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### GENERAL CORRESPONDENCE



### Hansen, Edward J., EMNRD

From:Hansen, Edward J., EMNRDSent:Tuesday, August 12, 2008 4:35 PMTo:'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:

- 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
- 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 <u>Rice EME L-6 Boot</u> site must include that an estimation of the chloride mass that has contaminated the groundwater by the release at the <u>Rice EME L-6 Boot</u> 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 <u>Rice EME Gaither Boot</u> 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 <u>Rice EME Gaither Boot</u> 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 <u>not</u> 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: 505.266-074

June 24, 2008

2008 JUN 26 PM 3 41

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.

June 24, 2008 Page 2

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





LITHOLOGIC LOG (SOIL BORING)         RT Hicks       MONITOR WELL NO: SB-1       TOTAL DEPTH: 27 Ft.         CONSULTANTS Ltd         SURFACE ELEVATION: AG07 (USGS Map)       COUNTR: Lea County         CONTRACTOR: Harrison & Cooper, Inc.       STATE: New Mexico         P O Box 7824         MINITALIATION DATE: 2/19/08       THE NAME MARK SOUTH 4 Vent.         OD DRILING METHOD. Air:Rotary       LOCATION: T-19-S, R3-E; Sec. 4 (M)         MINITALIATION DATE: 2/19/08       THE NAME MARK SOUTH 4 UIHODS         OD DRILING METHOD. TOT: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Long, 103° 9' 38.3' West (Hard-Held GPS)         COMMENTS: Lat 32° 41'. 7.1' North, Rouk, ROUNDING, CONSOL, DIST, DEATURES         Lithology Colspan= 200								
R T Hicks         MONITOR WELL NO:         SB-1         TOTAL DEPTH:         27 Ft           Consultants Ltd         SURFACE ELEVATION:         3.607         (USGS Map)         COUNTRACTOR:         TOTAL DEPTH:         27 Ft           P O Box 7624         DRILLING METHOD:         AirRotary         COUNTY:         Lea County         County:         Co				LITHC	LOG	IC LOC	G (SOII	BORING)
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CONTRACTOR: Harison & Cooper, nc.       STATE: New Mexico         CONTRACTOR: Harison & Cooper, nc.       STATE: New Mexico         D Box 7624       DRULING METHOD: Air-Rotary       LOCATION: T-19-S, R-38-E, Sec. 4 (M)         Midland, TX 9708       WELL PLACEMENT:       15' West of source area       FILE NAME: Hobbs SVDMA4 Lithlogs         COMMENTS: Lat 32° 41' 7.7' North, Long. 103° 9' 38.3' West (Hand-Held GPS)         COMMENTS: Lat 32° 41' 7.7' North, Long. 103° 9' 38.3' West (Hand-Held GPS)         SAMPLE DATA (PPM)         DETH III TOLOGIC DESCRIPTION: LITHOLOGY COLOR, GRAIN SIZE         SORTING, ROUNDING, CONSOL., DIST. DEATURES         SILT Dark brown.	Consultants Ltd					3 607	USGS N	Aan) COUNTY: Lea County
P O Box 7624 Midland, TX 79708         DRILLING METHOD:         Air-Rotary 2/19/08         LOCATION:         T.19-S; R-38-E; Sec. 4 (M)           (432) 528-3878         URL PLACEMENT:         15' West of source area COMMENTS:         LUCATION DATE:         2/19/08         FIELD REP:         Dale Littlejohn           Lithology         SAMPLE DATA (PPM)         DEPTH         UTHOLOGY, COLOR, GRAIN SIZE           SAMPLE DATA (PPM)         DEPTH         UTHOLOGY, COLOR, GRAIN SIZE           SILT Dark brown,         SILT Dark brown,         SILT Dark brown,            -         -         -            -         -         -            -         -         -            -         -         -            -         -         -            -         -         -            -         -         -            -         -         -         -            -         -         -         -            -         -         -         -            -         -         -         -		C C		ONTRA	CTOR	Harrison	& Coope	r Inc STATE: New Mexico
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Lithology       SAMPLE DATA (PPM)       DEPTH       LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE         TYPE       DEPTH       % REC       PID       CI (Fld)       SORTING, ROUNDING, CONSOL., DIST. DEATURES         SILT Dark brown.         SILT Dark brown.       SILT Dark brown.             SILT Dark brown.             SILT Dark brown.             SILT Dark brown.	(102) 020 0010			COMM	IENTS:	Lat. 32°	41' 7.7" N	orth, Long. 103º 9' 38.3" West (Hand-Held GPS)
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spoon     20-22     100%     1.1     963     20     SAND Brown, fine grain, medium sorted, angular.       spoon     20-22     100%     1.1     963     SAND Brown, fine grain, medium sorted, angular.       spoon     25-27     100%     1.2     209     SAND Brown, medium grain, well sorted, sub-rounded to rounded.       25     Lab Data:     Chloride     BTEX     Benz     Naphthalene					-			
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		spoon	25-27	100%	1.2	209		Lab Data: Unioride BTEX Benz Naphthalene
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	LITHOLOGIC LOG (SOIL BORING)								
R T Hi	ck	S		MONIT	OR WEL	L NO.:	SB-2		TOTAL DEPTH: 27 Ft
Consul	tai	nte Lta	1		S	ITE ID:	Hobbs S	WD M-4	Vent CLIENT: Rice Operating Company
Consul	la	ins Lin		SURFAC	E ELEV	ATION:	3,607	(USGS N	Map) COUNTY: Lea County
				C	ONTRA	CTOR:	Harrison	& Coope	er, Inc. STATE: New Mexico
P O Box 7	624			DRILI	ING ME	THOD:	Air-Rota	ry	LOCATION: T-19-S, R-38-E, Sec. 4 (M)
Midland, 1	TX 7	9708		INSTAL	LATION	DATE:	2/21/08		FIELD REP .: Dale Littlejohn
(432) 528-	387	3		WELI	PLACE	MENT:	Center o	of source a	area FILE NAME: Hobbs SWD\M-4 Lithlogs
<b>、,</b>					COMM	IENTS:	Lat. 32°	41' 7.6" N	North, Long. 103º 9' 38.0" West (Hand-Held GPS)
		Lithology		SAMP	LE DATA	A (PPM)		DEPTH	I LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE
			TYPE	DEPTH	% REC	PID	CI (Fld)	1	SORTING, ROUNDING, CONSOL., DIST. DEATURES
									No Cuttings; pit contained approx. 4 feet of silty soil overlying broken
	2	ng ace							to massive caliche with some silt.
	ğ	untis							
	5 E	0.000							]
	۵,	Z 0 ₽	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		7
			excav	8	-	1,588	243		7
			excav	9	-	1,268	266	10	]
		~ _	excav	10		1,340	286		
			excav	11	_	1,068	286		
			excav	12		947	284		
Õ	Γ	++							CALICHE AND SILT Light brown, soft.
N N N N N N N N N N N N N N N N N N N		<u>∽_</u>						15	
ш	- 1	<u>∽_</u>	spoon	15-17	50%	123	198		Lab Data: Chloride BTEX Benz Naphthalene
		<u> </u>							(mg/kg) 47.4 <0.197 ND 0.245
									SILTY SAND Light brown, very fine grain, well sorted, angular.
									· ·
	L							20	
			spoon	20-22	100%	44.7	1,168		SAND Brown, medium grain, well sorted, sub-rounded, poss
									sandstone at 27 ft.
									Lab Data: Chloride BTEX Benz Naphthalene
									(mg/kg) 1,520 ND ND ND
								25	
			spoon	25-27	100%	32	700		Lab Data: Chloride BTEX Benz Naphthalene
									(mg/kg) 558 ND ND 0.083
TD = 27 Fee	et								

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	one	1	ta	nte T ta	đ		S	ITE ID:	Hobbs S	WD M-4 '	Vent CLIENT: Rice Operating Company
ľ	0113	u	la		u s	SURFAC		ATION:	3.606	(USGS N	MAP) COUNTY: Lea County
						Ċ	ONTRA	CTOR:	Harrison	& Coope	r, Inc. STATE: New Mexico
	POR	ox 7	624			DRILI	ING ME	THOD:	Air-Rota	ry	LOCATION: T-19-S, R-38-E, Sec. 4 (M)
1	Midla	nd. 1	TX 1	79708		INSTAL	LATION	DATE:	2/19/08		FIELD REP .: Dale Littlejohn
	(432)	528-	387	8		WELL	PLACE	MENT:	Southea	st of sour	ce area FILE NAME: \Hobbs SWD\M-4 Lithlogs
							COMN	IENTS:	Lat. 32°	41' 7.2" N	lorth, Long. 103° 9' 37.6" West (Hand-Held GPS)
		п.		Lithology		SAMP	LE DATA	(PPM)	-	DEPTH	LITHOLOGIC DESCRIPTION: LITHOLOGY, COLOR, GRAIN SIZE
					TYPE	DEPTH	% REC	PID	CI (Fld)		SORTING, ROUNDING, CONSOL., DIST. DEATURES
Ŀ.,		8				j			j		SILT Dark brown, asphaltic (hydrocarbon) layer at surface.
TM	22										
<u> </u>						]					
	8										
	*					┣───					CALICHE Gravish white to gravish brown, hard drilling
98	8		<u>S</u>			1					CALIONE Orayish white to grayish brown, nard unling.
1	*		¥S.	<u> </u>							
58	8		¥Ι	<u> </u>			1				
Ш	8		٤	- <u>-</u>					•	10	
LIN 8	8		<u>ت</u>	<u> </u>	spoon	10-11	10%	2.2	317		
Ę	8	***	<u>م</u>	<u> </u>							
ΞÂ	8		٦Ń	<u> </u>							CALICHE AND SILT Light reddish brown.
	×			<u>+</u>							
	8					15.17	000/		470	15	CAND Desugate condition to an allow and in out and all out
<b>⊢</b> ₿	<b>~</b>		1		spoon	15-17	60%	1.5	1/9		SAND Brown to reduish brown, medium grain, sub-rounded, weil
											Solicu.
	E									20	
-					spoon	20-22	80%	1.3	148		
	⊨			•							Thin gravel zone at 21 to 23 feet
	E			• •							
X	E		<u>c</u>		1	[	[	[	[		
PAC			5			05.07				25	
Ĕ			2		spoon	25-27	80%	1.5	141	<u> </u>	
121	Ē		Ē								Saturated Formation
2			Ϋ́ς								Saturated Formation
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Т	) = 39	Fe	et								

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### 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

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### 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	L		Dat	e Receive Rep Project I	ed in Lab: oort Date: Manager:	Feb-22-0 28-FEB-( Brent Ba	8 10:20 am )8 rron, II	
	Lab Id:	298153-0	001	298153-(	102	298153-(	03	298153-0	04
Analysis Requested	Field Id.	SB-1		SB-1	.02	SB-2	105	SB-2	
maysis Requested	Denth.	15-17 (	ъ	25.27	, í	15 17 4	a l	20.22	<del>р</del>
	Matrix.	SOU	·	23-27 J SOU		501	u i	20-22 I SOU	L
	Sampled	Feb. 10-08/	00-14	Feb 19-08	0.31	501L Feb 21.08	11.51	501L	11.56
	Extracted	100-19-08	09.14	100-19-08	39.31	1-0-21-08	11.51	160-21-08	11.50
Anions by EPA 300/300.1	Analyzad	Feb-23-08	10.52	Feb.23.08	10.52	Fab 22 08	10.52	Eab 23.08	10.52
	Inits/DI	ma/ka	PI	ma/ka	DI	rco-23-08	DI	100-23-08 ma/ka	DI
Chloride	Chills AL.	1760	22.8	14.3	6.14		5.44	1520	21.6
	Extracted:	Ech-26-08	10.25	Feb-26-08	11.35	Feb-27-08	10.30	Feb-26-08	11.30
BTEX by SW 8260B	Analyzed.	Feb-26-08	11.31	Fcb-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	8 10:20 am 298153- SB-2 20-22 SOIL Feb-21-08 Feb-21-08 Feb-26-08 mg/kg ND ND ND ND ND ND ND ND ND ND	RL
Benzene		ND	0.0056	ND	0.0061	ND	0.0054	ND	0.0054
Tolucne		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:	Fcb-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		
2	Analyzed:				1	Feb-23-08	01:05		
	Units/RL:					mg/kg	RL	. <u> </u>	
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			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Brent Barron

Odessa Laboratory Director

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### Certificate of Analysis Summary 298153

Rice Operating Čo., Hobbs, NM

Project Name: Hobbs SWD M-4 Vent

Project Id: Hobbs SWD System Date Received in Lab: Feb-22-08 10:20 am 28-FEB-08 Contact: Kristin Pope **Report Date:** Project Location: T19S, R38E, Sec 4, Unit Letter M Brent Barron, II Project Manager: Lab Id: 298153-005 Analysis Requested Field Id: SB-2 Depth: 25-27 ft SOIL Matrix: Sampled: Fcb-21-08 12:05 Extracted: Anions by EPA 300/300.1 Feb-23-08 10:52 Analyzed: Units/RL: mg/kg RL Chloride 558 10.8 Feb-26-08 11:41 Extracted: BTEX by SW 8260B Analyzed: Feb-26-08 14:03 Units/RL: mg/kg RL Benzene ND 0.0053 0.0053 ND Tolucne ND 0.0053 Ethylbenzene m,p-Xylencs 0.0107 ND ND 0.0053 o-Xylene Naphthalenc 0.083 0.053 Total BTEX ND Total Xylenes ND Extracted: **Percent Moisture** Analyzed: Feb-23-08 17:00 Units/RL: % RL 7.27 Percent Moisture

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Brent Barron

Odessa Laboratory Director



- 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

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9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, Suite 104, San Antonio, TX 78238	(210) 509-3334	(210) 509-3335
2505 N. Falkenburg Rd., Tampa, FL 33619	(813) 620-2000	(813) 620-2033
5757 NW 158th St, Miami Lakes, FL 33014	(305) 823-8500	(305) 823-8555
6017 Financial Dr., Norcross, GA 30071	(770) 449-8800	(770) 449-5477



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### Form 2 - Surrogate Recoveries



Project Name: Hobbs SWD M-4 Vent

ork Order #: 298153	CMD ~	Project I	D: Hobbs SW	D System	
Lab Batch #: /150/6 Sample: 298153-001/ Units: mg/kg	SMP Bat	RROGATE R	ix: Soil	TUDY	
BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
4-Bromofluorobenzene	0.0485	0.0500	97	74-121	
Dibromofluoromethane	0.0491	0.0500	98	80-120	
1,2-Dichlorocthane-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 Bat	tch: 1 Matr	ix: Soil		
Units: mg/kg	SU	RROGATE R	ECOVERY S	STUDY	
BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
4-Bromofluorobenzene	0.0569	0.0500	114	74-121	
Dibromofluoromethane	0.0526	0.0500	105	80-120	
1,2-Dichlorocthane-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 Bat	tch: <sup>1</sup> Matr	•ix: Soil	STUDY	
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
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 Ba	tch: 1 Matr	·ix: Soil		
Units: mg/kg	SU	RROGATE R	ECOVERY S	STUDY	
BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
4-Bromofluorobenzene	0.0480	0.0500	96	74-121	
Dibromofluoromethane	0.0489	0.0500	98	80-120	
1,2-Dichlorocthanc-D4	0.0469	0.0500	94	80-120	
Toluene-D8	0.0466	0.0500	93	81-117	

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / BAll results are based on MDL and validated for QC purposes.



.

### Form 2 - Surrogate Recoveries



### Project Name: Hobbs SWD M-4 Vent

ork Order #: 298153		Project II	<b>D:</b> Hobbs SW	D System	
Lab Batch #: 715676 Sample: 29813	53-004 / SMP Bat	tch: 1 Matr	ix: Soil		
Units: mg/kg	SU	RROGATE R	ECOVERY S	STUDY	
BTEX by SW 8260B Analytes	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: 2981:	53-005 / SMP Bat	tch: 1 Matr	ix: Soil		
Units: mg/kg	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B Analytes	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-Dichlorocthane-D4	0.0529	0.0500	106	80-120	
Toluene-D8	0.0487	0.0500	97	81-117	
Lab Batch #: 715676 Sample: 5051	47-1-BKS/BKS Bat	tch: 1 Matr	ix: Solid		
Units: mg/kg	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
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: 5051	47-1-BLK / BLK Ba	tch: 1 Matr	ix: Solid	•	
Units: mg/kg	SU	RROGATE R	ECOVERY	STUDY	
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
Analytes			[D]		
	0.0507	0.0500	101	74-121	
4-Bromofluorobenzene	0.0507				
4-Bromofluorobenzene Dibromofluoromethane	0.0498	0.0500	100	80-120	
4-Bromofluorobenzene       Dibromofluoromethane       1,2-Dichloroethane-D4	0.0498	0.0500	100 92	80-120 80-120	

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / BAll results are based on MDL and validated for QC purposes.



### Form 2 - Surrogate Recoveries



Project Name: Hobbs SWD M-4 Vent

ork Order #: 298153		Project ID: Hobbs SWD System							
Lab Batch #: 715681 Sample: 2	298147-004 S / MS Bat	S/MS Batch: 1 Matrix: Soil							
Units: mg/kg	SU	RROGATE RI	ECOVERY S	STUDY					
BTEX by SW 8260B Analytes	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: 2	298147-004 SD / MSD Bat	tch: 1 Matri	ix: Soil						
Units: mg/kg	SU	RROGATE RI	ECOVERY S	SWD System         Y STUDY         Y         Control Limits %R         74-121         80-120         80-120         80-120         80-120         80-120         80-120         80-120         9%R         74-121         9%R         74-121         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         80-120         81-117					
BTEX by SW 8260B Analytes	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-Dichlorocthane-D4	0.0492	0.0500	98	80-120					
Toluene-D8	0.0661	0.0500	132	81-117	**				
Lab Batch #: 715681 Sample:	298153-003 / SMP Ba	tch: 1 Matr	ix: Soil						
Units: mg/kg	SU	RROGATE RI	ECOVERY S	STUDY					
BTEX by SW 8260B Analytes	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 Ba	tch:   Matr	ix: Solid						
Units: mg/kg	SU	RROGATE R	ECOVERY	STUDY					
BTEX by SW 8260B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
Analytes			[0]						
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					

\*\* 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

Jork Order #:         298153           Lab Batch #:         715681         Sample:         505161-1-BL           Units:         mg/kg	K / BLK Bat	Project ID tch: 1 Matri RROGATE RF	): Hobbs SW x: Solid CCOVERY S	D System	
BTEX by SW 8260B Analytes	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 Bat	tch: 1 Matri	ix: Soil	<u></u>	
Units: mg/kg	SU	RROGATE RE	ECOVERY S	STUDY	
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
I-Chlorooctane	97.0	100	97	70-135	
o-Terphenyl	53.2	50.0	106	70-135	
Lab Batch #: 715557 Sample: 298159-001 S	S/MS Bat	tch: 1 Matri	ix: Soil	· · ·	·
Units: mg/kg	SU	RROGATE RI	ECOVERY	STUDY	
TPH by SW8015 Mod Analytes	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 S	SD / MSD Ba	tch: 1 Matri	ix: Soil	0001/001/	·····
Units: mg/kg	SU	RROGATE RI	ECOVERY		········
TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
		<u> </u>	1	1	

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

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / BAll results are based on MDL and validated for QC purposes.



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### Form 2 - Surrogate Recoveries



Project Name: Hobbs SWD M-4 Vent

'ork Order #: 298153		Project ID: Hobbs SWD System							
Lab Batch #: 715557	Sample: 505061-1-BKS	S/BKS Bat	tch: 1 Matr	ix: Solid					
Units: mg/kg		SU	RROGATE R	ECOVERY	STUDY				
TPH by SV Ana	V8015 Mod	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-BLF	K/BLK Ba	tch: 1 Matr	rix: Solid	<u>.</u>				
Units: mg/kg		SURROGATE RECOVERY STUDY							
TPH by SV	W8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
Ana	lytes					ļ			
1-Chlorooctane	· · · · · · · · · · · · · · · · · · ·	96.1	100	96	70-135	1			
o-Terphenyl		52.0	50.0	104	70-135	1			
Lab Batch #: 715557	Sample: 505061-1-BSI	D/BSD Ba	tch: 1 Matı	rix: Solid					
Units: mg/kg		SU	RROGATE R	ECOVERY	STUDY				
TPH by SV Ana	W8015 Mod	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.





### Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153			Pr	oject ID:	H	lobbs SWD	System	
Lab Batch #: 715676	Sa	mple: 505147-	1-BKS	Matri	x: Solid			
Date Analyzed: 02/26/2008	Date Prep	oared: 02/26/20		Analys	st: KHM			
Reporting Units: mg/kg	Ba	tch #: 1	BLANK /I	BLANK SPI	KE REC	OVERY S	STUDY	
BTEX by SW 8260B Analytes		Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags	
Benzene		ND	0.0500	0.0486	97	66-142		
Tolucne		ND	0.0500	0.0504	101	59-139		
Ethylbenzene		ND	0.0500	0.0462	92	75-125		
m.p-Xvlenes		ND	0.1000	0.0957	96	75-125		
o-Xylene		ND	0.0500	0.0476	95	75-125		
Lab Batch #: 715681	Sa	mple: 505161-	1-BKS	Matri	iv: Solid	r		
<b>Date Analyzed:</b> 02/27/2008	Date Prei	pared: 02/27/20	108 Analyst: WFW					
<b>Reporting Units:</b> mg/kg	Ba	tch #: 1	BLANK /I	BLANK SPI	KE REC	COVERY S	STUDY	
BTEX by SW 8260B Analytes		Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags	
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-Xylencs		ND	0.1000	0.0970	97	75-125		
o-Xylene		ND	0.0500	0.0420	84	75-125		
Lab Batch #: 715578 Date Analyzed: 02/23/2008	Sa Date Pre	mple: 715578- pared: 02/23/20	-1-BKS 008	Matrix: Solid Analyst: IRO				
Reporting Units: mg/kg	Ba	itch #: 1	BLANK /	NK /BLANK SPIKE RECOVERY STUDY				
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	
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

Date Prepared:02/22/2008Sample:505061-1-BKSBatch #:1

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

Units: mg/kg		BLANI	K /BLANK S	PIKE / E	ILANK S	PIKE DUPI	ICATE 1	RECOVE	RY STUD	Y	
TPH by SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[ <b>q</b> ]	[E]	Result [F]	[0]				
C6-C12 Gasoline Range Hydrocarbons	QN	1000	887	89	1000	892	68	-	70-135	35	
C12-C28 Diesel Range Hydrocarbons	QN	1000	824	82	1000	829	83	-	70-135	35	

Rclativc Percent Difficience 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



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Chloride



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### Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153 Lab Batch #: 71 Date Analyzed: 02 QC-Sample ID: 29 Reporting Units: mg

#: 715578			Pr	oject ID:	Hobbs SWI	D System
d: 02/23/2008	Date Prepared:	02/23/2008		Analyst:	IRO	
<b>D:</b> 298134-001 S	Batch #:	1		Matrix:	Soil	
ts: mg/kg	MA	FRIX / MA	<b>FRIX SPIKE</b>	RECOV	ERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				

210

1120

63

75-125

987

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



## Form 3 - MS / MSD Recoveries



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Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153

Lab Batch ID: 715676 Date Analyzed: 02/26/2008 Reporting Units: mg/kg

Batch #: 1 Matrix: Soil

QC- Sample ID: 298153-001 S

Project ID: Hobbs SWD System

 Date Prepared:
 02/26/2008
 Analyst:
 KHM

 MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEV hv SW 8260B	Parent		Spiked Sample	Spiked		Duplicate	Spiked		Control	Control	i
	Sample Result	Spike Added	Result [C]	Sample %R	Spike Added	Spiked Sample Result [F]	Dup. %R	RPD %	Limits %R	Limits %RPD	Flag
Analytes	[ <b>v</b> ]	[B]		[ <b>a</b> ]	[ <u>]</u>		[ <u>C</u> ]				
Benzene	QN	0.2904	0.2849	98	0.2846	0.2811	66	1	66-142	25	
Toluene	0.0057	0.2904	0.2904	98	0.2846	0.2847	86	0	59-139	25	
Ethylbenzene	ND	0.2904	0.2846	86	0.2846	0.2783	98	0	75-125	25	
m,p-Xylenes	QN	0.5808	0.5793	100	0.5692	0.5433	95	5	75-125	25	
o-Xylene	DN	0.2904	0.2833	98	0.2846	0.2709	95	3	75-125	25	
Lab Batch ID: 715681	QC- Sample ID:	298147-	-004 S	Ba	tch #:	l Matriy	<b>x</b> : Soil				
Date Analyzed: 02/27/2008	Date Prepared:	02/27/20	008	Чn	alyst: /	NEW					

Reporting Units: mg/kg		Σ	ATRIX SPIKI	E / MAT	RIX SPII	KE DUPLICA	re reco	OVERY S	TUDY		
BTEX by SW 8260B	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	Result [A]	Added [B]		, 10]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
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
0-Xvlene	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



Work Order #: 298153 Lab Batch ID: 715557

# Form 3 - MS / MSD Recoveries

Project Name: Hobbs SWD M-4 Vent



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Project ID: Hobbs SWD System

QC-Sample ID: 298159-001 S Date Prepared: 02/22/2008

Matrix: Soil SHE Analyst:

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Batch #:

<b>Date Analyzed:</b> 02/23/2008	Date Prepared:	02/22/2	008	An	alyst: S	IHE					
Reporting Units: mg/kg		M	ATRIX SPIKI	E/MAT	RIX SPIF	<b>(E DUPLICA</b>	FE RECO	<b>VERY</b>	STUDY		
TPH hv SW8015 Mod	Parent		Spiked Sample	Spiked		Duplicate	Spiked		Control	Control	
	Sample	Spike	Result	Sample	Spike	Spiked Sample	Dup.	RPD	Limits	Limits	Flag
	Result	Added		%R	Added	Result [F]	%R	%	%R	%RPD	
Analytes	[Y]	[B]		lal	Ξ		[G]				
C6-C12 Gasoline Range Hydrocarbons	QN	1140	1020	68	1140	1040	16	2	70-135	35	ļ
C12-C28 Diesel Range Hydrocarbons	110	1140	983	77	1140	1000	78	-	70-135	35	

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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, J = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit



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Project Name: Hobbs SWD M-4 Vent

Work Order #: 298153

Lab Batch #: 715578				<b>Project I</b>	D: Hobbs S	WD System
Date Analyzed: 02/23/2008	Date Pro	epared: 02/2	3/2008	Analy	st: IRO	
QC- Sample ID: 298134-001 D	B	atch #: 1		Matr	ix: Soil	
Reporting Units: mg/kg		SAMPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
Anions by EPA 300/300.1	<u> </u>	Parent Sample Result	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		1751	[B]			
Chloride		987	991	0	20	
Lab Batch #: 715411						
Date Analyzed: 02/23/2008	Date Pr	epared: 02/2	23/2008	Analy	st: WRU	
QC- Sample ID: 298133-001 D	E	latch #: l		Matr	ix: Sludge	
Reporting Units: %		SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture 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.

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### Environmental Lab of Texas Variance/ Corrective Action Report- Sample Log-In



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### Sample Receipt Checklist

	PP-			
				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?	<b>E</b>	No	
#7	Chain of Custody signed when relinquished/ received?	Ves	No	
#8	Chain of Custody agrees with sample label(s)?	Yes	No	Je written on Cont.Zbid
#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?	Yeg	No	
#12	Samples in proper container/ bottle?	Kes	No	See Below
#13	Samples properly preserved?	YESD	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?	Ves	No	See Below
#19	Subcontract of sample(s)?	Yes	No	<nol applicable<="" td=""></nol>
#2(	VOC samples have zero headspace?	des	No	Not Applicable

### Variance Documentation

Contact:	<u>+</u>	Contacted by:	Date/ Time:
Regarding:			
Corrective Action Taken:			
Check all that Apply:	□ s □ c □ c	e attached e-mail/ fax ent understands and would like to proceed with anal ooling process had begun shortly after sampling ever	ysis ht



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

		Na	Ca	Mg	к	Conductivity	T-Alkalinity
LAB NUMBE	R SAMPLE ID	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mgCaCO <sub>3</sub> /L)
ANALYSIS D	ATE:	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 Contr	ol	NR	50.6	50.8	3.12	1,424	NR
True Value G	2C	NR	50.0	50.0	3.00	1,413	NR
% Recovery		NR	101	102	104	101	NR
Relative Perce	cent Difference	NR	2.8	< 0.1	2.6	1.1	NR

SM3500-Ca-D 3500-Mg E

	······
8049	120.1

310.1

	CI	SO₄	CO3	HCO <sub>3</sub>	pН	TDS
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(s.u.)	(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-CI-B	375.4	310.1	310.1	150.1	160 1

Biste Duputo

METHODS:

03/14/08 Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In 1444 b sRiGuinal be liable for incidental or consequential damages. including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

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03/11/08

Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In 144440 Bardi Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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UPS - Bus - O	Circle One)	r: 11/ Date:	3-10-208	Date:	2								Monitor Well #1	FIELD C	E-Sec4 M ~ Lea (	Hobbs	Project N	9174	treet ~ Hobbs, New Mex	treet, City, Zip)	is-Pope, Project		ating Company	93-2326 93-2476	- Hobbs, New 8240
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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

AB NUMBER SAM	PLE 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 MON	ITOR WELL #1	<0.002	<0.002	<0.002	<0.006
1 					
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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 Diffe	rence	3.7	6.2	4.9	4.8

METHOD: EPA SW-846 8260

Chemist

Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tert, shall be limited to the amount paid by client for analyses. AP claims, including those for negligence and any other cause whatsomer shall be deemed waived unless made in writing and received ny Cardinal within thirty (30) days after completion of the applicable sectors in 44.445 BarNichael be liable to incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profils incurred by client, its subsidiaries affiliates or successors ansing out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results that provide the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

	Na	Ca	Mg	ĸ	Conductivity	T-Alkalinity
LAB NUMBER SAMPLE ID	(mg/L)	<b>(</b> mg/L)	(mg/L)	(mg/L)	(uS/cm)	(mgCaCO <sub>3</sub> /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
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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
MFTHODS:	SM	3500-Ca-D	3500-Ma E	8049	120.1	310.1

	CL	SO4	$CO_3$	HCO3	pН	TDS
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(s.u.)	<b>(</b> 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-CI-B	375.4	310.1	310.1	150.1	160.1

Chemist

05-12-08 Date

PLEASE NOTE. Liability and Damages. Cardinal's fiability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including these to negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In the 4.49 stall Gazrinal be listle for incidental or consequential damages, including, without invitation, costness interruptions, toss of use, or toss of profits incurred by client, its subsidieries affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Result relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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