cl- 416	4.6	
		GRO <10		
		DRO <10		
15 ft	507		3.6	
20 ft	515	Cl- 800	2.5	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME I-35 EOL **Well ID:** SB-9
Drilling Method:	Air rotary		**Project Consultant:** RECS
Start Date:	6/13/2012		
End Date:	6/13/2012		
Comments: Located 41 ft south of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Weinheimer** TD = 25 ft GW = 33 ft			**Location:** UL/P sec. 35 T-19-S R-36-E **Lat:** 32°36'46.077"N **Long:** 103°19'5.301"W **County:** Lea **State:** NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	551		4.8	
				Red/Brown Sand
5 ft	387		9.1	
				Tan Sand
10 ft	1026	Cl- 1100	2.5	
		GRO <10		
		DRO <10		
15 ft	602		3.4	
				Red/Brown Sand
20 ft	308		6.7	
25 ft	840	Cl- 832	6.5	
		GRO <10		
		DRO <10		



Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-10
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air Rotary		
Start Date:	8/8/2012		
End Date:	8/8/2012		

Comments: Located 50 ft NNE of former junction box site.
All samples were from cuttings.
DRAFTED BY: Amy C. Ruth
TD = 21 ft GW = 33 ft

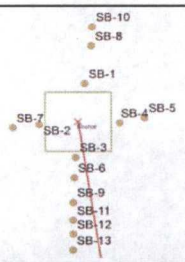
Location: UL/P sec. 35 T-19-S R-36-E

Lat: 32°36'46.959"N **County**: Lea
Long: 103°19'5.191"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Tan Sand
SS	5806	Cl- 8260	9.2	
		GRO <10		Tan Sand With Some Caliche
		DRO <10		
3 ft	1260		11.3	
6 ft	804		10	
9 ft	708		9.4	
12 ft	568		7.5	
15 ft	451		9.3	
				Tan Sand
18 ft	591		9.9	
21 ft	216	Cl- 240	8.7	
		GRO <10		
		DRO <10		

Lithology

Well Construction: bentonite seal

Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-11
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air Rotary		**Location:** UL/P sec. 35 T-19-S R-36-E
Start Date:	8/8/2012		**Lat:** 32°36'45.986"N **County:** Lea
End Date:	8/8/2012		**Long:** 103°19'5.306"W **State:** NM

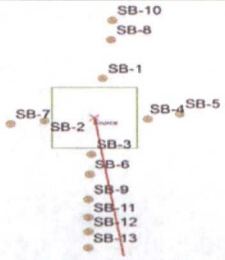
Comments: Located 50 ft S of former junction box site.
All samples were from cuttings.
DRAFTED BY: Amy C. Ruth
TD = 24 ft GW = 33 ft

Depth (feet)	Chloride field tests	LAB	PID	Description
				Tan Sand
SS	86		64.5	
3 ft	497		34.4	
				Red/Tan Sand
6 ft	629		49.0	
				Tan Sand
9 ft	1000		17.7	
				Tan Sand With Some Caliche
12 ft	755		33.7	
				Red Sand With Some Caliche
15 ft	1170		34.0	
				Red Sand
18 ft	1373	Cl- 1520	19.2	
		GRO <10		Tan Sand With Some Caliche
		DRO <10		
21 ft	1287		20.1	
24 ft	883	Cl- 1220	33.2	
		GRO <10		
		DRO <10		

Lithology

Well Construction

bentonite seal

Logger:	Kyle Norman		**Project Name:** EME I-35 EOL **Well ID:** SB-12
Driller:	Harrison & Cooper, Inc.		**Project Consultant:** RECS
Drilling Method:	Air Rotary		
Start Date:	8/8/2012		
End Date:	8/8/2012		

Comments: Located 58 ft S of former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

TD = 24 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

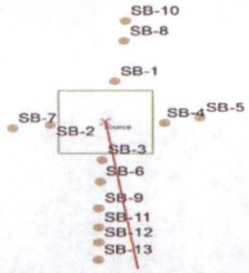
Lat: 32°36'45.913"N **County**: Lea
Long: 103°19'5.301"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Tan Sand
SS	52		34.0	
				Tan Sand With Some Caliche
3 ft	430		51.2	
6 ft	500	Cl- 560	19.7	
		GRO <10		
		DRO <10		
9 ft	490		14.2	
12 ft	571		23.7	
15 ft	331		25.5	
18 ft	333		5.7	
21 ft	628		20.2	
24 ft	891	Cl- 720	19.2	
		GRO <10		
		DRO <10		

Lithology

Well Construction

bentonite seal

Logger:	Kyle Norman		RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** EME I-35 EOL **Well ID:** SB-13
Drilling Method:	Air Rotary		**Project Consultant:** RECS
Start Date:	8/10/2012		
End Date:	8/10/2012		

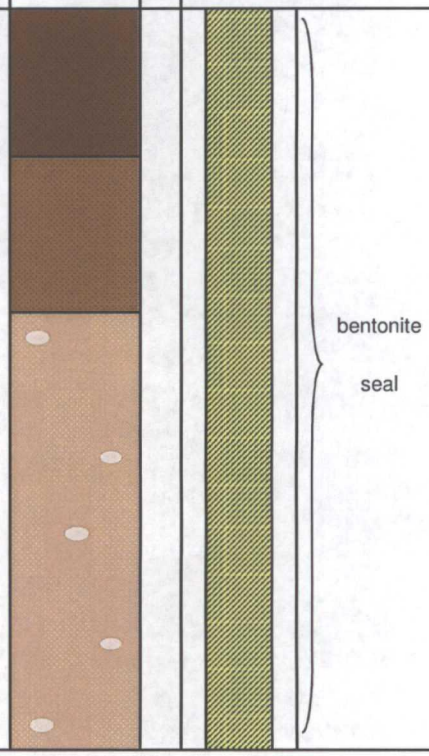
Comments: Located 65 ft S of former junction box site.
All samples were from cuttings.
DRAFTED BY: L. Weinheimer

TD = 9 ft GW = 33 ft

Location: UL/P sec. 35 T-19-S R-36-E

Lat: 32°36'45.835"N **County**: Lea
Long: 103°19'5.306"W **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Brown Sand
SS	118		0.0	
				Brown/Tan Sand
3 ft	252	Cl- 144	6.4	
		GRO <10		Tan Sand With Some Caliche
		DRO <10		
6 ft	163		14.5	
9 ft	133	Cl- 16	10.2	
		GRO <10		
		DRO <10		



CARDINAL Laboratories

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

June 19, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 06/12/12 16:35.

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:	06/12/2012	Sampling Date:	06/12/2012
Reported:	06/19/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 5' (H201324-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	06/15/2012	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: MS** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	197	98.3	200	14.0	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	195	97.4	200	19.4	

Surrogate: 1-Chlorooctane	*95.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*63.6-154*

Sample ID: SB 1 @ 25' (H201324-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**592**	16.0	06/15/2012	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: MS** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	197	98.3	200	14.0	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	195	97.4	200	19.4	

Surrogate: 1-Chlorooctane	*93.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*115 %*	*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:	06/12/2012	Sampling Date:	06/12/2012
Reported:	06/19/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 10' (H201324-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1380**	16.0	06/15/2012	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: MS** **S-06**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	197	98.3	200	14.0	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	195	97.4	200	19.4	

Surrogate: 1-Chlorooctane	*92.7 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*110 %*	*63.6-154*

Sample ID: SB 2 @ 25' (H201324-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**304**	16.0	06/15/2012	ND	416	104	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	177	88.7	200	6.72	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	176	87.9	200	8.73	

Surrogate: 1-Chlorooctane	*89.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*105 %*	*63.6-154*

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:	06/12/2012	Sampling Date:	06/12/2012
Reported:	06/19/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 15' (H201324-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1250**	16.0	06/15/2012	ND	416	104	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	177	88.7	200	6.72	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	176	87.9	200	8.73	

Surrogate: 1-Chlorooctane	*88.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*105 %*	*63.6-154*

Sample ID: SB 3 @ 25' (H201324-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	06/15/2012	ND	416	104	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	177	88.7	200	6.72	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	176	87.9	200	8.73	

Surrogate: 1-Chlorooctane	*101 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*118 %*	*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:	06/12/2012	Sampling Date:	06/12/2012
Reported:	06/19/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 10' (H201324-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1680**	16.0	06/15/2012	ND	416	104	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	177	88.7	200	6.72	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	176	87.9	200	8.73	

Surrogate: 1-Chlorooctane	*76.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*88.3 %*	*63.6-154*

Sample ID: SB 4 @ 25' (H201324-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1460**	16.0	06/15/2012	ND	416	104	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	177	88.7	200	6.72	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	176	87.9	200	8.73	

Surrogate: 1-Chlorooctane	*91.3 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*109 %*	*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-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

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: EME I35 EOL 19S 36E		Phone #:	
Sampler Name: Kyle Norman		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	TDS						
H201324																									
1	SB1 @ 5'	G	1			✓					✓		6-12-12	10:30	✓	✓									
2	SB1 @ 25'	G	1			✓					✓			11:45	✓	✓									
3	SB2 @ 10'	G	1			✓					✓			1:00	✓	✓									
4	SB2 @ 25'	G	1			✓					✓			1:15	✓	✓									
5	SB3 @ 15'	G	1			✓					✓			2:30	✓	✓									
6	SB3 @ 25'	G	1			✓					✓			2:00	✓	✓									
7	SB4 @ 10'	G	1			✓					✓			2:45	✓	✓									
8	SB4 @ 25'	G	1			✓					✓		6-12-12	4:05	✓	✓									

Relinquished By: Kyle Norman	Date: 6-12-12 Time: 4:35	Received By: Jodi Henson	
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:

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

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

#26

CARDINAL Laboratories

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

June 18, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL 19S/36E

Enclosed are the results of analyses for samples received by the laboratory on 06/13/12 16:45.

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:	06/13/2012	Sampling Date:	06/13/2012
Reported:	06/18/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL 19S/36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 5' (H201335-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**336**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*97.8 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*118 %*	*63.6-154*

Sample ID: SB 5 @ 10' (H201335-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**352**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*97.2 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*115 %*	*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:	06/13/2012	Sampling Date:	06/13/2012
Reported:	06/18/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL 19S/36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 10' (H201335-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1630**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*96.5 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*63.6-154*

Sample ID: SB 6 @ 25' (H201335-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**368**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*101 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*117 %*	*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:	06/13/2012	Sampling Date:	06/13/2012
Reported:	06/18/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL 19S/36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 7 @ 10' (H201335-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1220**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*92.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*108 %*	*63.6-154*

Sample ID: SB 7 @ 25' (H201335-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**224**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*96.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*115 %*	*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:	06/13/2012	Sampling Date:	06/13/2012
Reported:	06/18/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL 19S/36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 8 @ 10' (H201335-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**416**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/14/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*103 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*118 %*	*63.6-154*

Sample ID: SB 8 @ 20' (H201335-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**800**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2012	ND	193	96.4	200	1.52	
DRO >C10-C28	<10.0	10.0	06/15/2012	ND	200	99.8	200	2.47	

Surrogate: 1-Chlorooctane	*95.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*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:	06/13/2012	Sampling Date:	06/13/2012
Reported:	06/18/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL 19S/36E	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 9 @ 10' (H201335-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1100**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2012	ND	185	92.4	200	1.98	
DRO >C10-C28	<10.0	10.0	06/15/2012	ND	194	97.2	200	3.12	

Surrogate: 1-Chlorooctane	*104 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*122 %*	*63.6-154*

Sample ID: SB 9 @ 25' (H201335-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**832**	16.0	06/18/2012	ND	432	108	400	3.77	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2012	ND	185	92.4	200	1.98	
DRO >C10-C28	<10.0	10.0	06/15/2012	ND	194	97.2	200	3.12	

Surrogate: 1-Chlorooctane	*89.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*106 %*	*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

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

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		**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: EME I 35 ECC 19S 36E		Phone #:	
Sampler Name: Kyle Norman		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	TDS						
H201335																									
1	SB 5@ 5'	G	1			✓					✓		6-13-12	8:00	✓	✓									
2	SB 5@ 10'	G	1			✓					✓			8:15	✓	✓									
3	SB 6@ 10'	G	1			✓					✓			9:00	✓	✓									
4	SB 6@ 25'	G	1			✓					✓			9:20	✓	✓									
5	SB 7@ 10'	G	1			✓					✓			10:00	✓	✓									
6	SB 7@ 25'	G	1			✓					✓			10:30	✓	✓									
7	SB 8@ 10'	G	1			✓					✓			11:00	✓	✓									
8	SB 8@ 20'	G	1			✓					✓			11:30	✓	✓									
9	SB 9@ 10'	G	1			✓					✓			11:45	✓	✓									
10	SB 9@ 25'	G	1			✓					✓		6-13-12	12:15	✓	✓									

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: 6-13-12	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 4:45		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		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: 15°C

Sample Condition: Cool ☐ Yes ☐ No / Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

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

CARDINAL Laboratories

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

August 13, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/08/12 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:	08/08/2012	Sampling Date:	08/08/2012
Reported:	08/13/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 10 @ SURFACE (H201845-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**8260**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*107 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*100 %*	*63.6-154*

Sample ID: SB 10 @ 21' (H201845-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*95.5 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*97.4 %*	*63.6-154*

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

Received:	08/08/2012	Sampling Date:	08/08/2012
Reported:	08/13/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 11 @ 18' (H201845-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1520**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*105 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*104 %*	*63.6-154*

Sample ID: SB 11 @ 24' (H201845-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1220**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*109 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*63.6-154*

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Analytical Results For:

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

Received:	08/08/2012	Sampling Date:	08/08/2012
Reported:	08/13/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 12 @ 6' (H201845-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**560**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*87.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*91.9 %*	*63.6-154*

Sample ID: SB 12 @ 24' (H201845-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**720**	16.0	08/13/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/10/2012	ND	174	86.8	200	1.44	
DRO >C10-C28	<10.0	10.0	08/10/2012	ND	176	88.2	200	0.126	

Surrogate: 1-Chlorooctane	*118 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*121 %*	*63.6-154*

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CARDINAL Laboratories

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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

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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 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

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: EME I-35 Soc		Phone #:	
Sampler Name: Kyle Norman		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	TDS					
H20184S																									
1	SB16 @ Surface	G	1			✓					✓		3-8-12	9:00	✓	✓									
2	SB 16 @ 21'	G	1			✓					✓		"	9:20	✓	✓									
3	SB16 @ 18'	G	1			✓					✓		"	10:05	✓	✓									
4	SB16 @ 24'	G	1			✓					✓		"	10:35	✓	✓									
5	SB17 @ Surface	G	1			✓					✓		"	11:20	✓	✓									
6	SB17 @ 24'	G	1			✓					✓		"	11:50	✓	✓									

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:	Date: 3-8-12	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 4:40		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	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
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other:

Sample Condition: Cool ☐ Yes ☐ No / Intact ☐ Yes ☐ No

CHECKED BY: (Initials)

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

#26

CARDINAL Laboratories

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

August 16, 2012

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: EME I-35 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/10/12 13:15.

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:	08/10/2012	Sampling Date:	08/10/2012
Reported:	08/16/2012	Sampling Type:	Soil
Project Name:	EME I-35 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 13 @ 3' (H201863-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	08/14/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/13/2012	ND	187	93.7	200	0.0753	
DRO >C10-C28	<10.0	10.0	08/13/2012	ND	186	93.2	200	2.94	

Surrogate: 1-Chlorooctane	*83.9 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*88.0 %*	*63.6-154*

Sample ID: SB 13 @ 9' (H201863-02)

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	08/14/2012	ND	400	100	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/13/2012	ND	187	93.7	200	0.0753	
DRO >C10-C28	<10.0	10.0	08/13/2012	ND	186	93.2	200	2.94	

Surrogate: 1-Chlorooctane	*92.0 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*96.2 %*	*63.6-154*

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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

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(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice
Project Manager: Hack Conder
Address:
City: Hobbs State: NM Zip: 88240
Phone #: Fax #:
Project #: Project Owner:
Project Name:
Project Location: EME I-35 EOL [illegible]
Sampler Name: Kyle Norman

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

ANALYSIS REQUEST

Lab I.D. (FOR LAB USE ONLY) H201863	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	SR [illegible] 3'	G	1			✓					✓		[illegible]	[illegible]	✓	✓				
2	SR [illegible] 4'	G	1			✓					✓		[illegible]-12	[illegible]	✓	✓				

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: [signature] Date: 8-[illegible]-12 Time: 1:15 Received By: Jodi Henson
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) [initials]

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

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

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

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