

1R - 425-87

REPORTS

DATE:

8-8-11

RECEIVED OCD

2011 AUG 15 P 1:25

**L. Peter Galusky, Jr. Ph.D., P.G.**

**Texerra**

**627 Forest View Way Monument, Colorado 80132**

**Tel: 719-339-6791 E-mail: lpg@texerra.com**

**August 8<sup>th</sup>, 2011**

**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: INVESTIGATION & CHARACTERIZATION PLAN (ICP) REPORT**

Rice Operating Company – Vacuum SWD System

Vacuum Jct N-28-1: UL/N, Sec. 28, T17S, R35E (formerly Vacuum Jct K-28-1)

NMOCD Case Number: 1R425-87

**Sent via Certified U.S. Mail w/ Return Receipt No. 7008 1830 0004 2694 4293**

Mr. Hansen:

RICE Operating Company (ROC) has retained Texerra to address potential environmental concerns at the above-referenced site in the abandoned Vacuum Salt Water Disposal (SWD) system. This report summarizes work to date completed per the OCD-approved Investigation and Characterization Plan of May 2<sup>nd</sup>, 2011 for this site.

The location of the Vacuum Jct N-28-1 site is given in Figure 1. A summary of soil boring analyses from samples taken in June and July 2011 are given in Figure 2. Representative photographs of this work are given in the Appendix, as are copies of laboratory analyses.

Residual soil chlorides are high in the at-source soil boring (SB-2) from the surface to a depth of 65 ft bgs. The depth to groundwater at this site is approximately 68 ft below ground surface (bgs). The lateral extent of residual soil chlorides was defined by SB-3 to the west, SB-8 to the north and SB-6 to the south where a three-point decline (with the lowest sample testing less than 250 mg/kg) was found in the lowest intervals sampled. The easterly extent was defined by SB-4, where chloride concentrations decreased from 4,000 mg/kg to 432 mg/kg at 65 ft bgs. SB-9, drilled east of SB-4, is encroaching upon an abandoned lease facility (Figure 3). Residual soil petroleum hydrocarbons were generally negligible in each of the soil bores. Petroleum hydrocarbons were therefore determined not to be of concern.


It is clear from this initial investigation that further sampling and analyses of surface samples are needed in order to characterize and delineate the extent of residual soil chlorides. Once the site is fully delineated, a report with recommendations will be submitted to the NMOCD.

## **Vacuum Jct N-28-1 ICP Report**

ROC is the service provider (agent) for the Vacuum 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 appreciate your consideration of this ICP report. Please do not hesitate to contact either Katie Jones of Rice Operating Company or myself if you have any questions or need additional information.

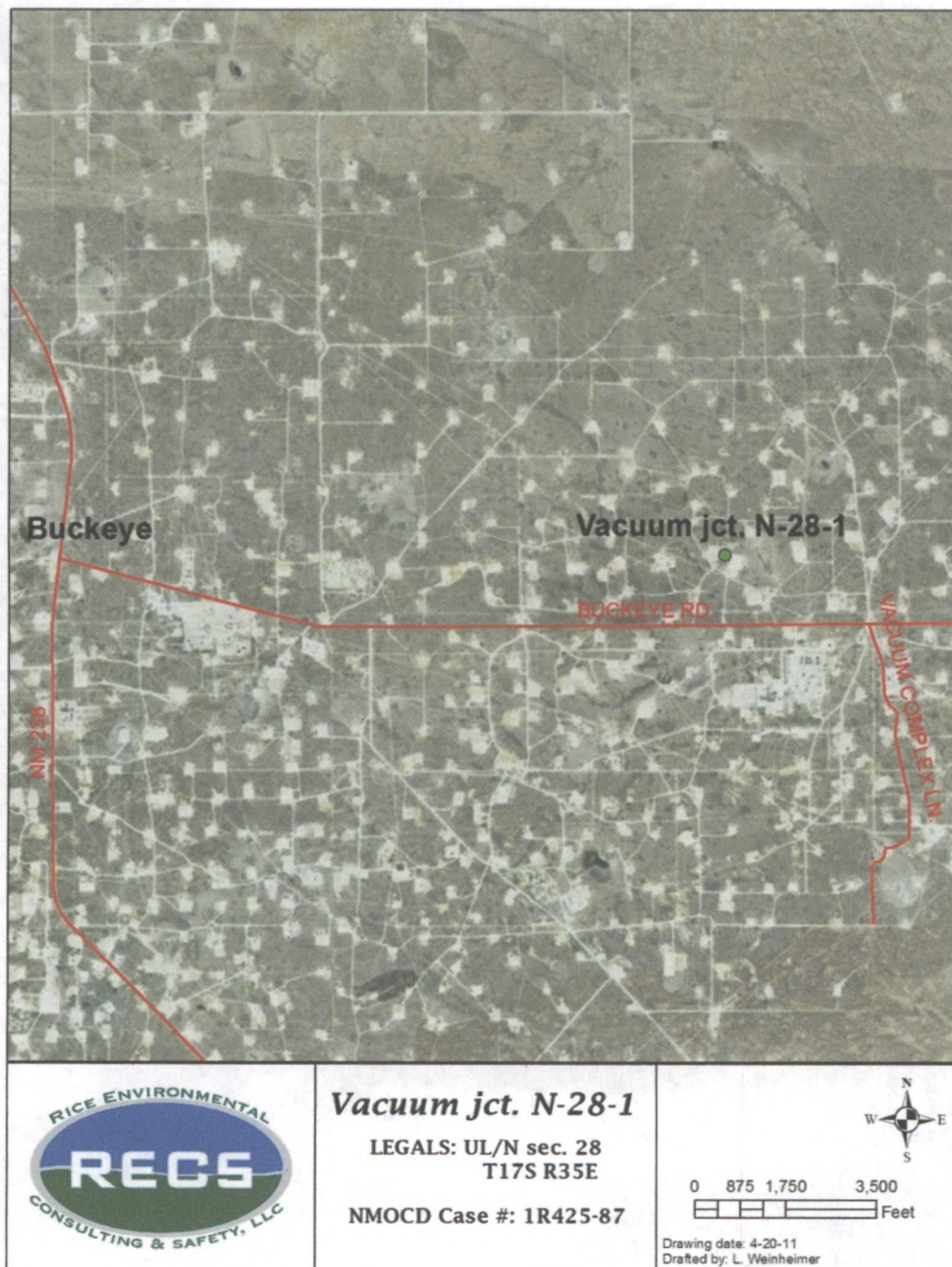
Sincerely,

A handwritten signature in black ink, appearing to be 'L. Peter Galusky, Jr.', written in a cursive style.

L. Peter Galusky, Jr. Ph.D.

Copy: Rice Operating Company

## Vacuum Jct N-28-1 ICP Report



**Figure 1** – Vacuum N-28-1 Jct location.

# Vacuum Jct N-28-1 ICP Report

## Soil bore installation

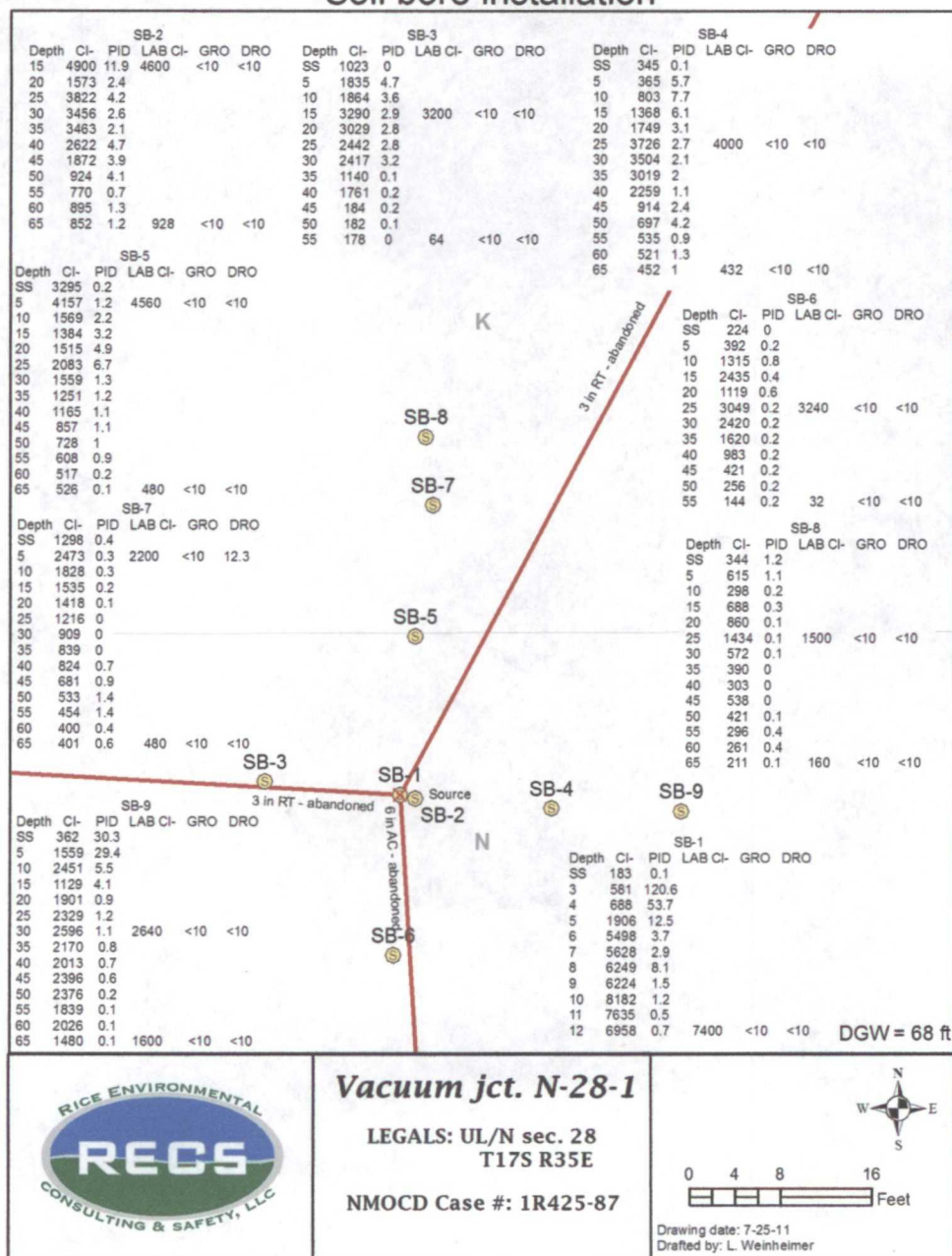
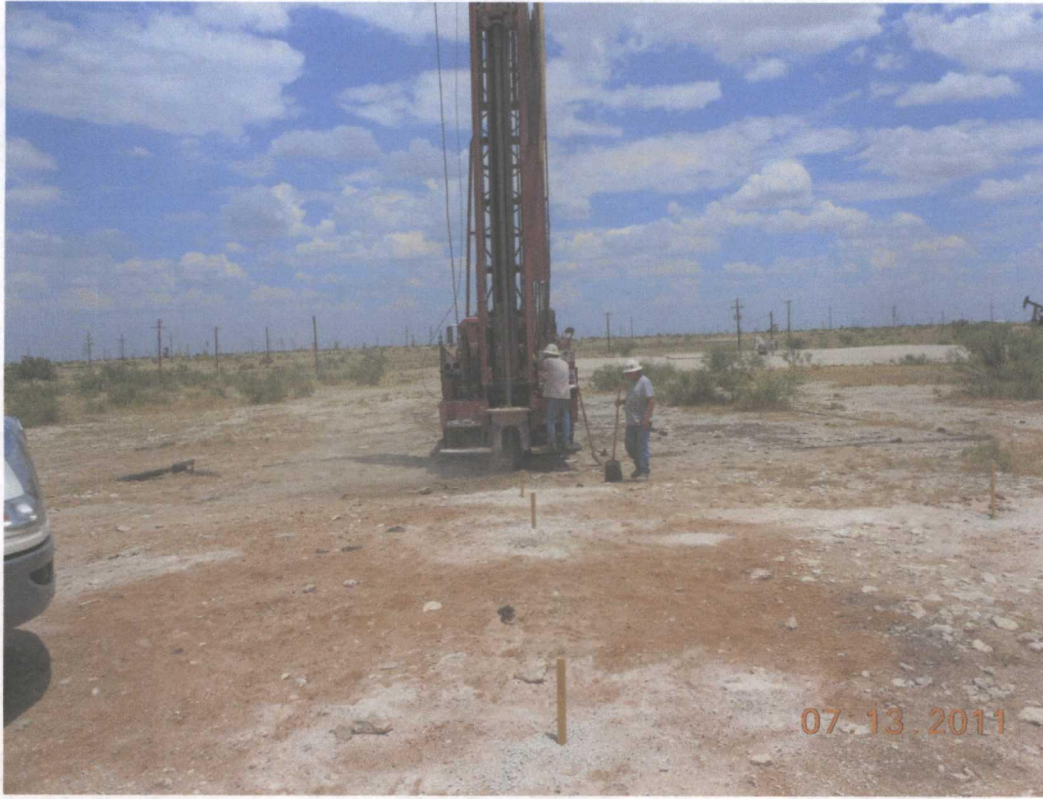


Figure 2 – Vacuum N-28-1 Jct summary of soil boring sampling locations and analyses.



**Vacuum Jct N-28-1 ICP Report**



**Figure 3 – Abandoned lease facility, next to SB-9.**

## Vacuum Jct N-28-1 ICP Report

**Vacuum Jct. N-28-1**  
Unit N, Section 28, T17S, R35E



drilling SB-2, facing south



plugging SB-2 with bentonite, facing east



drilling SB-3, facing south



plugging SB-3 with bentonite, facing east



drilling SB-4, facing east



plugging SB-4 with bentonite, facing east



## Vacuum Jct N-28-1 ICP Report



drilling SB-5, facing south



plugging SB-5 with bentonite, facing east



drilling SB-6, facing southeast



plugging SB-6 with bentonite, facing east



drilling SB-7, facing east



plugging SB-7 with bentonite, facing east



## Vacuum Jct N-28-1 ICP Report



drilling SB-8, facing southwest



drilling SB-9, facing east



plugging SB-8 with bentonite, facing south



plugging SB-9 with bentonite, facing east



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

June 17, 2011

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

RE: VACUUM JCT N-28-1

Enclosed are the results of analyses for samples received by the laboratory on 06/10/11 16:20.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

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

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

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Celey D. Keene", written in a cursive style.

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/10/2011  
Reported: 06/17/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/09/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 2 @ 15' (H101212-01)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4600	16.0	06/14/2011	ND	432	108	400	7.14	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	86.5 %	70-130							
Surrogate: 1-Chlorooctadecane	110 %	70-130							

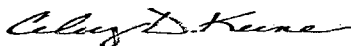
**Sample ID: SB 2 @ 65' (H101212-02)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	928	16.0	06/14/2011	ND	432	108	400	7.14	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	73.1 %	70-130							
Surrogate: 1-Chlorooctadecane	95.9 %	70-130							

**Cardinal Laboratories**

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/10/2011  
Reported: 06/17/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/09/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 3 @ 15' (H101212-03)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3200	16.0	06/14/2011	ND	432	108	400	7.14		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51		
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11		
Surrogate: 1-Chlorooctane	73.4 %	70-130								
Surrogate: 1-Chlorooctadecane	94.3 %	70-130								

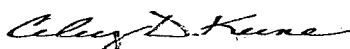
**Sample ID: SB 3 @ 55' (H101212-04)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/14/2011	ND	432	108	400	7.14		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51		
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11		
Surrogate: 1-Chlorooctane	80.0 %	70-130								
Surrogate: 1-Chlorooctadecane	103 %	70-130								

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 06/10/2011  
Reported: 06/17/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/09/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 4 @ 25" (H101212-05)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4000	16.0	06/14/2011	ND	432	108	400	7.14	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	74.8 %	70-130							
Surrogate: 1-Chlorooctadecane	98.5 %	70-130							

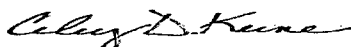
**Sample ID: SB 4 @ 65' (H101212-06)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	06/14/2011	ND	432	108	400	3.64	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	69.6 %	70-130							
Surrogate: 1-Chlorooctadecane	91.9 %	70-130							

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/10/2011  
Reported: 06/17/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/09/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 5 @ 5' (H101212-07)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4560	16.0	06/14/2011	ND	432	108	400	3.64	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	70.1 %	70-130							
Surrogate: 1-Chlorooctadecane	88.7 %	70-130							

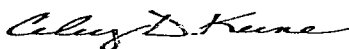
**Sample ID: SB 5 @ 65' (H101212-08)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	06/14/2011	ND	432	108	400	3.64	
TPH 8015M		mg/kg	Analyzed By: ab						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51	
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11	
Surrogate: 1-Chlorooctane	75.9 %	70-130							
Surrogate: 1-Chlorooctadecane	103 %	70-130							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 06/10/2011  
Reported: 06/17/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/10/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 6 @ 25' (H101212-09)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3240	16.0	06/14/2011	ND	432	108	400	3.64		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/15/2011	ND	154	76.9	200	3.51		
DRO >C10-C28	<10.0	10.0	06/15/2011	ND	152	75.8	200	3.11		
Surrogate: 1-Chlorooctane	81.0 %	70-130								
Surrogate: 1-Chlorooctadecane	110 %	70-130								

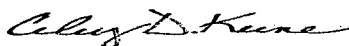
**Sample ID: SB 6 @ 55' (H101212-10)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	06/14/2011	ND	432	108	400	3.64		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/16/2011	ND	167	83.6	200	3.30		
DRO >C10-C28	<10.0	10.0	06/16/2011	ND	150	75.0	200	2.31		
Surrogate: 1-Chlorooctane	85.5 %	70-130								
Surrogate: 1-Chlorooctadecane	116 %	70-130								

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

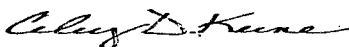
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received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

---

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\* = Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager





# 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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> Rice Operating Company		<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																
<b>Project Manager:</b> Hack Conder		<b>P.O. #:</b>																		
<b>Address:</b> 122 West Taylor		<b>Company:</b>																		
<b>City:</b> Hobbs		<b>Attn:</b>																		
<b>Phone #:</b> 575-393-9174		<b>Address:</b>																		
<b>Fax #:</b> 575-397-1471		<b>City:</b>																		
<b>Project #:</b>		<b>State:</b>																		
<b>Project Name:</b> Vacuum Jet N-28-1		<b>Zip:</b>																		
<b>Project Location:</b> Vacuum Jet N-28-1		<b>Phone #:</b>																		
<b>Sample Name:</b> Jordan Woodfin		<b>Fax #:</b>																		
<b>FOR LAB USE ONLY</b>																				
<b>Lab I.D.</b>	<b>Sample I.D.</b>	<b>(G)RAB OR (C)OMP.</b>	<b># CONTAINERS</b>	<b>MATRIX</b>	<b>PRESERV</b>	<b>SAMPLING</b>	<b>DATE</b>	<b>TIME</b>	<b>Chlorides</b>	<b>TPH 8015 M</b>	<b>BTEX</b>	<b>Texas TPH</b>	<b>Complete Cations/Anions</b>	<b>TPH 8015 M Extended Thru C40</b>						
1	SB 2 @ 15'	✓	1	✓	✓	✓	6/9/11	12:00	✓	✓										
2	SB 2 @ 65'	✓	1	✓	✓	✓	11	12:30	✓	✓										
3	SB 3 @ 15'	✓	1	✓	✓	✓	11	01:00	✓	✓										
4	SB 3 @ 55'	✓	1	✓	✓	✓	11	01:30	✓	✓										
5	SB 4 @ 25'	✓	1	✓	✓	✓	11	02:00	✓	✓										
6	SB 4 @ 65'	✓	1	✓	✓	✓	11	02:30	✓	✓										
7	SB 5 @ 5'	✓	1	✓	✓	✓	11	03:00	✓	✓										
8	SB 5 @ 65'	✓	1	✓	✓	✓	11	03:30	✓	✓										
9	SB 6 @ 25'	✓	1	✓	✓	✓	6/10/11	06:30	✓	✓										
10	SB 6 @ 55'	✓	1	✓	✓	✓	11	06:45	✓	✓										
<small>PLEASE NOTE: Liability and Damages. Cardinal's liability and clients' exclusive remedy for any claim arising and/or based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims requiring those for negligence and any other cause whatsoever shall be reduced to the extent of the amount paid by the client for the analysis. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruption, 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 rendered by Cardinal, regardless of whether such claim is based upon any of the above stated theories of liability.</small>																				
<b>Relinquished By:</b> Jordan Woodfin		<b>Date:</b> 6/10/11		<b>Received By:</b> Jack Alexander		<b>Phone Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>Add'l Phone #:</b>		<b>Fax Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>Add'l Fax #:</b>		<b>REMARKS:</b>						
<b>Delivered By:</b> (Circle One)		<b>Time:</b>		<b>Sample Condition:</b>		<b>CHECKED BY:</b>		<b>Initials:</b>		<b>email results</b>										
<b>Sampler - UPS - Bus - Other:</b>				<b>Cool Intact:</b>		<b>Checked By:</b>		<b>Initials:</b>		<b>NEED SAMPLES BACK, PLEASE</b>										

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

#26



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

July 18, 2011

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

RE: VACUUM JCT N-28-1

Enclosed are the results of analyses for samples received by the laboratory on 07/14/11 10:30.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

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

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

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/14/2011  
Reported: 07/18/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/13/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 7 @ 5' (H101453-01)**

Chloride, SM4500CI-B

mg/kg

Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	07/15/2011	ND	416	104	400	0.00	
TPH 8015M	mg/kg								
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	12.3	10.0	07/17/2011	ND	182	90.8	200	0.814	

Surrogate: 1-Chlorooctane 97.5 % 70-130

Surrogate: 1-Chlorooctadecane 108 % 70-130

**Sample ID: SB 7 @ 65' (H101453-02)**

Chloride, SM4500CI-B

mg/kg

Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	07/15/2011	ND	416	104	400	0.00	
TPH 8015M	mg/kg								
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814	

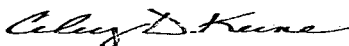
Surrogate: 1-Chlorooctane 106 % 70-130

Surrogate: 1-Chlorooctadecane 113 % 70-130

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/14/2011  
Reported: 07/18/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/13/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 8 @ 25' (H101453-03)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1500	16.0	07/15/2011	ND	416	104	400	0.00		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112		
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814		
Surrogate: 1-Chlorooctane	105 %	70-130								
Surrogate: 1-Chlorooctadecane	114 %	70-130								

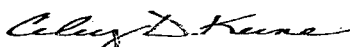
**Sample ID: SB 8 @ 65' (H101453-04)**

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	07/15/2011	ND	416	104	400	0.00		
TPH 8015M			mg/kg							Analyzed By: ab
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112		
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814		
Surrogate: 1-Chlorooctane	108 %	70-130								
Surrogate: 1-Chlorooctadecane	118 %	70-130								

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received: 07/14/2011  
Reported: 07/18/2011  
Project Name: VACUUM JCT N-28-1  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/13/2011  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SB 9 @ 30' (H101453-05)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2640	16.0	07/15/2011	ND	416	104	400	0.00	
TPH 8015M			mg/kg		Analyzed By: ab				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814	
Surrogate: 1-Chlorooctane	108 %	70-130							
Surrogate: 1-Chlorooctadecane	122 %	70-130							

**Sample ID: SB 9 @ 65' (H101453-06)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	07/15/2011	ND	416	104	400	0.00	
TPH 8015M			mg/kg		Analyzed By: ab				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/17/2011	ND	197	98.6	200	0.112	
DRO >C10-C28	<10.0	10.0	07/17/2011	ND	182	90.8	200	0.814	
Surrogate: 1-Chlorooctane	108 %	70-130							
Surrogate: 1-Chlorooctadecane	118 %	70-130							

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

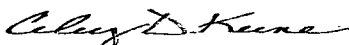
**Notes and Definitions**

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

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Celey D. Keene, Lab Director/Quality Manager

# ARDINAL 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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> Rice Operating Company <b>Project Manager:</b> Heck Conder <b>Address:</b> 122 West Taylor <b>City:</b> Hobbs <b>Phone #:</b> 575-393-9174 <b>Project #:</b> <b>Project Name:</b> VACUUM JCT N-28-1 <b>Project Location:</b> VACUUM JCT N-28-1 <b>Sampler Name:</b> Jordan Woodfin		<b>State:</b> NM <b>Zip:</b> 88240 <b>Fax #:</b> 575-397-1471 <b>Project Owner:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</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>FOR LAB USE ONLY</b>					
<b>Lab I.D.</b> H101453	<b>Sample I.D.</b> SB 7 @ 5' SB 7 @ 65' SB 8 @ 25' SB 8 @ 65' SB 9 @ 30' SB 9 @ 65'	(G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER: ACID/BASE: ICE / COOL OTHER:	DATE 7/13/11 11:00 11:45 01:00 01:45 02:15 03:00	TIME 11:00 11:45 01:00 01:45 02:15 03:00	Chlorides TPH 8015 M BTEX Texas TPH Complete Cations/Anions TPH 8015 M Extended Thru C40
<b>PLEASE NOTE:</b> Utility and Design, Contract, liability and client's exclusive to Ardinal. All claims, including those for negligence and any other cause, whether or not caused in whole or in part by Ardinal, shall be held by Ardinal or its subsidiaries, affiliates or successors, including any and all related to the performance of testing, analysis or evaluation, and shall be subject to the terms and conditions of the contract.					
<b>Relinquished By:</b> Jordan Woodfin <b>Received By (Circle One):</b> <i>Heck Conder</i> <b>CS - Bur - Other:</b>					
<b>Phone Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Add'l Phone #:</b> <b>Remarks:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Add'l Fax #:</b> <b>Signatures:</b> <i>Jordan Woodfin</i> <i>Heck Conder</i> <b>DATE:</b> 7/14/11 <b>TIME:</b> 10:30 AM					

#26

PLEASE BACK, PLEASE