1R -_426-05_

WORKPLANS

Date:
02/20/2015

APPROVED
By OCD; Dr. Oberding at 10:15 am, Feb 20, 2015

L Peter Galusky, Jr PE

Texerra LLC

RECEIVED
By OCD; Dr. Oberding at 10:07 am, Feb 20, 2015

January 27th, 2015

Mr. Leonard Lowe
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: **ICP Report and CAP**
Rice Operating Company – BD SWD System
BD I-8 (1R426-05): UL/I, Sec. 8, T22S, R37E

Sent via E-mail

Mr. Lowe:

Texerra LLC (Texerra) is submitting this Investigation and Characterization Plan (ICP) Report and Corrective Action Plan (CAP) on behalf of Rice Operating Company (ROC) per the NMOCD approved ICP of October 11th, 2013 for this former junction box. The site is located approximately 5 miles south of Eunice (Figure 1). Depth to groundwater is estimated to be approximately 55 ft bgs.

Background and Previous Work

In 2003, ROC initiated work on the former BD I-8 junction box. The site was delineated using a backhoe to form a 25 ft x 30 ft x 16 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the four-wall composite and the bottom composite were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 2,140 mg/kg, and the bottom composite showed a chloride reading of 5,850 mg/kg. Gasoline range organics (GRO) readings, diesel range organics (DRO) readings, and BTEX readings for both the four-wall composite and bottom composite showed non-detect. The excavated soil was blended on site and a sample was taken to a commercial laboratory for analysis. The laboratory chloride reading returned a result of 1,310 mg/kg and GRO, DRO and BTEX readings of non-detect. At the base of the 16 ft excavation, a

20055 Laredo Ln **Monument, CO 80132**
Web: www.texerra.com **E-mail:** lpg@texerra.com
Tel: 719-339-6791

3 foot thick clay layer was installed and compacted. The excavation was then backfilled with the blended soil and contoured to the surrounding location.

A new watertight junction box was installed at the site and has since been eliminated.
The area surrounding the new junction box was seeded with a blend of native vegetation.
NMOCD was notified of potential groundwater impact on April 1st, 2003 and a junction box disclosure report was submitted to NMOCD with all the 2003 junction box closures and disclosures.

An ICP was submitted to the NMOCD and was approved on October 22nd, 1013. In brief, the focus of the ICP work was to delineate the lateral and vertical extent of residual soil chlorides and hydrocarbons within the study area (surrounding the former junction box), to estimate the likely effects of these on groundwater over time and to propose a protective remedy.

Based on the NMOCD approved ICP, three soil bores (SB-1 through SB-3) were drilled on December 9th, 2013, four soil bores (SB-4 through SB-7) were drilled April 15th, 2014, and one soil bore (SB-8) was drilled April 16th, 2014. Residual soil hydrocarbons were negligible. Residual soil chlorides were found at elevated levels across the study area, but concentrations decreased with depth. The lateral edge was defined to the north with SB-8, which resulted in a lab chloride concentration of 1,040 mg/kg at 15 ft bgs and 208 mg/kg at 45 ft bgs. The western edge was defined by SB-7, which resulted in a lab chloride concentration of 1,330 mg/kg at 5 ft bgs and 208 mg/kg at 20 ft bgs. Lab chloride analysis in SB-6, to the south, resulted in a concentration of 1,420 mg/kg at 10 ft bgs and decreased to 80 mg/kg at 20 ft bgs. DRO and GRO concentrations were below detectable limits. This site is located along the fence line and paved road; therefore, a soil bore could not be drilled to the east. To verify concentrations along the road, three surface samples were collected and sent to a commercial laboratory for analysis of chloride and TPH. All three surface samples (Point 1 Surface, Point 2 Surface, and Point 3 Surface) resulted in chloride and TPH concentrations below detectable limits. The results of soil sampling for residual soil chlorides and hydrocarbons are summarized in Figure 2. Soil logs, lab data reports, and PID sheets are given in the Appendix.

The MultiMed model was used to estimate the effects of leaching of residual soil chlorides, with the installation of a 75x40-ft, 20-mil reinforced liner, on groundwater chloride concentrations beneath the study area. The maximum projected (modeled) elevation in groundwater chloride is 127.87 mg/L at approximately 80 yrs into the future (Figure 3 & Table 1). The inputs and outputs for the MultiMed run are given in Table 1.

Corrective Action Plan (CAP)

Based on the Multimed analysis, installing a 20 mil reinforced liner below the root zone will protect groundwater from any potential residual chloride migration. Therefore, we propose to install a 75x40-ft sub-surface, synthetic liner across the affected area (Figure 2). The liner will be carefully seated and installed at an approximate depth of 4 to 5 ft bgs over six inches of clean blow sand, with another six inches added over top of the liner. The backfill material will have a laboratory chloride reading below 500 mg/kg and a field PID reading below 100 ppm. The excavated soil will be evaluated for use as backfill. Any soil requiring disposal will be properly

disposed of at a NMOCD approved facility. We will then prepare the surface and seed with a native seed mix. Vegetation above the liner will provide a natural infiltration barrier for the site. Plants capture water through their roots thereby reducing the volume of water moving through the vadose zone to groundwater.

ROC is the service provider (agent) for the BD 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. We thus submit this CAP for your review and consideration.

Please call Rice Operating Company or me if you have any questions or need additional information.

Thank you.

Sincerely,

L. Peter (Pete) Galusky, Jr PE

Copy: Rice Operating Company

Attachment List

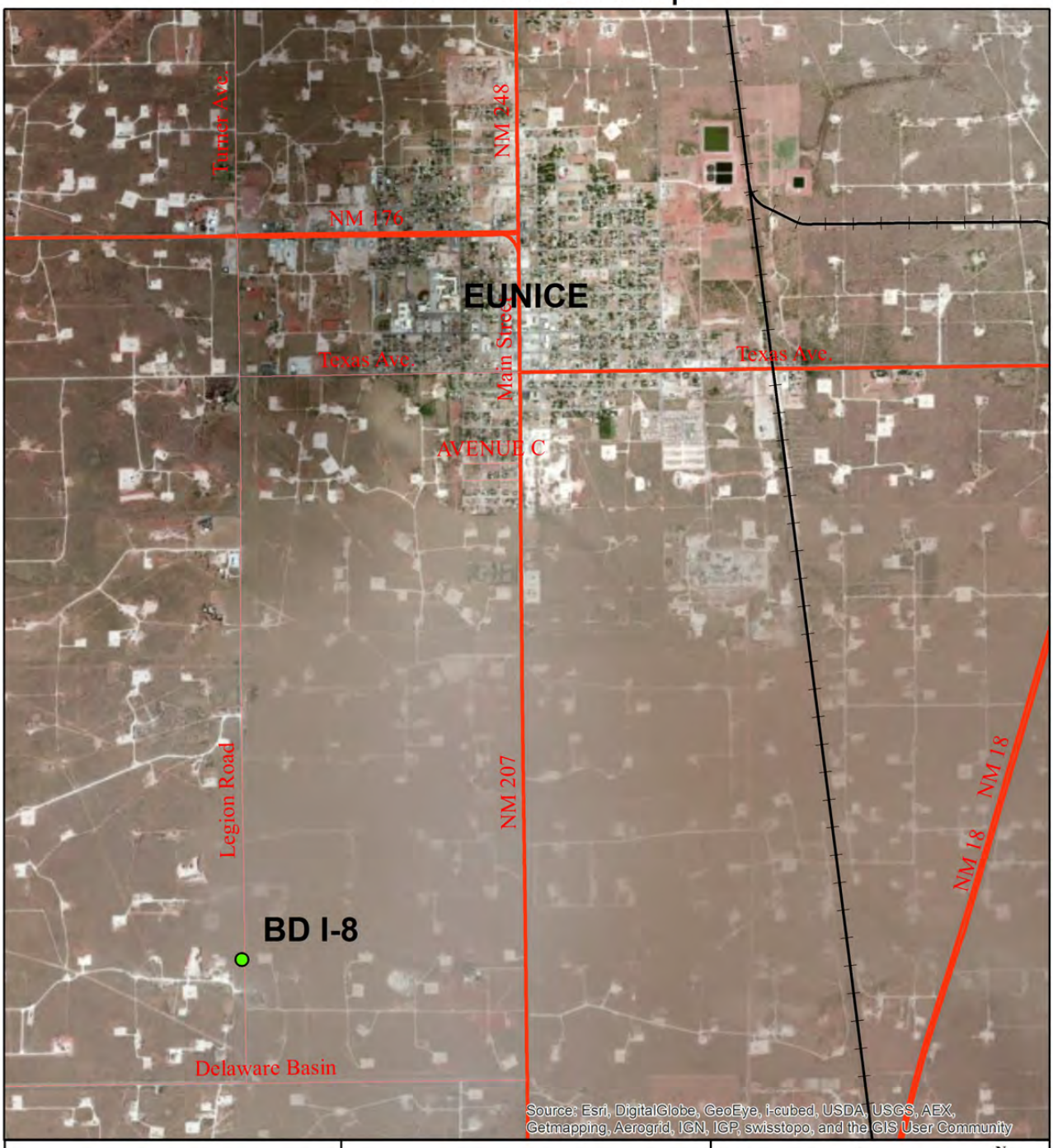
Figures & Tables

Site Location Map
Soil Bore & Sample Result Summary, Plan View of Proposed Liner
MultiMed Projected Groundwater Chloride Concentrations
MultiMed Report

Appendix

Soil Bore Logs
Laboratory Reports
Soil PID Readings

Site Location Map



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

BD I-8

Legals: UL/I sec. 8
T-22-S R-37-E
LEA COUNTY, NM

NMOCD Case #: 1R426-05

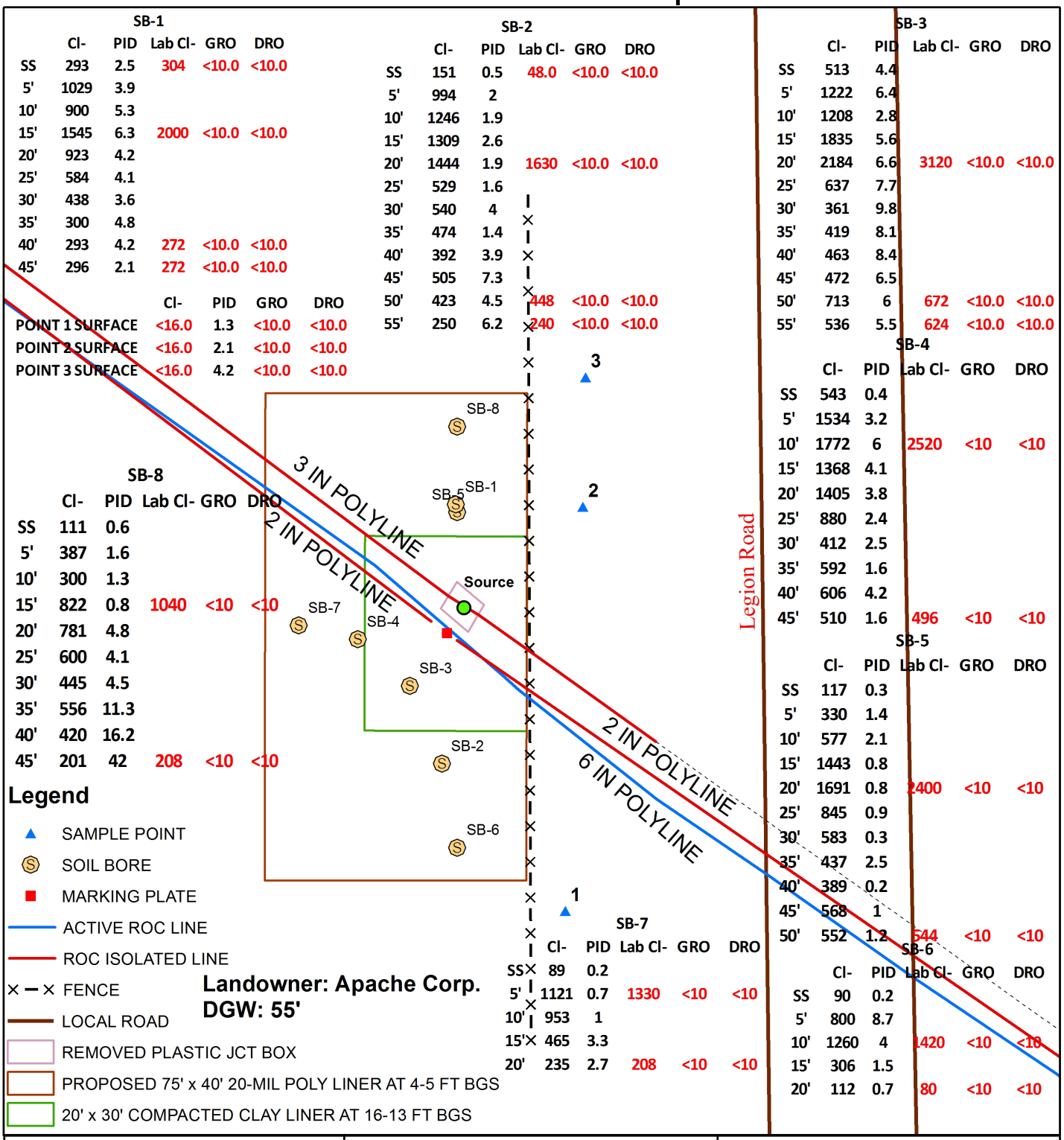
Figure 1

N
W E
S

0 0.35 0.7
Miles

Drawing date: 8/5/13
Drafted by: L. Weinheimer

Soil Bore Installation and Proposed Liner



RECS
RICE ENVIRONMENTAL
CONSULTING & SAFETY

BD I-8

Unit Letter I, Section 8
T-22-S R-37-E
LEA COUNTY, NM

NMOCD Case #: 1R426-05

Figure 2

N W E S

0 10 20
Feet

GPS Date: 4/16/14
Drawing date: 4/17/14, 10/6/14
Drafted by: C. Ursanic, L. Weinheimer

Figure 3

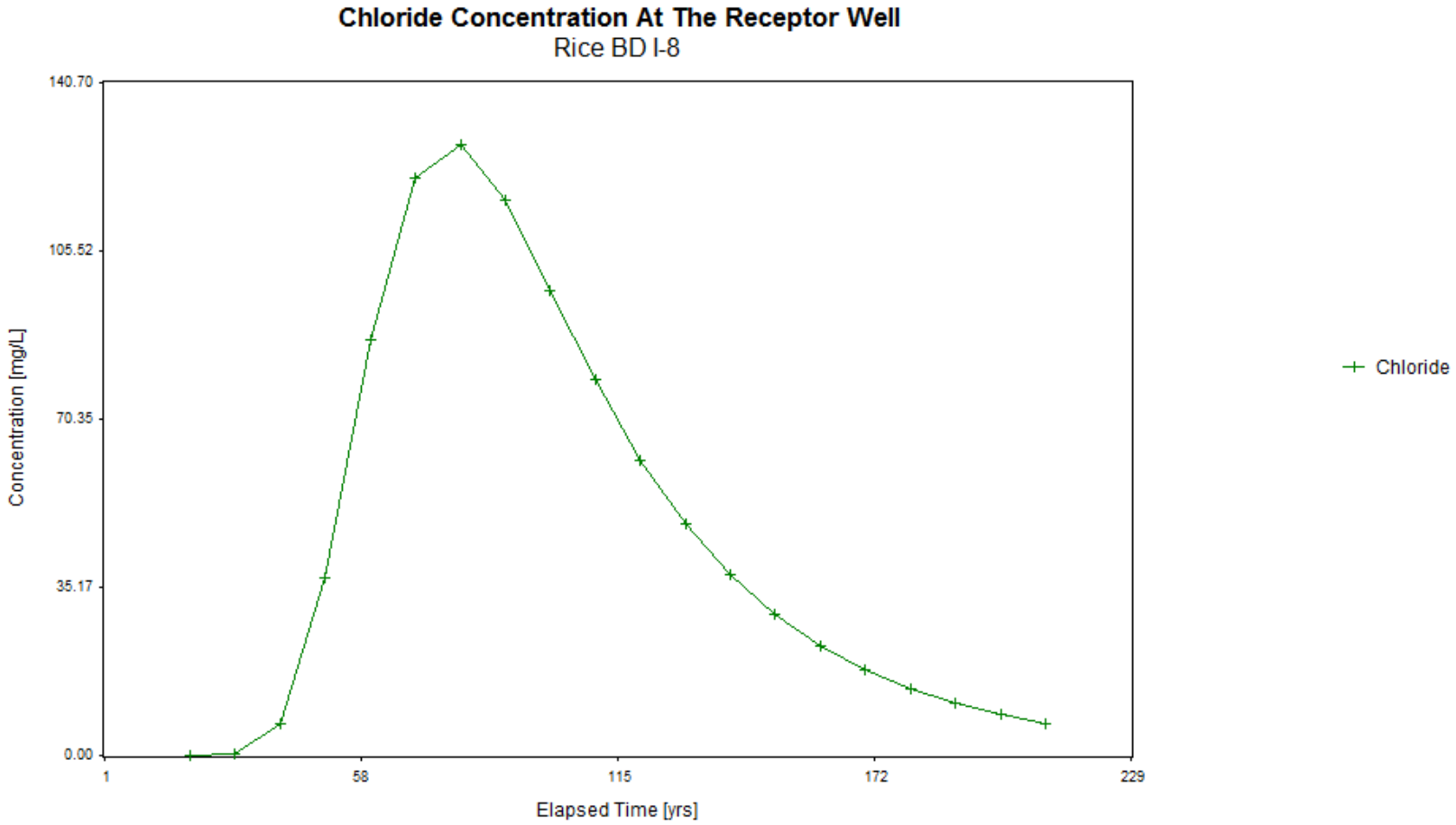

Chloride Concentration At The Receptor Well
Rice BD I-8
140.70
105.52
70.35
35.17
0.00
Concentration [mg/L]
1
58
115
172
229
Elapsed Time [yrs]
Chloride

Table 1

MULTIMED V1.01 DATE OF CALCULATIONS: 2-JAN-2015 TIME: 10:20:11

U. S. E N V I R O N M E N T A L P R O T E C T I O N A G E N C Y

E X P O S U R E A S S E S S M E N T

M U L T I M E D I A M O D E L

MULTIMED (Version 1.50, 2005)

1
Run options
--- -------

Rice BD I-8

1R426-05
Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 1.524E-02 m/yr
Run was transient
Well Times: Entered Explicitly
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model
1
1
UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)
NP - Total number of nodal points 240
NMAT - Number of different porous materials 1
KPROP - Van Genuchten or Brooks and Corey 1
IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN
------- ------
Van Genuchten functional coefficients
User defined coordinate system
1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	3.96	1

DATA FOR MATERIAL 1
---- --- --------
VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	STD DEV	LIMITS MIN	MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	3.60	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.250	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	3.96	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	STD DEV	LIMITS MIN	MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent,EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		2
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		3
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN

Convolution integral approach
Exponentially decaying continuous source
Computer generated times for computing concentrations

1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS	LIMITS

			MEAN	STD DEV	MIN	MAX
Thickness of layer	m	CONSTANT	3.96	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm2/s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry`s law constant	atm-m^3/M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.152E-01	-999.	-999.	-999.
Area of waste disposal unit	m^2	CONSTANT	279.	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	756.	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

1

AQUIFER SPECIFIC VARIABLES

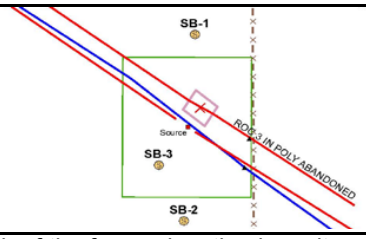
VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS	LIMITS

			MEAN	STD DEV	MIN	MAX
Particle diameter	cm	CONSTANT	-999.	-999.	-999.	-999.
Aquifer porosity	--	CONSTANT	0.300	-999.	-999.	-999.
Bulk density	g/cc	CONSTANT	1.86	-999.	-999.	-999.
Aquifer thickness	m	CONSTANT	6.10	-999.	-999.	-999.
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	-999.	-999.
Conductivity (hydraulic)	m/yr	CONSTANT	315.	-999.	-999.	-999.
Gradient (hydraulic)		CONSTANT	0.300E-02	-999.	-999.	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	-999.	-999.
Retardation coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Longitudinal dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Transverse dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Vertical dispersivity	m	FUNCTION OF X	-999.	-999.	-999.	-999.
Temperature of aquifer	C	CONSTANT	20.0	-999.	-999.	-999.
pH	--	CONSTANT	7.00	-999.	-999.	-999.
Organic carbon content (fraction)		CONSTANT	0.000	-999.	-999.	-999.
Well distance from site	m	CONSTANT	1.00	-999.	-999.	-999.
Angle off center	degree	CONSTANT	0.000	-999.	-999.	-999.
Well vertical distance	m	CONSTANT	0.000	-999.	-999.	-999.

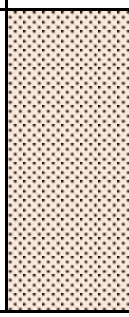
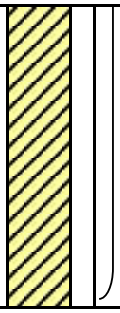
1

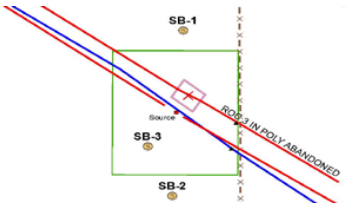
TIME	CONCENTRATION
0.200E+02	0.00000E+00
0.300E+02	0.21149E+00
0.400E+02	0.66400E+01
0.500E+02	0.37213E+02
0.600E+02	0.86981E+02
0.700E+02	0.12092E+03
0.800E+02	0.12787E+03
0.900E+02	0.11614E+03
0.100E+03	0.97211E+02
0.110E+03	0.78660E+02
0.120E+03	0.61631E+02
0.130E+03	0.48283E+02
0.140E+03	0.37700E+02
0.150E+03	0.29394E+02
0.160E+03	0.22903E+02
0.170E+03	0.17838E+02
0.180E+03	0.13892E+02
0.190E+03	0.10827E+02
0.200E+03	0.84720E+01
0.210E+03	0.65481E+01

Appendices

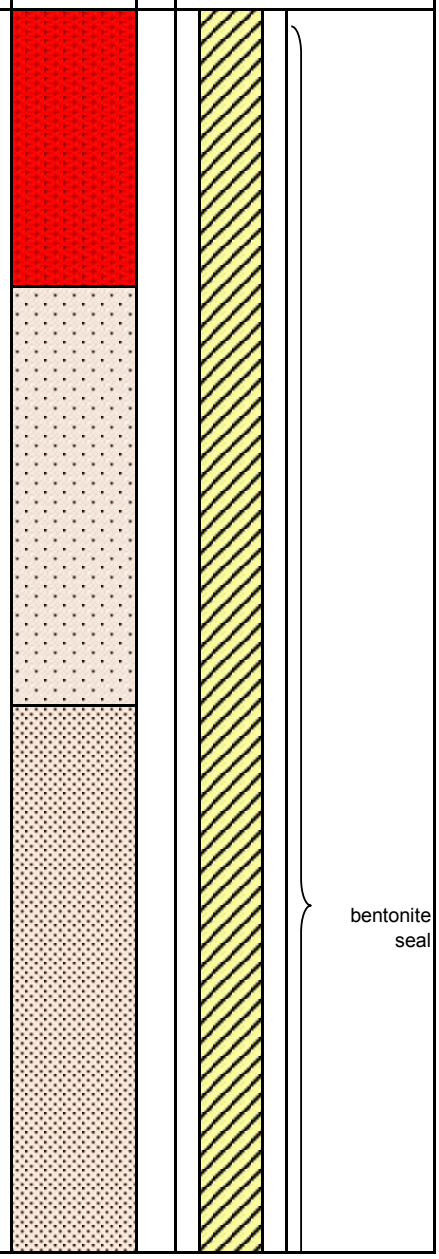
Logger:	Edward Cesareo		RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
Driller:	Harrison & Cooper, Inc.		**Project Name:** BD I-8 **Well ID:** SB-1
Drilling Method:	Air-Rotary		
Start Date:	12/9/2013		
End Date:	12/9/2013		
Comments: SB-1 is located 20 ft north of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Flores** TD = 45 ft GW = 55 ft			**Location:** UL/I sec. 8 T22S R37E **Lat:** 32°24'19.306"N **Long:** 103°10'35.855"W **County**: Lea **State**: NM

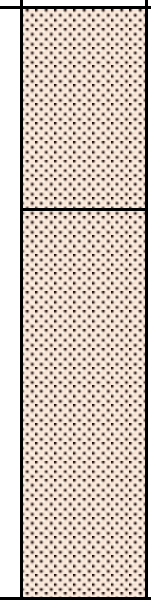
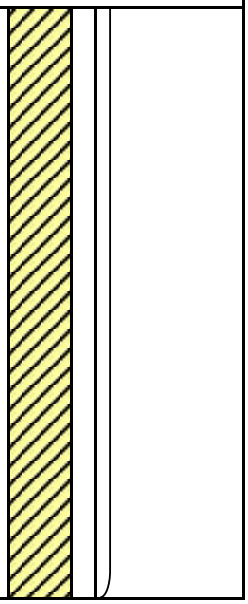
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				Red Sandy Clay		bentonite seal
SS	293	Cl- 304	2.5			
		GRO <10.0				
		DRO <10.0				
5 ft	1029		3.9			
				Tan Sand		
10 ft	900		5.3			
15 ft	1545	Cl- 2000	6.3			
		GRO <10.0				
		DRO <10.0				
20 ft	923		4.2			
				Tan Sand With Pea Stone		
25 ft	584		4.1			
30 ft	438		3.6			
35 ft	300		4.8			

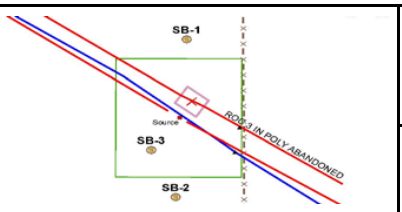
Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology		Well Construction
40 ft	293	Cl- 272	4.2	Tan Sand With Pea Stone				
		GRO <10.0						
		DRO <10.0						
45 ft	296	Cl- 272	2.1					
		GRO <10.0						
		DRO <10.0						

Logger:	Edward Cesareo		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air-Rotary		**Project Name:** BD I-8 **Well ID:** SB-2
Start Date:	12/9/2013		
End Date:	12/9/2013		
Comments: SB-2 is located 20 ft south of the former junction box site. All samples were from cuttings. **DRAFTED BY: L. Flores** TD = 55 ft GW = 55 ft			**Location:** UL/I sec. 8 T22S R37E **Lat:** 32°24'18.905"N **Long:** 103°10'35.884"W **County**: Lea **State**: NM

Depth (feet)	Chloride field tests	LAB	PID	Description
				Red Sandy Clay
SS	151	Cl- 48.0	0.5	
		GRO <10.0		
		DRO <10.0		
5 ft	994		2	
				Tan Sand
10 ft	1246		1.9	
15 ft	1309		2.6	
20 ft	1444	Cl- 1630	1.9	
		GRO <10.0		Tan Sand With Pea Stone
		DRO <10.0		
25 ft	529		1.6	
30 ft	540		4	
35 ft	474		1.4	



Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
40 ft	392		3.9	Tan Sand With Pea Stone		
45 ft	505		7.3			
				Tan Sand With Pea Stone / Moist		
50 ft	423	Cl- 448	4.5			
		GRO <10.0				
		DRO <10.0				
55 ft	250	Cl- 240	6.2			
		GRO <10.0				
		DRO <10.0				

Logger:	Edward Cesareo		
Driller:	Harrison & Cooper, Inc.		
Drilling Method:	Air-Rotary		**Project Name:** BD I-8 **Well ID:** SB-3
Start Date:	12/9/2013		
End Date:	12/9/2013		

Comments: SB-3 is located 10 ft southwest of the former junction box site. All samples were from cuttings.

DRAFTED BY: L. Flores

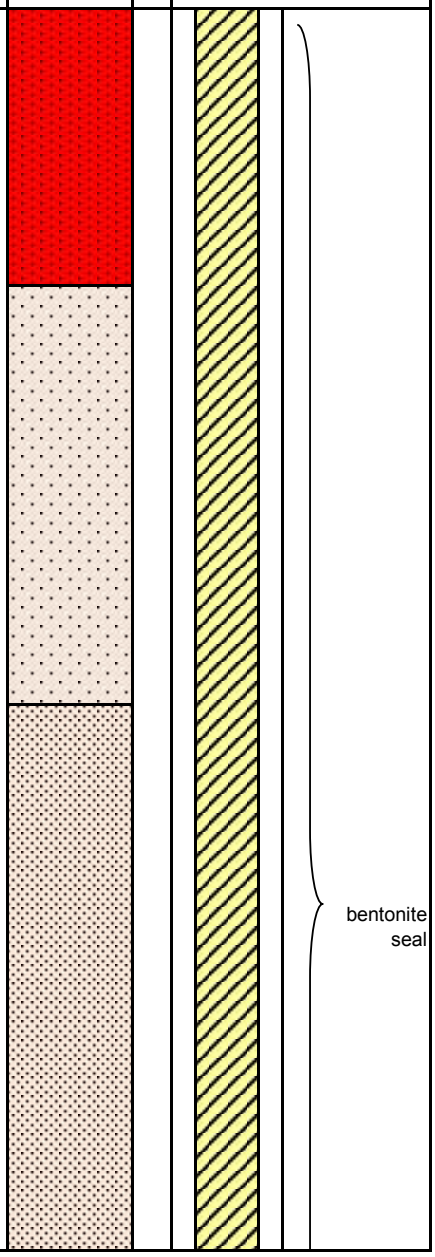
TD = 55 ft GW = 55 ft

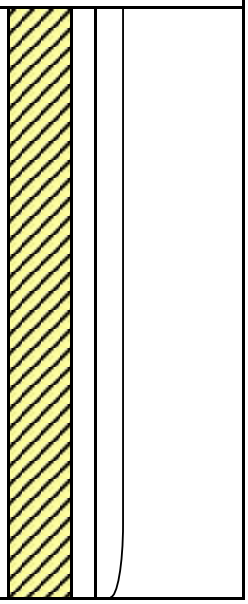
Location: UL/I sec. 8 T22S R37E

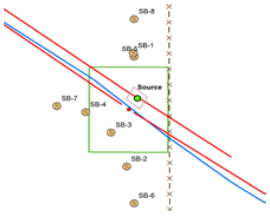
Lat: 32°24'19.028"N **Long:** 103°10'35.941"W

County: Lea **State**: NM

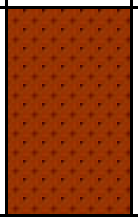
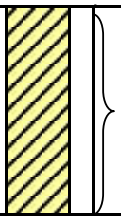
Depth (feet)	Chloride field tests	LAB	PID	Description
SS	513		4.4	Red Sandy Clay
5 ft	1222		6.4	
10 ft	1208		2.8	
				Tan Sand
15 ft	1835		5.6	
20 ft	2184	Cl- 3120	6.6	
		GRO <10.0		
		DRO <10.0		
25 ft	637		7.7	
30 ft	361		9.8	Tan Sand With Pea Stone
35 ft	419		8.1	

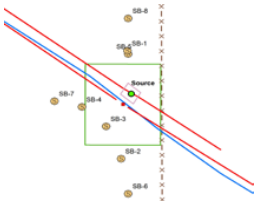


Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
40 ft	463		8.4	Tan Sand With Pea Stone		
45 ft	472		6.5			
				Tan Sand With Pea Stone / Moist		
50 ft	713	Cl- 672	6			
		GRO <10.0				
		DRO <10.0				
55 ft	536	Cl- 624	5.5			
		GRO <10.0				
		DRO <10.0				

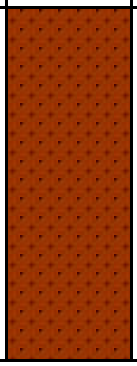
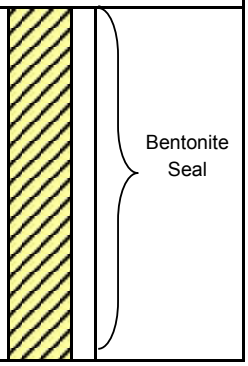
Logger:	Edward Cesareo		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	Harrison&Cooper		
Drilling Method:	Air Rotary		**Project Name:** BD I-8 **Well ID:** SB-4
Start Date:	4/15/2014		
End Date:	4/15/2014		**Project Consultant:** Texerra
Comments: All samples were taken from cuttings. SB-4 is located 16' west of the former junction box site. **DRAFTED BY:** Catherine Uršanić TD = 45' GW = 55'			**Location:** UL/ I Sec. 8 T-22-S R-37-E **Lat:** 32°24'19.096"N **Long:** 103°10'36.032"W **County**:Lea **State**:NM

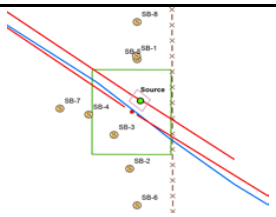
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
SS	543		0.4	BROWN SAND / ROCK / NO ODOR		Bentonite Seal
5 ft	1534		3.2			
10 ft	1772	Lab Cl-2520	6	TAN SAND / NO ODOR		
		GRO <10				
		DRO <10				
15 ft	1368		4.1			
20 ft	1405		3.8			
25 ft	880		2.4			
30 ft	412		2.5			
35 ft	592		1.6	BROWN RED SAND / P-STONE / NO ODOR		
40 ft	606		4.2			

Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology		Well Construction
				BROWN RED SAND / P-STONE / NO ODOR				 Bentonite Seal
45 ft	510	Lab Cl-496	1.6					
		GRO <10						
		DRO <10						

Logger:	Edward Cesareo		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	Harrison&Cooper		**Project Name:** BD I-8 **Well ID:** SB-5
Drilling Method:	Air Rotary		**Project Consultant:** Texerra
Start Date:	4/15/2014		
End Date:	4/15/2014		
Comments: All samples were taken from cuttings. SB-5 is located 14' north of the former junction box site. **DRAFTED BY:** Catherine Uršanić TD = 50' GW = 55'			**Location:** UL/ I Sec. 8 T-22-S R-37-E **Lat:** 32°24'19.287"N **County**: Lea **Long:** 103°10'35.85"W **State**:NM

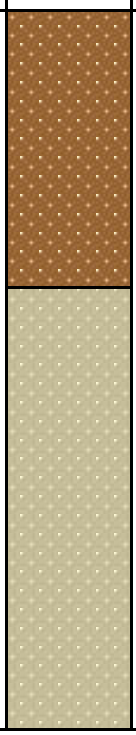
Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
SS	117		0.3	BROWN SAND / ROCK / NO ODOR		Bentonite Seal
5 ft	330		1.4			
10 ft	577		2.1	TAN SAND / NO ODOR		
15 ft	1443		0.8			
20 ft	1691	Lab Cl-2400	0.8			
		GRO <10				
		DRO <10				
25 ft	845		0.9			
30 ft	583		0.3			
35 ft	437		2.5	BROWN RED SAND / P-STONE / NO ODOR		
40 ft	389		0.2			

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
				BROWN RED SAND / P-STONE / NO ODOR		
45 ft	568		1			
50 ft	552	Lab Cl-544	1.2			
		GRO <10				
		DRO <10				

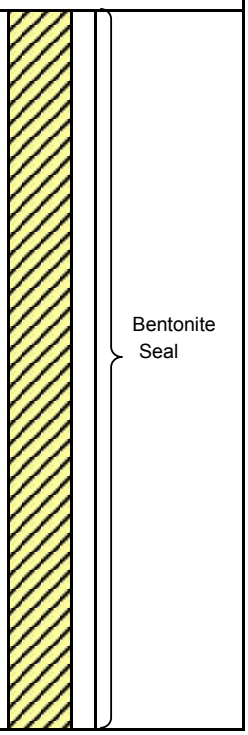
Logger:	Edward Cesareo		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	Harrison&Cooper		**Project Name:** BD I-8 **Well ID:** SB-6
Drilling Method:	Air Rotary		**Project Consultant:** Texerra
Start Date:	4/15/2014		
End Date:	4/15/2014		
Comments: All samples were taken from cuttings. SB-6 is located 37' south of the former junction box site. **DRAFTED BY:** Catherine Uršanić TD = 20' GW = 55'			**Location:** UL/ I Sec. 8 T-22-S R-37-E **Lat:** 32°24'18.785"N **County**:Lea **Long:** 103°10'35.864"W **State**:NM

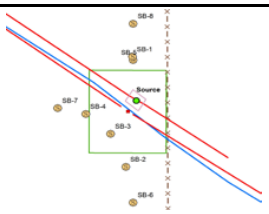
Depth (feet)	Chloride field tests	LAB	PID	Description
SS	90		0.2	BROWN SAND/ROCK/NO ODOR
5 ft	800		8.7	
10 ft	1,260	Lab Cl-1420	4	TAN SAND/ROCK/NO ODOR
		GRO <10		
		DRO <10		
15 ft	306		1.5	
20 ft	112	Lab Cl-80	0.7	
		GRO <10		
		DRO <10		

Lithology

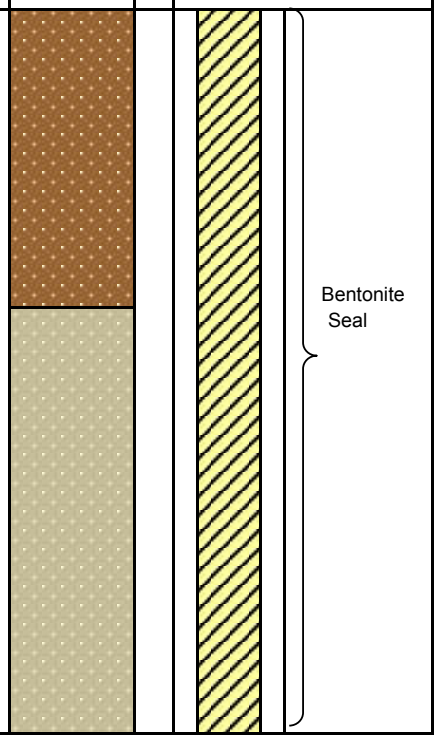


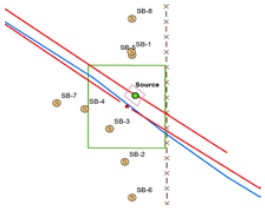
Well Construction



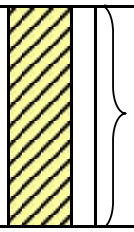
Logger:	Edward Cesareo		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	Harrison&Cooper		**Project Name:** BD I-8 **Well ID:** SB-7
Drilling Method:	Air Rotary		**Project Consultant:** Texerra
Start Date:	4/15/2014		
End Date:	4/15/2014		
Comments:All samples were taken from cuttings. SB-7 is located 25' west of the former junction box site. **DRAFTED BY:** Catherine Uršanić TD = 20' GW = 55'			**Location:** UL/ I Sec. 8 T-22-S R-37-E **Lat:** 32°24'19.115"N **County**:Lea **Long:** 103°10'36.139"W **State**:NM

Depth (feet)	Chloride field tests	LAB	PID	Description
SS	89		0.2	BROWN SAND/ROCK/NO ODOR
5 ft	1121	Lab Cl-1330	0.7	
		GRO <10		
		DRO <10		
10 ft	953		1	TAN SAND/ROCK/NO ODOR
15 ft	465		3.3	
20 ft	235	Lab Cl-208	2.7	
		GRO <10		
		DRO <10		



Logger:	Edward Cesareo		RECS RICE ENVIRONMENTAL CONSULTING & SAFETY
Driller:	Harrison&Cooper		**Project Name:** BD I-8 **Well ID:** SB-8
Drilling Method:	Air Rotary		
Start Date:	4/16/2014		
End Date:	4/16/2014		**Project Consultant:** Texerra
Comments: All samples were taken from cuttings. SB-8 is located 27' north of the former junction box site. **DRAFTED BY:** Catherine Uršanić TD = 45' GW = 55'			**Location:** UL/ I Sec. 8 T-22-S R-37-E **Lat:** 32°24'19.425"N **County**:Lea **Long:** 103°10'35.853"W **State**:NM

Depth (feet)	Chloride field tests	LAB	PID	Description	Lithology	Well Construction
SS	111		0.6	BROWN SAND / ROCK / NO ODOR		Bentonite Seal
5 ft	387		1.6			
10 ft	300		1.3			
15 ft	822	Lab Cl-1040	0.8			
		GRO <10				
		DRO <10				
20 ft	781		4.8			
25 ft	600		4.1			
30 ft	445		4.5			
35 ft	556		11.3			
40 ft	420		16.2			

Depth (feet)	Chloride field tests	LAB	PID	Description		Lithology		Well Construction
				BROWN SAND / ROCK / NO ODOR				 Bentonite Seal
45 ft	201	Lab Cl-208	42					
		GRO <10						
		DRO <10						

CARDINAL Laboratories

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

December 17, 2013

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD I-8

Enclosed are the results of analyses for samples received by the laboratory on 12/10/13 11:33.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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
KATIE JONES
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #1 SURFACE (H302975-01)

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	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*101 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*99.2 %*	*63.6-154*

Sample ID: SB #1 15' (H302975-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2000**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*95.1 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*94.8 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #1 40' (H302975-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*106 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*105 %*	*63.6-154*

Sample ID: SB #1 45' (H302975-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*109 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*107 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #2 SURFACE (H302975-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*102 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*103 %*	*63.6-154*

Sample ID: SB #2 20' (H302975-06)

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	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*95.9 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*93.7 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #2 50' (H302975-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**448**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*102 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*101 %*	*63.6-154*

Sample ID: SB #2 55' (H302975-08)

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	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*102 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*99.4 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #3 20' (H302975-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3120**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*95.8 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*97.1 %*	*63.6-154*

Sample ID: SB #3 50' (H302975-10)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**672**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*103 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*104 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Amanda Ponce
Project Location:	22-S/37-E		

Sample ID: SB #3 55' (H302975-11)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**624**	16.0	12/16/2013	ND	400	100	400	3.92	

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	12/11/2013	ND	184	92.1	200	0.824	
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56	

Surrogate: 1-Chlorooctane	*96.6 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*97.2 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RICE Operating	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD I-8 22-S/37-E	Phone #:
Sampler Name: Edward Cesareo	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H30297																				
1	SB#1 Surface	G	1			✓					✓		12-9-13	12:00	✓	✓				
2	SB#1 15'	G	1			✓					✓			12:05	✓	✓				
3	SB#1 40'	G	1			✓					✓			12:10	✓	✓				
4	SB#1 45'	G	1			✓					✓			12:15	✓	✓				
5	SB#2 Surface	G	1			✓					✓			3:00	✓	✓				
6	SB#2 20'	G	1			✓					✓			3:05	✓	✓				
7	SB#2 50'	G	1			✓					✓			3:10	✓	✓				
8	SB#2 55'	G	1			✓					✓			3:15	✓	✓				

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 consequental 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: 12-9-13	Received By:	
Relinquished By:	Time: 11:33	Received By:	
	Date:		
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: -8.8°C #54

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
hconder@rice-ecs.com; Lweinheimer@rice-ecs.com;
kjones@riceswd.com; Lpena@riceswd.com;
Knorman@rice-ecs.com, ecesareo@rice-ecs.com

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

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RICE Operating	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD I-8 22-S/37-E	Phone #:
Sampler Name: Edward Cesareo	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					
H302975																									
9	SB#3 20'	C	1			✓					✓		12-9-13	4:10	✓	✓									
10	SB#3 50'	C	1			✓					✓		"	4:15	✓	✓									
11	SB#3 55'	C	1			✓					✓		"	4:20	✓	✓									

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 consequental 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: Edward Cesareo	Date: 12-9-13	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 11:37		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; Knorman@rice-ecs.com, ecesareo@rice-ecs.com
	Time:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other: -8.8°C #54	Sample Condition Cool: ☑ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	

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

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.					
	X	MODEL: PGM 7300		SERIAL NO: 590-000508	
		MODEL: PGM 7300		SERIAL NO: 590-000504	
		MODEL: PGM 7320		SERIAL NO: 592-903318	
		MODEL: PGM 7300	X	SERIAL NO: 590-902553	

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : THAN-248-100-3	7/12/2017
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%

COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
SB#1 SURFACE	2.5	SB#2 SURFACE	0.5
SB#1 5'	3.9	SB#2 5'	2
SB# 1 10'	5.3	SB#2 10'	1.9
SB#1 15'	6.3	SB#2 15'	2.6
SB#1 20'	4.2	SB#2 20'	1.9
SB#1 25'	4.1	SB#2 25'	1.6
SB#1 30'	3.6	SB#2 30'	4
SB#1 35'	4.8	SB#2 35'	1.4
SB#1 40'	4.2	SB#2 40'	3.9
SB#1 45'	2.1	SB#2 45'	7.3
		SB#2 50'	4.5
		SB#2 55'	6.2

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

SIGNATURE: Edward Cesaro DATE: 12-9-13

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
	X	MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300 X	SERIAL NO: 590-902553

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : THAN-248-100-3	7/12/2017
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%

COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
SB#3 SURFACE	4.4		
SB#3 5'	6.4		
SB# 3 10'	2.8		
SB#3 15'	5.6		
SB#3 20'	6.6		
SB#3 25'	7.7		
SB#3 30'	9.8		
SB#3 35'	8.1		
SB#3 40'	8.4		
SB#3 45'	6.5		
SB#3 50'	6		
SB#3 55'	5.5		

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

SIGNATURE: Daniel Casaus DATE: 12-9-13

CARDINAL Laboratories

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

April 23, 2014

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD I-8

Enclosed are the results of analyses for samples received by the laboratory on 04/15/14 16:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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
KATIE JONES
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	04/15/2014	Sampling Date:	04/15/2014
Reported:	04/23/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	22-S/37-E		

Sample ID: SB #4 10' (H401133-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2520**	16.0	04/17/2014	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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*99.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*92.7 %*	*63.6-154*

Sample ID: SB #4 45' (H401133-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	04/17/2014	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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*111 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*99.3 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	04/15/2014	Sampling Date:	04/15/2014
Reported:	04/23/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	22-S/37-E		

Sample ID: SB #5 20' (H401133-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2400**	16.0	04/17/2014	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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*109 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*96.8 %*	*63.6-154*

Sample ID: SB #5 50' (H401133-04)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	04/17/2014	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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*111 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*104 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	04/15/2014	Sampling Date:	04/15/2014
Reported:	04/23/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	22-S/37-E		

Sample ID: SB #6 10' (H401133-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1420**	16.0	04/17/2014	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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*105 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*96.6 %*	*63.6-154*

Sample ID: SB #6 20' (H401133-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	04/17/2014	ND	400	100	400	3.92	

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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*102 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*94.6 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	04/15/2014	Sampling Date:	04/15/2014
Reported:	04/23/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	22-S/37-E		

Sample ID: SB #7 5' (H401133-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1330**	16.0	04/17/2014	ND	400	100	400	3.92	

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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*108 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*98.8 %*	*63.6-154*

Sample ID: SB #7 20' (H401133-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	04/17/2014	ND	400	100	400	3.92	

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	04/16/2014	ND	192	96.2	200	3.12	
DRO >C10-C28	<10.0	10.0	04/16/2014	ND	210	105	200	2.25	

Surrogate: 1-Chlorooctane	*108 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*98.6 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RICE Operating	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD I-8 22-S/37-E	Phone #:
Sampler Name: Edward Cesareo	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H401138																				
1	SB#4 10'	G	1			/					/		4-15-14	11:40	/	/				
2	SB#4 45'	G	1			/					/			11:45	/	/				
3	SB#5 20'	G	1			/					/			1:05	/	/				
4	SB#5 50'	G	1			/					/			1:10	/	/				
5	SB#6 10'	G	1			/					/			1:50	/	/				
6	SB#6 20'	G	1			/					/			1:55	/	/				
7	SB#7 5'	G	1			/					/			3:20	/	/				
8	SB#7 20'	G	1			/					/			3:25	/	/				

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 consequental 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: 4-15-14	Received By:	Phone Result: ☐ Yes ☑ No Add'l Phone #:
	Time: 4:05		Fax Result: ☐ Yes ☑ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: email results hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; Knorman@rice-ecs.com ecesareo@rice-ecs.com
	Time:		

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

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

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

#54

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
	X	MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300 X	SERIAL NO: 590-902553

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : THAN-248-100-3	7/12/2017
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%

COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
SB#4 SURFACE	0.4	SB#5 10'	2.1
SB#4 5'	3.2	SB#5 15'	0.8
SB#4 10'	6	SB#5 20'	0.8
SB#4 15'	4.1	SB#5 25'	0.9
SB#4 20'	3.8	SB#5 30'	0.3
SB#4 25'	2.4	SB#5 35'	2.5
SB#4 30'	2.5	SB#5 40'	0.2
SB#4 35'	1.6	SB#5 45'	1
SB#4 40'	4.2	SB#5 50'	1.2
SB#4 45'	1.6		
SB#5 SURFACE	0.3		
SB#5 5'	1.4		

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

SIGNATURE: Edward Casaro DATE: 4-15-14

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471
PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
	X	MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300 X	SERIAL NO: 590-902553

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : THAN-248-100-3	7/12/2017
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%

COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
SB#6 SURFACE	0.2		
SB#6 5'	8.7		
SB#6 10'	4		
SB#6 15'	1.5		
SB#6 20'	0.7		
SB#7 SURFACE	0.2		
SB#7 5'	0.7		
SB#7 10'	1		
SB#7 15'	3.3		
SB#7 20'	2.7		

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

SIGNATURE: [signature]

DATE: 4-15-14

CARDINAL Laboratories

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

April 23, 2014

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD I-8

Enclosed are the results of analyses for samples received by the laboratory on 04/16/14 15:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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
KATIE JONES
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	04/16/2014	Sampling Date:	04/16/2014
Reported:	04/23/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	22-S/37-E		

Sample ID: SB #8 15' (H401155-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1040**	16.0	04/21/2014	ND	416	104	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/17/2014	ND	193	96.4	200	4.62	
DRO >C10-C28	<10.0	10.0	04/17/2014	ND	200	100	200	6.22	

Surrogate: 1-Chlorooctane	*108 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*99.4 %*	*63.6-154*

Sample ID: SB #8 45' (H401155-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	04/21/2014	ND	416	104	400	0.00	

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/17/2014	ND	193	96.4	200	4.62	
DRO >C10-C28	<10.0	10.0	04/17/2014	ND	200	100	200	6.22	

Surrogate: 1-Chlorooctane	*109 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*107 %*	*63.6-154*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name: RICE Operating	BILL TO
Project Manager: Katie Jones	P.O. #:
Address: 112 W. Taylor	Company:
City: Hobbs State: NM Zip: 88240	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name:	State: Zip:
Project Location: BD I-8 22-S/37-E	Phone #:
Sampler Name: Edward Cesareo	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H401155																				
1	SB #8 15'	G	1			✓					✓		4-16-14	9:05	✓	✓				
2	SB #8 45'	G	1			✓					✓		4-16-14	9:10	✓	✓				

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 consequental 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: 4-16-14	Received By: Jodi Henson	Phone Result: ☐ Yes ☑ No Add'l Phone #:
Relinquished By:	Time: 3:50	Received By:	Fax Result: ☐ Yes ☑ No Add'l Fax #:
	Date:		REMARKS: email results hconder@rice-ecs.com; Lweinheimer@rice-ecs.com; kjones@riceswd.com; Lpena@riceswd.com; Kmcmanara@rice-ecs.com, ecesareo@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

#54

RICE ENVIRONMENTAL CONSULTING & SAFETY

122 West Taylor Hobbs, NM 88240
PHONE: (505) 393-9174 FAX: (505) 397-1471

PID METER CALIBRATION & FIELD REPORT FORM

CK. MODEL NO.			
	X	MODEL: PGM 7300	SERIAL NO: 590-000508
		MODEL: PGM 7300	SERIAL NO: 590-000504
		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM 7300 X	SERIAL NO: 590-902553

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : THAN-248-100-3	7/12/2017
METER READING ACCURACY: 100PPM	

ACCURACY : +/- 2%

COMPANY
ROC

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22-S	37-E

SAMPLE ID	PID	SAMPLE ID	PID
SB#8 SURFACE	0.6		
SB#8 5'	1.6		
SB#8 10'	1.3		
SB#8 15'	0.8		
SB#8 20'	4.8		
SB#8 25'	4.1		
SB#8 30'	4.5		
SB#8 35'	11.3		
SB#8 40'	16.2		
SB#8 45'	42		

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

SIGNATURE: Edward Corn DATE: 4-16-17

CARDINAL Laboratories

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

October 16, 2014

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD I-8

Enclosed are the results of analyses for samples received by the laboratory on 10/15/14 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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
KATIE JONES
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	10/15/2014	Sampling Date:	10/15/2014
Reported:	10/16/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	22-S/37-E		

Sample ID: PT. 1 @ SURFACE (H403162-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/16/2014	ND	400	100	400	3.92	

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	10/15/2014	ND	170	85.1	200	2.28	
DRO >C10-C28	<10.0	10.0	10/15/2014	ND	172	86.1	200	2.02	

Surrogate: 1-Chlorooctane	*99.4 %*	*47.2-157*
Surrogate: 1-Chlorooctadecane	*107 %*	*52.1-176*

Sample ID: PT. 2 @ SURFACE (H403162-02)

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	10/16/2014	ND	400	100	400	3.92	

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	10/15/2014	ND	170	85.1	200	2.28	
DRO >C10-C28	<10.0	10.0	10/15/2014	ND	172	86.1	200	2.02	

Surrogate: 1-Chlorooctane	*103 %*	*47.2-157*
Surrogate: 1-Chlorooctadecane	*114 %*	*52.1-176*

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

Received:	10/15/2014	Sampling Date:	10/15/2014
Reported:	10/16/2014	Sampling Type:	Soil
Project Name:	BD I-8	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	22-S/37-E		

Sample ID: PT. 3 @ SURFACE (H403162-03)

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	10/16/2014	ND	400	100	400	3.92	

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	10/15/2014	ND	170	85.1	200	2.28	
DRO >C10-C28	<10.0	10.0	10/15/2014	ND	172	86.1	200	2.02	

Surrogate: 1-Chlorooctane	*99.3 %*	*47.2-157*
Surrogate: 1-Chlorooctadecane	*107 %*	*52.1-176*

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable 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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

*RUSH

CARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name:	RICE Operating
Project Manager:	Katie Jones
Address:	419 W Cain
City:	Hobbs
State:	NM
Zip:	88240
Phone #:	
Fax #:	
Project #:	
Project Owner:	
Project Name:	BDI-8
Project Location:	
Sampler Name:	Amber Groves

BILL TO

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

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TDS
H403162-1	Pt. 1@ Surface	G	1			✓							10-15-14	10:30	✓	✓				
2	Pt. 2@ Surface	G	1			✓							10-15-14	10:35	✓	✓				
3	Pt. 3@ Surface	G	1			✓							10-15-14	10:40	✓	✓				

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 consequental 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: 10-15-14	Received By:	
Relinquished By:	Time: 4:00	Received By:	
	Date:		
	Time:		

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

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

CHECKED BY: (Initials) KP

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

REMARKS:

email results:
hconder@rice-ecs.com; knorman@rice-ecs.com;
jkamplain@rice-ecs.com; regans@rice-ecs.com; lflores@rice-ecs.com;
lweinheimer@rice-ecs.com; kjones@riceswd.com;
cursanic@rice-ecs.com
environmental tech: agroves@rice-ecs.com

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

5.8°c

#54

RICE ENVIRONMENTAL CONSULTING & SAFETY

419 West Cain Hobbs, NM 88240
PHONE: (575) 393-2967 FAX: (575) 393-0293
PID METER CALIBRATION & FIELD REPORT FORM

CK.		MODEL: PGM 7300	SERIAL NO: 590-000508
MODEL	X	MODEL: PGM 7300	SERIAL NO: 590-000504
NO.		MODEL: PGM 7320	SERIAL NO: 592-903318
		MODEL: PGM _____	SERIAL NO: _____

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : GAM-248-1004	EXPIRATION DATE: 6-7-16
METER READING ACCURACY: 100ppm	

COMPANY
Rice

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD I-8	I	8	22	37

SAMPLE ID	PID	SAMPLE ID	PID
Point 1 @ Surface	1.3		
Point 2 @ Surface	2.1		
Point 3 @ Surface	4.2		

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

SIGNATURE: Amber Groves DATE: 1/10/16