

1R - 425-86

REPORTS

DATE:

8-8-11

RECEIVED OCD

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

2011 AUG 15 P 1:25

Texerra

627 Forest View Way Monument, Colorado 80132
Tel: 719-339-6791 E-mail: lpg@texerra.com

August 8th, 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 REPORT
Rice Operating Company – Vacuum SWD System
Vacuum N-28-2 Vent (Formerly Vacuum K-28-2 Vent)
NMOCD Case Number: 1R425-86. UL/N, Sec. 28, T17S, R35E

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 3rd, 2011 for this site.

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

The site contains residual soil chlorides throughout each of the six soil borings drilled at the site. Field PID readings indicate significant residual petroleum hydrocarbons in the upper ten to fifteen feet in most of the borings, but these remain high (> 100 ppm) with depth only in SB-3 (approximately 15 ft. south of the former vent location, next to an abandoned lease facility). BTEX is below lab detection levels in SB-3 at 65 ft bgs. Minor amounts of BTEX were found nearer the soil surface (within ten to fifteen feet) at SB-3, SB-4 and SB-5.

It is clear from this initial investigation that further sampling and analyses 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 N-28-2 vent 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 read 'L. Peter Galusky, Jr.', written in a cursive style.

L. Peter Galusky, Jr. Ph.D.

Copy: Rice Operating Company

Vacuum N-28-2 vent ICP Report

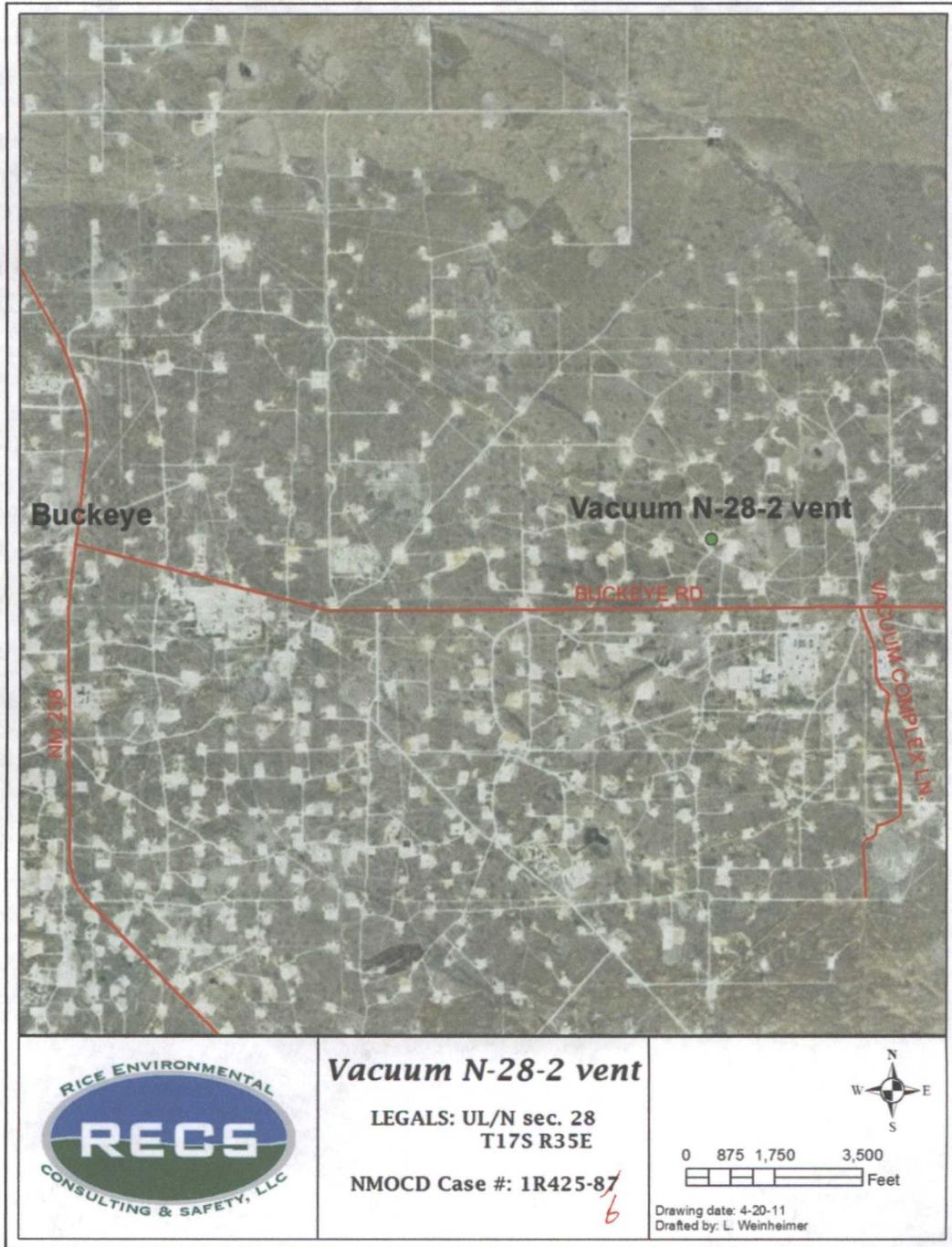


Figure 1 – Vacuum N-28-2 Vent location.

Vacuum N-28-2 vent ICP Report

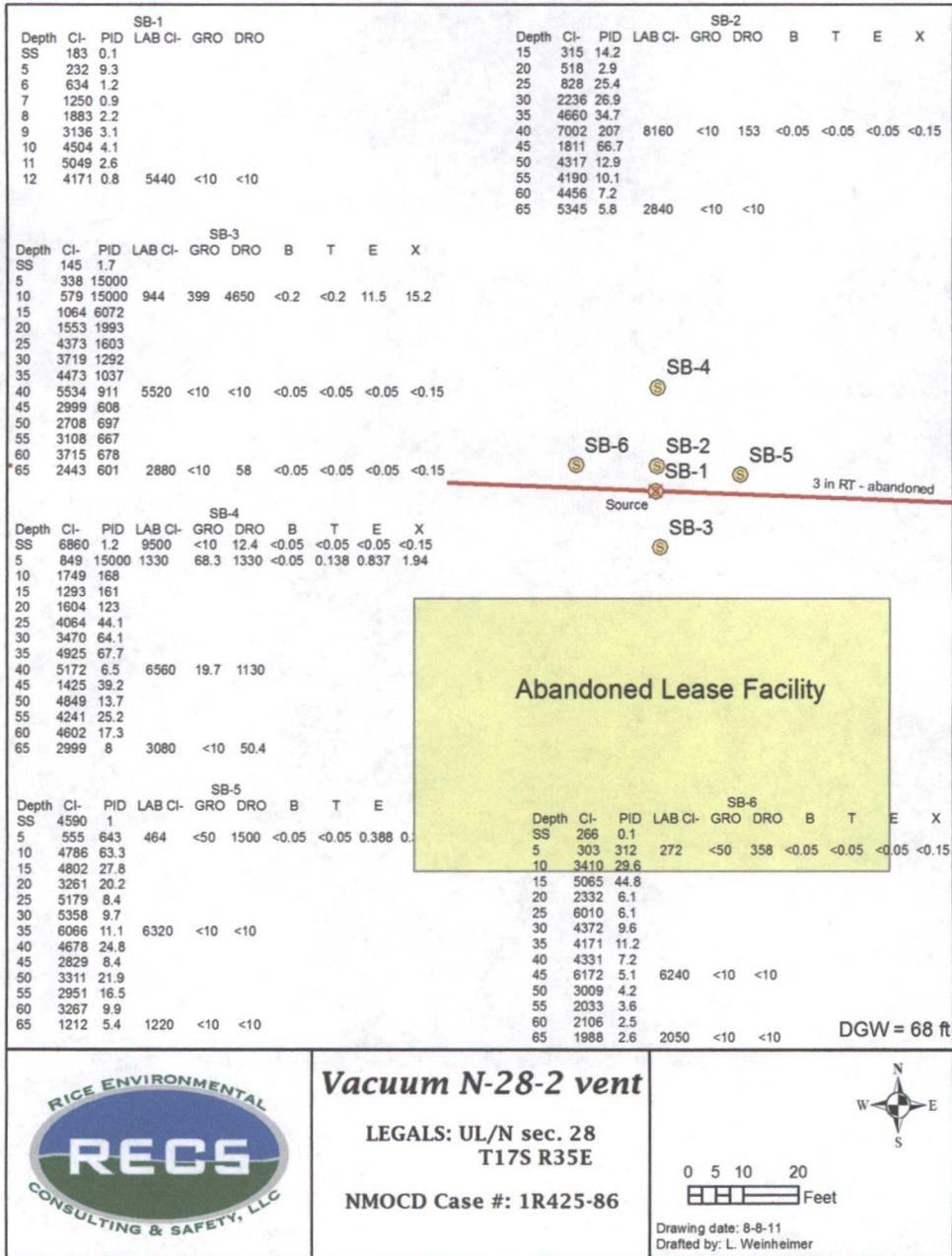


Figure 2 – Summary of soil chloride and petroleum hydrocarbon concentrations from samples taken in June 2011.

Vacuum N-28-2 vent ICP Report

Vacuum N-28-2 vent
Unit N, Section 28, T17S, R35E



drilling SB-2, facing southeast



plugging SB-2 with bentonite, facing east



drilling SB-3, facing southeast



plugging SB-3 with bentonite, facing east



drilling SB-4, facing north



plugging SB-4 with bentonite, facing north

Vacuum N-28-2 vent ICP Report



drilling SB-5, facing east



plugging SB-5 with bentonite, facing east



drilling SB-6, facing south



plugging SB-6 with bentonite, facing south



June 20, 2011

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

RE: VACUUM N-28-2 VENT

Enclosed are the results of analyses for samples received by the laboratory on 06/09/11 10:10.

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:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 2 @ 40' (H101194-01)

BTEX 8260B		mg/kg		Analyzed By: CMS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/13/2011	ND	2.21	111	2.00	7.93		
Toluene*	<0.050	0.050	06/13/2011	ND	2.24	112	2.00	7.82		
Ethylbenzene*	<0.050	0.050	06/13/2011	ND	2.32	116	2.00	8.13		
Total Xylenes*	<0.150	0.150	06/13/2011	ND	6.54	109	6.00	8.53		

Surrogate: Dibromofluoromethane 100 % 80-120
 Surrogate: Toluene-d8 104 % 80-120
 Surrogate: 4-Bromofluorobenzene 114 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8160	16.0	06/11/2011	ND	432	108	400	3.77		

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	06/14/2011	ND	216	108	200	1.49		
DRO >C10-C28	153	10.0	06/14/2011	ND	203	102	200	7.13		

Surrogate: 1-Chlorooctane 123 % 70-130
 Surrogate: 1-Chlorooctadecane 139 % 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:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

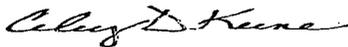
Sample ID: SB 2 @ 65' (H101194-02)

Chloride, SM4500C1-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2840	16.0	06/11/2011	ND	432	108	400	3.77		
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	06/14/2011	ND	216	108	200	1.49		
DRO >C10-C28	<10.0	10.0	06/14/2011	ND	203	102	200	7.13		
<i>Surrogate: 1-Chlorooctane</i>	<i>111 %</i>	<i>70-130</i>								
<i>Surrogate: 1-Chlorooctadecane</i>	<i>131 %</i>	<i>70-130</i>								

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Received:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 10' (H101194-03)

BTEX 8260B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	06/13/2011	ND	2.21	111	2.00	7.93	
Toluene*	<0.200	0.200	06/13/2011	ND	2.24	112	2.00	7.82	
Ethylbenzene*	11.5	0.200	06/13/2011	ND	2.32	116	2.00	8.13	
Total Xylenes*	15.2	0.600	06/13/2011	ND	6.54	109	6.00	8.53	

Surrogate: Dibromofluoromethane 96.5 % 80-120

Surrogate: Toluene-d8 101 % 80-120

Surrogate: 4-Bromofluorobenzene 111 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	944	16.0	06/11/2011	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	399	50.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	4650	50.0	06/14/2011	ND	203	102	200	7.13	

Surrogate: 1-Chlorooctane 123 % 70-130

Surrogate: 1-Chlorooctadecane 130 % 70-130

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

Received:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 40' (H101194-04)

BTEX 8260B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2011	ND	2.21	111	2.00	7.93	
Toluene*	<0.050	0.050	06/13/2011	ND	2.24	112	2.00	7.82	
Ethylbenzene*	<0.050	0.050	06/13/2011	ND	2.32	116	2.00	8.13	
Total Xylenes*	<0.150	0.150	06/13/2011	ND	6.54	109	6.00	8.53	

Surrogate: Dibromofluoromethane 107 % 80-120

Surrogate: Toluene-d8 108 % 80-120

Surrogate: 4-Bromofluorobenzene 117 % 80-120

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5520	16.0	06/11/2011	ND	432	108	400	3.77	

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	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	<10.0	10.0	06/14/2011	ND	203	102	200	7.13	

Surrogate: 1-Chlorooctane 123 % 70-130

Surrogate: 1-Chlorooctadecane 143 % 70-130

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Received:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 3 @ 65' (H101194-05)

BTEX 8260B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2011	ND	2.21	111	2.00	7.93	
Toluene*	<0.050	0.050	06/13/2011	ND	2.24	112	2.00	7.82	
Ethylbenzene*	<0.050	0.050	06/13/2011	ND	2.32	116	2.00	8.13	
Total Xylenes*	<0.150	0.150	06/13/2011	ND	6.54	109	6.00	8.53	

Surrogate: Dibromofluoromethane 94.1 % 80-120

Surrogate: Toluene-d8 95.1 % 80-120

Surrogate: 4-Bromofluorobenzene 104 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	06/11/2011	ND	432	108	400	3.77	

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	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	58.0	10.0	06/14/2011	ND	203	102	200	7.13	

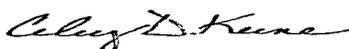
Surrogate: 1-Chlorooctane 111 % 70-130

Surrogate: 1-Chlorooctadecane 127 % 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:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ SURFACE SAMPLE (H101194-06)

BTEX 8260B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/14/2011	ND	2.21	111	2.00	7.93	
Toluene*	<0.050	0.050	06/14/2011	ND	2.24	112	2.00	7.82	
Ethylbenzene*	<0.050	0.050	06/14/2011	ND	2.32	116	2.00	8.13	
Total Xylenes*	<0.150	0.150	06/14/2011	ND	6.54	109	6.00	8.53	

Surrogate: Dibromofluoromethane 97.4 % 80-120
 Surrogate: Toluene-d8 102 % 80-120
 Surrogate: 4-Bromofluorobenzene 110 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9500	16.0	06/11/2011	ND	432	108	400	3.77	

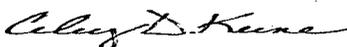
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/13/2011	ND	224	112	200	12.3	
DRO >C10-C28	12.4	10.0	06/13/2011	ND	206	103	200	13.9	

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

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 112 W. Taylor
 Hobbs NM, 88240
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Received:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 5' (H101194-07)

BTEX 8021B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/20/2011	ND	1.89	94.5	2.00	3.65	
Toluene*	0.138	0.050	06/20/2011	ND	2.00	100	2.00	4.10	
Ethylbenzene*	0.837	0.050	06/20/2011	ND	2.02	101	2.00	3.90	
Total Xylenes*	1.94	0.150	06/20/2011	ND	6.00	100	6.00	4.06	

Surrogate: 4-Bromofluorobenzene (PIL) 106 % 70-130

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1330	16.0	06/11/2011	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	68.3	50.0	06/13/2011	ND	142	70.9	200	1.47	
DRO >C10-C28	1330	50.0	06/13/2011	ND	148	73.9	200	3.69	

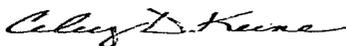
Surrogate: 1-Chlorooctane 87.0 % 70-130

Surrogate: 1-Chlorooctadecane 78.5 % 70-130

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 Rice Operating Company
 Hack Conder
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 Fax To: (575) 397-1471

Received:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/20/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 65' (H101194-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3080	16.0	06/11/2011	ND	432	108	400	3.77		
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	06/13/2011	ND	142	70.9	200	1.47		
DRO >C10-C28	50.4	10.0	06/13/2011	ND	148	73.9	200	3.69		

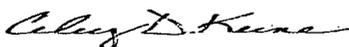
Surrogate: 1-Chlorooctane 81.5 % 70-130

Surrogate: 1-Chlorooctadecane 92.3 % 70-130

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

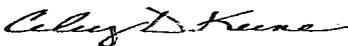
Notes and Definitions

- Z-01 One or more surrogates above historical limits.
- 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



June 17, 2011

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

RE: VACUUM N-28-2 VENT

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,

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	Sampling Date:	06/09/2011
Reported:	06/17/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 5' (H101214-01)

BTEX 8260B		mg/kg		Analyzed By: CMS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/14/2011	ND	2.21	111	2.00	7.93		
Toluene*	<0.050	0.050	06/14/2011	ND	2.24	112	2.00	7.82		
Ethylbenzene*	0.388	0.050	06/14/2011	ND	2.32	116	2.00	8.13		
Total Xylenes*	0.367	0.150	06/14/2011	ND	6.54	109	6.00	8.53		

Surrogate: Dibromofluoromethane 97.6 % 80-120

Surrogate: Toluene-d8 104 % 80-120

Surrogate: 4-Bromofluorobenzene 115 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	464	16.0	06/15/2011	ND	448	112	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	<50.0	50.0	06/16/2011	ND	206	103	200	5.32		
DRO >C10-C28	1500	50.0	06/16/2011	ND	187	93.3	200	5.61		

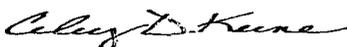
Surrogate: 1-Chlorooctane 91.3 % 70-130

Surrogate: 1-Chlorooctadecane 98.8 % 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	Sampling Date:	06/09/2011
Reported:	06/17/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 5 @ 35' (H101214-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6320	16.0	06/15/2011	ND	448	112	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	06/16/2011	ND	206	103	200	5.32		
DRO >C10-C28	<10.0	10.0	06/16/2011	ND	187	93.3	200	5.61		

Surrogate: 1-Chlorooctane 82.5 % 70-130
 Surrogate: 1-Chlorooctadecane 102 % 70-130

Sample ID: SB 5 @ 65' (H101214-03)

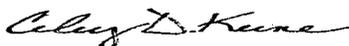
Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1220	16.0	06/15/2011	ND	448	112	400	0.00		
TPH 8015M		mg/kg		Analyzed By: AB						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	06/16/2011	ND	206	103	200	5.32		
DRO >C10-C28	<10.0	10.0	06/16/2011	ND	187	93.3	200	5.61		

Surrogate: 1-Chlorooctane 78.0 % 70-130
 Surrogate: 1-Chlorooctadecane 92.2 % 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	Sampling Date:	06/09/2011
Reported:	06/17/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 5' (H101214-04)

BTEX 8260B		mg/kg		Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/14/2011	ND	2.21	111	2.00	7.93	
Toluene*	<0.050	0.050	06/14/2011	ND	2.24	112	2.00	7.82	
Ethylbenzene*	<0.050	0.050	06/14/2011	ND	2.32	116	2.00	8.13	
Total Xylenes*	<0.150	0.150	06/14/2011	ND	6.54	109	6.00	8.53	

Surrogate: Dibromofluoromethane 101 % 80-120
 Surrogate: Toluene-d8 105 % 80-120
 Surrogate: 4-Bromofluorobenzene 112 % 80-120

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	06/15/2011	ND	448	112	400	0.00	

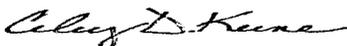
TPH 8015M		mg/kg		Analyzed By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	06/16/2011	ND	206	103	200	5.32	
DRO >C10-C28	358	50.0	06/16/2011	ND	187	93.3	200	5.61	

Surrogate: 1-Chlorooctane 79.1 % 70-130
 Surrogate: 1-Chlorooctadecane 76.8 % 70-130

Cardinal Laboratories

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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	Sampling Date:	06/09/2011
Reported:	06/17/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 6 @ 45' (H101214-05)

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6240	16.0	06/15/2011	ND	448	112	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	06/16/2011	ND	206	103	200	5.32		
DRO >C10-C28	<10.0	10.0	06/16/2011	ND	187	93.3	200	5.61		
<i>Surrogate: 1-Chlorooctane</i>	76.2 %	70-130								
<i>Surrogate: 1-Chlorooctadecane</i>	92.5 %	70-130								

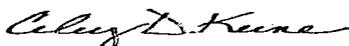
Sample ID: SB 6 @ 65' (H101214-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2050	16.0	06/15/2011	ND	448	112	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	06/16/2011	ND	206	103	200	5.32		
DRO >C10-C28	<10.0	10.0	06/16/2011	ND	187	93.3	200	5.61		
<i>Surrogate: 1-Chlorooctane</i>	80.6 %	70-130								
<i>Surrogate: 1-Chlorooctadecane</i>	100 %	70-130								

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Celey D. Keene, Lab Director/Quality Manager

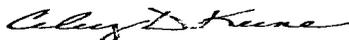
Notes and Definitions

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



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Rico Operating Company		P.O. #:	
Project Manager: Hack Conder		Company:	
Address: 122 West Taylor		ANIN:	
City: Hobbs		Address:	
Phone #: 575-393-9174		City:	
State: NM		State:	
Zip: 88240		State:	
Fax #: 575-397-1471		Phone #:	
Project Owner:		Fax #:	
Project Name: Vacuum N-28-2 Vent		Project Name:	
Project Location: Vacuum N-28-2 Vent		Project Location:	
Sampler Name: Jordan Woodfin		Sampler Name:	

Lab I.D.	Sample I.D.	# CONTAINERS	MATRIX	DATE	TIME
412124		1	WASTEWATER	6/9/11	08:00
-1	SB 5 @ 5'	1	GROUNDWATER		08:30
-2	SB 5 @ 35'	1	SLUDGE		09:00
-3	SB 5 @ 65'	1	OTHER		10:00
-4	SB 6 @ 5'	1	ACID/BASE		10:30
-5	SB 6 @ 45'	1	CE/COOL		11:00
-6	SB 6 @ 65'	1	OTHER		

Chlorides	<input checked="" type="checkbox"/>	TPH 8015 M	<input checked="" type="checkbox"/>	Complete Cations/Anions	<input checked="" type="checkbox"/>	TPH 8015 M Extended Thru C40	<input checked="" type="checkbox"/>
BTEX	<input checked="" type="checkbox"/>	Texas TPH	<input checked="" type="checkbox"/>	TPH 8015 M	<input checked="" type="checkbox"/>	TPH 8015 M	<input checked="" type="checkbox"/>

PLEASE NOTE: Tanks and Drums, Containers, Carboys and client's exclusive remedy for any chain of custody errors based on records or not, shall be treated to the amount paid by the client for the analysis. All requests for analysis must be accompanied by a signed and dated copy of the invoice. All other containers must be accompanied by a signed and dated copy of the invoice. The invoice must be submitted to the laboratory within 30 days after completion of the analysis. In the event that Cardinal has performed the analysis, the invoice will be submitted to the client within 30 days after completion of the analysis. In the event that Cardinal has not performed the analysis, the invoice will be submitted to the client within 30 days after completion of the analysis.

Reinquired By: Jordan Woodfin
Date: 6/10/11
Time: 4:20
Received By: [Signature]
Date: [Blank]
Time: [Blank]

Delivered By: (Circle One) Jordan Woodfin
Sampler - UPS - Bus - Other: [Blank]

Sample Condition: Cool Intact
 Yes No Yes No

Checked By: [Signature]
 (Initials)

REMARKS: email results

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

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

276



June 17, 2011

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

RE: VACUUM N-28-2 VENT

Enclosed are the results of analyses for samples received by the laboratory on 06/09/11 10:10.

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:	06/09/2011	Sampling Date:	06/08/2011
Reported:	06/17/2011	Sampling Type:	Soil
Project Name:	VACUUM N-28-2 VENT	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 4 @ 40' (H101195-01)

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6560	16.0	06/11/2011	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	19.7	10.0	06/14/2011	ND	216	108	200	1.49		
DRO >C10-C28	1130	10.0	06/14/2011	ND	203	102	200	7.13		

Surrogate: 1-Chlorooctane 128 % 70-130

Surrogate: 1-Chlorooctadecane 139 % 70-130

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

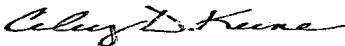
Notes and Definitions

- Z-01 One or more surrogates above historical limits.
- 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

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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) 393-2328 FAX (505) 393-2476 (326) 673-7001 FAX (326) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating Company		P.O. #:		BILT TO		ANALYSIS REQUEST															
Project Manager: Hack Conder		Company:																			
Address: 122 West Taylor		City:																			
City: Hobbs		State: NM		Zip: 88240																	
Phone #: 575-393-9174		Fax #: 575-397-1471		Address:																	
Project #:		Project Owner:		City:																	
Project Name: Vacuum N-28-2 vent		State:		Zip:																	
Project Location: Vacuum N-28-2		Phone #:		Fax #:																	
Sampler Name: Jordan Woodfin		Matrix:		PRESERV		SAMPLING															
FOR LAB USE ONLY		LAB USE ONLY																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)COMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE/COOL	OTHER:	DATE	TIME	Chlorides	TPH 8015 M	BTEX	Texas TPH	Complete Cations/Anions	TPH 8015 M Extended Thru C40	
HID199	SB4 6/11/11	(G)	1			<input checked="" type="checkbox"/>							6/8/11	02:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
-1	SB4 @ 40'																				

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Relinquished By: Jordan Woodfin

Relinquished By: Jordan Woodfin

Delivered By: (Circle One) UPS Bus Other: _____

Received By: [Signature]

Sample Condition: Cool Intact Pres Yes No

Checked By: [Signature]

PHONE RESULT: Yes No

REMARKS: * Sample ID reviewed as per Lora. email results 6/11/11 cl

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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476 #26