

1R - 426-218

## REPORTS

DATE:

9-20-13

## Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241  
Phone 575.393.2967

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CERTIFIED MAIL

RETURN RECEIPT NO. 7007 2560 0000 4569 8425

**September 20<sup>th</sup>, 2013**

**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: CAP Report and Termination Request  
Rice Operating Company – BD SWD System  
BD Jct. P-30 west (1R426-127): UL/P sec. 30 T21S R37E  
BD P-30 EOL (1R426-218): UL/P sec. 30 T21S R37E**

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced sites in the BD Salt Water Disposal (SWD) system. 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/usage basis.

The sites are 44 ft apart from each other and are located approximately 2 miles west of Eunice, New Mexico at UL/P sec. 30 T21S R37E as shown on the Site Location Map and Geographical Location Map (Figure 1 and Figure 2). NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 97 +/- feet.

### **Background and Previous Work – BD Jct. P-30 west**

In 2006, ROC initiated work on the former BD P-30 west junction box as part of the system pipeline replacement/upgrade program. The site was delineated using a backhoe to form an excavation 30 ft x 30 ft x 12 feet deep and soil samples from the excavation were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, a 4-wall composite, bottom composite and backfill sample were collected for laboratory verification. Laboratory tests of the site showed negligible gasoline range organics (GRO) while diesel range organics (DRO) measured <10.0 mg/kg in the 4-wall composite, 20.9 mg/kg in the bottom composite, and 473.0 mg/kg in the backfill. However, chlorides concentrations from the excavation did not relent with depth or breadth. The chloride concentrations measured 832 mg/kg in the 4-wall composite, 1,360 mg/kg in the bottom composite, and 592 mg/kg in the backfill. The excavation was backfilled to 6 ft bgs where a 1 ft thick clay barrier was installed. The remaining soil was backfilled into the excavation, and the area was contoured to the surrounding landscape.

The site was seeded, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on November 17<sup>th</sup>, 2006 and a junction box disclosure report was submitted to NMOCD with all the 2006 junction box closures and disclosures.

As part of the Investigation and Characterization Plan (ICP) submitted to NMOCD on September 20<sup>th</sup>, 2010 and approved on September 22<sup>nd</sup>, 2010, five soil bores were advanced through the former junction box site on November 18<sup>th</sup>, 2010 and November 22<sup>nd</sup>, 2010. SB-1 was installed with an air rotary drilling rig and soil bores #2 – 5 were installed with a Geo-probe to avoid the high line electrical wires. Soil bore #2 – 5 could not advance below 25 ft bgs because of a hard stratum below 25 ft bgs. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bore were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. Laboratory readings of SB-1 showed chloride readings of 1,700 mg/kg at 10 ft bgs, which decreased to 112 mg/kg at 70 ft bgs. Laboratory readings for GRO and DRO showed non-detect. SB-2 returned laboratory chloride readings of 1,800 mg/kg at 20 ft bgs and 2,480 mg/kg at 25 ft bgs. SB-3 returned laboratory chloride readings of 2,800 mg/kg at 10 ft bgs and 2,040 mg/kg at 25 ft bgs. SB-4 returned laboratory chloride readings of 1,660 mg/kg at 15 ft bgs and 1,760 mg/kg at 25 ft bgs. SB-5 returned laboratory chloride readings of 1,310 mg/kg at 20 ft bgs, which decreased to 1,040 mg/kg at 25 ft bgs. In all four bores (SB 2-5), GRO and DRO readings were non-detect.

### **Background and Previous Work - BD P-30 EOL**

In 2008, ROC initiated work on the former BD P-30 EOL junction box, which was eliminated under the pipeline replacement/upgrade program. The site was delineated using a backhoe to form a 30 ft x 30 ft x 12 ft deep excavation. The soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, a 4-wall composite, bottom composite and backfill composite sample was collected for laboratory verification. Laboratory tests of the site showed negligible gasoline range organics (GRO) in the bottom composite and backfill and 22 mg/kg in the 4-wall composite. Diesel range organics (DRO) measured 389 mg/kg in the 4-wall composite, 19.2 mg/kg in the bottom composite and 470 mg/kg in the backfill. Chloride concentrations from the excavation measured 1,390 mg/kg in the 4-wall composite, 2,530 mg/kg in the bottom composite and 960 mg/kg in the backfill. The excavated soil was blended on site and returned to the excavation up to 6 ft below ground surface (bgs). At 6 ft bgs, a shelf was extended 15 ft out from the east wall and a 1 ft thick clay barrier was installed with a compaction test performed on January 31st, 2008. The remaining soil as backfilled over the clay barrier and was contoured to the surrounding landscape. An identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on September 4<sup>th</sup>, 2008 and a junction box disclosure report was submitted to NMOCD with all the 2008 junction box closures and disclosures.

As part of the Investigation and Characterization Plan submitted to NMOCD on September 10<sup>th</sup>, 2010 and approved on September 15<sup>th</sup>, 2010, seven soil bores were advanced through the former junction box site on November 19<sup>th</sup>, 2010 and November 22<sup>nd</sup>, 2010. Soil bores #1 - 5 were installed with an air rotary drilling rig and soil bores #6 - 7 were installed with a Geo-probe to avoid the high line electrical wires. Soil bores #6 - 7 could not be advanced below 25 ft bgs because of a hard stratum below 25 ft bgs. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID) for hydrocarbons. Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. All the soil bores showed chloride levels that decreased with depth and GRO and DRO readings of non-detect.

To further delineate the site, trenches were installed with a backhoe north, west, and south of the combined sites on February 4<sup>th</sup> and 7<sup>th</sup>, 2011. The trenches to the north showed a decrease in chlorides from the 30 ft north trench to the 35 ft north trench. Laboratory confirmation of the 5 ft bgs sample of the 35 ft north trench showed a chloride concentration of 144 mg/kg. The trenches to the west also showed a decrease in chlorides from the 43 ft west trench to the 48 ft west trench. Laboratory confirmation of the 1 ft bgs sample of the 48 ft west trench showed a chloride reading of 64 mg/kg and the 7 ft bgs sample showed a chloride reading of 1,630 mg/kg. The south trench showed a laboratory reading of 848 mg/kg at 5 ft bgs and a chloride reading of 2,840 mg/kg at 10 ft bgs.

On June 20<sup>th</sup>, 2013, RECS submitted an ICP Report and Corrective Action Plan (CAP) to NMOCD, which was approved July 1<sup>st</sup>, 2013. Based on a U.S. Environmental Protection Agency Exposure Assessment Multimedia Model (MULTIMED Version 1.5, 2005), the estimated increase in chloride concentrations in groundwater from residual chloride migration through the vadose zone from the site was determined to be below WQCC standards of 250 mg/L. Therefore, no further action was warranted for groundwater at the site.

To address the vadose zone, ROC proposed to excavate the site to the dimensions of 120 ft x 80 ft and properly seat a 20-mil reinforced poly liner at approximately 4-5 ft bgs. The liner would cover the existing clay layers installed at 6.5 ft bgs measuring 30 ft x 30 ft at the BD jct. P-30 west site and 30 ft x 45 ft at the BD P-30 EOL site. The soils placed above the liner would have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. Excavated soils would be evaluated for use as backfill and any soils requiring disposal would be properly disposed of at a NMOCD approved facility. Upon completion of backfilling, the site would be seeded with a native vegetative mix and soil amendments will be added as needed. Vegetation above the liner would 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 Plan Report**

On July 12<sup>th</sup>, 2013, RECS personnel were on site to begin the Corrective Action Plan work. The site was excavated to 80 ft x 120 ft to a depth of 5 ft bgs (Figure 3). A total of 2,300 yards of excavated soil was disposed of at a NMOCD approved facility. At the base of the excavation, a 20-mil reinforced poly liner was installed and properly seated at a depth of 5 ft bgs. Since the site contained primarily sandy/silty soils without appreciable rock, it was not necessary to pad either the top or bottom of the liner. Approximately 2,256 yards of soil was imported to the site to serve as backfill. A sample of this imported soil was field tested for hydrocarbons and returned a result of 1.7 ppm. The sample was then taken to a commercial laboratory and returned a chloride result of non-detect. The excavation was backfilled with the imported soil and contoured to the surrounding location.

On August 30<sup>th</sup>, 2013, the site was prepared for seeding. The soil was tilled and amendments were added to the soil. The site was then seeded with a blend of native vegetation. A silt net fence was placed around the site to negate erosion and maintain seed integrity. Documentation for these CAP activities can be found in Appendix A.

Since the CAP actions have been completed, ROC respectfully requests 'remediation termination' or similar site closure status for the site. ROC acknowledges they have met the requirements of 19.15.29 NMAC, and no further action is required.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,



Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

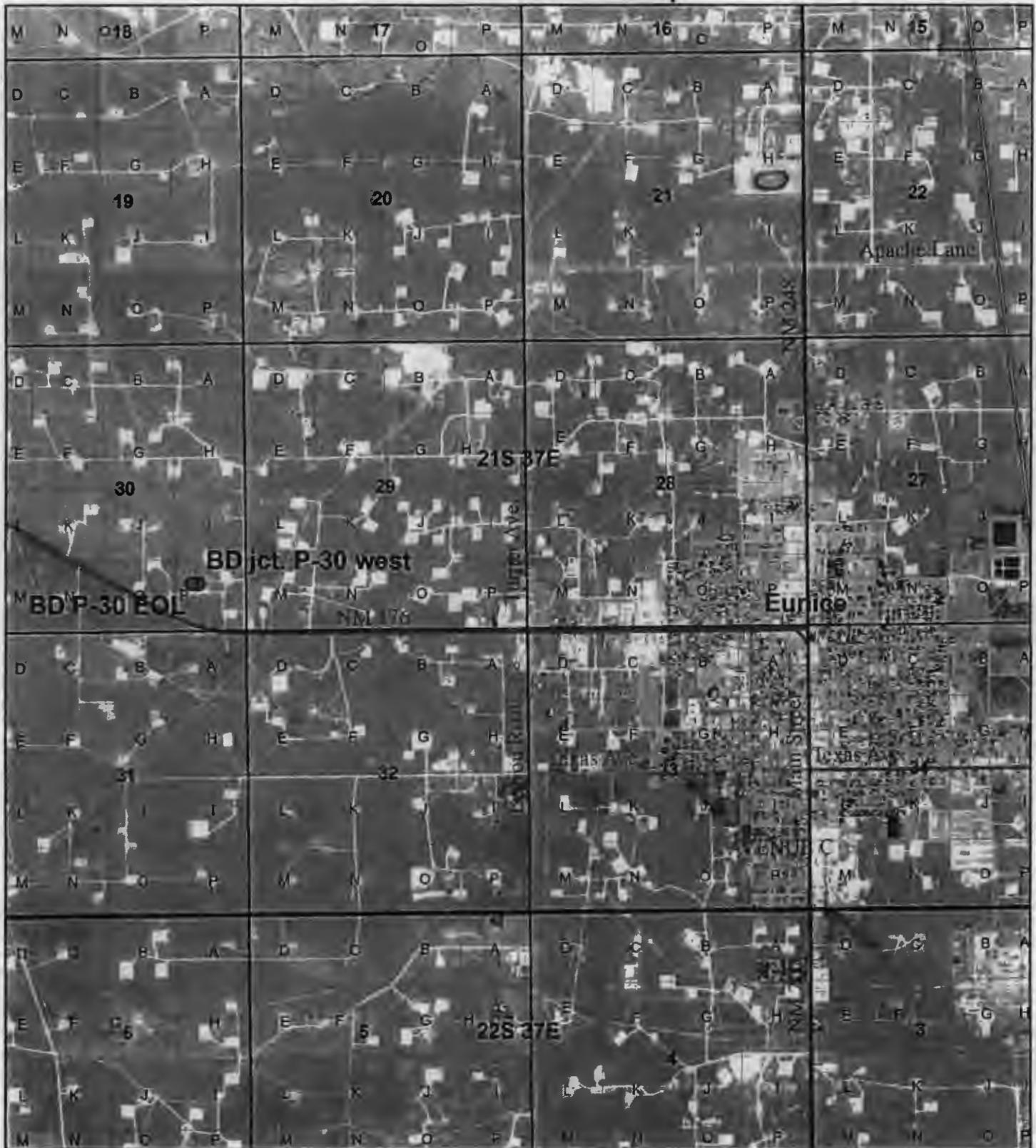
### **Attachments:**

- Figure 1 – Site Location Map
- Figure 2 – Geographical Location Map
- Figure 3 – NMOCD Approved Liner
- Appendix A – CAP Activities Documentation



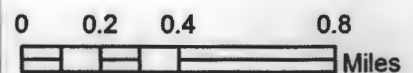
# Figures

# Site Location Map



**BD jct. P-30 west**  
 NMOCD Case #: 1R426-127  
**BD P-30 EOL**  
 NMOCD Case #: 1R426-218  
 Legals: UL/P sec. 30  
 T21S R37E

Figure 1



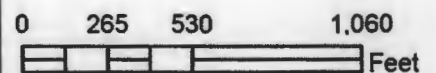
Drawing date: 8/9/12

# Geographical Location Map



***BD jct. P-30 west***  
 NMOCD Case #: 1R426-127  
***BD P-30 EOL***  
 NMOCD Case #: 1R426-218  
 Legals: UL/P sec. 30  
 T21S 37E

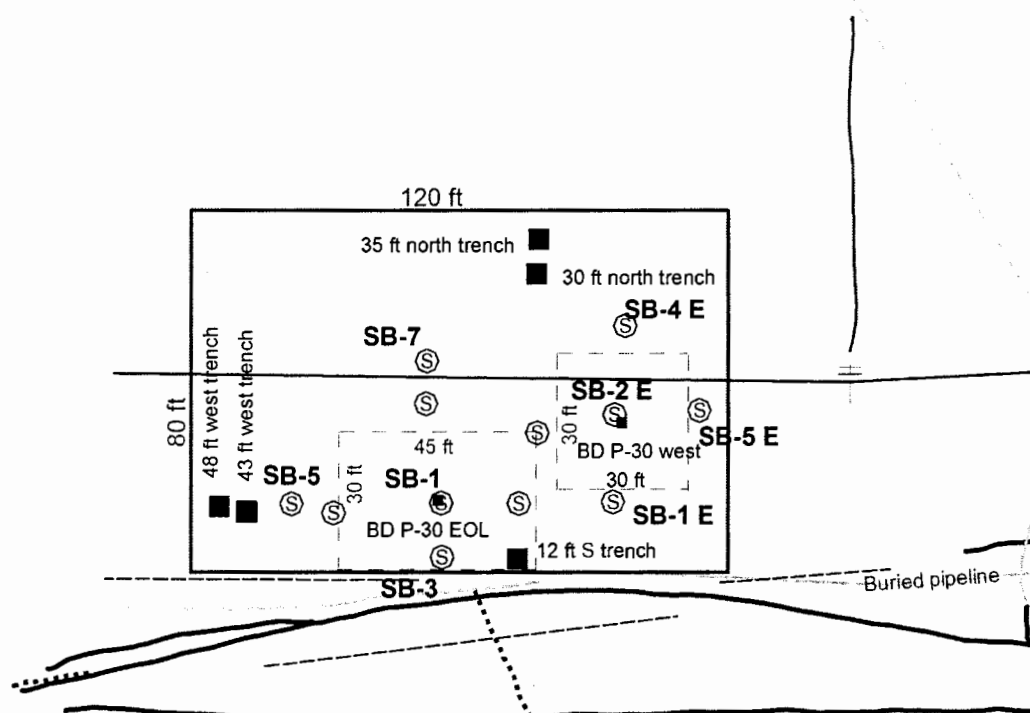
**Figure 2**



Drawing date: 8/9/12



# NMOCD Approved Liner



BATTERY

## Legend

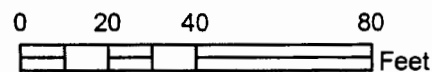
- ELECTRICAL POLE
- MARKING PLATES
- BURIED PIPELINE
- OVERHEAD ELECTRICAL LINE
- ELECTRICAL LINE
- LINEFINDER HIT
- SURFACE POLY LINE
- EXISTING CLAY LINER @ 6.5'
- INSTALLED LINER 20 MIL REINFORCED @ 5' BGS
- DEAD SURFACE STEEL LINE
- SURFACE STEEL LINE
- BURIED PIPELINE
- BATTERY
- VERTICAL TRENCH

DGW = 97 ft



***BD jct. P-30 west***  
 NMOCD Case #: 1R426-127  
***BD P-30 EOL***  
 NMOCD Case #: 1R426-218  
 Legals: UL/P sec. 30  
 T216 P27E

Figure 3



Drawing date: 6/18/13  
 Prepared by: M. J. H. H. H.



# Appendix A

CAP Activities Documentation



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

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August 06, 2013

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD JCT P-30 WEST & BD P-30 EOL

Enclosed are the results of analyses for samples received by the laboratory on 07/30/13 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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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: 07/30/2013  
Reported: 08/06/2013  
Project Name: BD JCT P-30 WEST & BD P-30 EOL  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/30/2013  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: IMPORTED SAND (H301798-01)**

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	08/01/2013	ND	416	104	400	3.92	

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

**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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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.



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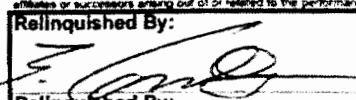

Celey D. Keene, Lab Director/Quality Manager

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

<b>Company Name:</b> Rice Operating <b>Project Manager:</b> Katie Jones <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b> <b>Project #:</b> <b>Project Owner:</b> <b>Project Name:</b> Jct. <b>Project Location:</b> BDP-30 West & BDP-30 EOL * <b>Sampler Name:</b> Zach Conder			<b>BILL TO</b> <b>P.O. #:</b> <b>Company:</b> <b>Attn:</b> <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b>		<b>ANALYSIS REQUEST</b>									
FOR LAB USE ONLY	Lab I.D.	Sample I.D.	IG/RAB OR (C)OMP	# CONTAINERS	MATRIX	PRESERV.	SAMPLING							
	H301798	1 Impacted Sand	G	1	GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER	ACID/BASE ICE / COOL OTHER	DATE      TIME							
							7-30-13							

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether caused 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 90 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.

<b>Relinquished By:</b>  <b>Relinquished By:</b> <b>Delivered By: (Circle One)</b> Sampler - UPS - Bus - Other:	<b>Date:</b> 7/30/13 <b>Time:</b> 4:35 <b>Date:</b> <b>Time:</b>	<b>Received By:</b> Jodi Benson <b>Received By:</b> <b>Sample Condition:</b> Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>35.82</b> <b>CHECKED BY:</b>  <b>(Initials)</b>	<b>Phone Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Add'l Phone #:</b> <b>Fax Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Add'l Fax #:</b> <b>REMARKS:</b> * Project changed as per Katie. 8/6/13. Ck
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# 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.	<input type="checkbox"/>	MODEL: PGM 7300	SERIAL NO: 590-000508
MODEL	<input type="checkbox"/>	MODEL: PGM 7300	SERIAL NO: 590-000504
NO.	<input type="checkbox"/>	MODEL: PGM 7320	SERIAL NO: 592-903318
	<input checked="" type="checkbox"/>	MODEL: PGM 7300	SERIAL NO: 590-001413

GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE

LOT NO : HAL-248-100-1	EXPIRATION DATE: 07/01/2015
METER READING ACCURACY: 100.0 ppm	

ACCURACY : +/- 2%

COMPANY
RICE Operating

SITE	UNIT	SECTION	TOWN SHIP	RANGE
BD Jct. P-30 west and BD P-30 EOL	P	30	21S	37E

SAMPLE ID	PID	SAMPLE ID	PID
Imported Sand	1.7		

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

SIGNATURE:



DATE: 7-30-13



PO Box 2498  
Hobbs, NM 88241  
Phone: (575) 393-2967  
Fax: (575) 393-0293

## VEGETATION FORM

### 1. General Information

Site name: BD Jct. P-30 west BD P-30 EOL						
U/L P	Section 30	Township T21S	Range R37E	County LEA	Latitude 32°26'42.017" N 32°26'42.018" N	Longitude 103°11'47.486" W 103°11'47.94" W
Contact Name: Kyle Norman						
Email: <a href="mailto:knorman@rice-ecs.com">knorman@rice-ecs.com</a>						
Site size: 132'X140'			square feet: 19,000			

### 2. Soils

*\*Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site	<input type="checkbox"/>	Bioremediated	<input type="checkbox"/>	Imported	<input type="checkbox"/>	<input checked="" type="checkbox"/> Blended	Depth (in)	
Texture:	Sandy		Describe soil & subsoil:		Red Sand			
Soil prep methods:	Rip	<input type="checkbox"/>	Depth (in)		Disc	<input checked="" type="checkbox"/>	Depth (in)	3"
							Rollerpack	<input type="checkbox"/>
Date completed: 8/30/2013								

### 3. Bioremediation

Fertilizer	<input type="checkbox"/>	Hay	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>
Type:					Describe: 78 BAGS OF BIONHANCE, 39 BAGS OF GARDEN SOIL, 3 BAGS OF MANURE
Lbs/acre:					

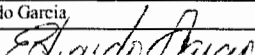
### 4. Seeding

*\*Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom Seed Mix	<input checked="" type="checkbox"/>	Prescribed Mix	<input type="checkbox"/>	Seed Mix Name: 15 LBS OF BLUE GRAMA, 15 LBS SIDE OATS, 15 LBS OF SUMMER GRASS	Date: 8/30/2013
Broadcast	MECHANICAL SEEDER				
Soil conditions during seed:	Dry	<input checked="" type="checkbox"/>	Damp	<input type="checkbox"/>	Wet
Method: USED THE DEW DROP DRILL SEEDER.					
Observations: The seed was tilled into the soil.					

### 5. Certification

I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: Edwardo Garcia	Title: Field Technician	Date: 8/30/2013
Signature: 		



**BD Jct. P-30 west (1R426-127) and BD P-30 EOL (1R426-218)  
Unit Letter P, Section 30, T21S, R37E**



Site prior to excavation, facing west 7/16/2013



Excavating, facing west 7/16/2013



Exporting soil, facing east 7/16/2013



Excavation final, facing northeast 7/30/2013



Liner complete, facing southwest 7/30/2013



Importing, facing east 7/30/2013

**BD Jct. P-30 west (1R426-127) and BD P-30 EOL (1R426-218)  
Unit Letter P, Section 30, T21S, R37E**



**Backfilling above the liner, facing northeast  
7/31/2013**



**Backfilling excavation, facing southwest  
8/1/2013**



**Silt net fence complete, facing west 8/28/2013**



**Spreading amendments, facing north 8/30/2013**



**Spreading seed, facing south 8/30/2013**



**Site complete with vegetation, facing west  
9/3/2013**