1R - 428-76

GENERAL CORRESPONDENCE

YEAR(S):

2008

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Tuesday, August 12, 2008 4:35 PM
To: 'Hack Conder'
Cc: Price, Wayne, EMNRD; 'Marvin Burrows'
Subject: Workplans for 1R427-09, 1R426-09, 1R428-76, and 1R427-172

Dear Mr. Conder:

The New Mexico Oil Conservation Division (OCD) has determined after reviewing your Notification of Groundwater Impact for each of the following four sites:

1) Rice EME L-6 Boot
Unit L, Section 6, T20S, R37E
Lea County, New Mexico
OCD Case #1R0427-09

2) Rice BD H-19
Unit H, Section 19, T21S, R37
Lea County, New Mexico
OCD Case #1R0426-09

3) Rice Hobbs Jct. M-4
Unit M, Section 4, T19S, R38E
Lea County, New Mexico
OCD Case #1R0428-76

4) Rice EME Gaither Boot
Unit I, Section 34, T19S, R36E
Lea County, New Mexico
OCD Case #1R0427-172

that the Rice Operating Company (ROC) must submit for each of the four sites a separate corrective action workplan in accordance with OCD Rule 116 (19.15.3.116 NMAC) to remediate the ground water contamination at each of these sites. The workplans must include a schedule for immediate implementation of groundwater remediation and source control. The workplans must be submitted to the OCD Santa Fe Office within 30 days.

Specifically, the workplan for the Rice EME L-6 Boot site must include that an estimation of the chloride mass that has contaminated the groundwater by the release at the Rice EME L-6 Boot Site and a plan for the removal of that chloride mass from the groundwater. An existing groundwater monitoring well may be used for this purpose. Also, please propose a treatment and / or disposal method for that chloride mass.

Also, for the Rice EME Gaither Boot additional site investigation must be performed at the site; i.e., an upgradient groundwater monitoring well must be installed at the site to determine the regional background groundwater quality. If the background quality is similar to the downgradient well sample results, then the workplan must include that an estimation of the chloride mass that has contaminated the

groundwater by the release at the Rice EME Gaither Boot Site and a plan for the removal of that chloride mass from the groundwater. An existing groundwater monitoring well may be used for this purpose. Also, please propose a treatment and / or disposal method for that chloride mass. *[However, if the background quality is not similar to the downgradient well sample results, then an Abatement Plan may be required. Therefore, please submit the analytical results for the upgradient well to the OCD prior to submitting the workplan. Additional time for submittal of the workplan for this site may be requested.]*

ROC should submit one paper copy and an electronic copy on CD for each of the workplans and for all future workplans and/or reports for each of the sites. Please be sure to include the current corresponding OCD Case # on each of the respective workplans. If you have any questions regarding this matter, please call me at (505) 476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

June 24, 2008

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Notification of Ground Water Impact: T19S R38E, Section 4, Unit M
Jct. M-4 Jct. Box, NMOCD Case #: 1R428-76
Hobbs Salt Water Disposal System

Dear Mr. Price:

R.T. Hicks Consultants, Ltd. is submitting this Notification of Ground Water Impact for the above referenced site, M-4, within the Hobbs Salt Water Disposal System on behalf of Rice Operating Company (ROC). Plate 1 is a map showing the location of this and other nearby ROC sites relative to major roads in the area. As part of the OCD approved (7-18-07) Investigation and Characterization Plan (ICP) R.T. Hicks Consultants (Hicks Consultants) supervised a backhoe investigation (September 2007) and an initial soil boring investigation (February 2008) at the subject site and found:

- Field chloride levels of 226-310 mg/kg from 4' bgs to 12' bgs in a delineation trench to the south of the former junction box. A PID detected significant hydrocarbon impact from 8' bgs – 12' bgs
- In a soil boring 15 feet west of the former junction box (SB-1):
  - Chloride concentrations exceeding 500 mg/kg from 10-20 feet below ground surface,
  - BTEX in soil from 15-17' bgs was <0.0057 mg/kg and non-detect from 25-27 feet bgs.
- In a soil boring (SB-2) through the center of the former junction box, chloride concentrations of 1,520 mg/kg from 20-22' bgs and 558 mg/kg from 25-27' bgs.

A monitoring well was installed down-gradient (southeast) of the former junction box. This well was developed and sampled pursuant to OCD guidelines by Arc Environmental (Arc) of Lovington. The initial ground water sampling event (March 2008) showed a chloride concentration of 432 mg/L and 1,520 mg/L TDS. In May 2008 we observed ground water concentrations of 332 mg/L chloride and 1,330 mg/L TDS. Analyzed hydrocarbons were below detection limits in both ground water sampling events.

Laboratory analyses of two sampling events confirm the Water Quality Control Commission numerical standards for Chloride and TDS are exceeded in the monitoring well. Arc will continue to sample ground water at the site on a quarterly basis.

Produced water may have been released from the ROC junction box and created a local impact to ground water. Our experience in the Hobbs area suggests that ground water impacts from a junction box are generally minor and ground water quality is restored through natural processes in a matter of months.

Examination of historic aerial photographs suggests past activities in the area may have adversely impacted the site. If chloride concentrations in the monitoring well remain above standards or if they increase over time, additional investigation will be required to determine if historic activities of others or releases from the former junction box are the source of chloride in ground water.

This submission is not a formal disclosure of confirmed ground water impact due to the activities of Rice Operating Company (ROC) at this site. While ground water impairment does exist at this location and ROC believes transmission of this finding to OCD is appropriate, we do not believe the evidence collected thus far is sufficient to conclude that the ROC pipeline is the source of chloride in ground water.

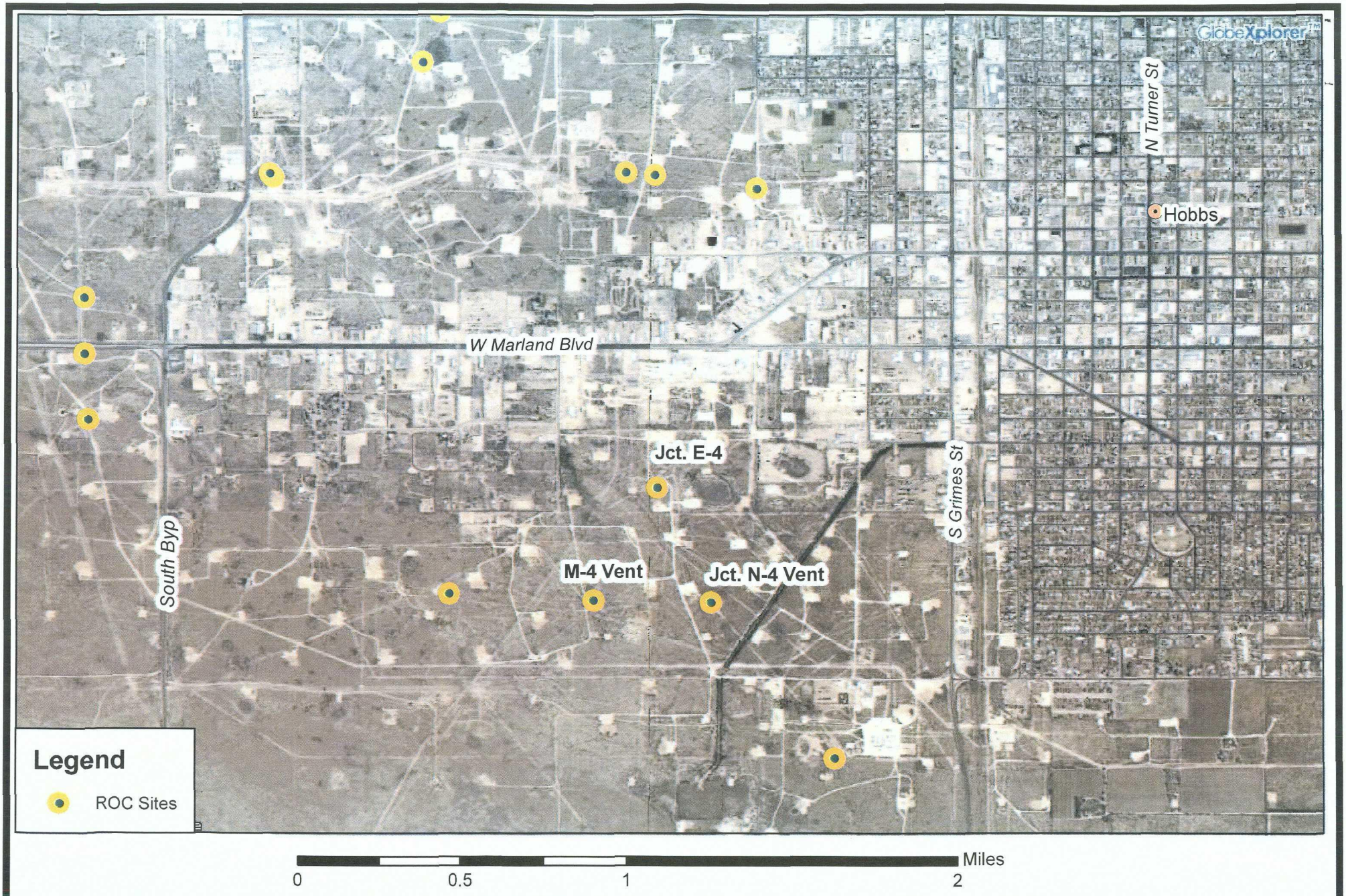
After review of the data from two additional quarters of ground water monitoring and additional investigation, Hicks Consultants will submit a Corrective Action Plan to OCD or a request to close the regulatory file associated with this site. In the submission, we will provide an opinion of the source of chloride in ground water as well as supporting evidence.

Rice Operating Company (ROC) is the service provider (agent) for the Hobbs Saltwater Disposal System and has no ownership of any portion of pipeline, well, or facility. A consortium of oil producers who own the Hobbs System (System Partners); provide all operating capital on a percentage ownership/usage basis. Major projects require System Partner authorization for expenditures (AFE) approval and work begins as funds are received. The Hobbs SWD System has been abandoned.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy: Rice Operating Company
NMOCD office, Hobbs



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Locations of Jct. E-4, Jct N-4 Vent, and M-4 Vent relative to Hobbs, New Mexico	Plate 1
	Rice Operating Company: Hobbs SWD System	February 2007

N
W E
S


N
Present Lease Road
Excavation
SB-2
SB-1
MW-1
Water Knock-out
and Electrical
Plate 2A
Site History (Current)
Rice Operating Compar
Hobbs SWD M-4 Jct. R
T-19-S R-38-E Sec. 4 (
Lea County, New Mexic
Scale - Feet
0
90
180
0
30
60
Scale - Meters

LITHOLOGIC LOG (SOIL BORING)

R T Hicks Consultants Ltd

P O Box 7624
Midland, TX 79708
(432) 528-3878

MONITOR WELL NO.: SB-1
SITE ID: Hobbs SWD M-4 Vent
SURFACE ELEVATION: 3,607 (USGS Map)
CONTRACTOR: Harrison & Cooper, Inc.
DRILLING METHOD: Air-Rotary
INSTALLATION DATE: 2/19/08
WELL PLACEMENT: 15' West of source area
COMMENTS: Lat. 32° 41' 7.7" North, Long. 103° 9' 38.3" West (Hand-Held GPS)

TOTAL DEPTH: 27 Ft
CLIENT: Rice Operating Company
COUNTY: Lea County
STATE: New Mexico
LOCATION: T-19-S, R-38-E, Sec. 4 (M)
FIELD REP.: Dale Littlejohn
FILE NAME: \Hobbs SWD\M-4 Lithlogs

	Lithology	SAMPLE DATA (PPM) TYPE	DEPTH	% REC	PID	Cl (Fld)	DEPTH	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE SORTING, ROUNDING, CONSOL., DIST. DEATURES
BENTONITE								SILT Dark brown.
		spoon	5-7	10%	0.3	298	5	CALICHE Grayish brown to greenins brown, soft, hydrocarbon odor at 7 ft, becoming siltier with depth.
		spoon	10-12	5%	51.8	605	10	
							15	SANDSTONE (quartzite) brown, fine crystalline, well cemented, very hard drilling.
		spoon	15-17	10%	1.4	1,151		CALICHE Brown with some silt.
		spoon	20-22	100%	1.1	963	20	SAND Brown, fine grain, medium sorted, angular.
		spoon	25-27	100%	1.2	209	25	SAND Brown, medium grain, well sorted, sub-rounded to rounded.

Lab Data:	Chloride	BTEX	Benz	Naphthalene
(mg/kg)	1,760	<0.0057	ND	ND

Lab Data:	Chloride	BTEX	Benz	Naphthalene
(mg/kg)	14.3	ND	ND	ND

TD = 27 Feet

LITHOLOGIC LOG (SOIL BORING)

R T Hicks Consultants Ltd

P O Box 7624
Midland, TX 79708
(432) 528-3878

MONITOR WELL NO.: SB-2
SITE ID: Hobbs SWD M-4 Vent
SURFACE ELEVATION: 3,607 (USGS Map)
CONTRACTOR: Harrison & Cooper, Inc.
DRILLING METHOD: Air-Rotary
INSTALLATION DATE: 2/21/08
WELL PLACEMENT: Center of source area
COMMENTS: Lat. 32° 41' 7.6" North, Long. 103° 9' 38.0" West (Hand-Held GPS)

TOTAL DEPTH: 27 Ft
CLIENT: Rice Operating Company
COUNTY: Lea County
STATE: New Mexico
LOCATION: T-19-S, R-38-E, Sec. 4 (M)
FIELD REP.: Dale Littlejohn
FILE NAME: \Hobbs SWD\M-4 Lithlogs

Lithology	TYPE	DEPTH	% REC	PID	Cl (Fld)	DEPTH	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE SORTING, ROUNDING, CONSOL., DIST. DEATURES
6-inch PCV; PVC casing from surface to 6 feet; BENTONITE							No Cuttings; pit contained approx. 4 feet of silty soil overlying broken to massive caliche with some silt.
	excav	4	--	45	226	5	
	excav	5	--	8	310		
	excav	6	--	17	232		SILT, Dark brown (fill material), strong hydrocarbon odor.
	excav	7	--	84	234		
	excav	8	--	1,588	243		
	excav	9	--	1,268	266	10	
	excav	10	--	1,340	286		
	excav	11	--	1,068	286		
	excav	12	--	947	284		
						15	CALICHE AND SILT Light brown, soft.
	spoon	15-17	50%	123	198		Lab Data: Chloride 47.4; BTEX <0.197; Benz ND; Naphthalene 0.245 (mg/kg)
						20	SILTY SAND Light brown, very fine grain, well sorted, angular.
	spoon	20-22	100%	44.7	1,168		SAND Brown, medium grain, well sorted, sub-rounded, poss sandstone at 27 ft.
							Lab Data: Chloride 1,520; BTEX ND; Benz ND; Naphthalene ND (mg/kg)
						25	
	spoon	25-27	100%	32	700		Lab Data: Chloride 558; BTEX ND; Benz ND; Naphthalene 0.083 (mg/kg)

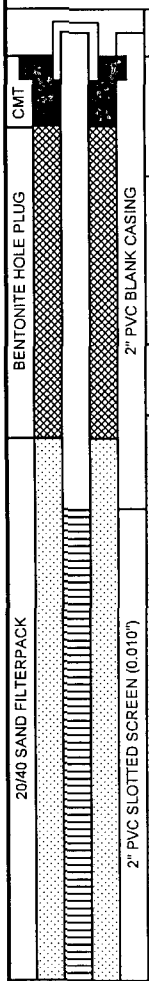
TD = 27 Feet

LITHOLOGIC LOG (MONITORING WELL)

R T Hicks Consultants Ltd

P O Box 7624
Midland, TX 79708
(432) 528-3878

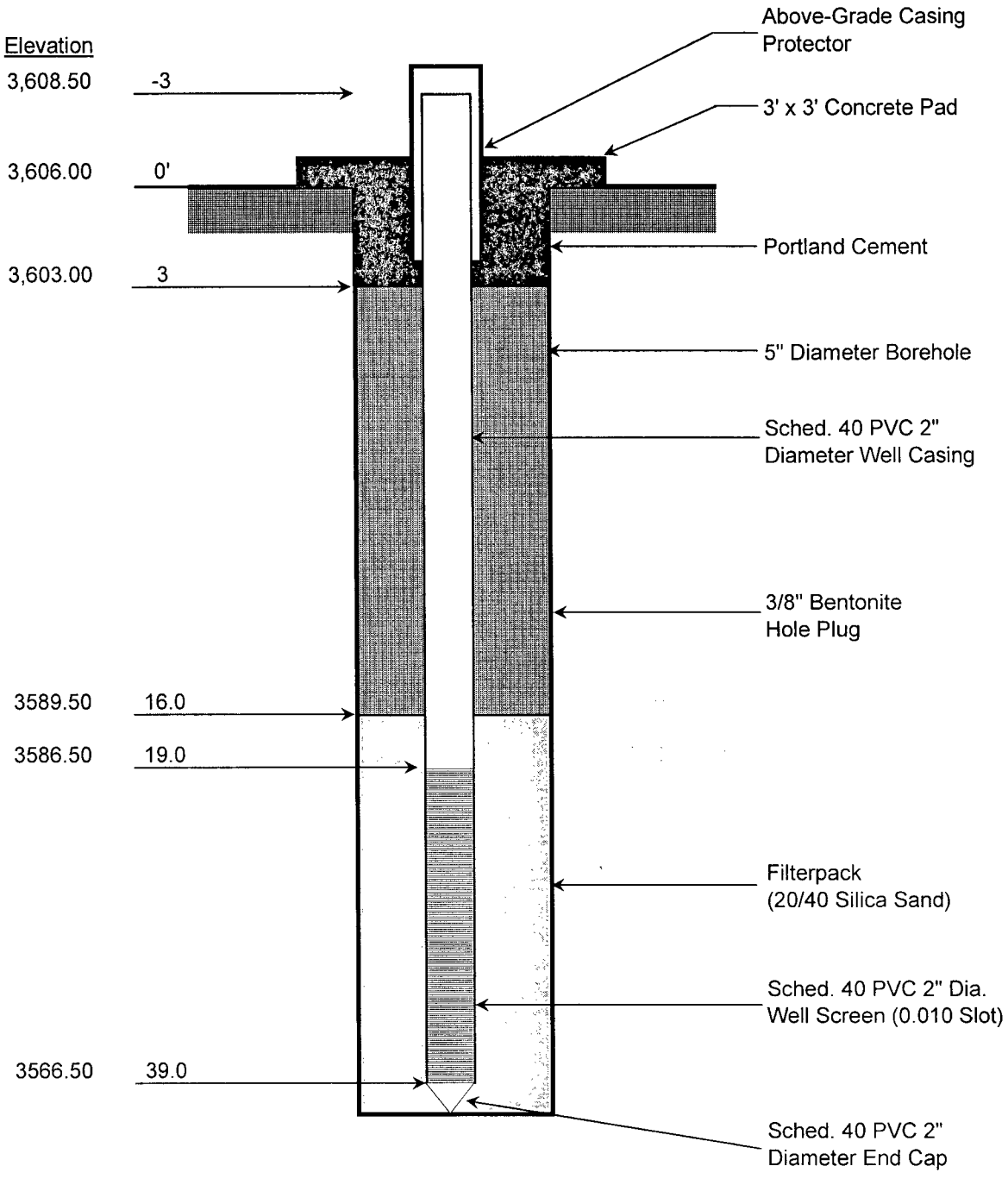
MONITOR WELL NO.:	MW-1	TOTAL DEPTH:	39 Ft
SITE ID:	Hobbs SWD M-4 Vent	CLIENT:	Rice Operating Company
SURFACE ELEVATION:	3,606 (USGS MAP)	COUNTY:	Lea County
CONTRACTOR:	Harrison & Cooper, Inc.	STATE:	New Mexico
DRILLING METHOD:	Air-Rotary	LOCATION:	T-19-S, R-38-E, Sec. 4 (M)
INSTALLATION DATE:	2/19/08	FIELD REP.:	Dale Littlejohn
WELL PLACEMENT:	Southeast of source area	FILE NAME:	\Hobbs SWD\M-4 Lithlogs
COMMENTS:	Lat. 32° 41' 7.2" North, Long. 103° 9' 37.6" West (Hand-Held GPS)		



Lithology	TYPE	DEPTH	% REC	PID	CI (Fld)	DEPTH	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE SORTING, ROUNDING, CONSOL., DIST. DEATURES
						5	SILT Dark brown, asphaltic (hydrocarbon) layer at surface.
	spoon	10-11	10%	2.2	317	10	CALICHE Grayish white to grayish brown, hard drilling.
						15	CALICHE AND SILT Light reddish brown.
	spoon	15-17	60%	1.5	179	20	SAND Brown to reddish brown, medium grain, sub-rounded, well sorted.
	spoon	20-22	80%	1.3	148	25	Thin gravel zone at 21 to 23 feet
	spoon	25-27	80%	1.5	141	30	Saturated Formation
						35	

TD = 39 Feet

MONITORING WELL CONSTRUCTION DIAGRAM



R T Hicks Consultants Ltd	SITE: Hobbs SWD M-4 Vent		**Monitoring Well No. MW-1**
	DATE: 2/19/2008	REV. NO.: 1	
	AUTHOR: DTL	TECH: DTL	
	DRILLER: H & C, Inc	FILE: M-4 Lithlogs	

Analytical Report 298153

for

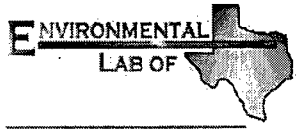
Rice Operating Co.

Project Manager: Kristin Pope

Hobbs SWD M-4 Vent

Hobbs SWD System

28-FEB-08



12600 West I-20 East Odessa, Texas 79765

Texas certification numbers:
Houston, TX T104704215

Florida certification numbers:
Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675
Norcross(Atlanta), GA E87429

South Carolina certification numbers:
Norcross(Atlanta), GA 98015

North Carolina certification numbers:
Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America
Midland - Corpus Christi - Atlanta

28-FEB-08

Project Manager: **Kristin Pope**
Rice Operating Co.
122 West Taylor
Hobbs, NM 88240

Reference: XENCO Report No: **298153**
Hobbs SWD M-4 Vent
Project Address: T19S, R38E, Sec 4, Unit Letter M

Kristin Pope:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 298153. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 298153 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II
Odessa Laboratory Manager

Sample Cross Reference 298153

Rice Operating Co., Hobbs, NM

Hobbs SWD M-4 Vent

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB-1	S	Feb-19-08 09:14	15 - 17 ft	298153-001
SB-1	S	Feb-19-08 09:31	25 - 27 ft	298153-002
SB-2	S	Feb-21-08 11:51	15 - 17 ft	298153-003
SB-2	S	Feb-21-08 11:56	20 - 22 ft	298153-004
SB-2	S	Feb-21-08 12:05	25 - 27 ft	298153-005

Certificate of Analysis Summary 298153
Rice Operating Co., Hobbs, NM

Project Name: Hobbs SWD M-4 Vent

Project Id: Hobbs SWD System
Contact: Kristin Pope
Project Location: T19S, R38E, Sec 4, Unit Letter M

Date Received in Lab: Feb-22-08 10:20 am
Report Date: 28-FEB-08
Project Manager: Brent Barron, II

Analysis Requested													
	Lab Id:	298153-001		298153-002		298153-003		298153-004	
	Field Id:	SB-1		SB-1		SB-2		SB-2	
	Depth:	15-17 ft		25-27 ft		15-17 ft		20-22 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-19-08 09:14		Feb-19-08 09:31		Feb-21-08 11:51		Feb-21-08 11:56	
Anions by EPA 300/300.1	*Extracted:*								
	Analyzed:	Feb-23-08 10:52		Feb-23-08 10:52		Feb-23-08 10:52		Feb-23-08 10:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1760	22.8	14.3	6.14	47.4	5.44	1520	21.6
BTEX by SW 8260B	*Extracted:*	Feb-26-08 10:25		Feb-26-08 11:35		Feb-27-08 10:30		Feb-26-08 11:39	
	Analyzed:	Feb-26-08 11:31		Feb-26-08 12:58		Feb-27-08 10:51		Feb-26-08 13:42	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.0056	ND	0.0061	ND	0.0054	ND	0.0054
Toluene		0.0057	0.0056	ND	0.0061	0.0084	0.0054	ND	0.0054
Ethylbenzene		ND	0.0056	ND	0.0061	0.0978	0.0054	ND	0.0054
m,p-Xylenes		ND	0.0113	ND	0.0122	0.0754	0.0109	ND	0.0109
o-Xylene		ND	0.0056	ND	0.0061	0.0147	0.0054	ND	0.0054
Naphthalene		ND	0.056	ND	0.061	0.245	0.054	ND	0.055
Total BTEX		0.0057		ND		0.1963		ND	
Total Xylenes		ND		ND		0.0901		ND	
Percent Moisture	*Extracted:*								
	Analyzed:	Feb-23-08 17:00		Feb-23-08 17:00		Feb-23-08 17:00		Feb-23-08 17:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL
Percent Moisture		12.2		18.6		8.14		7.29	
TPH by SW8015 Mod	*Extracted:*					Feb-22-08 15:41			
	Analyzed:					Feb-23-08 01:05			
	Units/RL:					mg/kg	RL		
C6-C12 Gasoline Range Hydrocarbons						226	81.6		
C12-C28 Diesel Range Hydrocarbons						1320	81.6		
C28-C35 Oil Range Hydrocarbons						269	81.6		
Total TPH						1815			

Brent Barron
Odessa Laboratory Director

Certificate of Analysis Summary 298153
Rice Operating Co., Hobbs, NM

Project Name: Hobbs SWD M-4 Vent

Project Id: Hobbs SWD System
Contact: Kristin Pope
Project Location: T19S, R38E, Sec 4, Unit Letter M

Date Received in Lab: Feb-22-08 10:20 am
Report Date: 28-FEB-08
Project Manager: Brent Barron, II

Analysis Requested						
	Lab Id:	298153-005				
	Field Id:	SB-2				
	Depth:	25-27 ft				
	Matrix:	SOIL				
	Sampled:	Feb-21-08 12:05				
Anions by EPA 300/300.1	*Extracted:*					
	Analyzed:	Feb-23-08 10:52				
	Units/RL:	mg/kg	RL			
Chloride		558	10.8			
BTEX by SW 8260B	*Extracted:*	Feb-26-08 11:41				
	Analyzed:	Feb-26-08 14:03				
	Units/RL:	mg/kg	RL			
Benzene		ND	0.0053			
Toluene		ND	0.0053			
Ethylbenzene		ND	0.0053			
m,p-Xylenes		ND	0.0107			
o-Xylene		ND	0.0053			
Naphthalene		0.083	0.053			
Total BTEX		ND				
Total Xylenes		ND				
Percent Moisture	*Extracted:*					
	Analyzed:	Feb-23-08 17:00				
	Units/RL:	%	RL			
Percent Moisture		7.27				

Brent Barron
Odessa Laboratory Director

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the MQL(PQL) and above the SQL(MDL).

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

* Outside XENCO'S scope of NELAC Accreditation

Form 2 - Surrogate Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715676 **Sample:** 298153-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0485	0.0500	97	74-121	
Dibromofluoromethane	0.0491	0.0500	98	80-120	
1,2-Dichloroethane-D4	0.0490	0.0500	98	80-120	
Toluene-D8	0.0485	0.0500	97	81-117	

Lab Batch #: 715676 **Sample:** 298153-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0569	0.0500	114	74-121	
Dibromofluoromethane	0.0526	0.0500	105	80-120	
1,2-Dichloroethane-D4	0.0485	0.0500	97	80-120	
Toluene-D8	0.0498	0.0500	100	81-117	

Lab Batch #: 715676 **Sample:** 298153-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0502	0.0500	100	74-121	
Dibromofluoromethane	0.0504	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0494	0.0500	99	80-120	
Toluene-D8	0.0494	0.0500	99	81-117	

Lab Batch #: 715676 **Sample:** 298153-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0480	0.0500	96	74-121	
Dibromofluoromethane	0.0489	0.0500	98	80-120	
1,2-Dichloroethane-D4	0.0469	0.0500	94	80-120	
Toluene-D8	0.0466	0.0500	93	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715676 **Sample:** 298153-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0514	0.0500	103	74-121	
Dibromofluoromethane	0.0520	0.0500	104	80-120	
1,2-Dichloroethane-D4	0.0526	0.0500	105	80-120	
Toluene-D8	0.0466	0.0500	93	81-117	

Lab Batch #: 715676 **Sample:** 298153-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0540	0.0500	108	74-121	
Dibromofluoromethane	0.0514	0.0500	103	80-120	
1,2-Dichloroethane-D4	0.0529	0.0500	106	80-120	
Toluene-D8	0.0487	0.0500	97	81-117	

Lab Batch #: 715676 **Sample:** 505147-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0528	0.0500	106	74-121	
Dibromofluoromethane	0.0505	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0495	0.0500	99	80-120	
Toluene-D8	0.0485	0.0500	97	81-117	

Lab Batch #: 715676 **Sample:** 505147-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0507	0.0500	101	74-121	
Dibromofluoromethane	0.0498	0.0500	100	80-120	
1,2-Dichloroethane-D4	0.0461	0.0500	92	80-120	
Toluene-D8	0.0479	0.0500	96	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715681 **Sample:** 298147-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0692	0.0500	138	74-121	**
Dibromofluoromethane	0.0510	0.0500	102	80-120	
1,2-Dichloroethane-D4	0.0435	0.0500	87	80-120	
Toluene-D8	0.0688	0.0500	138	81-117	**

Lab Batch #: 715681 **Sample:** 298147-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0604	0.0500	121	74-121	
Dibromofluoromethane	0.0498	0.0500	100	80-120	
1,2-Dichloroethane-D4	0.0492	0.0500	98	80-120	
Toluene-D8	0.0661	0.0500	132	81-117	**

Lab Batch #: 715681 **Sample:** 298153-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0635	0.0500	127	74-121	**
Dibromofluoromethane	0.0541	0.0500	108	80-120	
1,2-Dichloroethane-D4	0.0507	0.0500	101	80-120	
Toluene-D8	0.0550	0.0500	110	81-117	

Lab Batch #: 715681 **Sample:** 505161-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0515	0.0500	103	74-121	
Dibromofluoromethane	0.0490	0.0500	98	80-120	
1,2-Dichloroethane-D4	0.0481	0.0500	96	80-120	
Toluene-D8	0.0513	0.0500	103	81-117	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715681 **Sample:** 505161-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

BTEX by SW 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4-Bromofluorobenzene	0.0487	0.0500	97	74-121	
Dibromofluoromethane	0.0505	0.0500	101	80-120	
1,2-Dichloroethane-D4	0.0488	0.0500	98	80-120	
Toluene-D8	0.0519	0.0500	104	81-117	

Lab Batch #: 715557 **Sample:** 298153-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	100	97	70-135	
o-Terphenyl	53.2	50.0	106	70-135	

Lab Batch #: 715557 **Sample:** 298159-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	49.3	50.0	99	70-135	

Lab Batch #: 715557 **Sample:** 298159-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	51.0	50.0	102	70-135	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715557 **Sample:** 505061-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	49.3	50.0	99	70-135	

Lab Batch #: 715557 **Sample:** 505061-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.1	100	96	70-135	
o-Terphenyl	52.0	50.0	104	70-135	

Lab Batch #: 715557 **Sample:** 505061-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	48.5	50.0	97	70-135	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Blank Spike Recovery

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch #: 715676 **Sample:** 505147-1-BKS **Matrix:** Solid
Date Analyzed: 02/26/2008 **Date Prepared:** 02/26/2008 **Analyst:** KHM
Reporting Units: mg/kg **Batch #:** 1

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Benzene	ND	0.0500	0.0486	97	66-142	
Toluene	ND	0.0500	0.0504	101	59-139	
Ethylbenzene	ND	0.0500	0.0462	92	75-125	
m,p-Xylenes	ND	0.1000	0.0957	96	75-125	
o-Xylene	ND	0.0500	0.0476	95	75-125	

Lab Batch #: 715681 **Sample:** 505161-1-BKS **Matrix:** Solid
Date Analyzed: 02/27/2008 **Date Prepared:** 02/27/2008 **Analyst:** WEW
Reporting Units: mg/kg **Batch #:** 1

BTEX by SW 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Benzene	ND	0.0500	0.0477	95	66-142	
Toluene	0.0012	0.0500	0.0507	101	59-139	
Ethylbenzene	ND	0.0500	0.0478	96	75-125	
m,p-Xylenes	ND	0.1000	0.0970	97	75-125	
o-Xylene	ND	0.0500	0.0420	84	75-125	

Lab Batch #: 715578 **Sample:** 715578-1-BKS **Matrix:** Solid
Date Analyzed: 02/23/2008 **Date Prepared:** 02/23/2008 **Analyst:** IRO
Reporting Units: mg/kg **Batch #:** 1

Anions by EPA 300/300.1 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
Chloride	ND	10.0	9.95	100	75-125	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153
Analyst: SHE
Lab Batch ID: 715557
Sample: 505061-1-BKS
Units: mg/kg

Date Prepared: 02/22/2008
Batch #: 1

Project ID: Hobbs SWD System
Date Analyzed: 02/22/2008
Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	ND	1000	887	89	1000	892	89	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	ND	1000	824	82	1000	829	83	1	70-135	35	

Relative Percent Difference RPD = 200*|(D-F)/(D+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153
Lab Batch #: 715578
Date Analyzed: 02/23/2008
QC- Sample ID: 298134-001 S
Reporting Units: mg/kg

Date Prepared: 02/23/2008
Batch #: 1

Project ID: Hobbs SWD System
Analyst: IRO
Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY						
Inorganic Anions by EPA 300 **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**%R [D]**	**Control Limits %R**	**Flag**
Chloride	987	210	1120	63	75-125	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order # : 298153 **Project ID:** Hobbs SWD System

Lab Batch ID: 715676 **QC- Sample ID:** 298153-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/26/2008 **Date Prepared:** 02/26/2008 **Analyst:** KHM

Reporting Units: mg/kg

BTEX by SW 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.2904	0.2849	98	0.2846	0.2811	99	1	66-142	25	
Toluene	0.0057	0.2904	0.2904	98	0.2846	0.2847	98	0	59-139	25	
Ethylbenzene	ND	0.2904	0.2846	98	0.2846	0.2783	98	0	75-125	25	
m,p-Xylenes	ND	0.5808	0.5793	100	0.5692	0.5433	95	5	75-125	25	
o-Xylene	ND	0.2904	0.2833	98	0.2846	0.2709	95	3	75-125	25	

Lab Batch ID: 715681 **QC- Sample ID:** 298147-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/27/2008 **Date Prepared:** 02/27/2008 **Analyst:** WEW

Reporting Units: mg/kg

BTEX by SW 8260B Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	0.0066	0.2897	0.2909	98	0.2897	0.3072	104	6	66-142	25	
Toluene	0.9707	0.2897	1.513	187	0.2897	1.104	46	121	59-139	25	XF
Ethylbenzene	2.324	0.2897	2.981	227	0.2897	2.273	0	200	75-125	25	XF
m,p-Xylenes	5.129	0.5794	6.316	205	0.5794	4.928	0	200	75-125	25	XF
o-Xylene	1.703	0.2897	2.135	149	0.2897	1.688	0	200	75-125	25	XF

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Form 3 - MS / MSD Recoveries

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 **Project ID:** Hobbs SWD System

Lab Batch ID: 715557 **QC- Sample ID:** 298159-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/23/2008 **Date Prepared:** 02/22/2008 **Analyst:** SHE

Reporting Units: mg/kg

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
TPH by SW8015 Mod **Analytes**	**Parent Sample Result [A]**	**Spike Added [B]**	**Spiked Sample Result [C]**	**Spiked Sample %R [D]**	**Spike Added [E]**	**Duplicate Spiked Sample Result [F]**	**Spiked Dup. %R [G]**	**RPD %**	**Control Limits %R**	**Control Limits %RPD**	**Flag**
C6-C12 Gasoline Range Hydrocarbons	ND	1140	1020	89	1140	1040	91	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	110	1140	983	77	1140	1000	78	1	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(D-G)/(D+G)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Sample Duplicate Recovery

Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153

Lab Batch #: 715578 **Project ID:** Hobbs SWD System

Date Analyzed: 02/23/2008 **Date Prepared:** 02/23/2008 **Analyst:** IRO

QC- Sample ID: 298134-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	987	991	0	20	

Lab Batch #: 715411

Date Analyzed: 02/23/2008 **Date Prepared:** 02/23/2008 **Analyst:** WRU

QC- Sample ID: 298133-001 D **Batch #:** 1 **Matrix:** Sludge

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	45.6	45.7	0	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Kristin Farris
Company Name: Rice Operating Company
Company Address: 122 West Taylor
City/State/Zip: Hobbs, New Mexico 88240
Telephone No: 505-393-9174 Fax No: 505-397-1471
Email results to: dale@rthicksconsult.com, Lweinheimer@riceswd.com,and kpope@riceswd.com
Sampler Signature: Dale Littlejohn

Project Name: Hobbs SWD M-4 Vent
Project #: Hobbs SWD System
Project Location: T19S, R38E, Sec 4, Unit Letter M
ROC Billing Code

LAB # (lab use only)	GIS CODE	FIELD CODE	Sample Depth (soils only) Begin (ft)	Sample Depth (soils only) End (ft)	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: GRO/DRO (EPA 8015M)	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	TCLP: Metals As Ag Ba Cd Cr Pb Hg Se	TCLP: Volatiles	TCLP: Semivolatiles	TCLP: BTEX-N (EPA 8260)	TOTAL: PCI	TOTAL: N.O.R.M.	TOTAL: Total Dissolved Solids	TOTAL: Chloride	TOTAL: Moisture Percent	RUSH TAT (Pre-Schedule)	Standard TAT
298153																																	
-01		SB-1	15.0	17.0	2/19/08	0914	1	X									X									X				X			X
-02		SB-1	25.0	27.0	2/19/08	0931	1	X									X									X				X			X
-03		SB-2	15.0	17.0	2/21/08	1151	1	X									X		X							X				X			X
-04		SB-2	20.0	22.0	2/21/08	1156	1	X									X									X				X			X
-05		SB-2	25.0	27.0	2/21/08	1205	1	X									X									X				X			X

Special Instruction

Sample Containers Intact? Y N
Temperature Upon Receipt: -2.0
Laboratory Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
Dale Littlejohn	2/22/08	10:20			
Relinquished by:	Date	Time	Received by ELOT	Date	Time
			Andrea Lam	2.22.08	10:20

4 oz glass w/seal on cooler

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Rice

Date/ Time: 2.22.08 10:20

Lab ID #: 29853

Initials: AL

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	Yes	No	-2.0 °C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
#6	Sample instructions complete of Chain of Custody?	Yes	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	Yes	No	See Below	
#13	Samples properly preserved?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	No		
#16	Containers documented on Chain of Custody?	Yes	No		
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18	All samples received within sufficient hold time?	Yes	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
#20	VOC samples have zero headspace?	Yes	No	Not Applicable	

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

- ☐ See attached e-mail/ fax
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 03/10/08
Reporting Date: 03/14/08
Project Number: NOT GIVEN
Project Name: HOBBS M-4 VENT
Project Location: T19S-R38E-SEC4 M~LEA COUNTY, NM

Sampling Date: 03/07/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM/KS

LAB NUMBER SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μS/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:	03/13/08	03/13/08	03/13/08	03/13/08	03/11/08	03/11/08
H14416-1 MONITOR WELL #1	258	150	62.5	4.00	2,240	316
Quality Control	NR	50.6	50.8	3.12	1,424	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	101	102	104	101	NR
Relative Percent Difference	NR	2.8	< 0.1	2.6	1.1	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	03/13/08	03/13/08	03/11/08	03/11/08	03/11/08	03/12/08
H14416-1 MONITOR WELL #1	432	262	0	386	7.24	1,520
Quality Control	500	25.6	NR	988	7.05	NR
True Value QC	500	25.0	NR	1000	7.00	NR
% Recovery	100	102	NR	98.8	101	NR
Relative Percent Difference	2.0	4.7	NR	1.2	< 0.1	NR
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Kristin Superko
Chemist

03/14/08
Date

H14416-RICE

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 03/10/08
Reporting Date: 03/11/08
Project Number: NOT GIVEN
Project Name: HOBBS M-4 VENT
Project Location: T19S-R38E-SEC4 M ~ LEA COUNTY - NM

Sampling Date: 03/07/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: AB

LAB NUMBER SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	03/10/08	03/10/08	03/10/08	03/10/08
H14416-1 MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control	0.100	0.093	0.087	0.276
True Value QC	0.100	0.100	0.100	0.300
% Recovery	100	93.2	86.7	91.9
Relative Percent Difference	0.5	1.4	1.5	1.1

METHOD: EPA SW-846 8021B

Chemist

03/11/08
Date

H14416B RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Kristin Farris-Pope, Project Scientist	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Hobbs M-4 Vent
Project Location: T19S-R38E-Sec4 M ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H14416-1	Monitor Well #1	G	3	X				2				1		3-7	15:50

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content		Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																X	X	X		

Relinquished by: Rozanne Johnson	Date: 3-10-2008	Time: 9:40	Received by: Cathy Watkins
Relinquished by: Cathy Watkins	Date: 3-10-08	Time: 14:25	Received By: (Laboratory Staff) Misty LeBeau
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool: Yes ☑ / No ☐ — Intact: Yes ☑ / No ☐		CHECKED BY: (Initials) MCLB

Date: 3-10-08 Time: 9:41
Date: 3/10/08 Time: 2:25p

Phone Results	☐	Yes	☐	No	
Fax Results	☐	Yes	☐	No	Additional Fax Number:

REMARKS:

Email Results to: kpope@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 05/05/08
Reporting Date: 05/08/08
Project Number: NOT GIVEN
Project Name: HOBBS M-4 VENT
Project Location: T19S-R38E-SEC4 M ~ LEA COUNTY, NM

Sampling Date: 05/02/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: BC

LAB NUMBER SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	05/07/08	05/07/08	05/07/08	05/07/08
H14749-1 MONITOR WELL #1	<0.002	<0.002	<0.002	<0.006
Quality Control	0.089	0.084	0.086	0.280
True Value QC	0.100	0.100	0.100	0.300
% Recovery	88.9	83.9	86.3	93.3
Relative Percent Difference	3.7	6.2	4.9	4.8

METHOD: EPA SW-846 8260

Chemist

Date

H14749 Rice

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: KRISTIN FARRIS-POPE
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 05/05/08
Reporting Date: 05/09/08
Project Number: NOT GIVEN
Project Name: HOBBS M-4 VENT
Project Location: T19S-R38E-SEC4 M~LEA COUNTY, NM

Sampling Date: 05/02/08
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM/KS

LAB NUMBER SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity ($mgCaCO_3$/L)
ANALYSIS DATE:	05/09/08	05/09/08	05/09/08	05/07/08	05/07/08	05/07/08
H14749-1 MONITOR WELL #1	248	123	44	4.13	1,910	316
Quality Control	NR	52.9	48.6	2.57	1,410	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	106	97.2	85.7	99.8	NR
Relative Percent Difference	NR	3.1	7.7	4.0	0.1	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	05/07/08	05/08/08	05/07/08	05/07/08	05/07/08	05/06/08
H14749-1 MONITOR WELL #1	332	240	0	386	7.19	1,330
Quality Control	500	44.9	NR	1000	7.05	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	100	112	NR	100	101	NR
Relative Percent Difference	4.1	3.1	NR	2.4	< 0.1	NR
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

Chemist

05-12-08
Date

H14749 RICE

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Kristin Farris-Pope, Project Scientist	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Hobbs M-4 Vent
Project Location: T19S-R38E-Sec4 M ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY)	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2008)	TIME
H14749-1	Monitor Well #1	G	3	X				2				1		5-2	9:55

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content		Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
	X																X	X	X		

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Rozanne Johnson	Date: 5/5/08	Time: 13:30	Received by: Nil Fuller	Date: 5/5/08	Time: 1:30 pm
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:

Phone Results		Yes		No
Fax Results		Yes		No Additional Fax Number:

REMARKS:

Email Results to: kpope@riceswd.com
lweinheimer@riceswd.com
rozanne@valornet.com

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other:	Cool: Yes ☑ / No ☐ — Intact: Yes ☑ / No ☐	(Initials)